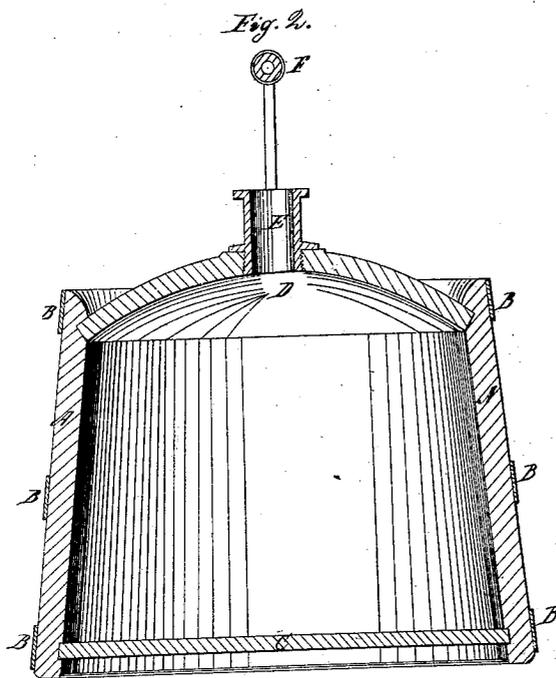
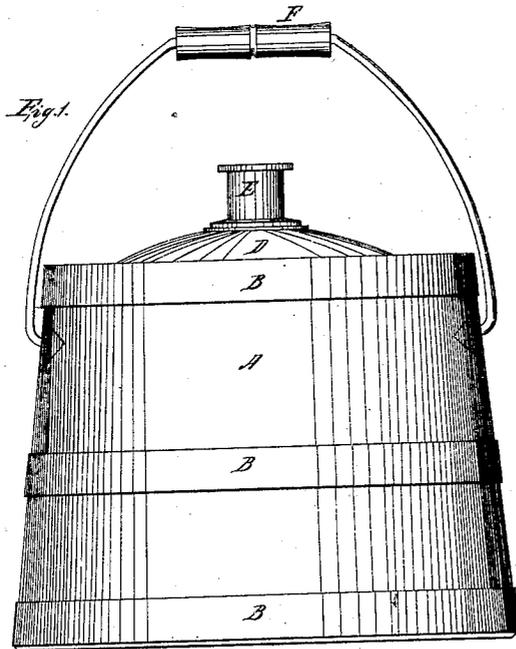


L. Jennings,

Bucket,

Patented Oct. 10, 1854.

N^o 11,789.



UNITED STATES PATENT OFFICE.

LYMAN JENNINGS; OF ERVING, MASSACHUSETTS.

IMPROVEMENT IN CANS FOR HOLDING LIQUIDS.

Specification forming part of Letters Patent No. 11,789, dated October 10, 1854.

To all whom it may concern:

Be it known that I, LYMAN JENNINGS, of Erving, of the county of Franklin and State of Massachusetts, have invented an Improved Can for Holding Molasses, Milk, or other Liquids, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a view of the can; Fig. 2, a section through the same.

My improved can is designed to replace the stone jug and tin can now in use for holding molasses and milk. The jug, as is well-known, is objectionable on account of its extreme liability to breakage, by which both the receptacle and its contents are lost; and the tin can soon becomes bruised and blackened, so that preference is given by both milkmen and housekeepers to vessels of wood, whenever they can be used. There is, however, nothing at present made of wood which can replace the jug and tin can except the common keg, and this is entirely unsuited to the required purpose, for if the nozzle or bung-hole be placed, as in a barrel, in the center of one of the staves, the keg, when set down, rolls about, and its contents may be spilled; and if the nozzle be put in one of the heads of the keg, then it can never be thoroughly emptied or drained, as the liquid will remain in the joint between the head and stave; and thus a keg of this form is entirely unsuited to the purpose of carrying milk, as it is very requisite that milk-cans shall have a perfect drainage; otherwise it is impossible to keep them sweet and clean. To remedy this inconven-

ience I have contrived the subject of my present invention, which may be described as follows:

A is the can, which is composed of staves held together by hoops B. C is the lower head; D, the upper one. The latter, instead of being flat, is made convex, as seen in Fig. 2. E is a metallic spout screwed into the central part of the upper head, the plug or cork being inserted into the said spout. F is the bail, which is affixed to the can in a manner similar to that in which the bail is secured to the ordinary water-bucket.

A vessel of this description cannot be broken like the jug or bruised like the tin can, while at the same time the peculiar form of its head enables it to be emptied entirely of its contents and be thoroughly drained after being washed, which cannot be effected with the ordinary flat-headed keg, while the adaptation of the handle renders it as portable and as easily handled as the jug or tin can.

I do not claim the adaptation of a handle to this or any other form of vessel; neither do I claim making a keg for containing liquids of wood, as this has been done before; but

What I do claim as my invention, and desire to secure by Letters Patent, as a new article for containing milk and other liquids, is—

The above-described wooden can, having its upper head convex, and being furnished with a handle, in the manner described, and for the purpose set forth.

LYMAN JENNINGS.

Witnesses:

R. D. CHASE,
GEO. A. WHIPPLE.

G. W. BANKER.
 Manufacture of Barrels.

No. 25,784.

Patented Oct. 11, 1859.

Fig. 2.

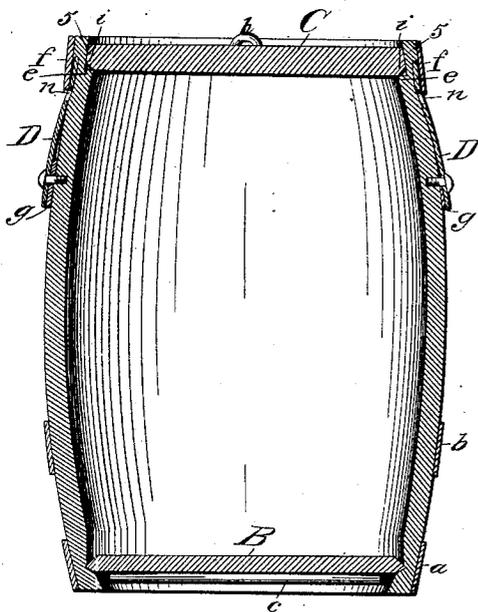


Fig. 1.

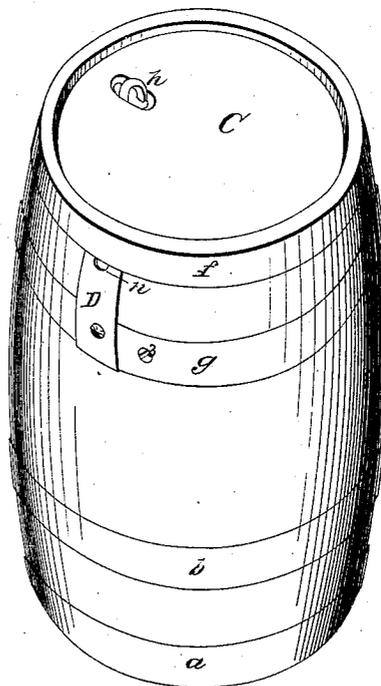


Fig. 3.

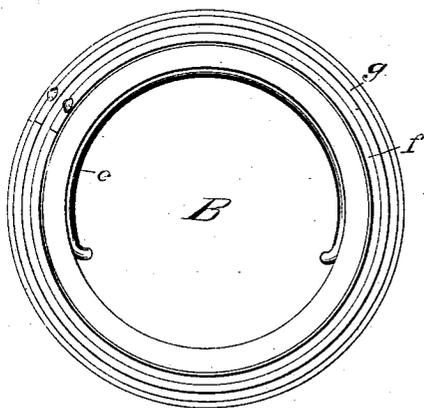
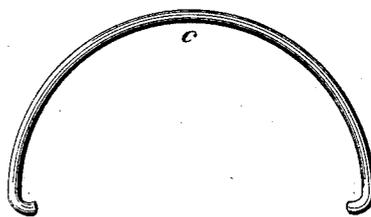


Fig. 4.



Inventor.

Witnesses.

Wm. R. Rouch.
Sam. Cooper

G. W. Banker.

UNITED STATES PATENT OFFICE.

G. W. BANKER, OF MEDFORD, MASSACHUSETTS, ASSIGNOR TO HIMSELF, AND G. O. CARPENTER, OF SOUTH READING, MASSACHUSETTS.

MODE OF MANUFACTURING BARRELS, &c.

Specification of Letters Patent No. 25,784, dated October 11, 1859.

To all whom it may concern:

Be it known that I, GEORGE W. BANKER, of Medford, in the county of Middlesex and State of Massachusetts, have invented an
5 Improvement in the Manufacture of Barrels, Kegs, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—
10 Figure 1 is a perspective view; Fig. 2, a vertical section through Fig. 1; Fig. 3, a plan; Fig. 4, a bail or handle to be referred to hereafter.

The heads of barrels, kegs, and like articles are commonly held in place by having their chamfered edges sunk into a groove or croze near the end of the staves. To remove such a head from the barrel, it is necessary to remove the upper hoops and loosen all
15 the hoops above the bilge, as the head enters so deeply into the croze that it cannot otherwise be removed; but by the loosening of these hoops the staves are permitted to open and the contents, if liquid, escape. This is particularly the case where beef, pork, or
20 fish is opened for inspection or where kegs containing semiliquid paints are opened.

To remedy this inconvenience and to make a head which may be removed without start-
25 ing any save the upper hoops is the object of my invention, which consists in a peculiar method of securing the head to the barrel, which will now be more particularly described.

30 In the drawings my improvement is represented as applied to a keg for holding paint, which is also so arranged as to be easily converted into a paint pot.

The lower head B is secured in the ordinary manner, the stave being chamfered and crozed and the hoops *a* and *b* driven on to hold the head in place. The upper head C, to which my improvement is applied, is left of a uniform thickness throughout and is
35 slightly beveled around its edge, as shown at 5 (Fig. 2), and the chime is beveled to correspond thereto. Beneath this beveled portion of the stave is a shoulder *e*, upon which the head rests, and thus when in place and
40 the top hoop is driven the head is held securely in place. The bottom edge of the head at *i* is beveled for a short distance more obtusely than the balance of the edge to facilitate the forcing of the head into the

barrel, and the shoulder *e*, which is repre- 55
sented in Fig. 2 as square, may be beveled to correspond with the bevel *i* upon the head.

To remove the head C, the top hoop *f* is taken off, which allows the staves to spring sufficiently to permit the head to be taken
60 out, the latter being made of one piece when practicable, or when made of several pieces they are all secured together.

The head C is furnished with a staple *h*, riveted or clenched through it, the wood be- 65
ing gouged out beneath it to permit the instrument by which the head is removed to enter the staple without the necessity of the latter projecting so far above the head as to be liable to injury. 70

To head the barrel or other cask up, the upper hoop is removed and the head is forced into place, the ends of the staves springing sufficiently to let it in, and the hoop *f* is replaced. To take out the head, 75
this hoop is removed, and a suitable instrument is inserted into the staple *h*, by which the head may be drawn out.

The key represented in the accompanying drawings is designed for holding paints 80
ground in oil, and is so arranged that after being opened and emptied of its contents it can be converted into a paint pot for use by the painter. For this purpose the second hoop *g* is driven down tight and is secured 85
in place by screws 3, or in any convenient manner. To the opposite sides of this hoop are secured ears D, the upper ends of which extend up sufficiently high to be covered by the hoop *f* when the latter is driven down, 90
and rests in a recess of corresponding size in the side of the key. Each ear has a hole *n* near its top, which receives one of the hooks 2 of the bail *c* when the keg is to be converted into a paint pot. Before it is 95
devoted to this use the bail *c* is sprung into the lower chime, as seen in Fig. 3, where it will be held by the effort of the wire to expand, or it may be further secured there while the keg is transported by means of 100
tacks.

The handle furnishes a convenient and ready instrument by which the head may be taken out, one of the hooks 2 being inserted into the staple *h*. 105

By means of this invention casks containing liquids or semiliquids may be opened without loss either of their contents by leak-

age or of the head by having its edge
broken off. A double saving is thus effected,
and the barrel or keg may be repeatedly em-
ployed after being opened and emptied, and
5 barrels of beef, pork, or fish may be read-
ily opened for inspection without loss of
the pickle or injury to the head. Larger
kegs or firkins may in a similar manner be
furnished with ears and a bail, and, having
10 served the purpose for which they were orig-
inally intended, may be converted into buck-
ets for household or other purposes.

What I claim as my invention, and de-
sire to secure by Letters Patent, is—

1. The method herein described of secur- 15
ing the heads of casks by means of the cham-
fer 5 and shoulder *e* as described.

2. I claim a keg furnished with ears and
a bail as above described for the purpose
specified.

GEO. W. BANKER.

Witnesses:

THOS R. ROACH,
SAM. COOPER.

PHILLIPS & REID.

METHOD OF SECURING HEADS IN SEAMLESS CASKS.

No. 63,810.

Patented Apr. 16, 1867.

Fig. 1.

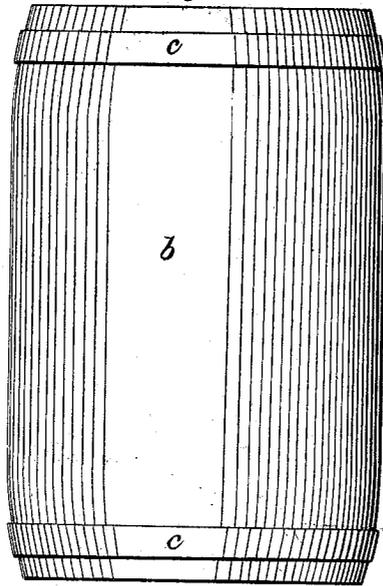
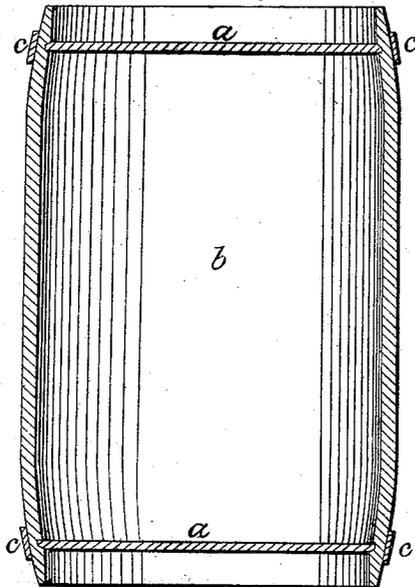


Fig. 2.



Witnesses:

E. M. Ayerworth.

C. D. Munson

W. A. Cole

E. M. Ayerworth.

Inventors:

William Reid

Dewey Phillips

United States Patent Office.

DEWEY PHILLIPS, OF SHAFTSBURY, VERMONT, AND WILLIAM REID, OF WEST ARLINGTON, VERMONT.

Letters Patent No. 63,810, dated April 16, 1867.

IMPROVED METHOD OF SECURING HEADS IN SEAMLESS CASKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, DEWEY PHILLIPS, of Shaftsbury, in the county of Bennington, and State of Vermont, and WILLIAM REID, of West Arlington, in the county of Bennington, and State of Vermont, have invented a new and useful Method of Securing the Heads in Seamless Kegs or Casks, or bottoms in tubs, buckets, and other like articles; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is an elevation of a cask completed according to our improved method; and

Figure 2, a section thereof taken in the plane of the axis of the cask.

Our said invention relates to a method of securing the heads in seamless kegs and casks, or the bottoms in tubs, pails, and other like articles that are made by cutting cylindrical shells from solid blocks of wood.

Prior to our said invention the heads or bottoms were put into such seamless articles by making the heads or bottoms of a diameter a little greater than the inner diameter of the shell where the croze was formed, and then steaming the end of the shell to admit of stretching or expanding it sufficiently to permit the head or bottom to be inserted, relying upon the shrinkage of the wood afterwards to close around and hold it. This method, however, was found to be so defective that it could not be successfully introduced into practice. The wood, after having been so steamed and expanded, was very liable to leak, and the head or bottom to drop out if exposed to the drying influence of the atmosphere without a liquid inside. According to our improved method we make the heads, *a a*, or the bottom, of less diameter than the inner diameter of the shell *b* at the croze, so that they can be readily introduced without stretching or expanding the shell, and, whilst the heads (or bottoms) are held in place by the application of pressure to the outside of the shell at or near the ends and all around, we compress the wood until the croze is brought into close contact with the edges of the heads, and before the wood which has been so compressed can expand, we drive on the hoops *c c*, to hold the wood in the compressed condition. The compression of the shell on to the heads or bottoms may be effected by means of a conical metal hoop driven on to the vessel, or by means of an expanding and contracting hoop, made to expand or contract by means of a screw-bolt or wedge, or by any other known means of concentric pressure. We do not, however, claim any method or machine for effecting said compression, but we prefer to effect it by means of machinery invented by WILLIAM REID, one of these applicants, subsequently to our invention herein described, for which the said REID filed an application for Letters Patent the 12th day of March, 1866. After having been so compressed and held for a time, the wood has no disposition to expand and leave the heads (or bottom) even when the hoops are taken off. And the compression of the wood closes the pores so completely as to prevent all leakage. By this method all kinds of coopers' work can be produced at less cost and of a better quality than when made of staves.

We do not claim broadly, as of our invention, the insertion of heads or bottoms in the shells of seamless casks and other vessels; but what we do claim as our invention, and desire to secure by Letters Patent, is—

The method herein described of putting the heads or bottoms in seamless casks or other vessels, by making the heads or bottoms of a less diameter than the inner diameter of the shells at the croze, and then compressing the ends of the shell into close contact therewith, preparatory to putting on the hoops, substantially as described.

DEWEY PHILLIPS.
WILLIAM REID.

Witnesses:

E. M. AYLSWORTH, }
C. D. MUNSON, } for REID.
H. A. COLE, }
E. M. AYLSWORTH, } for PHILLIPS.

A. L. Freeman,

Paint Keg.

No 65,368.

Patented June 4, 1867.

Fig. 1.

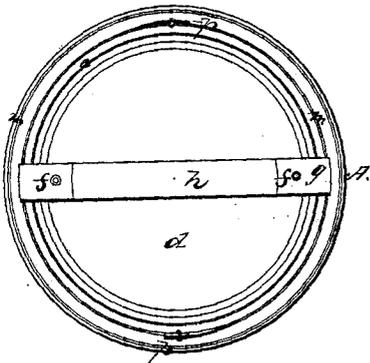


Fig. 2.

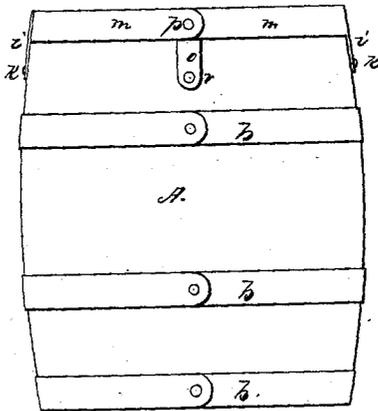


Fig. 3.

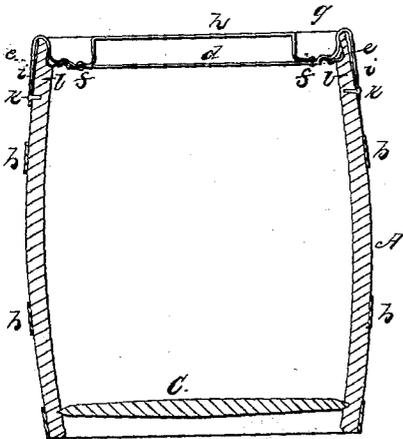
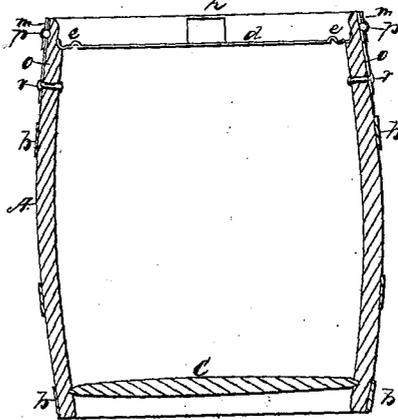


Fig. 4.



Witnesses

D. McAndrews.
Samuel St. Piper

Inventor

Arthur L. Freeman
by his attorney
R. Hobbs

United States Patent Office.

ARTHUR L. FREEMAN, OF MANCHESTER, ENGLAND, ASSIGNOR TO
SEWALL S. W. FOLSOM, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 65,368, dated June 4, 1867

IMPROVED KEGS AND BARRELS FOR PAINT AND OTHER MATERIALS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, ARTHUR L. FREEMAN, of Manchester, England, a subject of the Queen of Great Britain, have invented a new and useful improvement in Kegs, Barrels, or Casks; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is an upper end view.

Figure 2, a side elevation; and

Figures 3 and 4, transverse and vertical sections of a paint-keg provided with my invention.

The main purpose of my invention is to enable the head of a paint-keg to be securely fastened in place in the body, and to be easily removed therefrom, as circumstances may require; also, to enable the end hoop or a portion thereof to be employed as a bail for supporting the keg from one or both hands of a person.

In the drawings, A denotes a paint-keg of the ordinary kind, having its body composed of staves *a a a*, and with hoops *b b b b* going around them. The heads *c d* I make either of wood or metal. That head, *d*, which is to be removable, for the purpose of getting at the contents of the keg when containing paint, I prefer to make as a disk, of sheet metal, and with a flange or lip, *e*, to extend from one side and the periphery of it. To the head I fasten, by means of rivets *f f*, or otherwise, a strap, *g*, of flexible metal, as malleable iron, for instance, which I extend diametrically across and beyond the head in opposite directions. Near its middle I bend the said strap in the form of a handle, as shown at *h*. The parts *i i* of the strap, extending beyond the head, are to be long enough to be bent upward, over, and down upon the upper edges of the barrel and its upper hoop, and extend down against the outer surface of the hoop or its sections, and to and upon the staves of the barrel, in manner as represented in fig. 3. The strap *g*, near each of its ends, is to be provided with one or more holes *k* made through it in order that, by means of nails driven through such holes into the staves, the strap will serve to hold the head in place. The staves at their upper ends are to be properly rebated to receive the head and allow it to rest on an annular shoulder, *l*, formed around the entire inner surface of the collection of staves. The strap, arranged and combined with the head, and formed as set forth, thus answers two purposes, viz, as a handle for the head, and as a means of fastening it in place. It also serves another purpose, viz, that of aiding in holding the upper hoop in place. This hoop I construct in two parts or sections *m n*, the ends of one being lapped over those of the other, and each being somewhat larger than a semicircle of like diameter. These sections of the hoop where they lap on one another are secured together and to two legs or metallic arms *o o* by means of two rivets or joint-pins *p p*. The arms or legs extend downward from the hoop, and are connected with the body of the barrel by means of nails or joint-pins *r r*, which go through holes in the arms, and are fixed in the barrel.

By such a construction and application of the hoop to the barrel or keg such hoop becomes fixed thereto, and either or both sections of it may be turned up into a vertical position, or thereabouts, so as to serve as a bail for the keg. Furthermore, by combining the two sections of the hoop with the keg by means of the two arms or legs, I not only fix the hoop to the keg, but cause one section of the hoop, while being closed down upon and about the staves, to draw the other section close up to its staves. Were the joint-pins of the two hoop sections to go into the keg instead of into the legs or arms, one section would not so draw the other closely into place against its staves, although they, or either of them, could be turned up and used as a bail. The two hoop sections at one junction may be connected directly with the body of the keg by a joint-pin going through them and into the keg, the other junction being connected to the keg by a single arm or leg, arranged and applied to the keg and the sections in manner as above explained. This would enable one section, while being turned down upon the staves, to draw the other close up to the keg. When either or both the hoop sections are raised up off the staves the latter will be free to expand in radial directions, or away from the head, so as to enable the said head to be drawn out of the barrel. When the sections are closed upon the staves the latter will be contracted or compressed upon or against the circumference of the head so as to make a tight joint about it.

Having thus described my invention, what I claim as constituting the same is as follows:

I claim the fastening strap *g*, made as a handle for the keg-head, and so as to be employed for fastening the head and the upper hoop to the keg, in manner as specified.

I also claim the construction of the upper hoop in two section *m n*, connected by rivets or joint-pins, as set forth, and so applied to the keg as to enable either or both of such sections to be turned up and used as a bail, as specified.

I also claim the combination as well as the arrangement of one or more legs or arms *o o* with the keg and the said hoop made in two parts or sections *m n*, such arm or arms and sections being applied together and to the keg by means substantially as specified.

I also claim the construction of the staves or body of the keg or vessel with the annular shoulder *l*, and the head with the raised flanges, and also with the fastening strap, formed either with or without the handle, as above mentioned, the flange, by its elasticity, serving to make a tight joint, and the fastening strap to hold the flange and the rest of the head in place relatively to the shoulder, as specified.

ARTHUR L. FREEMAN.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.

G. ST. GEORGE.
CONSTRUCTION OF BARRELS.

No. 68,322.

Patented Aug. 27, 1867.

Fig. 1.

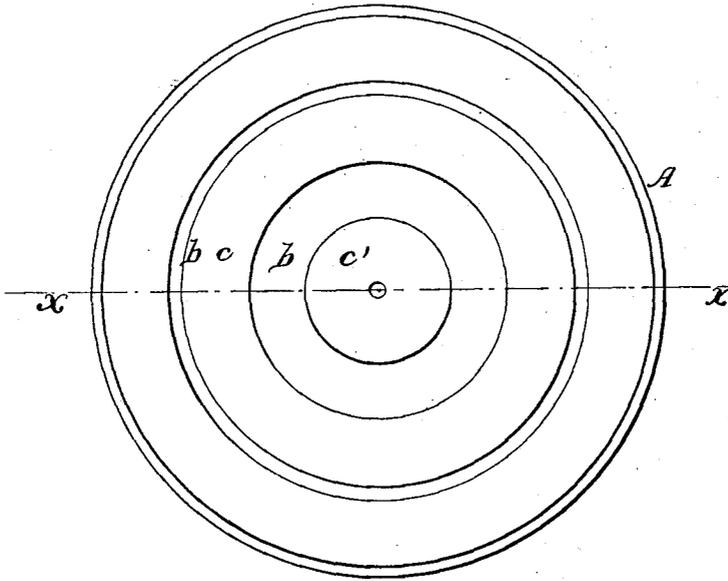


Fig. 2.



Witnesses:

Thos. Insoche
Wm. Trevin

Inventor:

Geo St George
Per Mump
Attorney

United States Patent Office.

GEORGE ST. GEORGE, JR., OF NEW YORK, N. Y.

Letters Patent No. 68,322, dated August 27, 1867.

IMPROVEMENT IN THE CONSTRUCTION OF BARRELS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE ST. GEORGE, JR., of the city, county, and State of New York, have invented a new and useful Improvement in the Manufacture of Barrels for branding purposes; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim, and desire to have secured to me by Letters Patent.

The object of this invention is to facilitate and expedite the removal of the brand marks on barrels in such a manner as to effectually prevent them from being used more than once, and at the same time being a more certain method of marking the same; and it consists in having one of the heads or other part of the barrel constructed with raised or prominent surfaces formed by grooves in the wood between the raised surfaces, on which surfaces the brand is placed or cut, and which raised surfaces may be readily chipped off when it is desired to remove the brand mark, such removal of the brand mark being required by section thirty-eight of the act of Congress dated July 13, 1866, of which the following is a true copy:

"And any person who shall fraudulently use any cask or package bearing inspection marks for the purpose of selling any other spirits than so inspected, shall be imprisoned for a term of six months, or shall pay a fine of one hundred dollars for each cask or package so used, in the discretion of the court; and any person who shall knowingly purchase or sell, with inspection marks thereon, any cask or package after the same has been used for distilling spirits, or who shall fraudulently omit to erase or obliterate the inspection marks upon any such package or cask at the time of emptying the same, shall forfeit and pay the sum of two hundred dollars for every cask so purchased or used, or on which the marks are not so obliterated."

I consider one of the heads of the barrel the most desirable part of the barrel on which to form the prominent surfaces to receive the brand marks, and in the accompanying sheet of drawings—

Figure 1 represents an outer or face view of a barrel-head having two concentric annular grooves made in it for that purpose.

Figure 2, a section of the same, taken in the line *x x*, fig. 1.

Similar letters of reference indicate like parts.

A represents the head of a barrel, and *b b* two concentric annular grooves made in it, which form raised surfaces *c c'*, the former, *c*, being annular and between the two grooves *b b*, and the other, *c'*, being within the smaller or inner groove *b*. These grooves may be made simultaneously with the cutting out of the head during the manufacture of the barrel, and at an inappreciable expense, as the heads are cut out by machinery, and there would be no additional labor expended in the cutting of them, the application of the cutters to the machine and the keeping of them in working order being the only additional expense. The brand marks may be made on either or both of the raised surfaces, and it will be seen that they may be cut out or erased with the greatest facility, the chipping off of the raised surfaces being attended with no difficulty whatever.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

Constructing a barrel with raised surfaces made on the head or heads or other suitable part thereof, substantially as and for the purposes herein set forth.

GEO. ST. GEORGE, JR.

Witnesses:

WM. F. McNAMARA,
NELSON CHASE.

Henry D. Rumsey, Imp^r Adjustable Head
for Barrels, Casks & Firkins,

74150

PATENTED
FEB. 4 1868

Fig. 5.

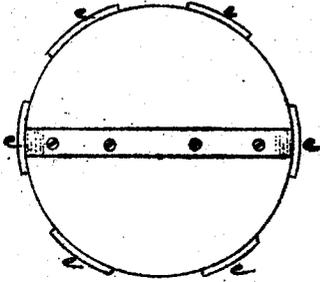


Fig. 4.

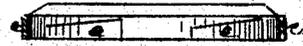


Fig. 1.

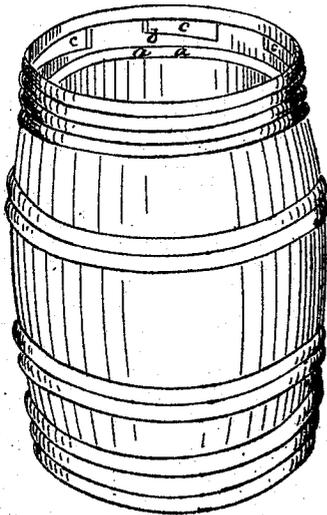


Fig. 3.

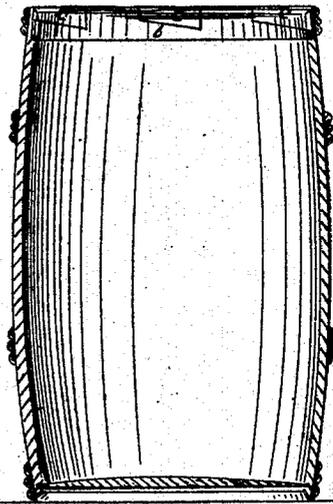
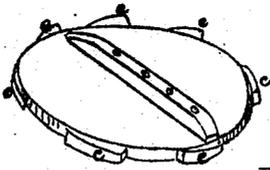


Fig. 2.



Witnesses

W. Johnston
Scott Danks

Inventor.

Henry D. Rumsey.

United States Patent Office.

HENRY D. RUMSEY, OF HOMER, NEW YORK.

Letters Patent No. 74,150, dated February 4, 1868.

IMPROVED ADJUSTABLE HEAD FOR BARRELS AND FIRKINS.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, HENRY D. RUMSEY, of Homer, in the county of Cortland, State of New York, have invented a new and improved Mode of Removing and Replacing the Heads of Barrels, Casks, or Butter-Firkins, without the necessity of displacing the hoops, or otherwise injuring the cooperage of the same; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

The nature of my invention consists in providing a cask or firkin with slots and shoulder, for the reception of an adjustable head, constructed with flanges on the edge of same, in such a manner that when the head is let down into position, and turned to place by means of a cleat or other convenient device, it is firmly held to said shoulder, thus closing up the barrel or cask in a perfectly air and water-tight condition.

Figure 1 of the accompanying drawing is a perspective view of the barrel or cask.

Figure 2, of the head.

Figure 3 is a sectional view of the barrel, showing the slots and shoulder.

Figure 4 is a side view of the head, showing the flanges on the edge of same.

Figure 5 is a top view of the cover or head.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction.

I construct my barrel, cask, or firkin, in any of the known forms, except that I leave the shoulder *a* and projection *c*, making the slot *b* upon the inner side, as shown by fig. 3. I also construct the head with wedge-shaped flange *e*, as shown by fig. 4, so that when it is let down into position and turned to place, the flange *e* will fit tightly into the slots *b*, which are made wider at one end than at the other for their reception, as shown by fig. 3, thus forcing the cover down tightly to the shoulder *a*.

What I claim as my invention, and desire to secure by Letters Patent, is—

The application of the flange to adjustable covers, and the slot to the inside of barrels, casks, or firkins, for the purpose of the more readily opening and closing the same effectually without starting or unhooping them, as herein set forth and described.

HENRY D. RUMSEY.

Witnesses:

W. J. JOHNSTON,

GEO. B. DAVIS.

A. C. Vawter,
Barrel Head.

N^o 80,582

Patented Aug. 4, 1868.

Fig: 1.

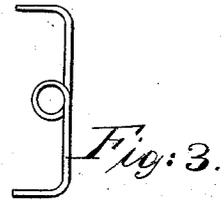
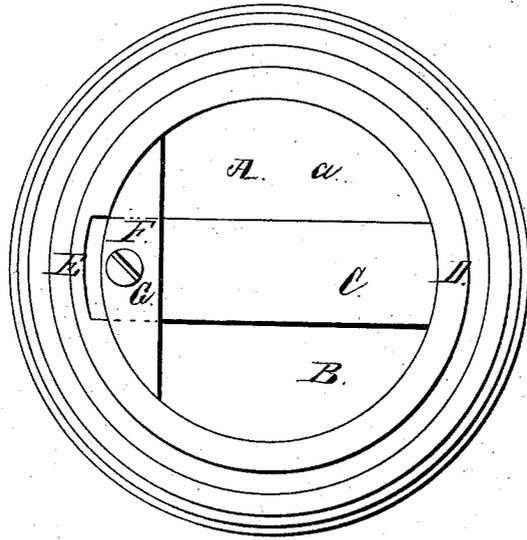


Fig: 3.

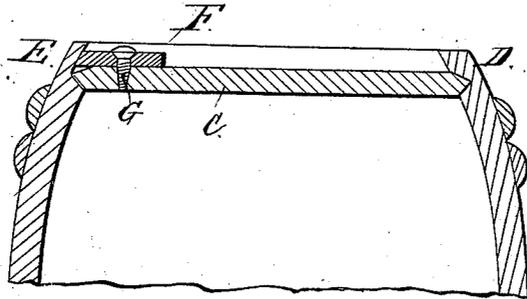


Fig: 2.

Witnesses:

Brooks Harris
S. W. Clark

Inventor:

Andrew C. Vawter

United States Patent Office.

ANDREW C. YAWGER, OF NEWARK, NEW JERSEY.

Letters Patent No. 80,582, dated August 4, 1868.

IMPROVEMENT IN ADJUSTABLE BARREL-HEADS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ANDREW C. YAWGER, of Newark, in the county of Essex, and State of New Jersey, have invented an Improved Removable Barrel-Head; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists in the mode employed of putting the centre-piece of a barrel-head in its place, and of removing it when required, without injuring any part of the head, and without disturbing the hoops.

One end of the piece C is put in its place in the croze of the stave D, the other end is then pressed down between the pieces A B, a part of the stave E having been cut away above the croze, to allow it to come down upon the shoulder formed by the lower side of the croze. Then, by a simple device, the piece C is held in its place, or may be readily removed. One way of securing this piece is by a small plate, F, of wood or metal, crowded against the chime in a prepared croze, covering the end of the piece C, and extending on to the pieces A B. This plate is held by one or more screws firmly in its position.

Other modes of fastening this piece C will be readily suggested. One is by a piece of iron or wire, bent so that the two ends shall pass into the staves, over the pieces A B, and made fast to the head by one or more screws, as in the case of the plate F.

I do not claim as new a movable strip to allow a barrel-head to be taken out or put in at pleasure; but

I claim the pieces A and B, when used in connection with piece C of a barrel-head, and held in place by means of piece F and screw G, all constructed and operating substantially as set forth.

A. C. YAWGER.

Witnesses:

HORACE HARRIS,
R. B. YARD.

G. S. Batcheller.

Butter Tub.

N^o 87,323.

Patented Mar. 2, 1869.

Fig. 1.

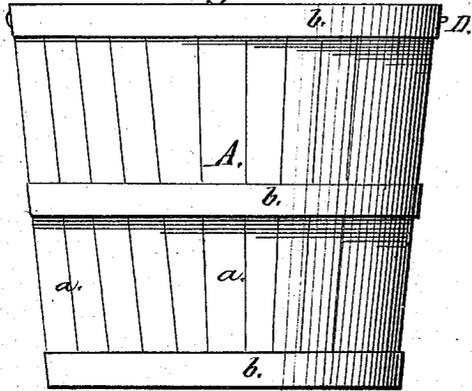
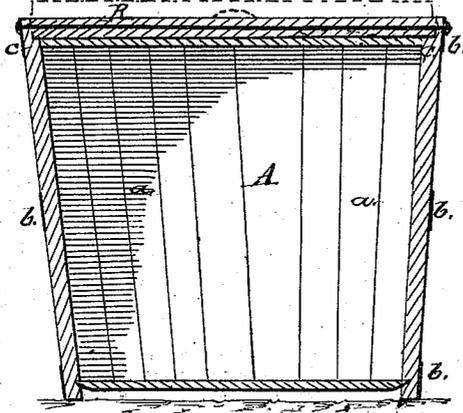


Fig. 2.



Witnesses:

A. W. M. Wright
J. L. Wattenberg

Inventor:

George S. Batcheller.
per
R. Lyman Stone & Haight
(attys.)

United States Patent Office.

GEORGE S. BATCHELLER, OF SARATOGA SPRINGS, NEW YORK.

Letters Patent No. 87,323, dated March 2, 1869.

IMPROVED BUTTER-TUB.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, GEORGE S. BATCHELLER, of Saratoga Springs, in the county of Saratoga, and State of New York, have invented a new and improved Butter-Package, and that the following description, taken in connection with the accompanying drawings, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim, and desire to have secured to me by Letters Patent.

This invention relates to a new and useful improvement in tubs or pails for the conveyance of butter to market, which invention I term "an express butter-package."

The invention consists in an improved manner of fitting the head in or to the pail or package, and securing the head in position in a closed state, whereby the pails or packages may be compactly stowed away, to facilitate and economize in the transportation of the same, and also be strong and durable.

Butter-packages or pails are generally kept by the consumer until their contents are gone, when they are returned, through the merchant, to the farmer, to be refilled for a succeeding shipment to market.

It is essential, therefore, that the packages be strongly made, the lids or covers firmly secured in position, and constructed and secured in such a manner as to admit of compact storage.

In the accompanying sheet of drawings—

Figure 1 is an external view of my invention.

Figure 2, a vertical central section of the same.

Similar letters of reference indicate corresponding parts in the several drawings.

A represents the body or main portion of the pail or package, which is constructed of wooden staves *a*, bound with metallic hoops *b*, one being at the top and bottom, and the other at about the centre.

The inner surface of the upper part of the body A is rebated, as shown at *c*, to form a shoulder for the lid or cover B to rest upon.

This lid or cover, when fitted in the top of the body or main portion A, has its upper surface flush with the top of A, as shown in both figures.

C represents a cleat or batten, which is secured either to the upper or under surface of the lid or cover, at right angles with the grain thereof.

In fig. 2, the cleat or batten is shown attached to the under surface of the lid or cover, in tint or color; and it is shown attached to the upper surface, in red outline.

D is a rod, which may be of metal, or any suitable hard wood.

This rod serves as a fastening for the cover, and it passes through holes in the side of the body, or main portion A, and entirely through the lid, or cover B, the upper hoop, *b*, being perforated, to allow the rod D to pass through. (See fig. 2.)

The metal hoop *b* serves to protect the holes in A and B, and prevent wear.

It is not absolutely essential that the rod D should pass through the metal hoop, but it would be preferable, for the reason above stated.

If the cleat C be attached to the under surface of the lid, or cover B, the upper surface of B being flush with A, the pails or packages may be compactly stowed away; but, if the cleat be attached to the upper surface of B, they cannot be so permanently secured in position, the cleat C being in the way; but, in the latter case, the cleat serves as a handle, to facilitate the adjustment and removal of the lid or cover.

I do not, therefore, confine myself to either mode of attaching the cleat, reserving the right to adopt either plan, as the trade may prefer, or as circumstances may require.

By having the lid, or cover B, fitted and secured in the upper part of the body A of the pail or package, a tight or snug fit is obtained, and one which precludes the casual loosening of the top or cover, however rudely the pails or packages may be handled in their transit or transportation from the farmer to the consumer.

The invention also admits of the empty pails or packages being fitted one within the other, in "nests," in order to economize in the transportation of empty pails or packages.

This improvement does not involve any appreciable additional cost, in construction, above the ordinary pail or package, and its advantages will be sufficient to insure its general adoption by farmers, and those engaged in the butter-trade.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

A pail, tub, firkin, or package, for butter, having the inner surface of its upper part rebated, to form a seat or chamber, to receive the lid, or cover B, flush, or otherwise, with the top of the body, or main portion A, in connection with the rod D, of wood or metal, passing entirely through A, and the lid, or cover B, all arranged substantially in the manner as shown and described.

GEO. S. BATCHELLER.

Witnesses :

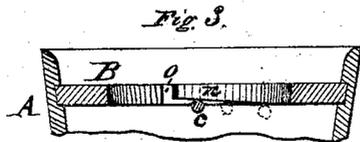
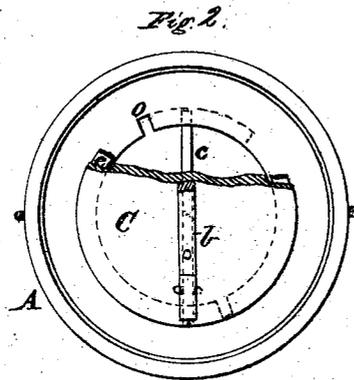
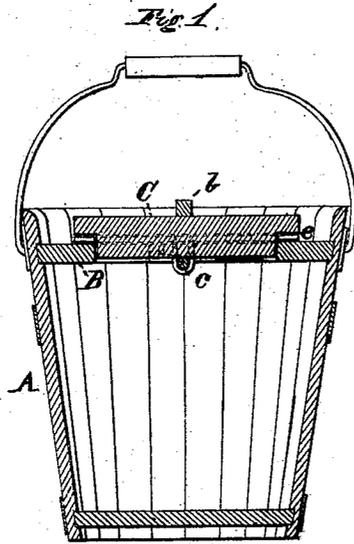
H. L. WATTENBERG,
A. R. HAIGHT.

A. ROBERTSON.

Improvement in Butter-Pails, &c.

No. 114,714.

Patented May 9, 1871.



Witnesses

*Harry King.
Phil. F. Dodge*

Inventor

*Archie Robertson
by Dodge & Munn
Attys.*

United States Patent Office.

ARCHIE ROBERTSON, OF EAST RUPERT, VERMONT.

Letters Patent No. 114,714, dated May 9, 1871.

IMPROVEMENT IN BUTTER-PAILS, &c.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ARCHIE ROBERTSON, of East Rupert, in the county of Bennington and State of Vermont, have invented certain new and useful Improvements in Packing Pails for Butter, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to vessels or packages for containing butter, lard, and similar articles; and

The invention consists in providing the vessel with a cover that will close it air-tight, and that can be attached and detached at will, as hereinafter more fully explained.

Figure 1 is a transverse vertical section with the cover on.

Figure 2 is a top plan view with a portion of the cover broken away.

Figure 3 is a vertical section of a portion with the cover removed.

In constructing my device I make the body A in the style of an ordinary wooden pail or bucket, with a bail for convenience in handling it.

Near the top I cut a groove, in which I secure an annular rim or top, B.

In the inner edge of this top B I cut two notches, *o*, directly opposite each other, as represented in fig. 2, and on the under face of the top I bevel it from these notches *o* around for some distance, as represented at *n*, fig. 3, and as indicated by dotted lines in fig. 2.

I then provide a cover, C, somewhat greater in diameter than the opening in the top B, with a portion of its lower part turned off so as to fit into the opening, as represented in fig. 1.

Across the under side of this cover C I secure a rod, *c*, with its ends protruding slightly beyond its under face, as shown in figs. 1 and 2.

Across its top I secure a cleat, *b*, which serves to keep the cover from warping, and also to turn it by, and to handle it in applying it to or removing it from the vessel.

I also provide a packing-ring, *e*, of proper size to fit under the flange of the cover and between it and the top B, as shown in figs. 1 and 2. This ring may be made of sheet-rubber, or of cloth saturated with paraffine; the latter being preferable for butter on account of its inodorous qualities, and therefore less likely to affect the taste of the butter.

In using the package the vessel is first filled, the packing-ring then laid on, and the cover so applied that the projecting ends of the rod *c* will enter the notches *o*, when, by turning the cover around, the inclines *n*, acting on the rod *c*, will draw the cover down tight upon the packing and thus effectually close the vessel.

To remove the cover it is simply turned back until the ends of rod *c* are opposite the notches *o*, when it can be at once lifted off.

By these means I produce a package in which butter, lard, and similar products can be preserved and transported in the most effectual manner.

Having thus described my invention,

What I claim is—

An improved package for butter and similar articles, consisting of the vessel A having the annular top B, provided with the notches *o* and inclines *n*, and the cover C provided with the rod *c*, all constructed and arranged to operate as herein set forth.

ARCHIE ROBERTSON.

Witnesses:

S. F. HOLLEY,
ELIZA M. HOLLEY

W. F. HOLSKE.

Improvement in the Construction of Hollow Vessels.

No. 115,056.

Patented May 23, 1871.

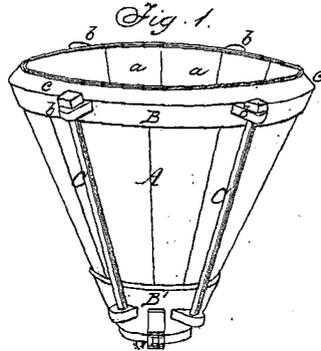


Fig. 2

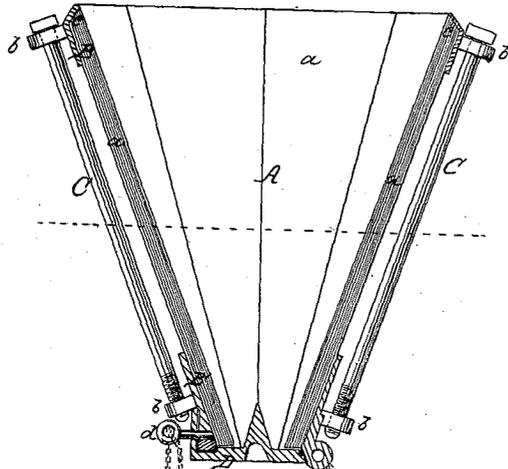
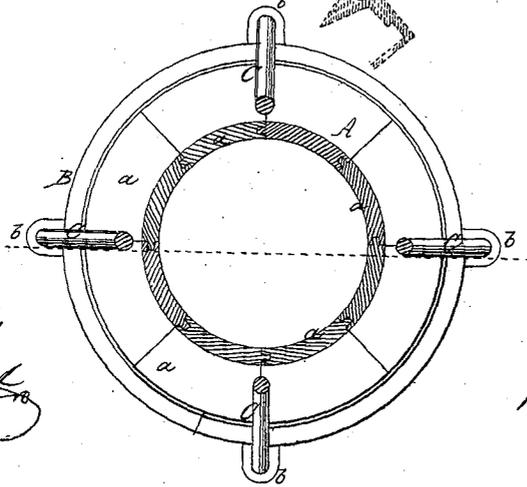


Fig. 3



WITNESSES.

Alex L. Roberts

J. M. Covington

Inventor.

Wm F. Holske

Per

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM F. HOLSKE, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND
A. E. BEACH, OF SAME PLACE.

IMPROVEMENT IN THE CONSTRUCTION OF HOLLOW VESSELS.

Specification forming part of Letters Patent No. 115,056, dated May 23, 1871.

To all whom it may concern:

Be it known that I, WILLIAM F. HOLSKE, of the city, county, and State of New York, have invented a new and useful Improvement in the Construction of Hollow Vessels and Barrels, such as sugar-molds; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming a part of this specification.

This invention relates to the construction of all kinds of hollow vessels, particularly barrels and conical vessels, such as sugar-molds of the class that is composed of staves or bars of wood or other material; and my invention consists in the employment, in connection with the bars or staves, of two or more girdles and adjusting devices, so constructed and arranged that the bars or staves may be tightly clamped together or readily loosened and separated for repair.

Referring to the drawing which forms a part of this specification, Figure 1 is a perspective view of a hollow vessel, in the form of a sugar-mold, made according to my invention. Fig. 2 is a side sectional elevation of the same. Fig. 3 is a horizontal sectional plan view.

Similar letters of reference indicate corresponding parts.

A is the body of the vessel, composed of the bars or staves *a* of wood, metal, or other suitable material. The edges of the staves may be tongued or grooved, as shown. The larger end of the body A is encompassed by an angular girdle, B. Attached and projecting from the exterior of the girdles are ears or lugs *b*, through which pass the clamping-screw bolts C. The lugs are provided with screw-threads, so that when the heads of the screw-bolts are turned the girdles B B will be drawn

toward each other, by which movement the staves will be compressed together. In order to loosen and separate the staves it is only necessary to unscrew the bolts C. The upper portion of the upper girdle B is beveled inwardly, as shown at *c*, and the upper ends of the staves are cut upon a level correspondent to *c*. The clamping-bolts C, as before mentioned, serve to draw the girdles B B toward each other, which causes the leveled portion *c* of the upper girdle to descend upon the beveled ends of the staves and force them together. The same action of the bolts C also causes the lower girdle to rise upon the exterior of the staves, thus forcing their lower portions together. Any suitable number of clamping-bolts and girdles may be employed. When desired, the lower end of the mold may be closed by means of a valve, D, hinged or otherwise secured to the girdle B or to the staves. The valve may be kept in a closed position by means of a fastening-pin, *d*, or other suitable device.

I do not limit or confine myself to the form of the vessel, nor to the arrangement of any of the parts herein described, as they may be varied without departing from my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In the construction of hollow vessels, the combination of the girdles B and the clamping-rods C with the bars or staves *a*, substantially as described.

2. The valve D, constructed and operating as described.

The above specification of my invention signed by me this 28th day of March, 1868.

WM. F. HOLSKE.

Witnesses:

ALEX. F. ROBERTS,
J. M. COVINGTON.

John B. Barsaloux. Barrel Head.

116398

PATENTED JUN 27 1871

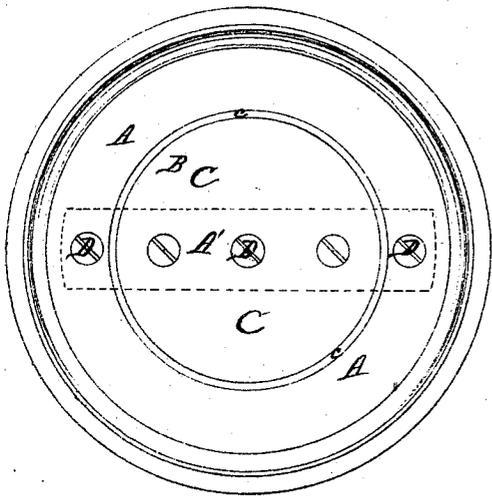


Fig. 1.

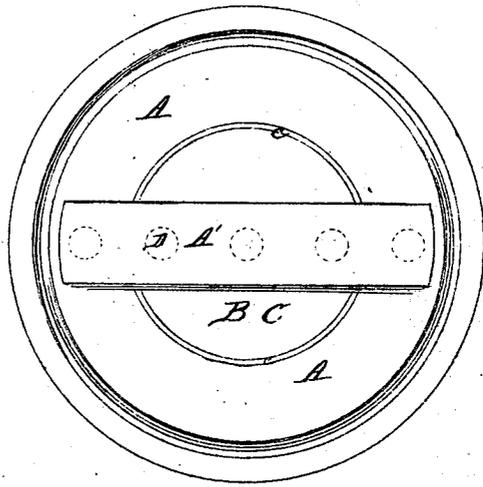


Fig. 2.

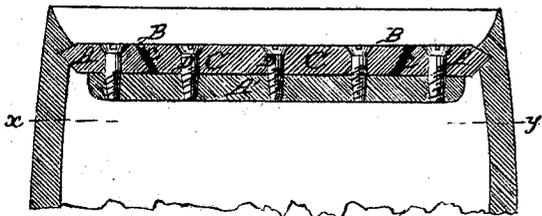


Fig. 3.

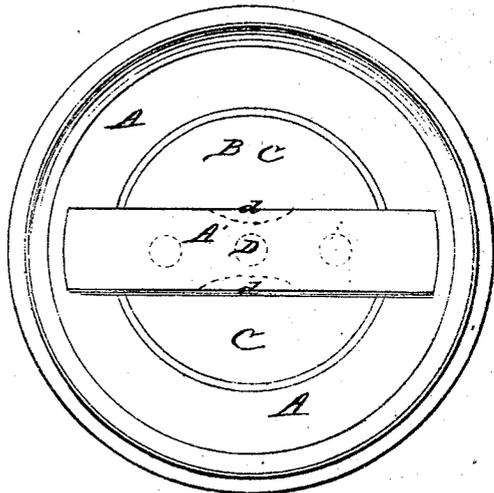


Fig. 4.

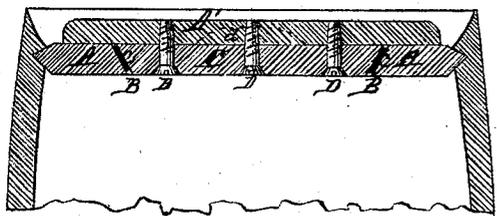


Fig. 5.

Witnesses:

J. W. Keith

Robert Burns

Inventor:

John B. Barsaloux
By his atty
Keith & Co

UNITED STATES PATENT OFFICE.

JOHN B. BARSALOUX, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN BARREL-HEADS.

Specification forming part of Letters Patent No. 116,398, dated June 27, 1871.

To all whom it may concern:

Be it known that I, JOHN B. BARSALOUX, of St. Louis, in the county of St. Louis and State of Missouri, have made certain new and useful Improvements in Heads for Barrels, Casks, &c.; and I do hereby declare that the following is a full and true description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

It is well known that in the use of the ordinary constructed barrels for the storage, transportation, and preservation of pickles, mackerel, fish, and similar articles kept in acetic and other liquids, the heads of the barrels, in order to be removed, necessitate the removal of the top hoops, whereby the staves become loosened and the liquid matter contained partially escapes and is lost, and otherwise said barrels unnecessarily expose the contents, and in their use incur extra expense, labor, and time. To avoid said inconveniences and to form an improved barrel-head, the nature of this invention chiefly consists in forming a chamfered man-hole in the ordinary barrel-head, in which a corresponding-shaped head piece is fitted, as now to be more fully described.

To enable those herein skilled to make and use my said invention, I will now more fully describe the same, referring to the accompanying Figure 1 as a top plan; to Fig. 2 as a bottom plan; to Fig. 3 as a central section at line *xy*; and to Figs. 4 and 5 as top plan and sectional plan, respectively, showing parts forming a lid or cover.

A is the head, its chines united by an under strip, A', all secured, constructed, and fitted in a barrel in manner usual. Centrally in said head I form a man-hole, B, its circular edges chamfered, as shown in Figs. 3 and 5. C is a head-piece, correspondingly shaped to fit in the man-hole B. To form an air-tight joint in said center-head C I provide its circular chamfered edge with a rubber or other suitable packing, *c*, as clearly shown in Fig. 3. The center piece C I secure to the under strip A' by screws D or other suitable fastenings, in

any proper manner. The center piece C, fitted in the man-hole and secured to the strip A', as shown in Figs. 1, 2, and 3, forms a closed head for barrels ready for shipping, transportation, and storage purposes. To open said barrel or barrels all screws D are unfastened, the center head C and strip A' are removed, and the contents are readily attainable through the man-hole B. For retailing, household, and similar purposes, where the contents are frequently to be reached, the under strip A' is secured to the center head C in any proper manner, forming a readily-removable cover or lid, as clearly shown in Figs. 4 and 5, said strip A' for this purpose having thumb-holds *d*.

It will be observed that in the use of my invention the head A remains fitted in the barrel, thus saving the same and its contents from undue waste and damage.

For barrels, casks, &c., used for shipping, storing, and otherwise preserving liquids and articles kept in liquids, my invention is specially adapted, being practical and saving in its use. Also, it is plain that, for barrels used for storing or shipping different grain, flour, fruit, and similar merchantable articles, and for retailing and household purposes, my said improvement finds a wide range of application, with advantages of economy, safety, and utility.

Having thus fully described my said invention, what I claim is—

A barrel-head formed of a chamfered center head, C, having packing *c*, when arranged and secured in a corresponding-shaped man-hole, B, in combination with the head or chines A and strip A' of an ordinary barrel, substantially as and for the purpose described.

In testimony of said invention I have hereunto set my hand.

J. B. BARSALOUX.

Witnesses:

WILLIAM W. HERTHELL,
ROBERT BURNS.

G. A. REED.
Head-Lining for Barrels.

No. 136,763.

Patented March 11, 1873.

Fig. 1.

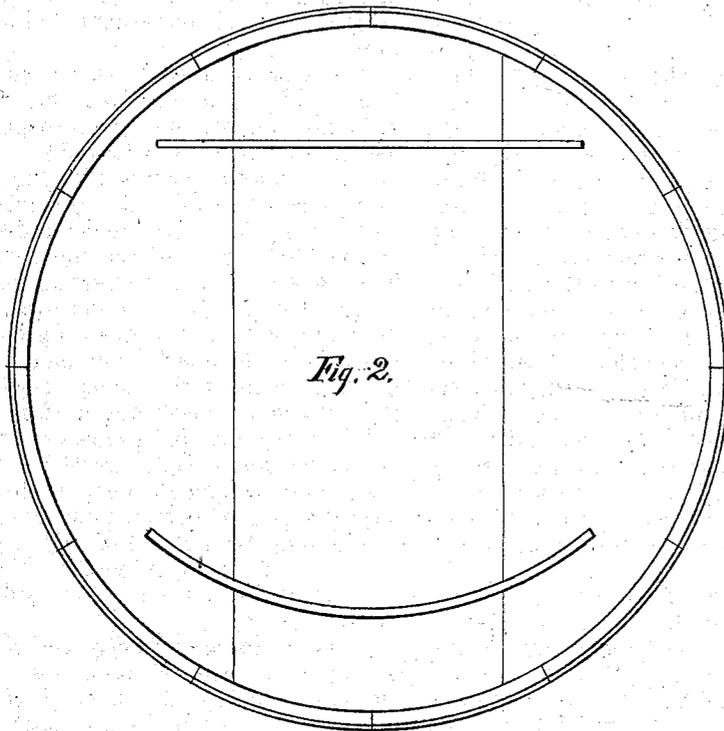


Fig. 2.

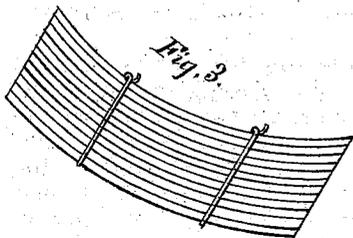


Fig. 3.

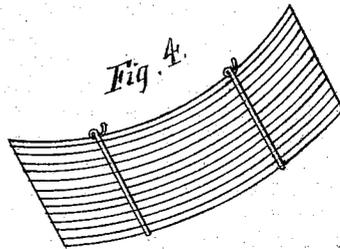
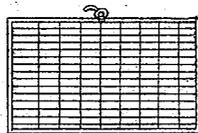


Fig. 4.

Fig. 5.



Witnesses:

James L. Norris.
W. J. Peyton

Inventor:

George A. Reed
Per Burke, Mearns & Osgood
attys

UNITED STATES PATENT OFFICE.

GEORGE A. REED, OF NEW YORK, N. Y.

IMPROVEMENT IN HEAD-LININGS FOR BARRELS.

Specification forming part of Letters Patent No. 136,763, dated March 11, 1873.

To all whom it may concern:

Be it known that I, GEORGE A. REED, of the city, county, and State of New York, have invented an Improvement in Head-Linings of Barrels, of which the following is a specification:

My improvement relates to the head-linings used on sugar, flour, fruit, salt, and other kinds of slack barrels; and consists in forming the lining by cutting a straight splint from the lumber and subsequently crimping it in a suitable machine, by which it is bent to the curved shape of the barrel to which it is to be applied; the object of the improvement being to obviate the objections to the common head-linings of requiring them to be soaked before use and bent as they are applied, necessitating the driving of a large number of nails to retain them when dry, and also the want of accurate fitting against the barrel-head or chime, together with frequent splitting, after having been applied, in consequence of having been bent the wrong way of the grain.

Figure 1 is a view of one of my crimped linings. Fig. 2 is a plan of a barrel-head, showing both the improved and common head-lining ready to be applied. Figs. 3 and 4 are side views of the bundles of crimped linings as made up for transportation. Fig. 5 is an end view of the same.

The method of manufacture is as follows: The linings are first cut from any suitable timber, preferably elm, into straight splints or slats of the dimensions adapted to the purpose. They are then passed endwise through a machine consisting of two or more rollers, which revolve together, and are so arranged in relation to each other that they impart a curve to the slats corresponding with the curvature of the barrel-head or chime for which they are designed. These rollers, or one or more of them, are preferably fluted or provided with teeth or grooves on their surfaces, which have the effect to "crimp" or corrugate the fibers of the wood, measurably disturbing their continuity, and thereby overcoming the tendency of the slat to spring back and become straight.

In feeding to the crimping-machine they are selected and so inserted that if the grain is

not parallel with their length the curve shall be formed in the direction of the grain as far as can be conveniently done and not contrary to it.

When so crimped they are put in square bundles of two hundred and fifty or five hundred and tied or wired for transportation and use, as seen in Figs. 3, 4, and 5.

When cut and crimped in this manner the linings are applied with less labor, as it is only necessary to place them against the chime of the barrel and secure them with nails, of which a less number answers the purpose than for the uncrimped ones, because the natural tendency of the wood to spring back straight has been permanently overcome by the crimping, and owing to this cause they fit or "hug" the head more closely and uniformly.

When straight linings are used they have to be soaked for some hours before use, so that the cooper can bend them as he nails them on, requiring more time and labor, while the subsequent drying increases the tendency of the wood to split, especially if bent across the grain, so that many fail after they are put on.

I wish it to be distinctly understood that I do not claim bent barrel-hoops, as such are old and form no part of my invention. My linings are intended for an entirely different purpose, and afford a new, reliable, and cheap article of commodity, not only for the manufacturer of barrels, but also for the merchant and consumer.

In commission houses, where it is essential to remove the head of barrels to display the contents of the same, my head-linings can always be readily removed and replaced—that is, if formed as described by corrugating the fibers of the wood in the direction of their length, measurably disturbing their continuity, whereby their tendency to spring back is avoided.

It will be found that all splitting and splintering, which is present now in head-linings, will not occur with the linings produced by me. It should also be noticed that by corrugating the fiber in the direction of the length of the wood I accomplish another result—that is, that I can pack the same in square bunches ready for the market, and that each lining

will always retain its circular form owing to the corrugated condition of the fibers, and at the same time I dispense with soaking.

I am aware that hoops for barrels have been crimped or permanently bent before setting prior to my invention. This I do not claim; but

What I claim, and desire to secure by Letters Patent, is—

As a new article of manufacture, barrel-head

linings, prepared in the manner specified, when bundled as shown and described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEO. A. REED.

Witnesses:

WM. F. MCNAMARA,
KATE N. JONES.

J. I. BARD.

Construction of Metallic Casks.

No. 137,590.

Patented April 8, 1873.

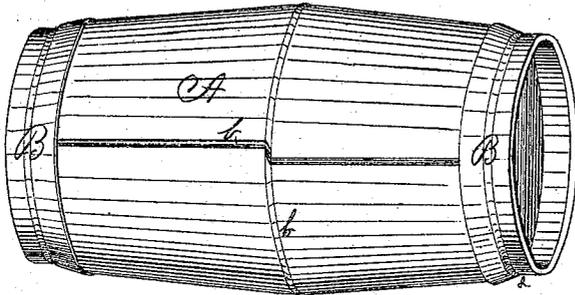


Fig. 1.

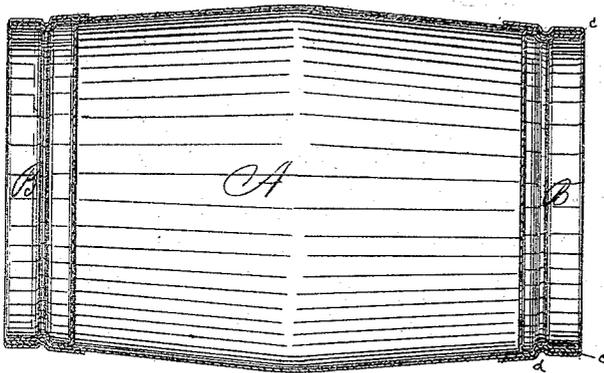


Fig. 2.

WITNESSES.

H. A. Gent
J. B. Kendall

INVENTOR.

J. I. Bard

UNITED STATES PATENT OFFICE.

JAMES I. BARD, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN CONSTRUCTION OF METALLIC CASKS.

Specification forming part of Letters Patent No. 137,590, dated April 8, 1873; application filed September 17, 1872.

To all whom it may concern:

Be it known that I, JAMES I. BARD, of the city of New Orleans, parish of Orleans, and State of Louisiana, have made certain Improvements in the mode of Constructing Metallic Casks or Barrels; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying illustrative drawing constituting a part of this specification.

My improvement relates more especially to a novel and peculiar method of constructing, inserting, and securing the heads within the body of metallic barrels or other similar vessels.

The important object which I accomplish by my improvement is the insertion and securing of the heads to the outer shell of the said metallic barrels, or other equivalent vessels, without the employment of rivets, and therefore without the necessity of perforating either the heads or the shells for the purpose of inserting the said rivets within the said perforations, whereby the said vessels are materially enhanced in cost of production, and are, moreover, weakened by the use of rivets. By dispensing with the rivets which are at the present time universally employed in the construction of metallic barrels, I not only economize in the cost of production but I obtain a barrel of greater uniformity, of better appearance, of greater strength, and with less liability to leakage than those wherein the rivets are employed.

With a view to the better understanding and appreciation of my improvement reference must be made to the drawing whereon the same is shown at—

Figure 1 by a perspective view, and at Fig. 2 by a longitudinal section.

As will be perceived the body or shell of the cask shown at A is constructed with longitudinal and transverse seams *b* in the usual mode of constructing metallic casks. B show the heads, the peculiar construction, mode of insertion, and securing of which constitute the essential features of my improvement. These heads are constructed each of

a single piece of sheet metal cut of the proper circular form and size to make the head desired. The sheet of metal when thus cut is heated and stamped with a die of the proper size to depress that part of the said plate which is to enter within the end of the shell of the vessel to which it is to be fitted. The outer portion of the said plate is then turned down by any proper mechanical appliance so as to fit snugly over and upon the outside of the end of the said barrel-shell. A packing of rubber, felt, or other equivalent material, as shown at *c*, is placed upon the chime or end of the said shell extending downwardly thereon, both upon the inside as well as upon the outside thereof, as far as may in practice be found necessary, whereupon the head already constructed or formed, as above described, is forced over the said packing and upon the shell, as clearly shown in the drawing. A groove or indentation, *d*, is then impressed upon and around the outside end of the barrel so as to form a corresponding ridge upon the opposite side of the chime to the end of bringing into close contact the surfaces of the shell and head, and thereby providing a means of effectually preventing, under any circumstances, the vessel from leaking the fluids therein contained, as well, likewise, as a means of preventing the head from slipping from the shell of the barrel or cask to which it is fitted. For the purposes last mentioned, should it be found essential in the practice of the invention, more grooves than one may be employed, and I wish herewith to reserve the privilege of using one or more, as desired.

Having described my invention, what I desire to secure by Letters Patent is the following:

As an improvement in the construction of metallic casks, barrels, or other similar and equivalent vessels, the metallic head B, when constructed and secured to the shells of said vessels, substantially as described, for the purposes set forth.

Witnesses:

H. N. JENKINS,
J. C. HUBBELL.

JAS. I. BARD.

P. H. GRISWOLD.
Barrel-Heads.

No. 148,209.

Patented March 3, 1874.

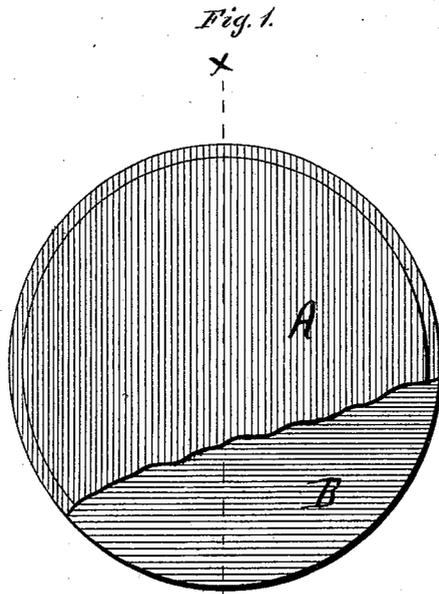
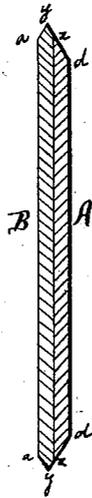


Fig. 2.



WITNESSES.

Henry N. Miller
C. L. Evertz

By

INVENTOR

Pardon H. Griswold
per
Harden Mason
Attorneys.

UNITED STATES PATENT OFFICE.

PARDON H. GRISWOLD, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN BARREL-HEADS.

Specification forming part of Letters Patent No. **148,209**, dated March 3, 1874; application filed May 21, 1873.

To all whom it may concern:

Be it known that I, PARDON H. GRISWOLD, of Indianapolis, in the county of Marion and in the State of Indiana, have invented certain new and useful Improvements in Barrel-Head; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

My invention consists in the construction of a head for barrels, casks, hogsheads, &c., of two or more disks of wood, each disk being cut from a single piece and the disks placed one upon the other, with the grain of the wood at right angles to each other, and the disks thus placed being glued firmly together, the edges of the two disks being beveled to prevent their splitting and becoming separated from each other, all as more fully hereinafter set forth.

In the annexed drawings, Figure 1 represents a plan view of the head, showing the position of the grains of the upper and under disks. Fig. 2 represents a section of the head taken through line *x x*, Fig. 1.

The main object of my invention is to provide a head for barrels, &c., that will possess strength, will not warp or split, can be easily and cheaply manufactured, will prevent the contents of the barrel or other receptacle of similar construction from oozing or sifting through it, and economize in timber in the manufacture thereof.

A represents a disk cut of thin wood, and B a similar disk. Glue is placed upon one of these disks, the other one placed upon it with the grains of the wood at right angles, and the pieces in this construction firmly pressed together and dried. In some cases three layers or disks may be cut, placed, glued, and pressed together in the same manner as the two pieces, as above described. The edges of the outer disk B are slightly beveled on the outer side, as shown, from *a* to *y*, and are also slightly beveled on the inner edges, as shown, from *z* to *y*. The inner disk or disks A is not quite as large as the disk B, and is also beveled on its edge, as shown, from *d* to *z*. In placing the head in a barrel, the point *y* of the outer disk B alone enters the circumferential groove

in the barrel. By this means the pressure of the contents of the barrel on its head will be upon the outer disk alone, which disk is so beveled as to give great strength, and is not liable to have its edges broken. In a barrel-head composed of two thin pieces of timber, when the two pieces of which it is composed are beveled alike and the two disks of equal size, the beveling down will thin the edges to such an extent that the pressure on the head will splinter the edges and cause the parts to separate. By having one disk smaller than the other, and beveling the edges down, as herein shown and described, the above defects are remedied and the difficulties that would otherwise be experienced are obviated. Heads for barrels, casks, hogsheads, bottoms for cheese-boxes, bushel, and other measures, and, in truth, any top or bottom for a cylindrical wooden package can be formed as above described, and found to possess very great advantages over those now usually employed. The usual mode has been to form the barrel-head from two or more pieces placed edge to edge. Especially is this the case in flour-barrels. In a short time the parts will shrink more or less (unless the timber of the parts of the head is thoroughly seasoned) and narrow cracks form between the pieces of the head, so that the contents of the barrel will, to some extent, ooze out.

Heads for barrels and other cylindrical packages are rarely made from a single piece on account of the extra width of lumber required to make the same, and when so made are imperfect. With my invention I use the thin lumber that is cut around the log. One thickness of this lumber would not answer, as it would soon warp and split; nor would two layers of this timber answer well unless the grains of the two pieces are crossed and put together, as heretofore described.

In oil-barrels great losses have been experienced in the use of the common head on account of the oil working out through the pores of the wood. In using my head in oil-barrels the oil cannot pass but into the inner disk of the head, as the glue which holds the layers acts as a perfect check to the oil, and prevents its escape from the barrel.

I am fully aware that the principle of plac-

ing two pieces of thin wood together with their grains at right angles and securing them in this position is not new; hence I disclaim such as being my invention.

Having thus fully described my invention, what I claim is—

As an article of manufacture, the barrel-head described, composed of two or more thin pieces of wood, made in circular form, placed together with the grains of the wood at right angles, the disk A being smaller than the disk B, and

the two disks being beveled, as shown, from *a* to *y*, from *y* to *z*, and from *d* to *z*, and glued together, all as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of April, 1873.

PARDON H. GRISWOLD.

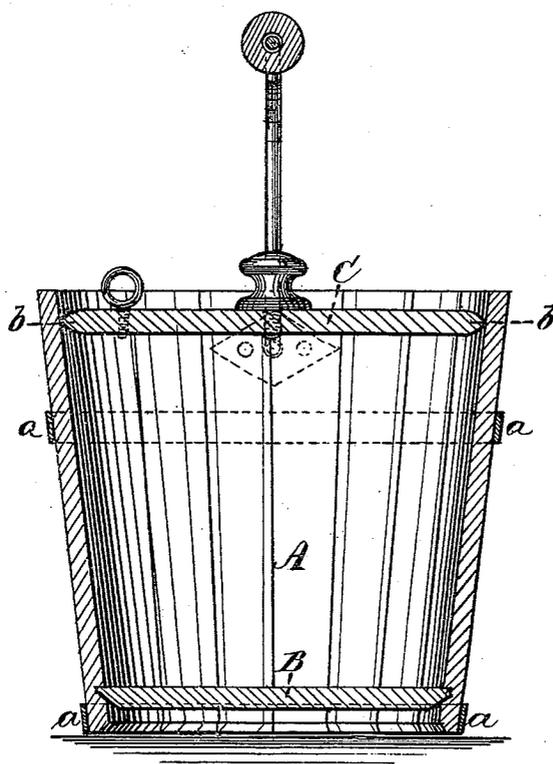
Witnesses:

THOMAS C. MOORE,
HENRY A. REED.

D. M. MEFFORD.
Sealing Fruit-Buckets.

No. 148,733.

Patented March 17, 1874.



WITNESSES.

P. C. Dieterich.
Alb. Miloe

INVENTOR

David M. Mefford.

per. *C. A. Watson & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

DAVID M. MEFFORD, OF TOLEDO, OHIO, ASSIGNOR TO AMERICAN
INVENTION COMPANY, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN SEALING FRUIT-BUCKETS.

Specification forming part of Letters Patent No. **148,733**, dated March 17, 1874; application filed
February 26, 1874.

To all whom it may concern:

Be it known that I, DAVID M. MEFFORD, of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Fruit-Packing; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction of a self-sealing vessel or package for putting up fruit or other articles containing more or less liquid, as will be hereinafter more fully set forth.

The accompanying drawing represents a vertical section of my invention.

A represents a vessel, made of wooden staves in such a manner as to be more or less flaring, and provided with exterior hoops *a* and a bottom, B, permanently attached thereto. The interior surface of the vessel A, from the bottom upward, is perfectly straight and smooth, as shown. C represents the lid, made of suitable size to fit within the upper end of the ves-

sel A. The edge of this lid is beveled on both sides, so as to form a V-point, *b*.

After the fruit or other article to be packed in the vessel has been placed therein, the lid C is pressed down in the vessel, and, as it comes in contact with the liquid of the article contained in the vessel, it becomes wet, and swells or expands so powerfully as to indent its edge *b* into the sides of the vessel, and make a shallow groove therein, thus forming a perfect water-tight joint, and one that will admit no air to the interior of the vessel.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The process of sealing vessels or packages in packing fruit, forming a self-sealing device, by a beveled V-point, *b*, of a lid, C, and flaring vessel A, substantially as and for the purpose herein specified.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of February, 1874.

DAVID M. MEFFORD.

Witnesses:

JAS. J. FRENCH,
JAMES L. CALDWELL.

J. C. MOORE & P. HICKEY.
Barrels.

No. 154,763.

Patented Sept. 8, 1874.

Fig. 1.

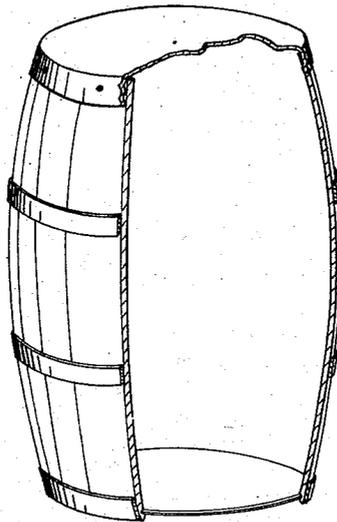
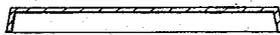


Fig. 2.



Witnesses.

Albert E. Zacherle
D. M. J. Hanna

Inventors.

James C. Moore
Patrick Hickey
per George E. Quakley
att'y.

UNITED STATES PATENT OFFICE

JAMES C. MOORE AND PATRICK HICKEY, OF PHILADELPHIA, PA.

IMPROVEMENT IN BARRELS.

Specification forming part of Letters Patent No. **154,763**, dated September 8, 1874; application filed July 8, 1874.

To all whom it may concern:

Be it known that we, JAMES C. MOORE and PATRICK HICKEY, both of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Barrels; and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawings, making part hereof.

Our invention consists of a metallic head forming a head and plain top hoop, as is hereinafter described and claimed.

In the drawings, Figure 1 shows the said head applied to a barrel; Fig. 2, a cross-sectional view of the head stamped up.

To enable others skilled in the art to make and use our improvement, we will describe its construction and operation.

The barrel, cask, or keg is made in the ordinary way, as shown, of wood. The hoop for the upper rim, which is usually placed upon the barrel after the head has been inserted, is discarded altogether, and, in place thereof, our improved head is wedged tightly thereon, and serves to unite the staves at their upper extremities. The head is made by the ordinary stamping or pressing processes used to stamp up light or heavy sheet metal.

Both heads of the cask may be so applied, or, which is preferable, only the head which it is desired to remove in opening the vessel.

We use sheet-iron of such thickness as to suit the class of work for which it is intended, and the degree of rough usage to which the cask will be subjected in shipment. After the head is applied and wedged down tightly into place, it is secured in position by indenting, or by small nails driven through the overlapping rim.

We are well aware that blacking-boxes and small cans have heretofore been covered with struck-up heads, the flange of the head simply serving to unite the top and sides, either by the addition of solder, as in the cans, or by means of friction, as in blacking-boxes; and we do

not claim as our invention a struck-up head in combination with the vessel which it is used to cover.

Heretofore, in opening barrels containing materials having much body, such as paints, white lead, &c., it has been necessary to knock off the top hoop or hoops, and, by allowing the staves to spread apart, to then remove the head; but, in most cases, the head was broken in and destroyed by removal.

By our device the barrel is completed by putting on the top hoop, and the head is inserted by the same operation, the hoop thus serving the double purpose of clasping the staves and securing the head; and, further, as the head is very strong, it can be used an infinite number of times, the first labor and cost being less, and the saving being great in the end, the chine in the inside of the top of the barrel being unnecessary, as well as the groove. Thus a great saving of time and labor is effected, and a perfectly-tight barrel is made.

We are well aware that a device somewhat similar to ours is described in the patent of John Connolly, dated July 21, 1863, numbered 39,274; but the combined head and hoop there described is costly, and difficult to use in practice, being applied to the barrel by a screw, and requiring special attachments for practical use, and we do not claim this as our invention; but

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The metallic head forming a head and plain hoop, the latter so constructed as to receive the ends of the staves, and, by being pushed or jammed down upon them, to force them closely together, substantially as described.

JAMES C. MOORE.
PATRICK HICKEY.

Witnesses:

GEORGE E. BUCKLEY,
ALBERT E. ZACHERLE.

P. KNUDSON.
Beer-Cask.

No. 161,796.

Patented April 6, 1875.

FIG. 1.

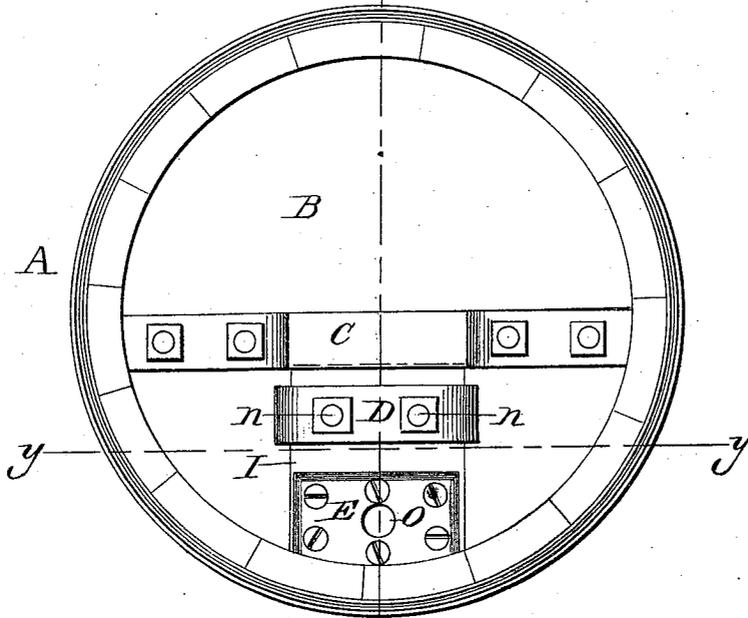


FIG. 2.

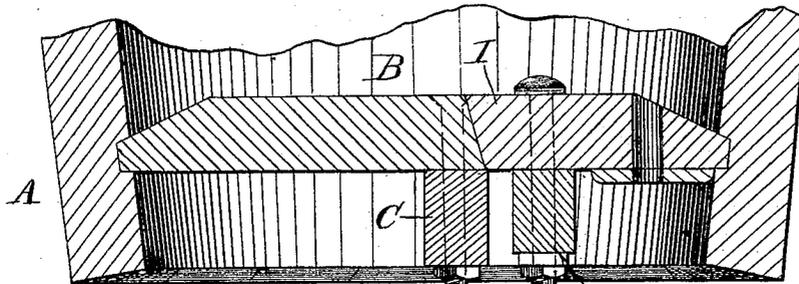
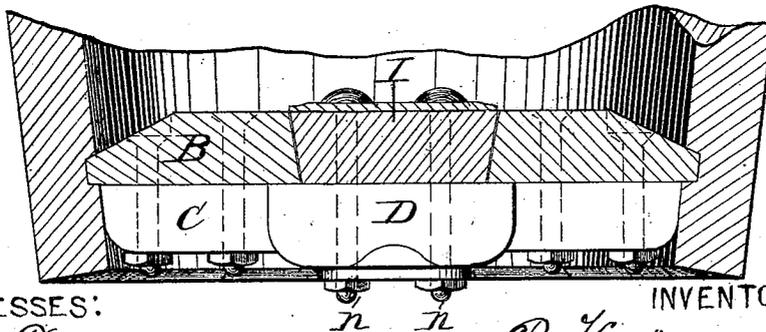


FIG. 3.



WITNESSES:

H. H. Dodge.
Chas. Hayward

INVENTOR:

P. Knudson
by Dodgerson
Atty.

UNITED STATES PATENT OFFICE.

PETER KNÜDSON, OF WEYAUWEGA, WISCONSIN.

IMPROVEMENT IN BEER-CASKS.

Specification forming part of Letters Patent No. **161,796**, dated April 6, 1875; application filed October 10, 1873.

To all whom it may concern:

Be it known that I, PETER KNÜDSON, of Weyauwega, in the county of Waupaca and State of Wisconsin, have invented certain Improvements in Beer-Casks, of which the following is a specification:

My invention relates to beer-casks; and it consists in constructing the head with a section that can be removed without loosening the hoops for the purpose of affording access to the interior of the cask, as hereinafter explained.

Figure 1 is an end view of a cask, with my improvement applied. Fig. 2 is a sectional view on the line *x x* of Fig. 1; and Fig. 3 is a sectional view on the line *y y* of Fig. 1.

It is customary to use very large casks for storing beer, and it is necessary at times to give them a thorough cleaning out, to do which, as at present constructed, requires the removal of one of the heads by loosening the hoops and staves at one end, which is objectionable, as much time and labor are required to do this, and then replace it in such a manner as to render the cask perfectly tight again.

To obviate the necessity of removing the head is the object of my invention, and this I accomplish as follows: The cask is made in the usual manner, except that one of the heads B has a rectangular opening made in it, extending from the staves at one edge of the head for about one-third of the distance across it, more or less, into which I fit a separate piece, I, as represented in Fig. 1. The sides of this opening are inclined or beveled, as shown in Figs. 1 and 2, and the edges of the piece I are correspondingly beveled, so that when pressed outward it will be wedged into its seat, and thereby made to fit tight all around. Across this piece I, on its inner face, I fit an iron strap or plate, (though wood may be used, if desired,) and extend two or more bolts through to the outside, making them long enough to reach through a bar, D, on the outer face, this bar D being of such a length that its ends will reach past the joint and lap over on the face of the head B, as

shown in Fig. 3, so that when nuts are applied to the end of the bolts *n* and screwed up they will draw the piece I into its seat, and as its upper end is inclined and is drawn against the inclined edge of B it will crowd the lower or chamfered edge firmly into its seat in the groove made for it in the staves. Below this bar D I secure across the face of the removable piece I a cleat, E, near its lower edge, which prevents it from becoming warped or distorted when removed, and which also serves as a re-enforce at the point where the hole is made for the faucet, as shown in Figs. 1 and 2. I also bolt a cleat or bar, C, firmly across the outer face of the head D, as shown in Fig. 1, for the purpose of strengthening it and holding it firm and true where the hole is cut in it for the piece I, the location of the bar C being shown in relation to the opening in Fig. 2.

When thus constructed it will be seen that it is only necessary to remove the bar D and shove the lid I inward, when it can be turned over and removed through the opening, when access is afforded to the interior. In the large casks the opening will be made big enough for a person to enter.

I am aware that it has been proposed to make a barrel with a circular opening in the head, and to fit therein a cover beveled so as to fit in upon the outside of the head; but such a device would be utterly useless for storing beer, as it would be almost or quite impossible to make the joint sufficiently tight and secure to resist the great pressure of the beer, and I do not claim such a device; but

Having described my invention, what I claim is—

A beer-cask, having the cross-bar C secured to the outside of the head for holding the parts securely in place, in combination with the beveled removable section I, having the bar D secured to its outer face, all constructed and arranged to operate substantially as and for the purpose set forth.

PETER KNÜDSON.

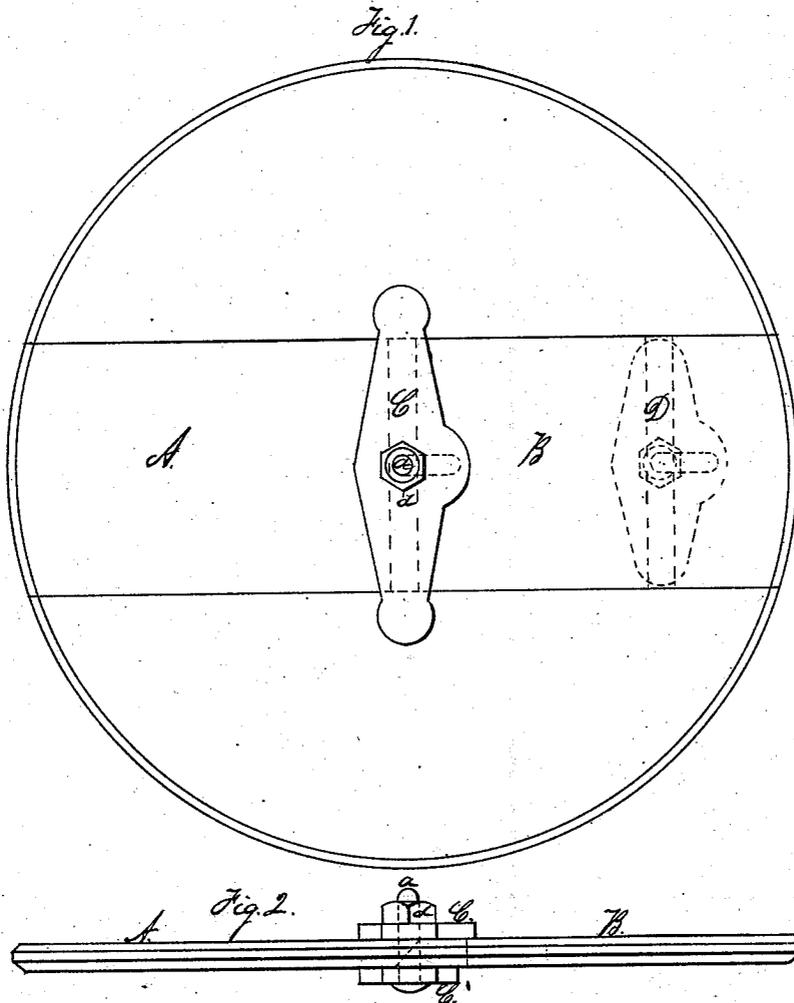
Witnesses:

SELAH CORNWELL,
GEO. W. TAGGART.

S. WHEELER.
BARREL-HEAD.

No. 187,497.

Patented Feb. 20, 1877.



Witness
E. B. Wheeler
Edgar J. Wheeler.

Inventor
Seth Wheeler.

UNITED STATES PATENT OFFICE

SETH WHEELER, OF ALBANY, NEW YORK.

IMPROVEMENT IN BARREL-HEADS.

Specification forming part of Letters Patent No. 187,497, dated February 20, 1877; application filed December 27, 1875.

To all whom it may concern:

Be it known that I, SETH WHEELER, of the city and county of Albany, State of New York, have invented certain Improvements in Barrel-Heads, of which the following is a specification:

My invention relates to the construction of the heads for barrels, casks, and similar articles, in such manner as to be easily removed without disturbing the hoops. To accomplish this I construct them in the manner herein shown and described.

In the accompanying drawing, making a part of this specification, Figure 1 is a plan view of a head embodying my invention as it appears when secured in a barrel; Fig. 2, an elevation or edge view of the same.

As shown in Fig. 1 of the drawing, the head is divided into three main or principal sections, the central one of which is divided transversely into the subsections A and B, which may be made of equal or unequal lengths without involving any change of principle in my invention. The transverse joint between the sections A and B is beveled in the direction of their thickness, as indicated by the dotted lines in Fig. 2, for the purposes hereinafter described. For securing these subsections in position I use a clasp consisting of the upper plate C, under plate C', and bolt *a*, which is placed directly over the transverse joint of the subsections, for the double purpose of applying the force directly at this point, where its influence will be the greatest for bringing the parts into line, and for affording protection to the joint against the admission of dust and dirt. The plates of this clasp may be made either of wood or metal, and either with or without spurs upon their bearing-surfaces for retaining the clasp in position after it has become slightly loosened by the shrinkage of the head, or other causes.

When the subsections A and B are made of equal lengths, or nearly so, I preferably make the plates of the clasp long enough to overlap the adjacent side sections, as shown in Fig. 1, thereby giving to the subsections greater strength, by reason of the support derived therefrom; but in many cases, where

it is desirable to reduce the weight and cost, the clasp may be reduced in length to the width of the subsections. In such cases I prefer to make these sections of unequal length, so as to apply the clasp nearer to the periphery of the head, as shown by the dotted lines at D, Fig. 1, for the purpose of securing greater strength.

By means of the beveled joint formed between the subsections A and B, these two parts are forced outward as they are brought into line, by the bolt *a*, in securing the clasp in position. This action forces the opposite ends of this part of the head into the groove or croze of the barrel. The beveled ends also facilitate the removal of the subsection A, by presenting a better opportunity for inserting a peg for that purpose.

To remove the head from the barrel, the bolt *a* is slackened, so as to release the hold of the clasp, which is then moved back clear from the subsection A, the bolt-hole in subsection B, as shown by the dotted lines in Fig. 1, being slotted for that purpose, when the subsection A can be readily removed without disturbing the other parts. When it becomes necessary to remove the whole head, the remaining operation is so obviously simple as to render any description of it unnecessary.

While it is clearly manifest that the subsections A and B could be removed and replaced if their ends were made square instead of beveling, or if the bolt-hole was not slotted, yet the advantages arising from these features of the construction warrant the slight additional trouble and expense attending this construction. My invention embraces the construction of these parts with any form of joint when held by the clasp herein described.

Among the manifest advantages possessed by my invention not common to those of its class is the retaining of the parts of the head together, when removed from the barrel, by simply clamping them together in their relative positions by means of the clasp, thereby avoiding the liability of their becoming separated and lost.

I claim as my invention—

The combination, with a barrel-head having its central section divided transversely into the subsections A and B, provided with a slotted hole for the screw-bolt *a*, of the sliding clasps and clamping device, herein shown and described, consisting of the upper plate C, under plate D, and screw-bolt *a*, when con-

structed and arranged to operate as and for the purpose specified.

SETH WHEELER.

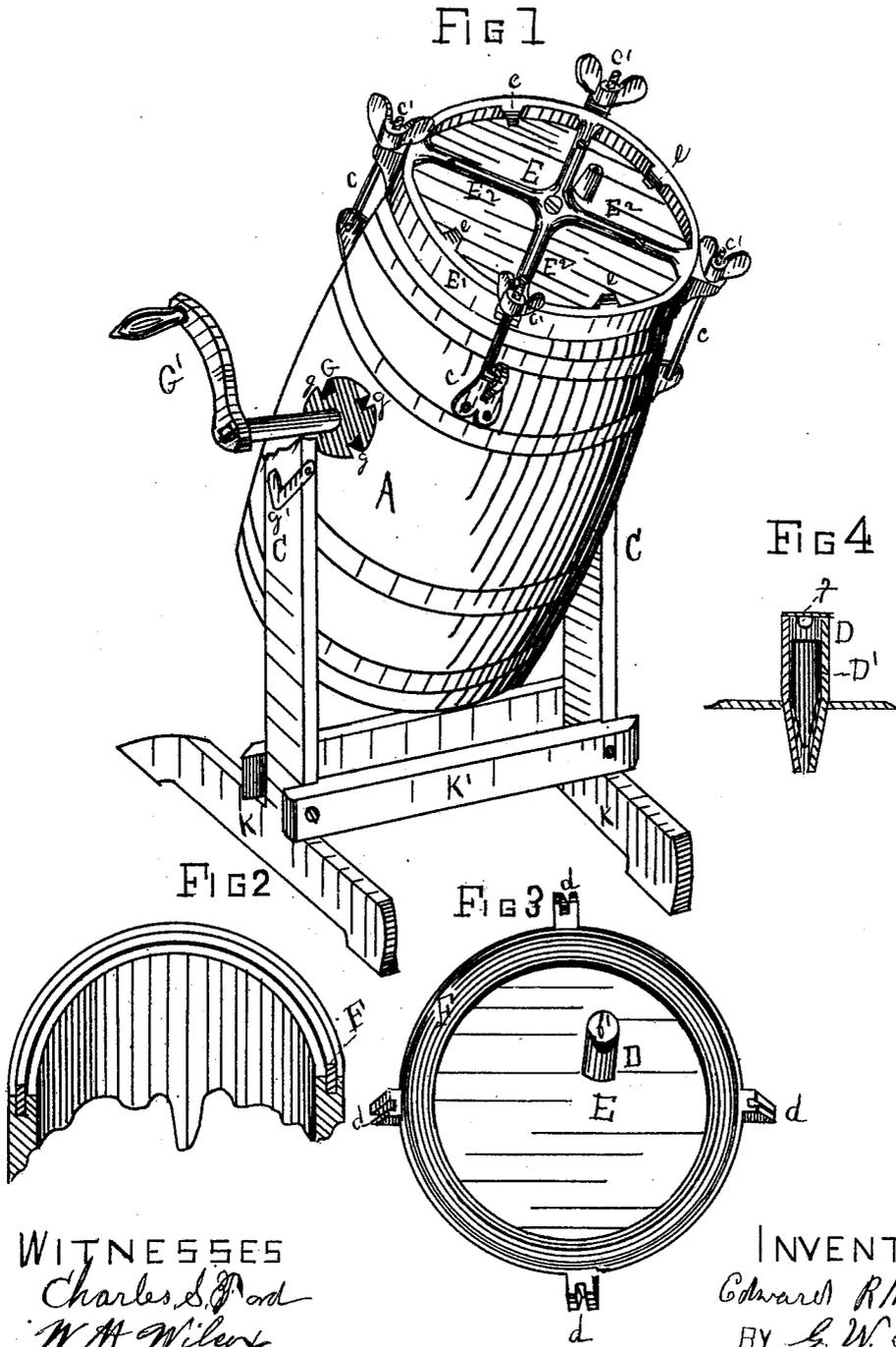
Witnesses:

E. B. WHEELER,
EDGAR J. WHEELER.

E. RHOADES.
 ROTARY CHURN.

No. 187,907.

Patented Feb. 27, 1877.



WITNESSES
 Charles S. Bond
 W A Wiley

INVENTOR
 Edward Rhoades
 BY G. W. Bond.
 ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD RHOADES, OF ROCKFORD, ILLINOIS, ASSIGNOR TO HIMSELF AND CHARLES W. FARRINGTON, OF SAME PLACE.

IMPROVEMENT IN ROTARY CHURNS.

Specification forming part of Letters Patent No. 187,907, dated February 27, 1877; application filed June 8, 1876.

To all whom it may concern:

Be it known that I, EDWARD RHOADES, of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Churns; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a perspective view of the mounted churn, having one bearing broken away to show the locking device. Fig. 2 is a view of the top of the barrel with the cover removed, showing the manner in which the packing may be inserted in the open end of the said barrel. Fig. 3 is a view of the under side of the cover, with the same removed from the barrel, and showing a modification in the manner of packing the joint, also showing the location of the venting device. Fig. 4 shows a longitudinal sectional view of the venting apparatus detached and separate from the cover.

Similar letters of reference denote corresponding parts in each figure.

The object of the invention is to provide a revolving barrel-churn with an easily-removable head, the same being made of wood in such parts as come in contact with the cream, but with the periphery incased within a metal rim, and provided with two or more strengthening metal cross-bars, to which the wood portions of the cover are secured. This cover is also provided with other securing-lugs, for the purpose of fastening the wood to the rim, as well as for securing the cover to the barrel. By this arrangement of the cover it will be seen that no portions of the iron surface, of which the cover is constructed, comes in contact with the fluid when the same is confined within the churn. It also still further consists of an improved automatic venting device, whereby the gas which forms during the process of agitation of the confined cream is allowed to escape without the escapement of the confined fluid, all of which will be hereinafter described.

In the accompanying drawings, A represents the churn-body, made cylindrical in form, or of barrel shape, the same being longitudinally

centrally mounted upon journals, and made to revolve in the uprights C in the direction of its length. *c* are hinged screw clamp-bolts, and *c'* the screw thumb-nuts, screw-threaded upon the same, and by means of which, in connection with the slotted ears *d* upon the outer rim of the cover E, the said cover is securely fastened to the churn-body. E¹ is a metal rim, preferably made of cast-iron, by which the wood cover is circumferentially bound. E² are arms, two or more in number, which extend laterally from a central connection, and are attached to the rim at four equidistant points of contact. These arms serve to keep the rim true to its circle, as well as furnishing means for securing the flat surface of the head E to the metal binding, and prevent the warping of the same when the inner surface is exposed to the inside moisture when in working position. *e* are lugs or ears secured to the inner surface, bent upon the upper edge of the rim E¹, and resting upon the wood cover at the periphery of the same, and midway between the aforesaid arms, for the purpose of more securely fastening the wood than can be done by the cross-arms alone.

It will be observed that the wood is flush with the under side of the metal rim, and extending over the opening in the body, and so constructed that the wood alone comes in contact with the fluid within the churn, or, rather, that no iron portions, which cause rust, come in contact with the fluid. F is a ring-packing, having a flat surface, flush with the cover E and casing E¹, the outer edge of which rests against the said casing, the inner edge against the shoulder of the rabbet formed in the wood, and within which the said packing is placed. F¹ is also a ring-packing, which may be used instead of the packing F, and consists of a flat strip of rubber, or other yielding substance inserted, in the annular groove for the purpose made in the end of the barrel, and in such manner that the upper outer edge shall project above the wood sufficiently far to form a tight joint when the cover is clamped against the same. One only of these packing devices is necessarily required; but both may be used, if desired. G represents the hub carrying the

bearing to which the crank G' is attached, and clearly shown in Fig. 1, (the upright being broken away,) having on its periphery indents g, into which enters the pawl g' when it is desired to lock the barrel, which can, by the said locking device, be held in any position within the orbit of the revolution. D is a venting device, placed in the cover or other parts in the line of revolution, the construction of which, as shown in Fig. 4, will now be described.

It is well known by persons engaged in butter-making that in agitating cream in an air-tight vessel, a large amount of gas is generated, and for the safety of the vessel containing the same a chance for the escape must be had, while cream is retained. To obviate the difficulty heretofore encountered this invention has been made, by which an elongated pointed valve, D', is inclosed in a cylindrical case, D, which is inserted in an orifice made through the cover, and having one open end of the case upon the outside of the said cover, with an internal tapering cylindrical cavity, to conform to the shape of the valve, and with which an air-tight joint is made, when the valve and the cavity are brought together at this point. This casing D is made longer than the valve which it incloses, and larger at the inner end, to allow the gas or air a free course upon the opening of the vent-hole. The inner or larger end of the valve is made concave in the end, with a corresponding convexity in the case,

so that in case any fluid should enter the air-passages f, made through the casing, it will, by the concave form of the case, and by the heavy valve striking against the same, be expelled through the said air-passages and flow back within the churn. It will be observed that this valve operates automatically when the churn is revolved by gravity alone, being open when the cover is uppermost in its position, and closed when the same is in a reverse position, which will be understood without further description. K are the foot-rests, from which rise the uprights O, the same being tied together by the longitudinal bars K', in the usual and well-known manner.

Having now described my invention, what I believe to be new, and desire to secure by Letters Patent, is—

1. A churn-head braced and surrounded by the crucial arms and surrounding rim, and having the inserted packing resting upon the chine, substantially as described, and for the purpose set forth.

2. A churn-vent consisting of an elongated shell, having small perforations in the larger end of said shell, concave bottom, and conical valve, substantially as described.

This specification signed and witnessed this 8th day of May, 1876.

EDWARD RHOADES.

Witnesses:

G. W. FORD,
CHARLES S. FORD.

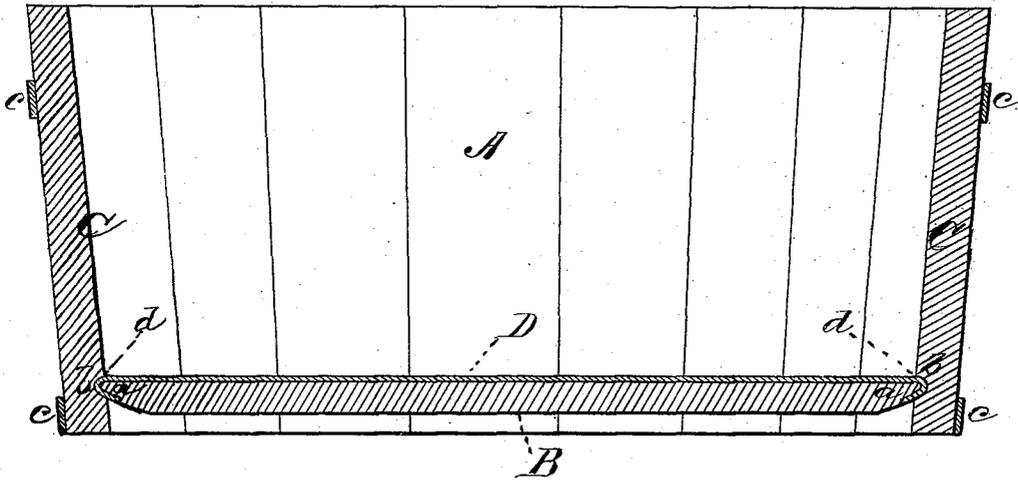
H. W. FARLEY & M. C. RICHARDS.

TUBS, PAILS, CASKS, &c.

No. 190,299.

Patented May 1, 1877.

Fig 1



WITNESSES

Mary B. Utley
Francis J. Chase

INVENTORS

Henry W. Farley
M. C. Richards
by *E. W. Anderson*
ATTORNEY

UNITED STATES PATENT OFFICE

HENRY W. FARLEY AND MARCIUS C. RICHARDS, OF OSWEGO, ILLINOIS.

IMPROVEMENT IN TUBS, PAILS, CASKS, &c.

Specification forming part of Letters Patent No. **190,299**, dated May 1, 1877; application filed March 14, 1877.

To all whom it may concern:

Be it known that we, HENRY W. FARLEY and MARCIUS C. RICHARDS, of Oswego, in the county of Kendall and State of Illinois, have invented a new and valuable Improvement in Pails, Buckets, Cisterns, Tubs, Barrels, and other Vessels; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical central section of my invention, showing the shield applied.

This invention has relation to improvements in tubs, pails, casks, and other like wooden vessels for holding fluids.

The object of the invention is mainly to relieve the hoops binding the staves of such vessels together of a very great strain, by shielding the bottoms or heads thereof from the direct contact of the fluid, and the expansion consequent thereon, which is the cause of such strain; to render the joint of the staves and bottom or heads invariably tight by preventing absorption of moisture, which, upon evaporating, causes the same to shrink and become warped; and to render light and porous woods available as heads or bottoms, which, under ordinary circumstances, from allowing the fluid to permeate and escape from the vessel, cannot be advantageously employed.

The nature of the invention consists in a disk of sheet metal, which is turned or spun over the edge of a wooden bottom or head, and then forced along with it, in the customary manner, into the groove of the vessel-sides, and forms a tight joint therewith, as herein-after shown and described.

In the annexed drawings, the letter A designates an ordinary wooden vessel, in connection with which my invention will be illustrated. The bottom B has the usual beveled edge *a*, adapted to be received in the correspondingly-shaped annular groove *b* of the

vessel-walls C. These latter are formed, in the usual manner, of staves, which are bound together by hoops *c*.

D represents a sheet-metal shield of slightly greater diameter than the bottom, which is laid upon the said bottom, and has its edges bent or spun over the edge of the same, as shown in Fig. 1.

The spun-over portion of the shield fits accurately and snugly upon the beveled edge of the bottom, and may at times be let into a rabbet formed upon its edge, so that the contiguous surfaces of this part and of the bottom may be flush with each other and present a neat appearance.

The bottom B and its shield D are inserted, in the usual manner, into the groove *b*, and secured therein by the forcible application to the staves of a suitable number of hoops. When thus applied the metal shield will be forcibly jammed into the said groove, as shown at *d*, and will form, in connection with the bottom, a water-tight joint with the side walls of the vessel, and will effectually prevent the wood of the bottom from becoming wet or water-sodden. By this means I am able to use, in the making of the bottoms, any of the light porous woods, which, if exposed to the direct action of water, would allow it to gradually pass through. The shield, also, by protecting the bottom, prevents it from expanding by the absorption of water, and thus prevents the hoops from being subjected to undue pressure, whereby they are frequently broken.

Shield D will be made of any suitable sheet metal, as zinc, tin, brass, and the like, and is applicable to the bottoms of pails, buckets, cisterns, or other vessels, and to the heads of barrels, casks, and kegs. It will be found especially useful when applied to wine-casks, which, from the value of their contents, are always hooped very completely, to prevent the unavoidable expansion of the heads from causing a leak, and also when applied to ordinary household wooden-ware.

What we claim as new, and desire to secure by Letters Patent, is—

The combination, with a vessel, A, having an annular groove, *b'*, and the bottom or head having a beveled edge, *a*, adapted to be received in said groove, of the metallic shield applied upon the inside of said bottom or head, and turned or spun over upon the said beveled edge, substantially as specified.

In testimony that we claim the above we have

hereunto subscribed our names in the presence of two witnesses.

HENRY W. FARLEY.
MARCUS C. RICHARDS.

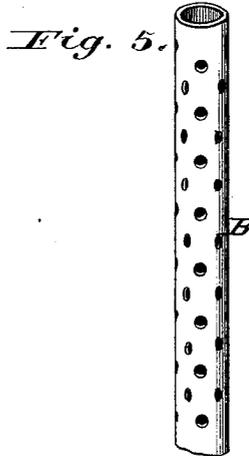
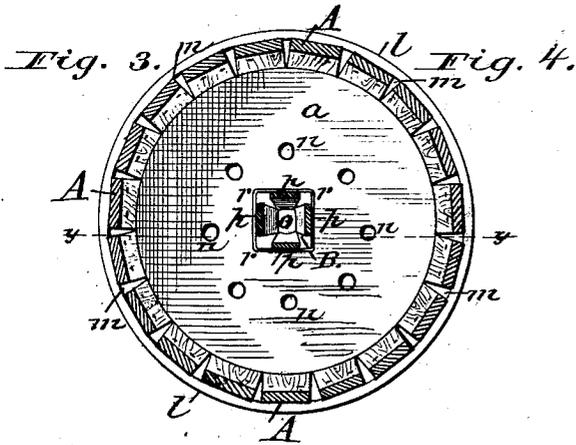
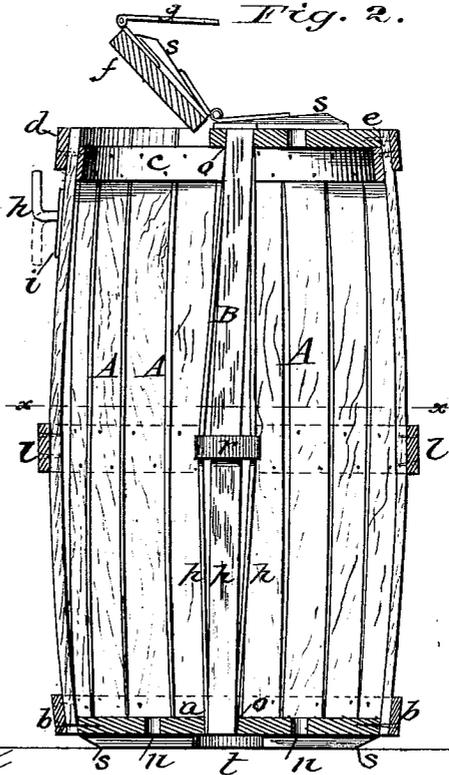
Witnesses:

A. NEWTON,
T. C. RICHARDS.

J. H. MARVIL.
FRUIT-CRATE.

No. 190,883.

Patented May 15, 1877.



Attest:
H. L. Perrine,
A. H. Norris.

Joshua H. Marvil,
Inventor.

By: James L. Norris,
Attorney.

UNITED STATES PATENT OFFICE.

JOSHUA H. MARVIL, OF LAUREL, DELAWARE.

IMPROVEMENT IN FRUIT-CRATES.

Specification forming part of Letters Patent No. **190,883**, dated May 15, 1877; application filed January 22, 1877.

To all whom it may concern:

Be it known that I, JOSHUA H. MARVIL, of Laurel, in the county of Sussex and State of Delaware, have invented certain new and useful Improvements in Barrels or Crates for Shipping Fruits, Vegetables, &c., of which the following is a specification:

This invention relates to certain improvements in the construction of barrels or crates for shipping fruit, vegetables, and other perishable articles which require to be thoroughly and effectually ventilated to preserve them.

The invention consists in constructing a barrel or crate of a series of staves, which are cut into straight strips without a bevel at either end, and which are secured in position at their lower ends directly to the circular bottom, and by an external hoop or band, through which the nails or screws are driven into the staves and bottom, the upper end of the staves being secured in position by means of an internal and external hoop or band, through which and the staves are driven nails or screws, the ordinary bulge or expanded portion to the barrel being made by means of an expansion device, which presses and distends the center parts of the staves outwardly, an external hoop or band being secured to the distended or expanded staves by means of nails driven through the hoop or band and staves, and clinched on the inside, whereby the bulge is retained in the staves.

In the drawings, Figure 1 represents a perspective view of a barrel or crate constructed according to my invention; Fig. 2, a vertical central section; Fig. 3, a horizontal transverse section; and Fig. 4, a detached view, showing the form of the staves; and Fig. 5, a modification of the central ventilating-flue.

Referring to the drawings, A represents the staves, which are cut from wood into a rectangular shape without a bevel at the ends, and are secured in position at the lower ends by means of the bottom *a* and the external hoop or band *b*, through which and the staves are driven nails or screws into the said bottom. The upper ends are supported and held firmly in position by means of an internal and an external hoop or band, as shown at *c* and *d*, and through which hoops or bands and staves are driven nails, which are clinched upon the in-

side of the internal hoop. The head of the barrel is composed of two sections, *e* and *f*, and rests upon the internal hoop *c*, which is placed a sufficient distance below the upper ends of the staves to permit the top surface of the head to be on a line flush with the upper ends of the staves. The section *e* of the head is fixed in position by nails or screws driven through the external hoop *d* and staves into the same, and the section *f* is hinged, in any suitable manner, to the fixed part, and provided with a suitable fastening device for holding it down, which device consists, in the present example, of a hasp, *g*, on the lid, and an angular pin, *h*, pivoted in a plate, *i*, attached to one of the staves, the hole in the hasp being slipped over the pin, and the projecting end of the pin turned out of coincidence with the hole. The necessary bulge or distended central portion of the staves is formed by means of an expansion device arranged on the interior of the staves, and expanded to distend or press outward that portion of the staves, and they are held and supported in this expanded or distended position by means of an external band or hook, *l*, arranged around the staves, and through which nails or screws are driven.

When the expansion device is operated to expand the, or distend the, central portion of the barrel, it will be seen that the staves are slightly separated from each other by such expansion, so as to create intervening spaces *m* for the passage of air into the barrel or crate from the sides thereof. The head and bottom are perforated in any suitable manner. In the present example the perforations are simply circular openings bored through, as shown at *n*. In order to thoroughly and effectually ventilate the central portion of the crate there is located in the barrel a central vertical air-flue, B, which opens at its ends through the bottom and fixed part of the head, each end being secured in position in the openings *o o*, provided for its reception. This air-flue B consists, in the present example, of four strips of wood, *p*, secured at their ends in the openings *o*, and expanded at their central portion and held in such position by a band, *r*, riveted or otherwise attached to the strips *p*, so as to create at each corner an intervening space extending the entire length of the flue, whereby air can enter at the

top and bottom of the flue, and pass through said spaces into the interior of the barrel or crate at the center thereof. The head and bottom of the barrel or crate are provided with battens or pieces of wood *s s*, attached to the same, so that when the crates are placed one upon the top of the other there will be an intervening space between them, so as to permit the free access of air through the heads and bottoms and the central ventilating-flue. The battens *s* are provided with curved recesses *t*, whereby the barrel can be easily raised and lowered with the ordinary barrel-hooks employed for this purpose.

It will be evident that instead of constructing the central flue of a series of strips, as described, the same can be simply a perforated tube, as shown in Fig. 5, cylindrical, square, or other desired shape, and may communicate with lateral flues extending through the staves, so as to admit air from the sides of the barrel to the central flue; and it will also be observed that two or more of these flues may be disposed within the barrel without departing from my invention.

The barrel or crate as thus constructed will be found most efficient in shipping fruit, vegetables, and other perishable articles during warm weather, or in warm climates, inasmuch as a thorough and effectual ventilation of every part of the articles is obtained; and by the peculiar construction of the barrel or crate hereinbefore set forth, they can be rapidly manufactured, with suitable machinery, with but comparatively little cost. In some cases I design dispensing with the sectional head of the crate.

I do not herein claim, broadly, the combination, with a shipping-case having rests attached to its ends, of a central ventilating-flue, extending from end to end of the case, and constructed of slats, having spaces between them for the admission of air; but,

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A barrel or crate for shipping fruit, consisting of staves *A*, attached to the bottom, and connected at their upper ends to the interior and exterior hoops *c* and *d*, said staves being expanded at their central portion, and held in such position by an exterior hoop, *e*, connected with the staves by nails, substantially as and for the purpose described.

2. A crate composed of a series of staves, expanded at their center to create spaces *m*, perforated bottom and head, and bottoms *s*, provided with recesses *t*, attached to the same, substantially as described.

3. The combination, in a crate, of the staves, expanded at their center to create intervening air-spaces, and held in such position by a hoop or band, the perforated head and bottom, and a central flue or flues within the crate, constructed to ventilate the central portion of the latter, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

JOSHUA H. MARVIL.

Witnesses:

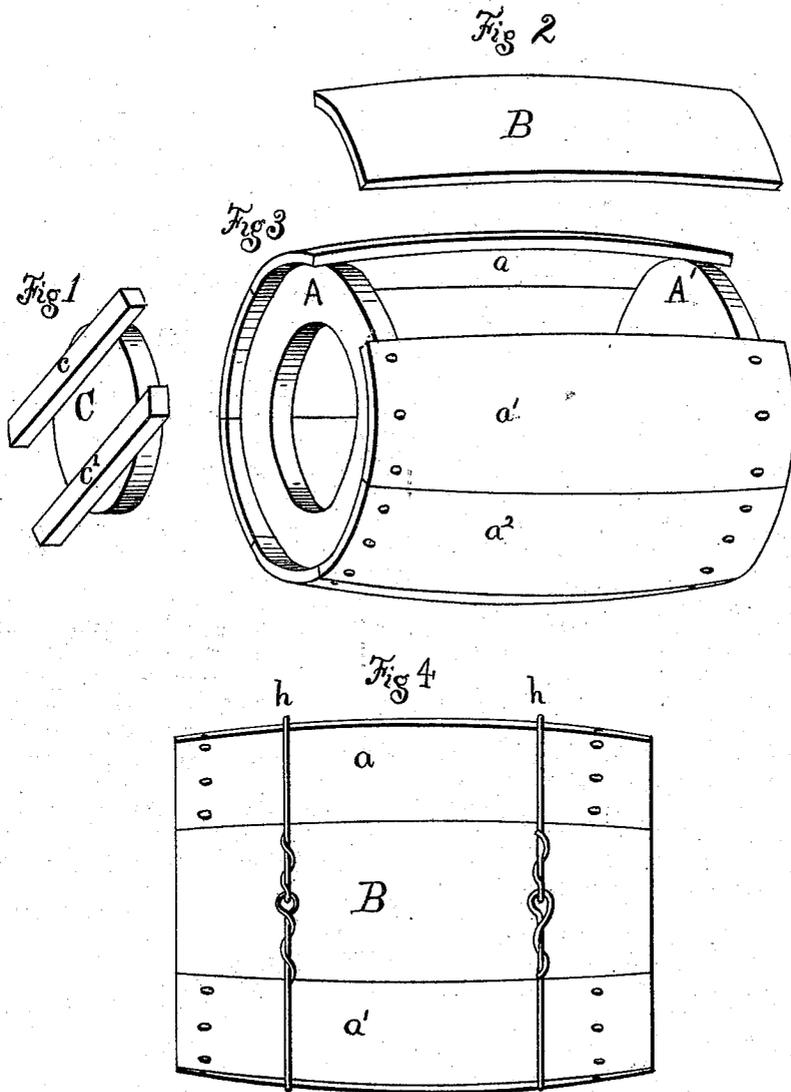
VANDRETH S. MARVIL,
THOMAS W. RALPH.

1,500
5/15/20

L. L. HANSEN.
Barrels.

No. 203,824.

Patented May 21, 1878.



Witnesses:
Henry A. Bulver,
W. G. Derrick.

Inventor:
L. L. Hansen,
per. P. J. Reid,
att'y.

UNITED STATES PATENT OFFICE.

LADLEY L. HANSEN, OF PALMYRA, NEW YORK.

IMPROVEMENT IN BARRELS.

Specification forming part of Letters Patent No. **203,824**, dated May 21, 1878; application filed December 26, 1877.

To all whom it may concern:

Be it known that I, LADLEY L. HANSEN, of Palmyra, in the county of Wayne and State of New York, have invented a new and useful Improvement in Barrels, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to make a strong, cheap, and convenient barrel in which to pack and ship fruits, flour, salt, nails, and the like.

Figures 1, 2, and 3 are perspective views of a loose head and stave, and of the barrel with head and stave removed. Fig. 4 is a view of the barrel put together and with the hoops on.

The staves a a' a'' are nailed to the heads A A' , which are made solid. The stave B is loose, so as to pack the barrel from the side, and also to facilitate inspection of the contents of the barrel.

The head C , which is smaller than, and fits into, the head A , can be removed, so as to fill and inspect from the end, and is held in its place by nailing the strips c c' to the head A .

After the barrel has been filled from the side the loose stave is replaced, and the wire hoops h h are put on and driven to their places. To prevent the hoops from coming off they should be struck smartly in two or three places with a hammer, which will drive them into the staves, and thus make it unnecessary to nail them.

The wire hoops h h , it will be seen, can be quickly made by first looping one end; then insert the other end into the loop, pass it over the barrel, and when near its place bend the end back, remove from the barrel, and twist the end around the hoop, insuring correct length.

I claim as my invention—

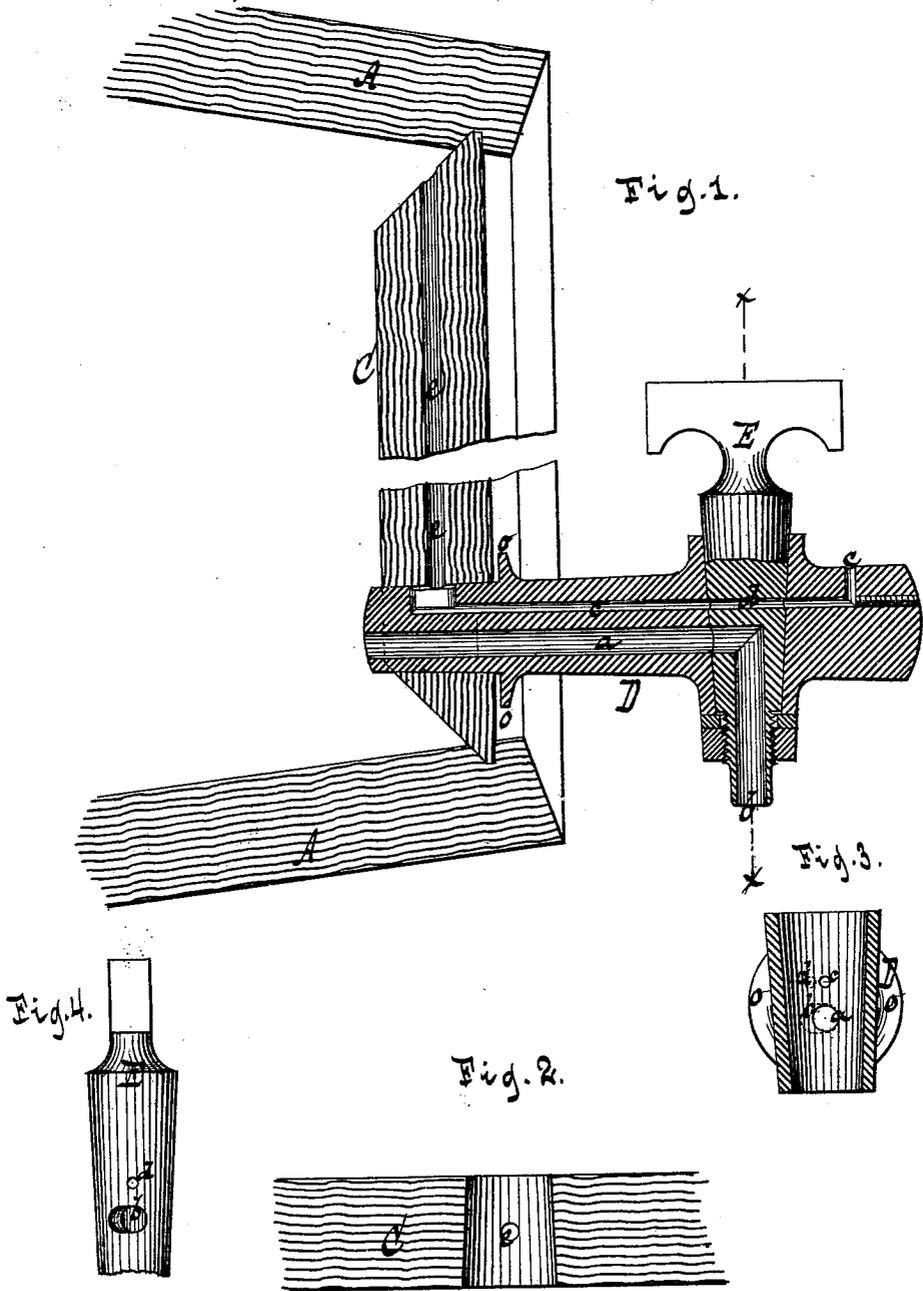
The barrel made substantially as described, with the staves nailed to the heads, in combination with the loose head C and stave B .

L. L. HANSEN.

Witnesses:

L. H. TIFFANY,
GEO. THROOP.

E. FITCH.
Tapping and Venting Barrels, &c.
No. 220,595. Patented Oct. 14, 1879.



Witnesses
Otto Hupfand
William Miller

Inventor
Edward Fitch
by Van Santvoord & Hauff
his attorney

UNITED STATES PATENT OFFICE,

EDWARD FITCH, OF NEW YORK, N. Y.

IMPROVEMENT IN TAPPING AND VENTING BARRELS, &c.

Specification forming part of Letters Patent No. **220,595**, dated October 14, 1879; application filed September 18, 1879.

To all whom it may concern:

Be it known that I, EDWARD FITCH, of the city, county, and State of New York, have invented a new and useful Improvement in the Method or Process and Means of Tapping and Venting Barrels, Casks, and other vessels containing liquids, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 shows a vertical central section of my improvement as applied to a barrel. Fig. 2 is a section of a barrel-head, showing the air-duct. Fig. 3 is a section of the faucet in the plane $x x$, the spigot being removed, showing the relative positions of the canal and air-duct of the shank of the faucet to the canal and secondary duct in the spigot when the spigot is so turned that the canal for the liquid is open while the air-duct is closed.

Similar letters indicate corresponding parts.

This invention relates to an improved method or process of tapping and venting barrels, casks, or other vessels containing liquids, and consists—

First. Of a faucet provided with an air-duct passing partly through the same lengthwise, preferably near the upper side thereof, and terminating near the inner end of the faucet in an opening upon the side of the faucet.

Second. This air-duct is controlled by the spigot of the faucet, and is opened or shut by turning the spigot. The spigot is provided with two openings, one above the other—the upper one for the admission of air to the air-duct, and the lower one for the emission of the liquid contents of the barrel. The lower opening is made larger than the upper one, and in such position in the spigot that by partially turning the spigot the liquid will flow while the air-duct remains closed, and by further turning the spigot the air-duct will also be opened. The spigot can thus be made to open both passages at the same time, or to close both passages at the same time, or to open the lower passage for the flow of the liquid while the upper or air passage or duct remains closed.

Third. The head of the barrel, cask, or other vessel to be tapped and vented is provided with an air duct or passage passing in a straight

line through the substance of the head at right angles with the axis of the barrel, and opening at the lower end of the said air duct or passage in the upper side of the orifice in the said head through which the liquid is to be drawn, and at the other end thereof into the barrel at or near the junction of the head with the staves of the barrel, thus opening a duct or passage from the orifice in said head to the air-chamber in the upper side of the barrel when the same is placed upon its side in position for drawing the liquid.

When the faucet is driven into position for use the air-duct in the faucet will correspond and connect with the air-duct in the head of the barrel, and when the spigot is fully turned on a continuous air passage or duct will be formed, opening into the upper portion or air-chamber of the barrel, thus permitting the air freely to flow into the barrel to supply the place of the liquid drawn out.

In the drawings, the letter A designates a barrel, the head C of which is provided with a tap-hole for the reception of the shank of a faucet, D. When the spigot E of the faucet is open the liquid flows through the canal a of the faucet, and out at the mouth b of the spigot E. This spigot E is also provided with a secondary canal or duct, d , which, in the position shown in the drawings, corresponds with the air-duct c in the faucet D. This air-duct c opens into an air duct or canal, e , in the head C of the barrel, and as the liquid in the barrel escapes its place is supplied by the air flowing in through the ducts $c e$. By this arrangement the use of bung-holes can be entirely dispensed with, if desired.

The air-duct c may be widened at its inner end, so that if the faucet should be driven in more or less the passage for the air will nevertheless be free. If desired, said duct c may be made to open into a groove running around the periphery of the shank of the faucet D.

The air-duct e may be widened at the place where it enters the duct c . This air-duct e may be charred or pitched or lined with metallic or other substances, as desired.

When the spigot E is closed, so that no more liquid escapes, the passage for the air is cut off, since the duct e is also closed thereby. If beer or other liquid charged with or con-

taining gas is in the barrel, and the barrel remains closed for some time, considerable pressure will be produced by the gases which are evolved from the liquid. On suddenly opening the faucet the liquid would by the pressure of the gas be forced through the air-duct. To prevent this the spigot is only partially turned, and the liquid thus permitted to flow, while the air-duct remains closed. (See Figs. 3 and 4.) When the accumulated gases have caused some of the liquid to flow out at the mouth *b*, and the pressure has thereby become diminished, the spigot *E* can be fully opened, and the air will flow through the air-duct.

I am aware that faucets have been constructed which were provided with air-ducts and with a tube leading from such duct into the interior of the barrel, as in patent of Putnam, No. 108,824, dated November 1, 1870, or that of Brederlow, No. 175,915, dated April 11, 1876. Such construction is foreign to my invention, and is not claimed by me.

The faucet is provided with a shoulder or flange, *o*, so adjusted as to serve as a gage, so that when the faucet is driven into the head up to the shoulder or flange the air-duct of the faucet will communicate with the air-duct in the head of the barrel.

It is also to be remarked that the spigot may be graduated, so as to indicate when the canal for the liquid alone is open, as also to show when both the canal for the liquid and the air-duct are open at the same time.

What I claim as new, and desire to secure by Letters Patent, is—

1. A faucet provided with an air-duct, in combination with a barrel, the head of which is also provided with an air-duct, the whole being so arranged that when the faucet is driven into place for use the air-duct of the faucet corresponds and connects with the air-duct in the head of the barrel, substantially in the manner and as and for the purpose shown and described.

2. A faucet provided with an air-duct extending through a portion of its length, the spigot *E* of which is also provided with a corresponding secondary duct, in combination with a barrel, cask, or other vessel the head of which is also provided with an air-duct opening into the air-chamber of the barrel and into the air-duct in the faucet, all arranged and adapted to operate substantially as set forth.

3. A barrel-head, *C*, provided with an air-duct opening into the tap-hole in said head *C*, in combination with a faucet provided with a corresponding air-duct, said faucet being further provided with a spigot, *E*, having an air-duct, all constructed and adapted to operate substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 16th day of September, 1879.

EDWARD FITCH. [L. s.]

Witnesses:

J. VAN SANTVOORD,
J. HERMANN WAHLERS.

A. J. ROBINSON.
Cover for Keg, &c.

No. 225,167.

Patented Mar. 2, 1880.

Fig. 1

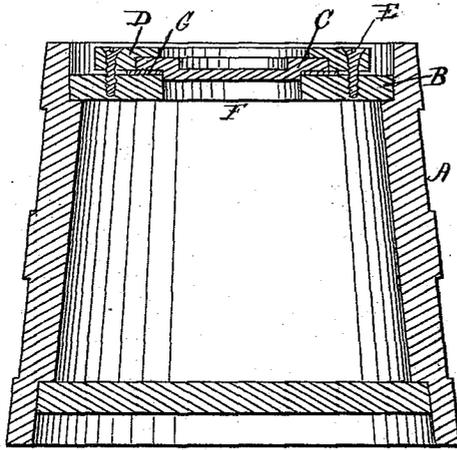
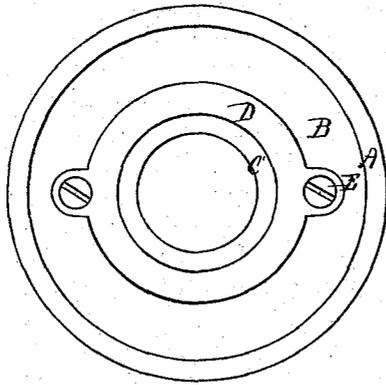


Fig. 2



Witnesses

A. H. Read

Wm. C. Greene,

Inventor,

Andrew J. Robinson

by J. N. Adams

Att'y.

UNITED STATES PATENT OFFICE.

ANDREW J. ROBINSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THOMAS PRINCE, OF SAME PLACE.

COVER FOR KEGS, &c.

SPECIFICATION forming part of Letters Patent No. 225,167, dated March 2, 1880.

Application filed January 17, 1880.

To all whom it may concern :

Be it known that I, ANDREW J. ROBINSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and
5 useful Improvement in Covers for Kegs, Barrels, and other Vessels, of which the following is a specification.

The object of my invention is to provide a detachable transparent cover for an aperture
10 in the top or head of a keg, barrel, or other vessel the contents of which it is desirable to inspect without the necessity of removing the entire top or head of the vessel.

The invention consists of a disk or plate of
15 glass formed with a recess on its upper side and a corresponding depression on its under side, so as to admit of its fitting in a hole in the top of a keg, barrel, or other vessel, and a supporting-rim on the upper edge, in combination with a metal annulus attached to and
20 surrounding the rim of the said disk, and by means of which it may be secured to the top of the said vessel by screws or otherwise, the whole being designed as a separate article of
25 manufacture and sale, to be applied to vessels having a hole in the top.

Referring to the accompanying drawings, Figure 1 represents a transverse vertical section of a vessel having my improvement attached.
30 Fig. 2 is a top or plan view of the same.

A represents a vessel in the form of a keg or firkin of ordinary construction, of which B
35 is the top or head. In the center of the top or head B is an opening, F, which may be of any desired size.

In the opening F is fitted a cover, C, composed of glass and having a projecting rim that rests upon edges of the opening F, and
40 formed with a recess on its upper side and a corresponding depression on its under side, as shown in Fig. 1. Under the projecting edges of the cover C is a flat ring or packing, G, of rubber or other elastic material, so as to
45 render the cover air-tight when closed.

Firmly attached to and surrounding the edges of cover C, and having a rim that overlaps the edge of the said cover, is a metal annulus or frame, D, provided with lugs E,
5 through which pass screws by which the annulus D is secured to the head of the vessel. The annulus or frame D may be attached to the head of the vessel by means of a hinge on one side, and properly secured to the head on
55 the opposite side.

The edge of the aperture E may be provided with a recess or rabbet, in which may be fitted the cover C, if desirable. 55

The cover C is to be attached to the head B in such a manner as to render it entirely air
60 and water tight.

My device is designed to be attached to kegs, barrels, firkins, and wooden vessels of any description.

By means of my invention the contents of
65 any vessel to which it is attached may be readily seen and inspected without the necessity of removing the whole cover or head, and when desirable a portion of the contents can be easily taken out by detaching the cover C,
70 and the vessel be again hermetically closed.

I am aware that a glass stopper applied to a can or jar is not new. This I do not claim; but

What I claim as my invention, and desire to secure by Letters Patent, is— 75

The glass cover C, having a recess on its upper side, with a corresponding depression on its under side, and a supporting-rim on its upper edge, in combination with a metal annulus, D, attached to and surrounding the
80 edge and a portion of the top of the supporting-rim of cover C, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two
85 subscribing witnesses.

ANDREW J. ROBINSON.

Witnesses:

OSCAR P. GREENE,
JOS. H. ADAMS.

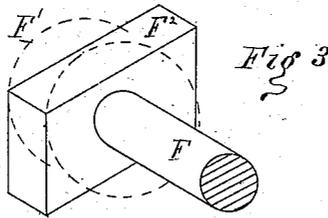
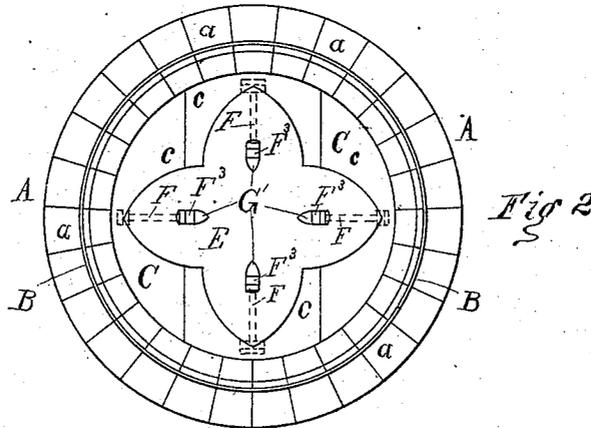
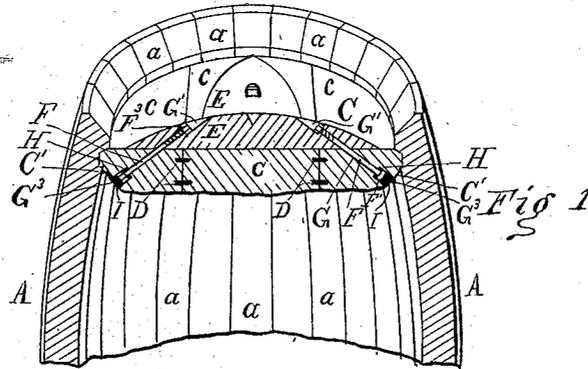
(No Model.)

O. A. LIBBY.

BARREL HEAD STRENGTHENING DEVICE.

No. 267,091.

Patented Nov. 7, 1882.



Witnesses -
John W. Wood
Simon G. Lyford

Inventor -
Oliver A. Libby,
By Albert M. Moore
His Attorney.

UNITED STATES PATENT OFFICE.

OLIVER A. LIBBY, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO JAMES W. BENNETT, OF SAME PLACE.

BARREL-HEAD-STRENGTHENING DEVICE.

SPECIFICATION forming part of Letters Patent No. 267,091, dated November 7, 1882.

Application filed August 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, OLIVER A. LIBBY, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented
5 certain new and useful Improvements in Devices for Strengthening Barrel-Heads, of which the following is a specification.

My invention relates to a device for strengthening the heads of hogsheads, barrels, casks,
10 and similarly-constructed receptacles intended to contain fermented or aerated liquids, said device being placed wholly out of contact with the contents of said receptacles, and also relates to the means of securing said device to
15 said heads.

In the accompanying drawings, Figure 1 is a section in perspective of a hogshead, barrel, or cask to the head of which the strengthening device is attached. Fig. 2 is a plan of such
20 a device attached to such a head. Fig. 3 is a perspective view of the head end of the bolt used to attach the device or plate to the head, the full lines showing the head of a T-bolt and the dotted lines showing a circular head.

25 *a a* are staves of a barrel, *A*. *B* are hoops; *C*, the head, formed of pieces *c c c*, doweled together by pins *D*, all in the usual manner.

It is well known that the heads of hogsheads, &c., containing beer, cider, or other fermented
30 liquors frequently burst by the fermentation and expansion of the contents of such hogsheads, although these heads are commonly made of oak, and are from two to three and a half inches in thickness. When the heads *C*
35 burst they are broken across the grain, near the middle of the head usually, and the middle piece of the head (when there are three such pieces, as is commonly the case) is most likely to be broken, being held in place only
40 by the crozing at its ends and by the dowelpins which connect it to the other pieces of the head. The contents of the hogshead or barrel are mostly lost when the head bursts, and whatever remains in the barrel is likely
45 to be spoiled before it can be used. In addition to the pecuniary loss sustained by the owner, very serious injuries to the persons of bystanders from this cause are quite common. Even when the bursting of the barrel is pre-
50 vented by pricking holes in it, a considerable part of the contents is lost. It is almost al-

ways the heads that give out when such a barrel bursts, it being comparatively a rare occurrence that the staves spread apart and allow the contents to escape between them, and when
55 the latter accident happens it is due to a defective or broken hoop.

The means I use to prevent bursting of the heads are a plate, *E*, of metal, preferably of malleable iron, and of greater thickness and
60 strength in the center, (but not thick enough in any part to reach beyond the chimes or ends of the staves,) and flat on one side, and bolts *F*. The flat side of the plate *E* is placed against the outer face of the head *C*, and the plate is
65 secured to the head by bolts *F*, each passing through the plate and nearly through the head *C* from near the outer edge of the head to a point about half-way between the edge and the center of said plate. The advantage of put-
70 ting the bolts into the head *C* and plate *E* at an angle, as above described, is that a truss is thereby formed by said plate and bolt to strengthen the head, and that the bolt has a firmer hold
75 on the head. The bolt may be a round-headed or a T bolt, (see Fig. 3, in which the round bolt-head *F'* is indicated by dotted lines and the T-shaped head *F''* is indicated by full lines,) and should have, for use on an ordinary
80 beer-hogshead, a diameter of about half an inch in the shank. A hole, *G*, is bored through the head from the under beveled side or edge, *C'*, in the direction shown in the drawings, and this hole is then mortised out or counterbored
85 to receive the head *F'* or *F''* of the bolt *F*. A washer, *H*, of cork or similar slightly-elastic material, is placed around the shank of the bolt, and against the head thereof, before said
90 bolt is put in place. The bolt is then pushed through the hole *G* and through a hole, *G'*, cast or drilled in the plate, and the plate and barrel-head are drawn closely together by
95 screwing a nut, *F''*, on the outer end of said bolt, said outer end being provided with a screw-thread, and the opening *G'* being counterbored or cast larger at its outer end to form
100 a seat or shoulder, *G''*, for the nut to draw against. The mortise or opening *G''*, which receives the head of the bolt *F*, is then filled over said bolt head with a wooden plug, *I*, to prevent the contents of the barrel from coming in contact with the head of the bolt. Turn-

ing the nut F³ compresses the washer H between the head of the bolt and the head of the barrel, and prevents the contents of the barrel from leaking out around the bolt in case the plug I is lost out of place. The bolts may be two or more in number; but I prefer to use four bolts with the form of plate shown in the drawings. In any case the bolts should be placed at equal intervals. The plate may be circular, of course; but I prefer to make it of the four-pointed shape shown in the drawings, to economize material and lessen the weight.

It will be seen that the metallic plate and bolts do not come in contact with the contents of the barrel, as such contact would spoil the contents in most cases, and if beer or cider were contained in the barrel they would rust off the heads of the bolts and loosen the plate. Inasmuch as the plate does not project beyond the ends of the staves, and is in its largest diameter smaller than the head of the barrel, it is evident that the plate will not interfere with handling the barrel in the ordinary manner—that is, lifting the barrel by the chimes or setting the barrel on end.

The device above described is very cheap and durable, and will outlast the barrel.

I claim as my invention—

1. The plate E and means of securing the same to a barrel-head, C, wholly outside of the inner face of said head, as and for the purpose specified.

2. The combination of the plate E, provided with holes G', the bolts F and nuts F³, and head C, having the counterbored hole G and the plug I, as and for the purpose specified.

3. The combination of the plate E, the bolt F, the washer H, of slightly-elastic material, the head C, provided with the counterbored hole G, and means of drawing the head of said bolt against said washer and compressing the same, as and for the purpose specified.

4. The combination of the plate E, the head C, and the bolts F, connecting said plate and head, and running from points near the outer edge of said head to points about half-way between the outer edge and the center of said plate, as and for the purpose specified.

5. In combination with a barrel for containing fermented or aerated liquids, and having wooden heads of the usual construction, a head-strengthening device and means of securing the same to the outer face of a head of said barrel, said strengthening device and securing means being adapted to be placed wholly between the inner face of said head and the adjacent outer ends of the staves of said barrel, as and for the purpose specified.

OLIVER A. LIBBY.

Witnesses:

ALBERT M. MOORE,
I. WESTWOOD.

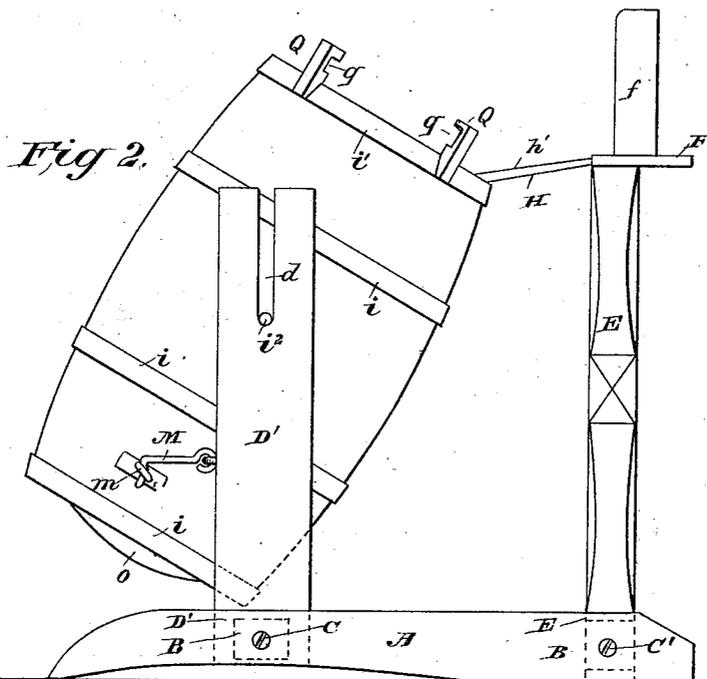
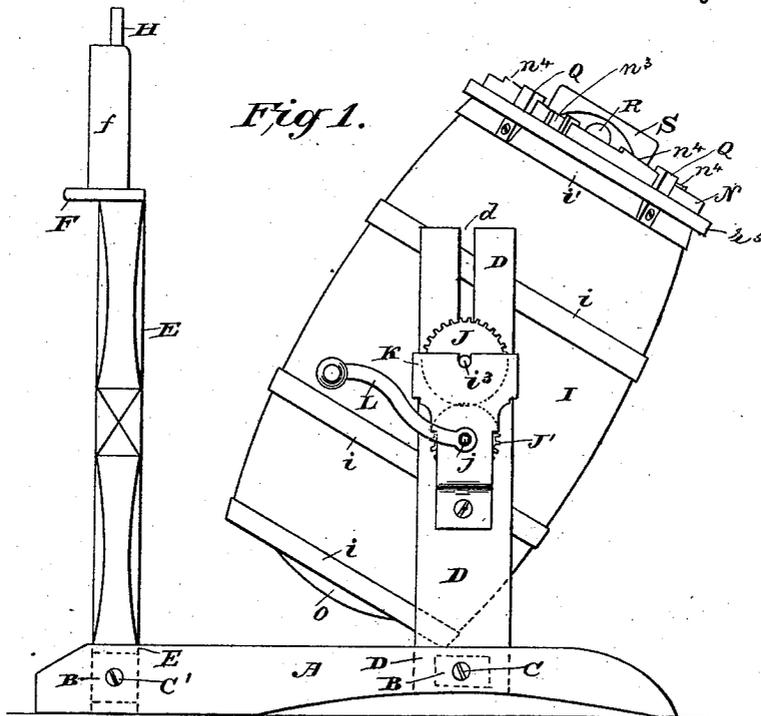
(No Model.)

3 Sheets—Sheet 1.

A. L. JOHNSON.
WASHING MACHINE.

No. 281,882.

Patented July 24, 1883.



Attest.
Geo. T. Smallwood Jr.
Wm. J. Fayers.

Inventor:
Adelbert L. Johnson.
184
Knights Bros
att.

(No Model.)

3 Sheets—Sheet 2.

A. L. JOHNSON.
WASHING MACHINE.

No. 281,882.

Patented July 24, 1883.

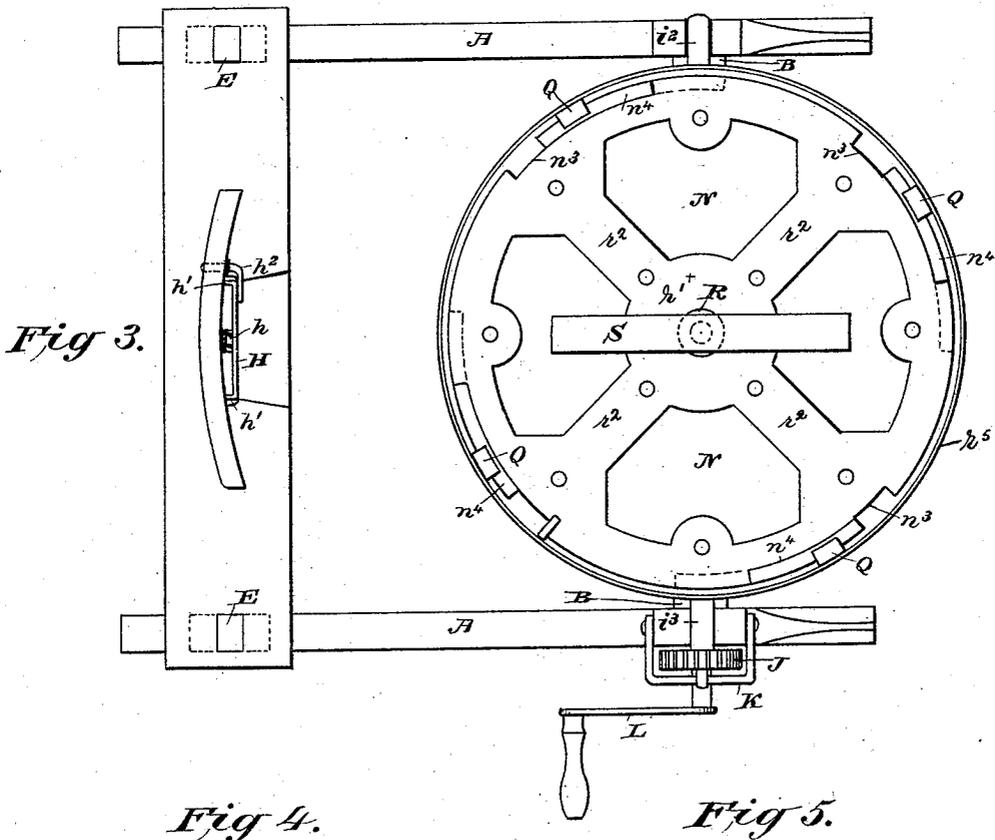
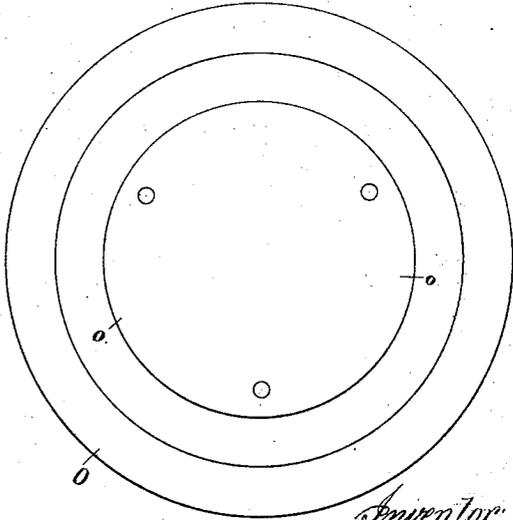
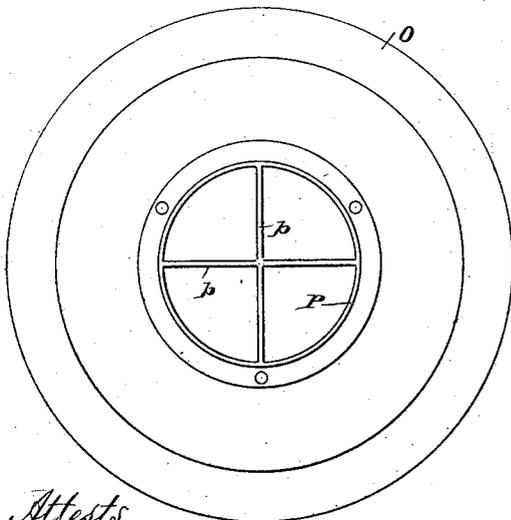


Fig. 3.

Fig. 4.

Fig. 5.



Attests
 Geo. T. Smallwood Jr.
 Wm. J. Fayard

Inventor
 Adelbert L. Johnson.
 134 Knight St. attys.

(No Model.)

3 Sheets—Sheet 3.

A. L. JOHNSON.
WASHING MACHINE.

No. 281,882.

Patented July 24, 1883.

Fig 6.

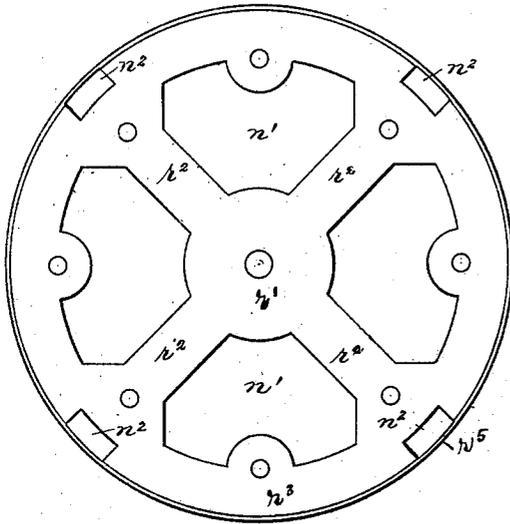


Fig 7.

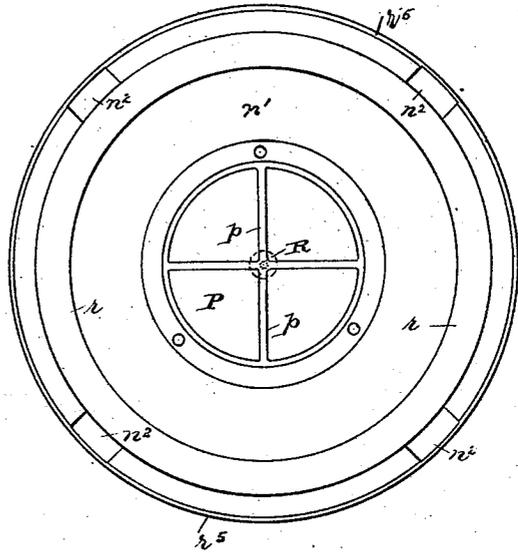


Fig 8.

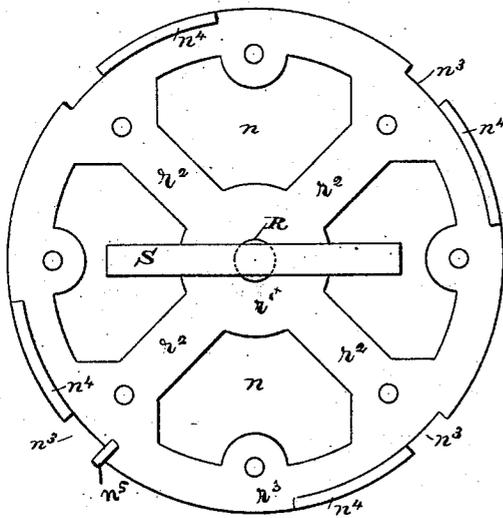
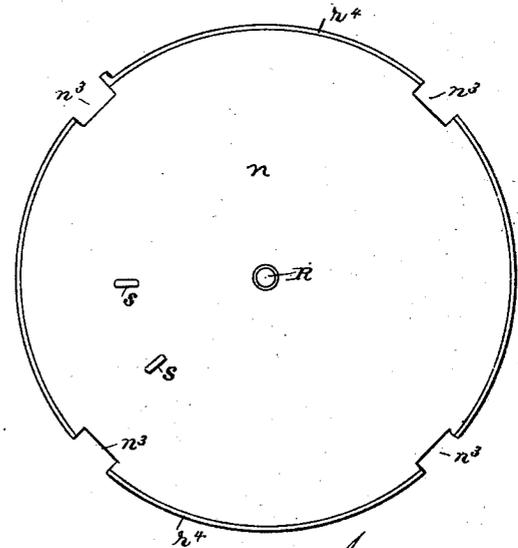


Fig 9.



Attest.
 Geo. T. Smallwood Jr.
 Wm. J. Fayard.

Inventor:
 Adelbert L. Johnson.
 By Knight

UNITED STATES PATENT OFFICE.

ADELBERT L. JOHNSON, OF ATCHISON, ASSIGNOR OF ONE-HALF TO H. R. TOMLINSON, OF LAWRENCE, KANSAS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 281,882, dated July 24, 1883.

Application filed October 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, ADELBERT L. JOHNSON, of Atchison, in the county of Atchison and State of Kansas, have invented an Improved Washing-Machine, of which the following is a specification.

My invention relates to those washing-machines in which a barrel-formed receptacle is employed, the barrel being revolved endwise.

In my improvement I employ a supporting-frame having a pair of longitudinal base-pieces secured together by transverse ties, which are bolted thereto. At one end of the frame are a pair of uprights slotted at their upper ends and adapted to support the barrel. A pair of standards are located at the front end of the frame to support a shelf or table, which in turn supports a wringer-frame, and a hinged apron, held out of the way of the barrel when not in use by a suitable fastening on the wringer-frame while the barrel is turned. This form of supporting-frame has the advantage over others of being readily put together for use and as easily separated for shipment. The barrel is provided on each side with studs or trunnions, forming journals which have bearing in the slotted uprights. A spur-wheel is located on the end of one journal, which has additional bearing in a strap-plate secured to one of the uprights, the strap-plate, also, with said upright, supporting a pinion gearing with the spur-wheel, having a short shaft turning in the strap-plate, and carrying at its outer end a winch or crank handle for imparting the desired rotary motion to the barrel. On the opposite side the barrel is provided with an eye or ring engaged by a hook for holding the barrel in inclined position, and secured to the upright on that side. The barrel-heads are each provided on the inside with an open circular chamber divided by cross-pieces or partitions. The barrel is provided with ordinary metal bands; but the top band is formed with vertical lugs having transverse grooves or recesses on the inside inclined at top, the lugs passing through recesses in a lower stationary member of a double barrel-head having wedge-shaped cleats on an upper rotatable member engaging in the

grooves to bind the head to its seat. Each member of the head has a peripheral binding and flat radial bands extending to the center on the upper side to strengthen the wooden portion and prevent it warping. Studs or pins on the inner face of one member play between two radial arms on the inner face of the opposite member to limit the rotation of the upper member, which is pivoted by a center bolt to the lower member. The lower member is provided with a packing-ring. A flattened weight is secured to the lower barrel-head to counterbalance the weight of the additional member of the upper head.

My invention consists in details of construction hereinafter described and claimed.

In order that the invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side view or elevation of my improved washing-machine. Fig. 2 is a view or elevation of the opposite side, the upper head being omitted and the barrel in position for removing the contents. Fig. 3 is a top view of the barrel, the upper head being shown unfastened in dotted lines. Figs. 4 and 5 are respectively top and bottom views of the lower head. Figs. 6 and 7 are respectively top and bottom views of the lower member of the upper head. Figs. 8 and 9 are respectively top and bottom views of the upper member of the upper head.

A A are a pair of longitudinal base-pieces secured together by transverse pieces BB and screw-bolts C C C' C'.

D D' are a pair of uprights at the rear end of the frame, secured by the screws C C, and formed with slots *d d* to receive the trunnions on the barrel.

At the front end of the frame are a pair of standards, E E, secured by the screws C' C', and supporting a shelf or table, F, on which is secured a convex-concave upright block, *f*, adapted to form a support to a wringer. (Not shown.)

On the rear side of the block, also secured to the table by a suitable hinge, *h*, is a platform, H, adapted to be raised and lowered,

and formed with upturned flanges h' , so as to, when in its lowest inclined position, direct the drainings from the clothes into the barrel, on which its outer end rests when down. When raised the platform rests against the wringer-block, and is secured in this position by a hook, h^2 .

I is the barrel-body, bound by metal bands i i' , and provided on each side with studs or trunnions i^2 i^3 , by which it is journaled in the slots d d of the uprights, the stud or trunnion i^3 being extended to receive a spur-wheel, J, and having additional bearing in a strap-plate, K, secured to the upright D.

J' is a pinion secured to a short shaft, j , turning in the upright D and strap-plate K, the pinion meshing with the spur-wheel, and the shaft carrying on its outer end a winch or crank handle, L, by which, through the described mechanism, the barrel is revolved.

On the opposite side of the barrel is an eye or ring, m , engaged by a hook, M, on the upright D' to retain the barrel, when open, in inclined position toward the wringer and platform.

N is the upper barrel-head, consisting of upper rotatable member, n , and lower stationary member, n' , so as to provide a double barrel-head.

O is the lower head, having on the outside a weight, o , to counterbalance the weight of the upper head. Both the upper and lower heads are provided on the inside with an open chamber, P, having cross-pieces or partitions p . The lower head is secured in the usual manner by tongue and groove, but the upper head is attached as now described.

Q are lugs projecting perpendicularly from the upper band, i' , and formed with transverse grooves q inclined at top. These lugs are inserted through recesses n^2 in the periphery of the lower member, and through recesses n^3 in the periphery of the upper member. Inclined cleats n^4 on the upper member enter the grooves of the lugs to bind the head to its seat when the upper member is turned on the lower member on a center pin, R. A packing, r , is provided on the bottom of the lower member. Both members are metal-bound on their upper sides, as shown at r' r' , thus providing flat radial arms r^2 r^2 , outer portions, r^3 r^3 , and pe-

ripheral binding r^4 r^5 . This binding strengthens the members of the head, and the binding on the lower member forms a smooth bearing for the upper member. Stud s on the under side of the upper member play between the arms of the binding on the upper side of the lower member to limit the movement of the upper member, or a stop, n^5 , may be employed as an equivalent.

S is a handle by which the upper member is turned. As my upper barrel-head consists of two members, the upper one turning easily on the lower one, the fastening of the upper head does not disturb the lower fixed member, which is provided with the packing which seals the barrel.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination of base A A B B, uprights D D', having slots d d , standards E E, table F, wringer-support, washing-barrel I, supported by its trunnions in the slots of the uprights, strap-plate K, secured to upright D, spur-wheel J, and pinion J', journaled in the strap-plate and upright D, and a suitable handle for turning the journal of the pinion to revolve the barrel and adjust it to the table, as set forth.

2. The washing-barrel I, having suitable lower head, the top band, i' , having lugs Q, formed with grooves on the inside inclined at top, and the upper head, N, consisting of a stationary lower member, n' , having packing r on the under side, recesses n^2 at the edge, peripheral binding r^5 , and binding r' r^2 r^3 on the upper side, an upper rotatable member, n , having recesses n^3 at the edge, peripheral binding r^5 , binding r' r^2 r^3 , and inclined cleats n^4 , and a center pin, R, pivoting the upper member to the lower member, as set forth.

3. The washing-barrel I, having lugs Q, the upper head, N, and lower head, O, the upper head consisting of two metal-bound members, n n' , and the lower head provided with counterbalance-weight o , as set forth.

ADELBERT L. JOHNSON.

Witnesses:

J. G. MILLER,
W. S. BRIGGS.

(No Model.)

A. C. CAREY.

BARREL.

No. 312,967.

Patented Feb. 24, 1885.

Fig. 1.

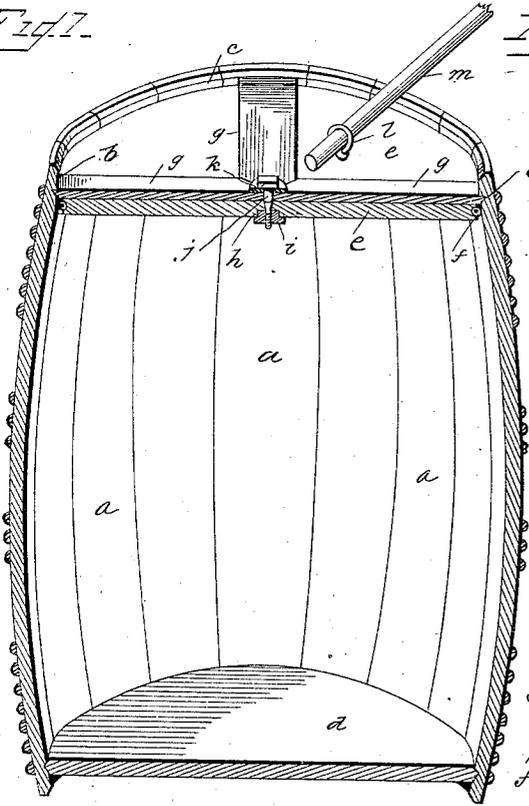


Fig. 2.

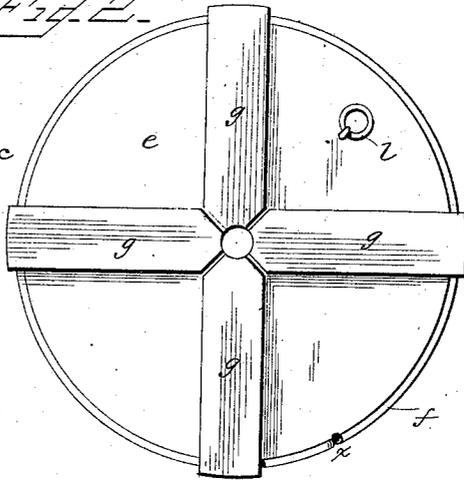


Fig. 3.

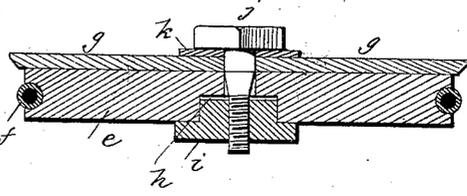


Fig. 4.

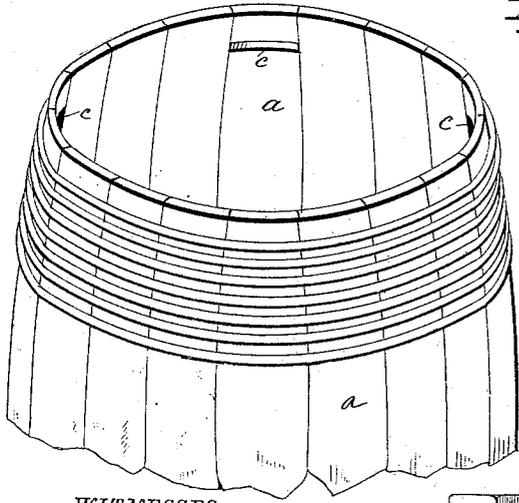
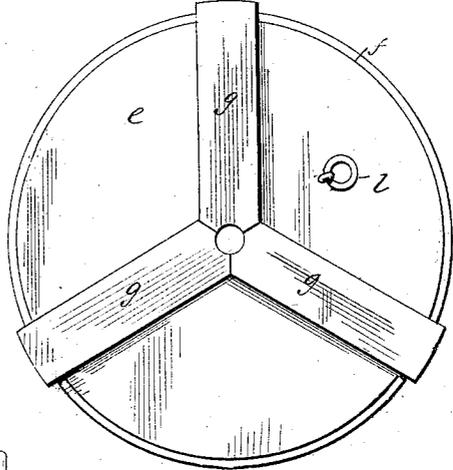


Fig. 5.



WITNESSES

J. L. Curand
Geo. M. Finckel

Fig. 6.



INVENTOR:

Augustus C. Carey
 by *Geo. M. Finckel*
 his Attorney.

UNITED STATES PATENT OFFICE.

AUGUSTUS C. CAREY, OF BOSTON, MASSACHUSETTS.

BARREL.

SPECIFICATION forming part of Letters Patent No. 312,967, dated February 24, 1885.

Application filed December 30, 1884. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS C. CAREY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Barrels, of which the following is a full, clear, and exact description.

The object of this invention is to provide a strong tight barrel suitable for holding matter packed therein under pressure, and it is directed to the construction of a head, which, while perfectly tight and secure, may yet be readily removed without starting the hoops, so that the barrel may be kept intact for repeated reuse.

My invention consists in a stout, strong, and water and air tight barrel, preferably of staves, in which one head is preferably a fixture and the other is removable without starting the hoops, said last-named head being provided with an air and water tight packing which engages the inner surface of the chine below the croze, a plurality of movable battens radiating from a bolt-hole in the head and engaging the croze, and a screw-bolt in said bolt-hole engaging a nut in the head, and the several battens to hold the battens in the croze and to the head, and so securing the head removably in the barrel, all and severally as hereinafter set forth and claimed.

In the accompanying drawings, in the several figures of which like parts are similarly designated, Figure 1 is a central vertical section in perspective of a barrel embodying my invention. Fig. 2 is a top plan view of the head, with its battens removed from the barrel; and Fig. 3 is a central vertical cross-section thereof, these two last views, for the sake of clearness, showing the parts disproportionately thick. Fig. 4 is a perspective view of a modification in the croze. Fig. 5 is a top plan view, on another scale, of a barrel-head having three battens; and Fig. 6 is an elevation of a straight or parallel sided bolt which may be used instead of the tapering bolt shown in Figs. 1 and 3.

The barrel staves *a* have the chine *b* flat, and provided with a continuous croze, *c*, or individual crozes, as shown in Fig. 4, corresponding in number with the number of battens used on the head, and in this latter case

the crozes will be made preferably the width of a stave, so that the two next adjacent staves will present solid surfaces against which the sides of the battens when in place will abut, and the battens be thereby held against lateral slip or displacement. The under lip of the croze or crozes is of easy curvature or incline to permit the head to slip by it.

The barrel-head *d* may be of any approved construction and inserted in any usual way. The head *e* is circular with straight periphery, so as to slip along the straight chine of the barrel, and its periphery is grooved annularly to receive a packing-ring, *f*, which by preference is rubber tubing having its ends lap-jointed or otherwise connected, or having one end turned up and the other down in appropriate grooves in the periphery of the head, as indicated at *x*, Fig. 2. The contents of the barrel limit the downward movement of the head, and said head is pressed down hard upon such contents and held there by the battens *g*, of which there are a plurality arranged radially of the head, and having undercut outer ends to fit in the croze. The inner ends of these battens are beveled or mitered to register at the center of the head, and are also curved on the arc of a circle to form an orifice which registers with a hole, *h*, in the barrel-head, the said hole *h* being provided with a stationary nut, *i*, let into or fixed to the under side of the barrel-head. When the barrel-head and battens are in position in the chine, a screw-bolt, *j*, is passed through the orifice of the battens and the hole in the barrel-head, and screwed down into the nut *i*, a washer, *k*, being preferably first interposed between the battens and bolt-head to insure a tight joint. The bolt, if tapered, as in Figs. 1 and 3, will serve to spread out the battens longitudinally and insure their engagement with the croze or crozes; but it is an easy matter to have said battens of such invariable length and the diameter of the chine so fixed (owing to the fixture of the hoops at all times) that no longitudinal movement of the battens will be needed, and hence a straight bolt, as in Fig. 6, will suffice to hold them in the croze or crozes and to the head. The battens will be applied to a filled barrel while the head is under pressure, and may be simply laid in the croze flat on the head and then secured by the bolt. The bolt

may taper to its head, or have a tapering shoulder on a straight cylindrical shank.

I do not deem it advisable to force the battens into the croze by a bolt acting as a wedge for the reasons that there is too much wear by end-thrust on the battens, and there is a tendency to spread the barrel unduly to the injury of its hoops and the disjuncting of the staves; but the tapering bolt I prefer to use, as shown in the drawings, will simply drive the battens home, and then there will be no further increase of pressure or thrust against the staves. This is true also of the well-matched battens and straight bolt. The mitering of the battens serves to insure against lateral displacement.

The barrel is uncovered by removing the screw-bolt, lifting off the battens, and then raising the cover; but, inasmuch as the cover is apt to stick, I provide it with a ring, *l*, fastened thereto—say by a staple—by which the barrel-head may be pulled out manually, and if it should refuse to move, a stick, bar, or lever, *m*, may be run through it, using the head of the barrel as a fulcrum, as indicated in Fig. 1.

What I claim is—

1. A barrel provided with a fixed head and a removable head, the latter comprising a circular disk provided with a peripheral packing, to engage the chine of the barrel below the croze, battens superposed upon such head and engaging the croze and having their inner ends matched, and a screw-bolt and nut to fasten the battens and head together, substantially as described.

2. The combination, with a crozed barrel, of the removable head having peripheral packing, battens having undercut outer ends and matched or mitered inner ends, a nut fast in said head, and a screw-bolt engaging such nut and the battens, substantially as described.

3. The combination, with a crozed barrel, of the removable head having peripheral packing, battens radiating from a central bolt-hole in the head and having undercut outer ends and matched or mitered inner ends, a nut fast in said head, and a screw-bolt engaging such nut and the battens, substantially as described.

4. The combination, with a crozed barrel, of the removable head, battens superposed on such head and engaging the croze, a tapering screw-bolt, and a nut therefor to hold the battens to the head and in the croze, substantially as described.

5. The combination, with a barrel-head secured in the barrel by superposed battens, and a bolt and nut applied thereto, of a series of crozed staves equal in number to the number of battens and engaged by such battens, and crozeless adjacent staves, substantially as described.

In testimony whereof I have hereunto set my hand this 23d day of December, A. D. 1884.

AUGUSTUS C. CAREY.

Witnesses:

E. F. WHITE,
E. A. FINCKEL.

(No Model.)

T. A. COOK.
PAIL.

No. 313,990.

Patented Mar. 17, 1885.

Fig. 1.

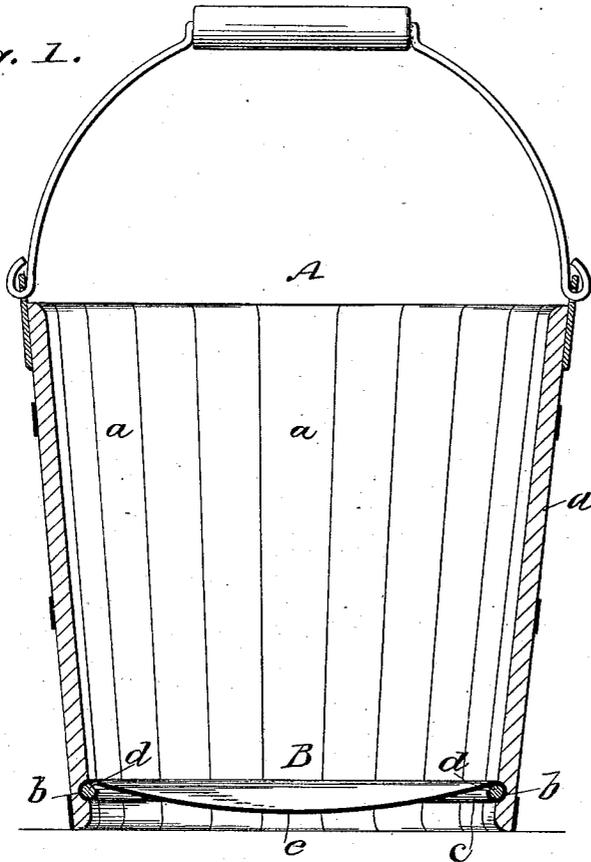
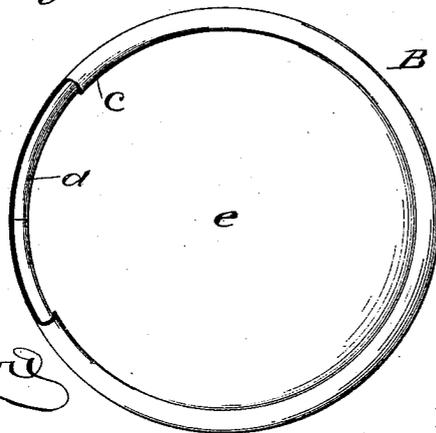


Fig. 2.



WITNESSES:

John H. Deemer
C. Sedgwick

INVENTOR:

T. A. Cook

BY

Munroe
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THEODORE A. COOK, OF BROOKLYN, NEW YORK.

PAIL.

SPECIFICATION forming part of Letters Patent No. 313,990, dated March 17, 1885.

Application filed July 30, 1884. (No model.)

To all whom it may concern:

Be it known that I, THEODORE A. COOK, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Pail, of which the following is a full, clear, and exact description.

This invention relates to an improvement in wooden pails or buckets; and it consists, principally, in providing them with metallic bottoms, whereby the durability of the pail or bucket is greatly increased.

The invention also consists in the construction and arrangement of parts, as will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional elevation of my new and improved pail or bucket; and Fig. 2 is a broken plan view of the metallic bottom of the pail or bucket, a portion being broken away.

The body A of the pail is made up of the staves a, which are crozed near their lower

ends in the ordinary manner, as shown at b, to receive the metallic bottom B. The bottom B is made of a circular piece of sheet-iron or heavy tin rolled at its edge, as shown at c, around or so as to clasp the heavy metal hoop or ring d, and the bottom B is by preference made concaved in the center, as shown at e, to increase the capacity of the pail or bucket. The bottom thus formed is fitted in the pail or bucket in the ordinary manner, thus forming a very strong, light, and durable pail or bucket.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The body A, composed of the staves a, crozed at b, in combination with the metallic bottom B, made concaved at e, rolled at c, and provided with the ring or hoop d, substantially as described.

THEODORE A. COOK.

Witnesses:

J. WEISS,
THOMAS STOUT.

(No Model.)

D. W. CURTIS
CHURN.

No. 321,486.

Patented July 7, 1885.

Fig. 1.

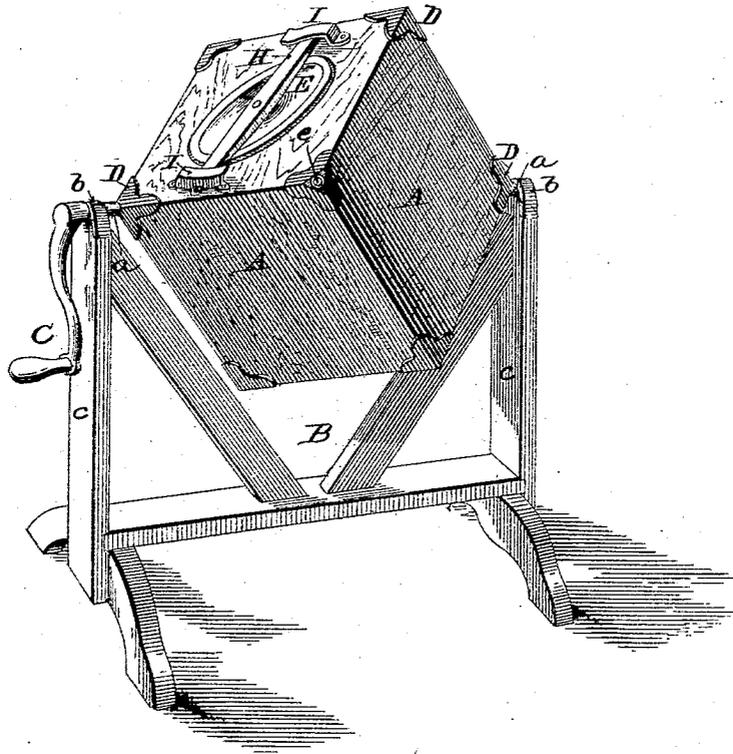


Fig. 2

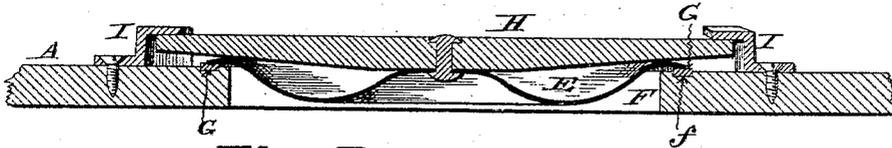
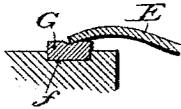
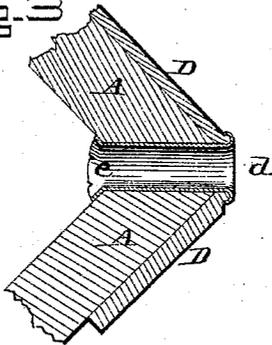


Fig. 3

WITNESSES.

Jas. F. DuHamel.
Walter S. Dodge



INVENTOR

David W. Curtis
by *Rodgeron*
Cutts

UNITED STATES PATENT OFFICE.

DAVID W. CURTIS, OF FORT ATKINSON, WIS., ASSIGNOR OF TWO-THIRDS TO
OSCAR S. CORNISH AND WALTER S. GREENE, BOTH OF SAME PLACE.

CHURN.

SPECIFICATION forming part of Letters Patent No. 321,436, dated July 7, 1885.

Application filed March 13, 1884. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. CURTIS, of Fort Atkinson, in the county of Jefferson and State of Wisconsin, have invented certain Improvements in Churns, of which the following is a specification.

My invention relates to churns; and it consists in certain features hereinafter more fully pointed out.

Figure 1 is a perspective view of a churn embodying my improvements; Fig. 2, a sectional view through the cover and the side of the churn to which it is applied; Fig. 3, a sectional view of the outlet-tube at the corner of the churn.

The churn is of that class commonly known as "box-churns," in which a rectangular box is provided with trunnions at two corners diagonally opposite each other, or different sides of the box. Such churns have a removable cover applied to one face or side, and are usually furnished with a hole or outlet near one corner to permit the buttermilk to be drawn off, or to permit the escape of the water used in cleaning the churn.

Referring now to the drawings, A indicates the body or box of the churn, provided at two diagonally-opposite corners with journals *a a*, which rotate in boxes or bearings *b b* of uprights *c* of a frame or support, B, one of which journals is furnished with a crank or band wheel, C, through which motion is imparted to the churn, as usual. The sides of the box are tongued and grooved to make a good joint, and the joint is rendered water-tight by the application of white lead or in any equivalent manner.

D indicates a metallic corner-piece, of which one is applied to each corner, two of these pieces having journals *a a* formed upon them, as shown. One of the corner-pieces D, which are made usually of cast-iron, either malleable or not, but preferably malleable, is formed with an opening, *d*, at the junction of its sides, which opening registers with a hole or opening made at the corner of the box or body A. Passing through the hole or opening in the churn box or body is a tube, *e*, of tin or other suitable metal, slightly longer than the hole

through which it is passed, and its ends are turned down upon the inside of the churn and outside of the corner-piece D, as shown in Fig. 3, the tube being swaged within the opening, so as to completely fill it and prevent the milk or cream from finding its way into the sides of the surrounding hole or opening. This feature is an important one, because the hole is necessarily made across the grain of the wood and exposes the end of the grain, so that unless prevented by the tube the milk or cream soaks into the wood and becomes sour, it being impossible to completely remove it; hence it is extremely difficult to keep the churn sweet and clean where the hole is bored through the wood and not lined or bushed, as herein shown and described. When thus bushed, the rotting away of the walls of the hole is prevented, though liable to occur where not so protected. This plan also insures the perfect emptying of the churn—a result which it is difficult to attain when the hole is made, as is customary, through one of the sides close to but not actually in the corner. The point formed by the meeting of the three sides of the corner-piece is cut away, as shown in Figs. 1 and 3, to form a plane face at right angles to the length of tube *e* for the end of said tube to be turned over upon. The tube or outlet is closed by a cork, as usual, the smooth interior of the tube greatly facilitating the entrance and removal of the cork, and insuring a perfect stoppage of the outlet.

E is the cover, which is applied over an opening, F, made in the side of the churn, and is preferably of circular form. It is made of tin, or of sheet-iron tinned on its faces, and of such thickness as to possess considerable strength and elasticity. The extreme outer edge is slightly turned downward to insure its touching the surface within which it is pressed into contact when in place upon the churn-box.

G indicates a cork packing or filling seated in a groove or recess, *f*, surrounding the opening F and set a little back from the sides or walls thereof, as shown in Fig. 2. The groove is ordinarily made about a quarter of an inch in depth and from a quarter to a half an inch in width, the cork filling being placed therein and

brought flush with or a little above the surface of the side of the churn to which it is applied, so that the edge of the cover may rest upon it with certainty. The cover is either pressed 5 or spun into shape, and has a raised central portion, which joins the outer edge or rim by a compound curve, giving to the cover a considerable degree of elasticity.

H indicates a cross-bar pivoted at its middle 10 to the center of the cover E, its ends projecting beyond the cover at each side, and serving to lock the cover in place by passing beneath inclined clips or keepers I, secured to the body of the churn, the cover being applied to the 15 box with its rim or edge resting upon the cork filling G, and is pressed and held in place by swinging the edges of the cross-bar under the clips or keepers I, and forcing said ends thereunder until the required pressure is secured. 20 The edge of the cover is thus embedded in the packing, and a perfectly close joint is thereby insured. Other yielding or elastic material may be substituted for the cork packing, but not to so good advantage, the cork being 25 cheap, admirably adapted to the purpose, and free from taste or odor which might affect the milk or cream.

No claim is made, broadly, to the cross-bar and inclined clips or keepers, as these are known to be old. 30

I am aware that an angular churn-body has been provided with journals at diagonally-opposite corners, and that it has been proposed to make one of such journals hollow or of tubular form for the purpose of ventilation. Such 35 construction, however, affords no outlet for the milk or other liquid contents of the churn, because always and necessarily above the level thereof.

Having thus described my invention, what 40 I claim is—

In combination with a churn box or body, A, and a metallic corner-piece applied thereto, an outlet-tube passing through the corner of the churn and corner-piece and spread at 45 its ends, to prevent the contents of the churn from entering the pores of the wood or the space between the body and corner-piece, substantially as and for the purpose set forth.

DAVID W. CURTIS.

Witnesses:

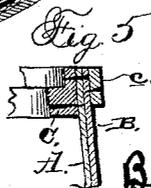
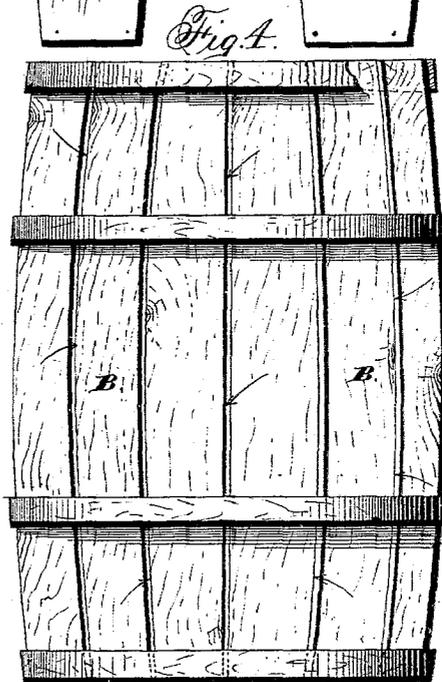
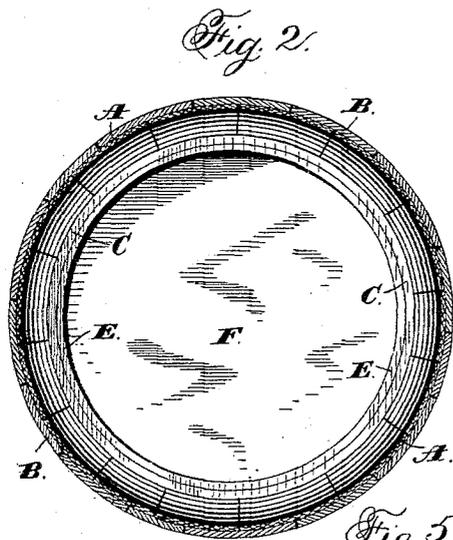
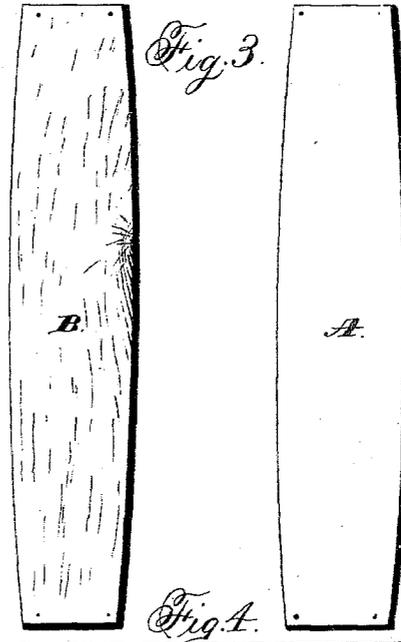
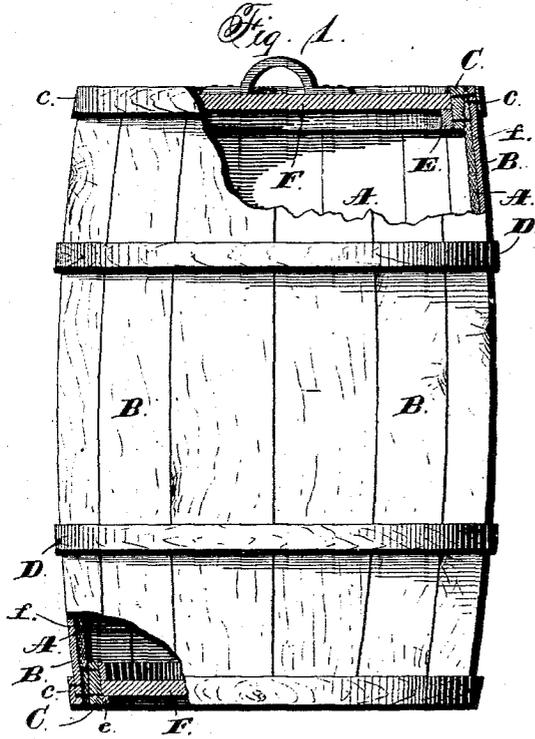
L. GOSSELIN,
D. L. DAMUTH.

(No Model.)

S. H. RAYMOND.
BARREL.

No. 331,911.

Patented Dec. 8, 1885.



Witnesses:
Jas. C. Hutchinson
Geo. F. Downing

Inventor.
Silas H. Raymond
By H. A. Raymond
Attorney.

UNITED STATES PATENT OFFICE.

SILAS H. RAYMOND, OF GRAND RAPIDS, MICHIGAN.

BARREL.

SPECIFICATION forming part of Letters Patent No. 331,911, dated December 8, 1885.

Application filed October 28, 1885. Serial No. 181,161. (No model.)

To all whom it may concern:

Be it known that I, SILAS H. RAYMOND, of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Barrels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in barrels.

The object is to provide a light, cheap, and durable barrel suitable for house use in storing flour, sugar, &c., and keeping the same free from dampness and insects.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the barrel partially broken away. Fig. 2 is a transverse section, and Fig. 3 represents one of the inside and one of the outside staves. Fig. 4 shows a modification; and Fig. 5 is a modified form of inner hoop, showing the shoulder for holding the head formed integral with the hoop.

A represents one of the inside and B one of the outside staves. The inside stave, A, is formed of thick paper, such as is commonly termed "pasteboard" or "straw-board," and the stave B is preferably formed of wood veneer, but may be formed of paper, if so desired.

C represents the inside end hoops, which are first placed upon the ends of the former in constructing the barrel. The ends of the inside paper staves are then nailed to the hoops C with their edges in close contact. Glue or cement is then applied to the joints, completely filling them. The outside staves, B, are then nailed to the end hoops in such position as to lap joints with the paper staves, their joints being filled or not with glue or cement; and the outside middle hoops, D, are then driven on, drawing the whole snugly together. The outside end hoops, e, are then placed in position and nailed to the staves or through the staves and inside hoop, C.

To form rests for the heads, thin strips of wood, E, are bent around on the inside faces of the inner end hoops at their lower edges, and

secured thereto by nails or other suitable fastening; or the inside hoops might be formed thicker at their lower edges, and shoulders thereby formed on their inner faces, as shown in Fig. 5. One of the heads F is permanently secured in position by a thin strip of wood, e, secured to the inside face of the hoop C outside of the head and in close proximity to the head. The other or top head F may be secured in a removable manner by any of the well-known means; or it may be provided with a handle, and may simply rest in position on the internal shoulder. Instead of forming the inside paper staves separately, they may be formed of a single sheet of thick paper gored at its ends to conform to the curve of the barrel, and the edges where the gores are made may be united by glue or cement. The outer sides of the paper staves may also be completely covered with glue or cement, f, and the outside staves applied thereto in such a manner as to compress the glue or cement before it hardens between the outer and inner sets, thereby forming a solid and compact wall impervious to moisture and secure against the passage of small insects, mice, rats, &c.

The modification represented in Fig. 4 consists in omitting the lining or set of inside staves and nailing the outside staves to the hoop far enough apart to admit air for the purpose of storing fruit and vegetables. The spaces between the staves and the outside and inside end hoops admit of a circulation of air throughout the length of the barrel, and are made at no additional expense, as they are formed during the process of construction.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A barrel consisting, essentially, of an inner and outer series of bent staves firmly secured together, the outside and inside hoops rigidly secured to the staves, the inner hoops having shoulders thereon forming seats for the heads, and the strip e, secured to the inner hoop outside of the lower head, for permanently securing said lower head in position.
2. A barrel consisting, essentially, of a se-

ries of inside paper staves having their edges
glued or cemented together and a series of out-
side staves overlapping the joints of the inside
series, the ends of the staves being nailed be-
5 tween outside and inside hoops, and thin strips
of wood bent around and secured to the inside
faces of the inside hoops to form stops for the
head, substantially as set forth.

In testimony whereof I have signed this
specification in the presence of two subscribing
witnesses.

SILAS H. RAYMOND.

Witnesses:

CYRUS E. PERKINS,

WILLIAM A. CHAPMAN.

(No Model.)

J. R. ALLGIRE.

BARREL HEAD.

No. 338,379.

Patented Mar. 23, 1886.

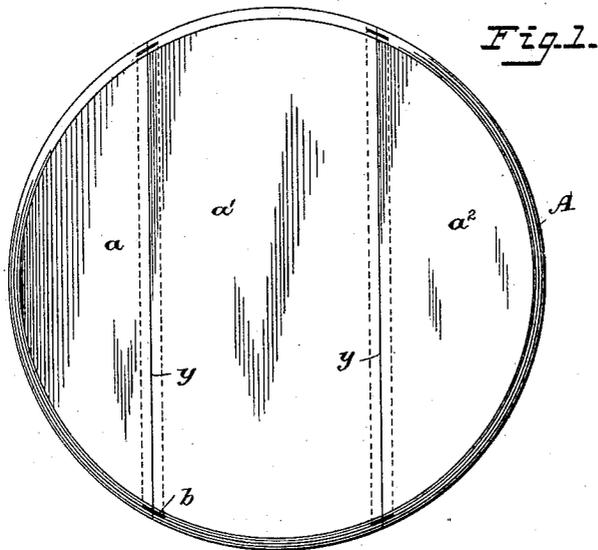


Fig. 1.

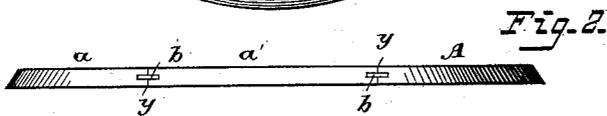


Fig. 2.

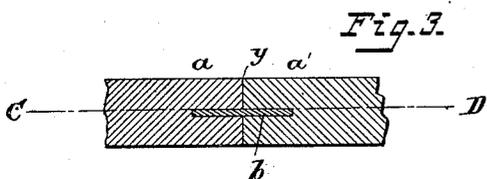


Fig. 3.

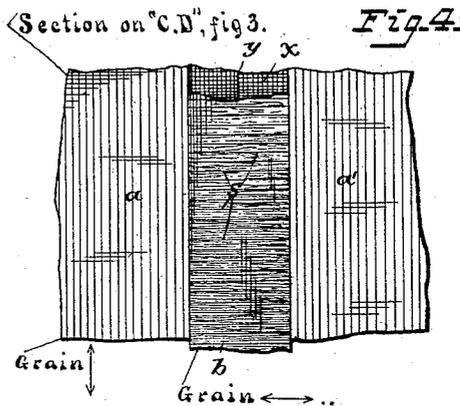


Fig. 4.

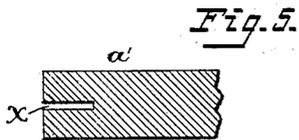


Fig. 5.

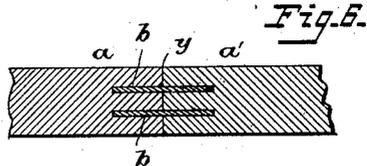


Fig. 5.

Attest:

Chas. Cooper,
A. C. Franmann.

Jas. R. Allgire,

Inventor:

By Foster & Freeman
Atty.

UNITED STATES PATENT OFFICE.

JAMES R. ALLGIRE, OF INDIANAPOLIS, INDIANA.

BARREL-HEAD.

SPECIFICATION forming part of Letters Patent No. 338,379, dated March 23, 1886.

Application filed January 2, 1886. Serial No. 187,451. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. ALLGIRE, a citizen of the United States, and a resident of Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Barrel-Heads, of which the following is a specification.

My invention has for its object to make a barrel-head in which the sections shall be flexibly connected, and in which the joints shall effectually be closed when the head is in place without the necessity of making the sections of heavy material, and these objects I effect by grooving the edges of the sections, and by connecting them by strips of veneer having the grain running transversely, as fully set forth hereinafter, and as illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a barrel-head, illustrating my improvement. Fig. 2 is an edge view; Fig. 3, a transverse section enlarged; Fig. 4, a section on the line C D, Fig. 3; Fig. 5, a section showing the edge of one of the sections; Fig. 6 a section illustrating a modification.

A represents the barrel-head, which, as shown, consists of three sections, $a a' a''$; but it may consist of two sections, or four or more, according to the character of the barrel and other circumstances.

In the straight edge of each section of the head is made a groove, x , Fig. 5, which may be produced by means of a revolving saw or any suitable cutter, and which corresponds with the groove of the adjacent section, and in the coinciding grooves xx of each two adjacent sections is inserted a strip, b , of veneer equal in width to the depth of the corresponding grooves, and extending the entire length of the sections, and curved at the edges to correspond to the curve of the sections, as shown in Fig. 1. It is important that the strip b be cut from the veneer so that the grain shall run across the joint y between the sections, or at right angles to the straight edges of the sections, as illustrated in Fig. 4, where the transverse lines s indicate the line of the grain of the wood in a strip of veneer. The strip b fits the grooves tightly, but not so

tightly as to prevent its ready insertion and withdrawal from the sections, so that the barrel-head may be readily built up by bringing the sections together with the strips between, and may be readily dismembered by separating the sections.

The head constructed as above described, although applicable to barrels of general construction, is especially adapted to that class of barrels in which the body consists of a single piece of material, where the ends cannot be spread for the insertion of the head, as in barrels made of staves bound together.

In applying the head the sections are brought together, held loosely in connection by the strips, and the edge sections, $a a'$, are bent downward against the bearing within the barrel, and the central portion is then forced or sprung down until in line with the other sections resting upon its seat, the connecting veneer strips bending and yielding under the above operations to hinge the parts together to permit the requisite play, but preventing them from separating, the position of the grain of the veneer insuring a certain amount of elasticity, but preventing the strips from splitting as they bend to accommodate themselves to the movement of the sections. After the head is in place upon the barrel the strips b serve to close the joints y , so as to prevent the escape of the contents of the barrel, should the sections shrink or separate from each other at their contiguous edges. While the strips b thus connect the sections together and close the joints, their use does not necessitate the employment of heavy material in the manufacture of the head, inasmuch as they are of veneer and so thin that they can be applied without weakening the sections to those made of the usual thin material. Where extra strength or security is required, each section may have two parallel grooves or slits for the reception of two parallel strips, b , as shown in Fig. 6, and, owing to the thinness of the veneer, the two strips may be applied where the head is made of thin material.

I claim—

A barrel-head consisting of two or more sec-

tions having corresponding grooves in their adjacent edges, with connecting-strips extending across the joints into the corresponding grooves of adjacent sections, each strip consisting of veneer having its grain running across the joint between the sections, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES R. ALLGIRE.

Witnesses:

AUSTIN B. PRATHER,
LESLIE C. FERREE.

(No Model.)

A. BRAKE.

PAIL, &c.

No. 353,198.

Patented Nov. 23, 1886.

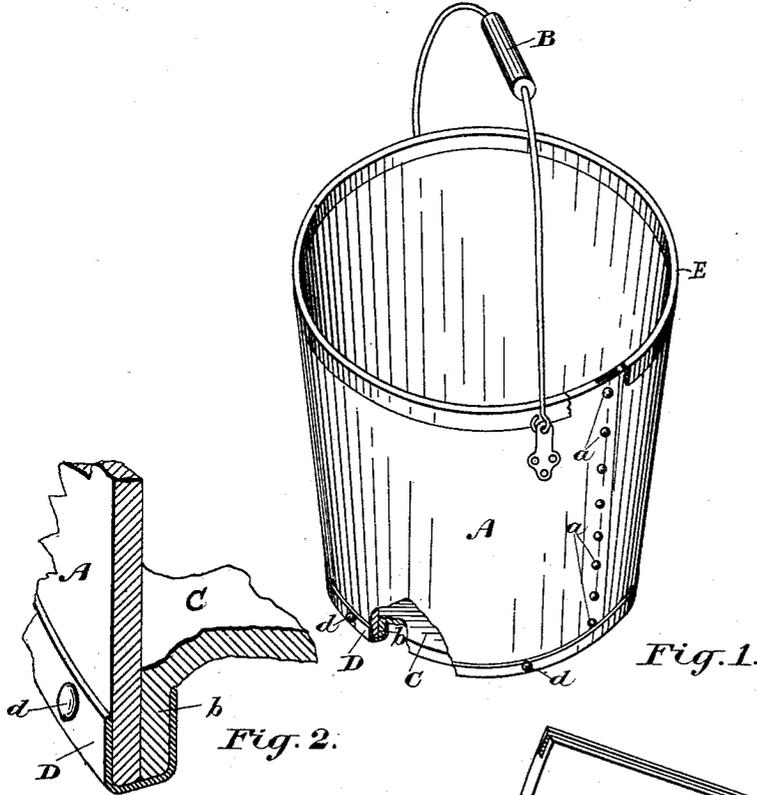


Fig. 1.

Fig. 2.

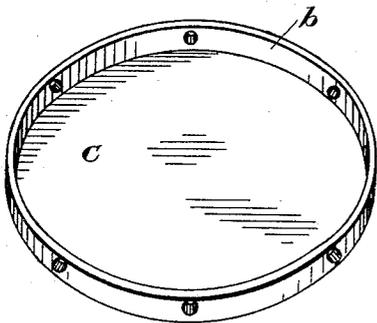


Fig. 4.

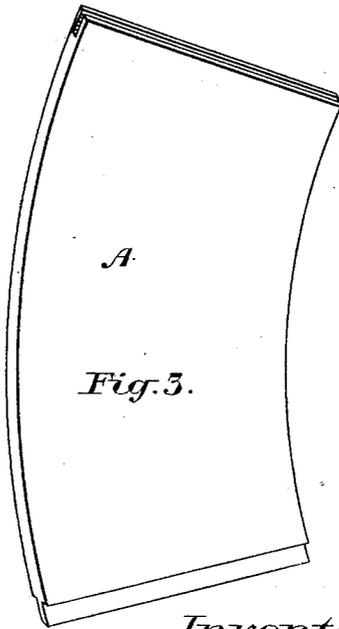


Fig. 5.

Witnesses.

H. B. Fethersonbaugh
J. M. Jackson

Inventor.

Archibald Brake
by Donald C. Ridout Esq
Att'y

UNITED STATES PATENT OFFICE.

ARCHIBALD BRAKE, OF TORONTO, ONTARIO, CANADA.

PAIL, &c.

SPECIFICATION forming part of Letters Patent No. 353,198, dated November 23, 1886.

Application filed May 27, 1886. Serial No. 203,397. (No model.) Patented in Canada May 27, 1886, No. 24,162.

To all whom it may concern:

Be it known that I, ARCHIBALD BRAKE, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, molder, 5 have invented certain new and useful Improvements in Pails, Tubs, &c., of which the following is a specification.

The object of the invention is to construct a light, strong, and durable pail or tub with- 10 out hoops; and it consists, essentially, in making the body of the pail or tub of light veneer, suitably jointed, and provided with a flanged bottom, preferably made of heavy paper, jointed to the bottom of the body of the pail in a sub- 15 stantial manner, the body and bottom of the pail or tub being preferably saturated with suitable water-proof composition, substantially as hereinafter more particularly explained.

Figure 1 represents a perspective view of a 20 pail constructed in accordance with my invention. Fig. 2 is a perspective detail of a portion of the veneer body, showing the form of joint employed. Fig. 3 is a perspective detail of the blank forming the body of the pail. 25 Fig. 4 is a detail showing the inverted bottom of the pail.

While I prefer to make the body of the pail or tub of a single piece of thin veneer, the object of my invention will be secured were the 30 said body made in several pieces, provided they were suitably jointed together.

In the drawings I show a pail having its body A made out of a single piece of thin veneer, the edges of the said piece of veneer, 35 where the joint is made, being made in the form of a tongue and-groove joint, a series of rivets, *a*, extending down the seam being employed for the purpose of tightening the seam and making it water-tight.

40 B is a handle secured to the body of the pail in the ordinary way, as shown.

C is the bottom, preferably made of heavy paper, and having a flange, *b*, formed around

it. This flange *b* is made to fit tightly the interior of the body A, its edge being flush with 45 the bottom edge of the said body.

D is a U-shaped band, preferably of metal, and designed to grasp, as indicated, the bottom edge of the body A and the flange *b* of the bottom C. This band D is secured in po- 50 sition by a series of rivets, *d*, and extends around the body A, forming a water-tight joint between the body and bottom.

The body A and bottom C are dipped into some suitable water-proof composition, so as 55 to make them water-tight.

A pail or tub made in the manner described requires no hoops, will be much lighter than the kind now used, will be cheaper to make, and very much more durable. 60

The top edge of the body A is preferably protected by means of a U-shaped band, E, pressed onto the said edge so as to securely fit the same.

What I claim as my invention is— 65

1. A vessel having a body, A, made of thin veneer connected together by a tongue-and-groove joint secured by the rivets *a*, in combination with a bottom, C, having a flange, *b*, 70 designed to fit the body A, and secured thereto by means of the band D and rivets *d*, substantially as and for the purpose specified.

2. A vessel having a body, A, made of thin veneer connected together by a tongue-and-groove joint secured by the rivets *a*, in combination with a bottom, C, having a flange, *b*, 75 designed to fit the body A, and secured thereto by means of the band D and rivets *d*, and the band E, fitted upon the top edge of the body A, substantially as and for the purpose specified. 80

Toronto, May 15, 1886.

ARCHD. BRAKE.

In presence of—

CHARLES C. BALDWIN,
JACK M. JACKSON.

(Model.)

H. R. FRENCH.

BUTTER TUB.

No. 367,384.

Patented Aug. 2, 1887.

Fig. 1.

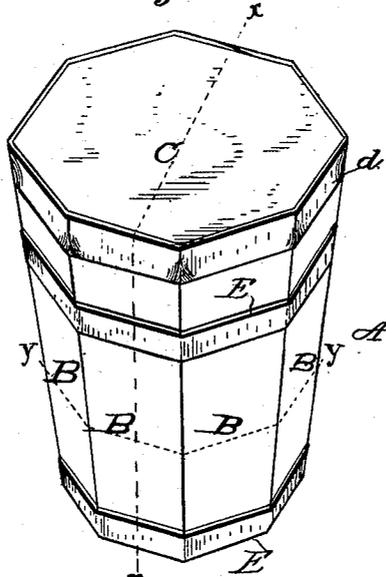


Fig. 2.

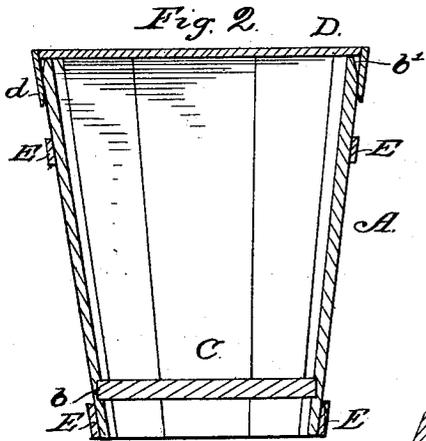


Fig. 3.

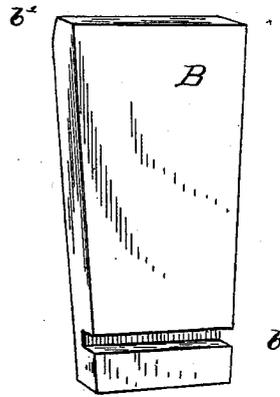
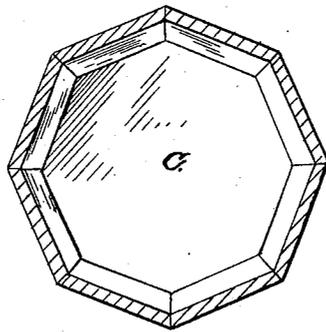


Fig. 3.



Witnesses

Susie B. Seiler
A. W. Bishop.

Inventor

Heman R. French

by his Attorneys
Robt. M. Lacey

UNITED STATES PATENT OFFICE.

HEMAN R. FRENCH, OF WATERBURY, VERMONT, ASSIGNOR TO GEORGE E. DUMAS, OF SAME PLACE.

BUTTER-TUB.

SPECIFICATION forming part of Letters Patent No. 367,384, dated August 2, 1887.

Application filed January 6, 1886. Serial No. 187,809. (Model.)

To all whom it may concern:

Be it known that I, HEMAN R. FRENCH, a citizen of the United States, residing at Waterbury, in the county of Washington and State of Vermont, have invented certain new and useful Improvements in Butter-Tubs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to vessels for transporting merchandise in small packages, and is particularly designed as an improvement in tubs for the transportation of butter, lard, or similar commodity, the tubs being preferably of wood and of that class commonly termed "knockdown tubs."

The object of the improvement is the construction of a tub and cover which will be both simple and economical in cost, and which will permit the cover to be applied to the tub and be firmly and positively held thereon without nailing or any other extra securing devices.

The improvement consists in having the tub or vessel polygonally-sided, the sides being divergent, and a correspondingly-sided cover having a rim crimped opposite the angle between each two sides of the cover for contracting the lower edge of the rim, which edge is adapted to be sprung over and embrace the top edge of the tub, as will be more fully hereinafter set forth and claimed.

In the drawings, Figure 1 is a perspective view of my tub with the cover in place. Fig. 2 is a transverse sectional view of the same on the line $x x$ of Fig. 1. Fig. 3 is a horizontal sectional view on the line $y y$ of Fig. 1. Fig. 4 is a view of one of the staves.

The polygonally-shaped tub or vessel A is made of suitable material, preferably wood, which is cured by steaming it forty-eight hours, which removes all taste and smell. It may have any number of sides, more or less than that shown, which has eight, making an octagon-shaped tub. Each side, B, has a croze, b , near its lower end on its inner side, and a

rounded or chamfered edge, b' , on its upper end. The edges of each stave diverge from the lower to the upper edge, so that when put together the vessel will be larger at its upper edge, with its outer wall near its upper edge diverging.

The bottom c is fitted in the groove formed by the croze in each stave.

The cover D is many sided and of a shape corresponding to the vessel in cross-section, and has a flange, d , of suitable material depending therefrom. The flange inclines inwardly, corresponding to the outward inclination of the tub, and is crimped opposite the angle between each two of the sides of the cover for contracting the lower edge of the rim.

The vessel or tub when set up is held by hoops E, and its upper outer edge is slightly rounded or chamfered. Owing to the outward taper of the vessel and the corresponding inward taper of the flange of the cover, which is made to fit snugly, the cover can be applied only by the application of force, which causes the flange of the cover to be sprung over the upper edge of the tub, when it will be securely held in place and a close fit insured, as is manifest. By reason of the rounded edge b' the cover may be partially placed on the tub and a purchase obtained for forcing the same home.

By my construction the greater the outward pressure on the sides of the tub the tighter and closer will be the fit of the cover. The cover, while held from accidental displacement, can be readily removed by the application of an upward force on the flange or rim d . The flange of the cover prevents the spreading of the upper edge of the tub, and, being made preferably of a single straight strip of sheet metal, can be readily applied to the cover, and when applied that portion of the flange opposite the angle formed between each two of the sides is crimped to permit that portion of the flange between the angles to lie close to or against the sides of the staves, as will be readily appreciated.

While I have shown the upper outer edge of the tub rounded, it is evident that the desired result would be attained by rounding the inner lower edge of the rim of the cover; but the form shown is preferred.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent,
is—

The combination, with the polygonally-
sided tub composed of a bottom and divergent
5 staves and the correspondingly many-sided
cover, of the rim depending from the cover
and crimped opposite the angle between each
two sides thereof for contracting its lower
edge, which edge is adapted to be sprung over

and embrace the top edge of the tub, substan- 10
tially as described, and for the purposes speci-
fied.

In testimony whereof I affix my signature in
presence of two witnesses.

HEMAN R. FRENCH.

Witnesses:

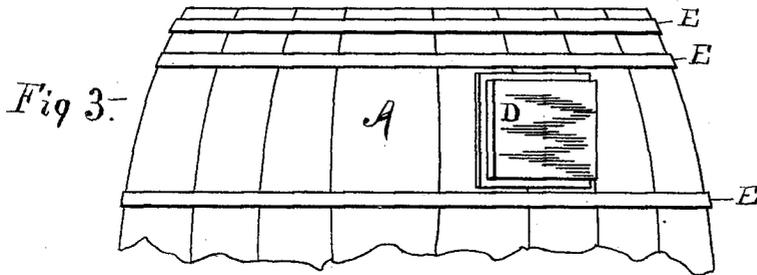
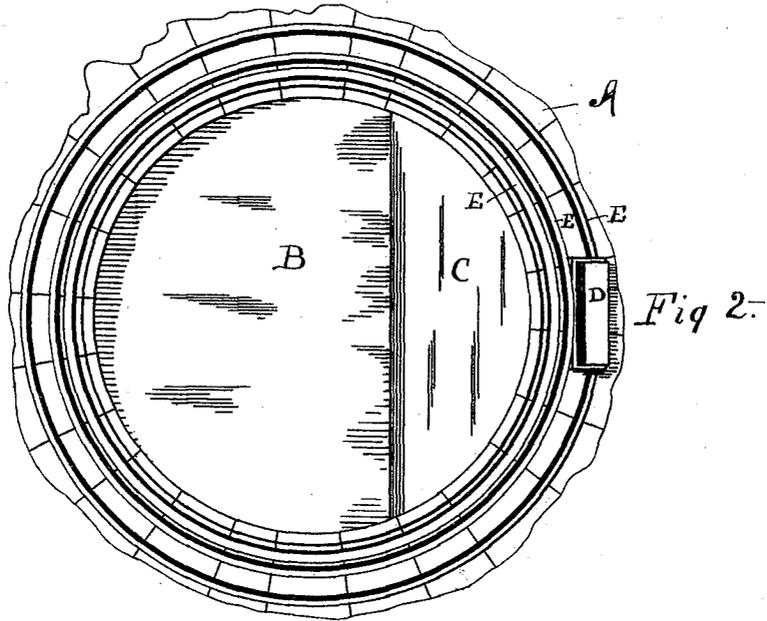
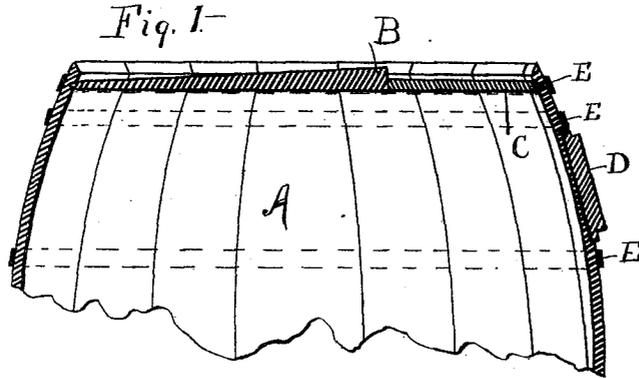
WILLIAM W. LOWE,
E. A. PHELPS.

(No Model.)

D. G. CLEMOW.
BARREL.

No. 414,020.

Patented Oct. 29, 1889.



Witnesses—
G. A. Tiffitt
L. R. Guild

Inventor—
David G. Clemow
By H. T. Tiffitt
1889.

UNITED STATES PATENT OFFICE.

DAVID G. CLEWOW, OF PEORIA, ILLINOIS.

BARREL.

SPECIFICATION forming part of Letters Patent No. 414,020, dated October 29, 1889.

Application filed February 8, 1889. Serial No. 299,261. (No model.)

To all whom it may concern:

Be it known that I, DAVID G. CLEWOW, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Barrels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in barrels; and it consists in the construction hereinafter described, whereby a barrel is provided with a section of the head raised and a block is set into the body of the stave or staves, for advantages hereinafter described.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional view of a portion of a barrel embodying my improvements. Fig. 2 is a front view showing my improvements. Fig. 3 is a representation of the raised block, &c.

The object of my improvement is to provide a barrel with a suitable place to receive stamped, dyed, stenciled, or cut impressions, consisting of letters or figures made upon the wood, and which require erasure before again using the barrel or cask and renewing the impression of whatever character required by the government to be placed on barrels, casks, or other forms of cooperage containing liquors, and by using my improvement, hereinafter described, a barrel or cask is provided whereby these erasures can be made a great number of times without injuring or weakening the barrel or cask, so as to require the removing of any of its parts.

My improvements can be fully understood by reference to the accompanying drawings.

In Fig. 1, A shows the upper section of a barrel, consisting of staves.

E E E are the hoops, and C is the ordinary section of a barrel-head, but B, which is a part of my improvement, is a section of a barrel-head made considerably thicker than the section C, and may be made of any thickness to suit its application, and the object of this raised head is to receive the impressions above described, which are required and are made upon all barrels, casks, half-barrels, or other packages containing spirituous liq-

uors, and where erasures are made, which are required to be made before again using, such erasures being made by cutting off the surface of the wood, so as to produce a smooth surface to receive another impression. The raised head B is made of such a thickness that a great number of such erasures can be made before a new section of a head is required. The raised block D is merely a square block (or may be made in any suitable shape) of a considerable thickness, and is set into the body of the stave or staves. The purpose of this block is to receive the impressions that are usually made upon the staves, and which require erasure, the same as on the head, as above described, which erasures soon make it necessary to renew the stave or staves. By means of this block a surface is provided which will permit of a great number of such erasures as above described before it is exhausted, and when exhausted can be replaced by another similar block without in any way impairing the strength of the barrel or cask, and thus obviating the necessity of ever renewing the stave or staves on account of such erasures.

In Fig. 2, A represents the staves; E E E, the hoops; C a section of the head; B, the raised section of a head, and D the block.

In Fig. 3, A represents the staves; E E E, the hoops; and D is the block.

It will be readily seen that without the use of my improvements, where the same barrel is used a great number of times, and on which the government stamp is required, great loss is occasioned by being obliged to so often renew the heads or sections of heads and staves, besides the inaccuracy it occasions in gaging, caused by the cutting away of the head to remove the impressions, thus destroying the original uniformity of thickness of heads; whereas with the raised section of the head, where all the impressions and erasures are made, it leaves the other section of the head free from all impressions—consequently erasures—and provides a uniform and unvarying thickness of this section of the head, from which the gaging measurements are made with consequential accuracy.

These improvements may be applied, and I desire them to apply, to any class of cooperage, in any form or shape whatsoever. The

number of blocks to be used on one barrel or cask will not be limited.

With these objects in view, what I claim, and desire to secure by Letters Patent, is—

- 5 1. A barrel the head of which is provided with the raised section B, substantially as described.
2. A barrel the head of which is provided with the raised section B, and the raised

block D, set in the body of the stave or staves, 10 substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID G. CLEMOW.

Witnesses:

GEO. T. PAGE,

FRANKLIN T. CORNING.

(No Model.)

R. F. MAIDEN.
COVER FOR PORTABLE WASHTUBS.

No. 558,824.

Patented Apr. 21, 1896.

Fig. 1.

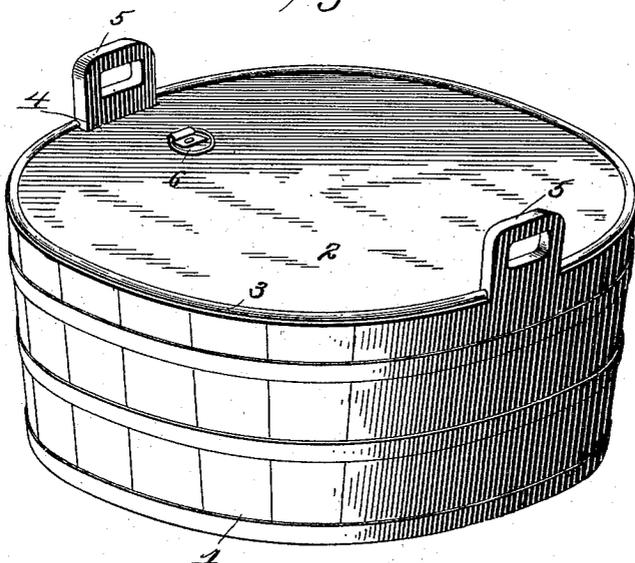
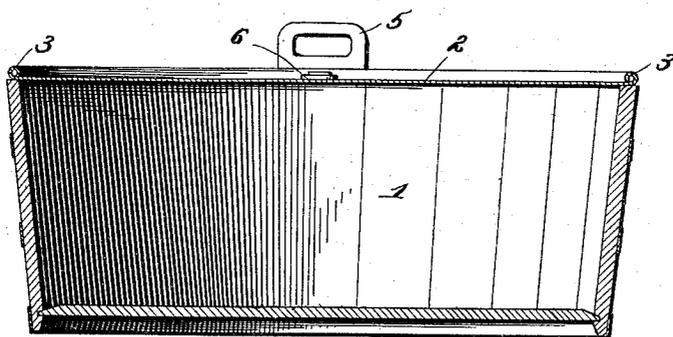


Fig. 2.



Witnesses:

E. W. Durlleman
A. Williamson

Inventor:

Rachel F. Maiden
by Geo. H. Holgate
Attorney

UNITED STATES PATENT OFFICE.

RACHEL F. MAIDEN, OF PHILADELPHIA, PENNSYLVANIA.

COVER FOR PORTABLE WASHTUBS.

SPECIFICATION forming part of Letters Patent No. 558,824, dated April 21, 1896.

Application filed August 13, 1895. Serial No. 559,123. (No model.)

To all whom it may concern:

Be it known that I, RACHEL F. MAIDEN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Covers for Portable Washtubs, of which the following is a specification.

My invention relates to a new and useful improvement in covers for portable washtubs, and has for its object to do away with the necessity of using a washboiler and provide means whereby clothes may be scalded and steamed sufficiently to free them from dirt and assist in their bleaching, and at the same time prevent the escape of steam and unpleasant odors in the room where the tub is used.

With these ends in view the invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may understand how to make and use the same, I will describe its construction and operation in detail, referring by numbers to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective of a tub having my improved cover applied thereto, and Fig. 2 is a section of the same.

Similar numbers denote like parts in both views of the drawings.

1 is a tub of ordinary construction, and 2 is a cover, preferably of galvanized sheet metal, having a beaded wing 3 for the purpose of rendering it more staple.

4 are cut-away portions in the rim of the cover of such size and shape as to readily embrace the handles 5, and when the cover is in place upon the tub these notches or cut-away portions serve to retain it in its proper relative position to the tub and prevent it from becoming disarranged or knocked off, as will be readily understood by reference to Fig. 1.

6 is a suitable handle arranged to one side of the cover, so that it may be raised after the manner of a hinged cover, the opposite cut-away portion forming a fulcrum upon which it may swing, and this is advantageous in placing clothes within a tub, as it obviates the

necessity of entirely removing the cover from said tub.

In practice I have found that by the use of my improvement clothes may be whitened more readily than when the ordinary washboiler is used and the clothes are boiled, since any dirt that may remain in them when placed in the boiler will be "set" therein and become more difficult of removal thereafter. Thus it is often the case that clothes become yellowed by continued boiling.

The way in which I prefer to use my improvement is to place the clothes to be scalded within a tub and pour sufficient boiling water thereon to thoroughly saturate said clothes and then place the top upon the tub and permit the clothes to remain long enough to be thoroughly steamed. This obviates the necessity of having to lift the boiler on and off the stove for the purpose of scalding, which greatly reduces the labor necessary in carrying on the process of washing.

A further advantage gained by the use of my improvement is that no steam or smell escapes from the tub into the room where the washing is being carried on, which will render this process more agreeable than heretofore, as well as avoiding injury to the walls, especially if they be papered, by the moisture transmitted to them by the steam.

I have proved by experiment that white flannel wear, and especially counterpanes, may be treated by the use of my improved cover without undue shrinkage and injury, as is invariably the case when placed in a boiler and subjected to the action of ebullition.

When the clothes have been thoroughly steamed, it is only necessary to remove the cover and attach a wringer to the edge of the tub, when, without the aid of handling, the clothes may be wrung and put through the blue water, which saves handling of the clothes when exceedingly hot, as has heretofore been the case when removing from the ordinary boiler to the blue water.

A further advantage in the use of my improvement is that the clothes do not come in contact with metal surfaces as when placed in a boiler, and therefore are not liable to become contaminated by rust and thus discolored. There is no need for the use of pow-

ders of any kind for assisting in cleansing the clothing, as the soap and steaming answers every purpose.

5 Having thus fully described my invention, what I claim as new and useful is—

1. In combination with a portable washtub, a cover made of sheet metal, having a strengthening peripheral bead, cut-away portions adapted to embrace the handles of said tub
10 and a handle for swinging said cover upon one of said cut-away portions, substantially as and for the purpose set forth.

2. As a new article of manufacture, a cover

for a portable washtub, formed of a single piece of sheet metal having a strengthening- 15 bead, and cut-away portions adapted to embrace the handles of a tub and a handle for manipulating said cover, substantially as specified.

In testimony whereof I have hereunto af- 20 fixed my signature in the presence of two subscribing witnesses.

RACHEL F. MAIDEN.

Witnesses:

S. S. WILLIAMSON,
FRANK CRAVEN.

No. 666,816.

Patented Jan. 29, 1901.

J. L. MCKAY.
DETACHABLE HEAD BARREL.

(Application filed Feb. 19, 1900.)

(No Model.)

Fig. 1.

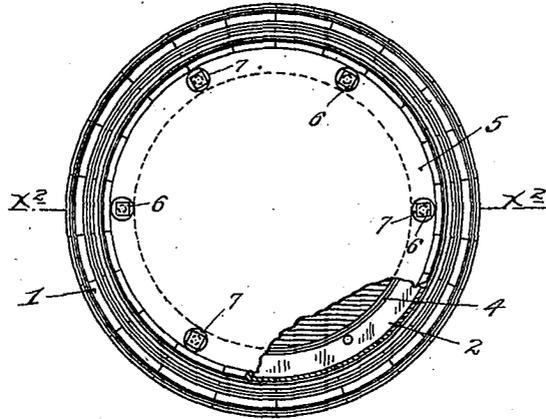


Fig. 2.

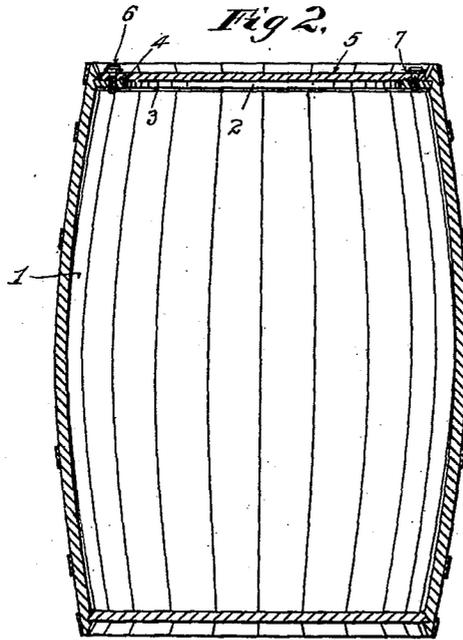
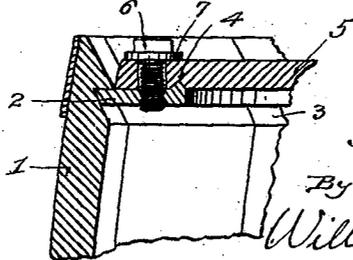


Fig. 3.



Witnesses:
Harry Kilgore,
Robert Otto.

Inventor:
John L. McKay,
By his Attorneys,
Williamson & Merchand

UNITED STATES PATENT OFFICE.

JOHN L. MCKAY, OF MINNEAPOLIS, MINNESOTA.

DETACHABLE-HEAD BARREL.

SPECIFICATION forming part of Letters Patent No. 666,816, dated January 29, 1901.

Application filed February 19, 1900. Serial No. 5,735. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. MCKAY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Detachable-Head Barrels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to barrels, and has for its object to provide a removable head for the same.

To this end my invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claim.

It is a well-known fact that barrels such as are used for molasses, lard, and various other commercial articles require to be exceedingly well made and strong, and hence are quite expensive. It is the common practice to buy back from the retail purchaser such barrels; but as they have hitherto been constructed it has been necessary to break in one head of the barrel or to otherwise mutilate the barrel more or less, so that its value to the wholesaler or jobber is thereby very much decreased from what it would be worth if the complete barrel, unbroken, could be returned.

It is the object of my invention to provide a barrel having a head which may be rigidly secured and readily detached without damaging either the barrel or the head.

My invention in its preferred form is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a plan view of a barrel constructed in accordance with my invention, a portion thereof being broken away. Fig. 2 is a vertical section on the line $x^2 x^2$ of Fig. 1; and Fig. 3 is an enlarged view of a portion of the barrel, taken on the same line as Fig. 2.

The numeral 1 indicates a barrel which is of ordinary construction except that it is provided at one end with an annular metal ring 2, which is secured within an internal groove 3, such as is ordinarily cut in the end of a

barrel to receive the ordinary barrel-head. This ring 2 is preferably secured in the barrel end in the process of manufacture of the barrel and it need not thereafter be removed. For an important purpose, presently to be noted, the ring 2 is provided at its inner edge with an upturned annular flange or rib 4, which is preferably V-shaped in cross-section.

The barrel-head is indicated by the numeral 5, and, as shown, it is formed of a single piece, although it will of course be understood that it may be formed of several pieces, suitably secured together. This removable head fits within the outer end of the barrel and overlaps the inwardly-projecting portion of the ring 2. A plurality of machine-screws 6, passed through suitable perforations in the peripheral portion of the head 5 and screwed into the ring 2, serve to securely fasten the said head 2 to the said ring. The head 5 is preferably formed with an annular groove adapted to fit the V-shaped flange on the ring 2; but if the head is not provided with such groove the said flange may be forced into the said head by drawing tightly on the screws 6, so that in either case a liquid-tight joint is formed between the detachable head and the said ring.

As shown, washers 7 are placed around the screws 6; but, if desired, the head may be provided with a metal ring or hoop running around its upper peripheral portion and through which the screws would be passed.

The use of a barrel constructed as above described is obvious. The detachable head may be removed to empty the barrel of its contents and then may be replaced and the empty barrel in undamaged form may be sold back to the house from which it came. Thus while the barrel will originally cost slightly more than an ordinary barrel it may be used a great many times without requiring to be put in any better condition than that in which it is left except for cleaning, which is necessary in all barrels. Hence by the use of barrels of the above character money will be saved both to the wholesaler or jobber and the retailer.

It will of course be understood that the invention above described is capable of considerable modification. For instance, instead

of the screws 6 the ring 2 might be provided with upwardly - projected screw - threaded studs provided with nuts. Other alterations may also be made.

5 What I claim, and desire to secure by Letters Patent of the United States, is as follows:
The combination with the barrel 1 formed at one end with the internal groove 3, of the metallic ring 2 secured in said groove 3 in
10 the process of construction of the barrel and

provided with the sharp-edged annular rib 4, and the head 5 securable to said ring 2 by a plurality of screws, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN L. MCKAY.

Witnesses:

F. D. MERCHANT,
M. M. MCGRORY.

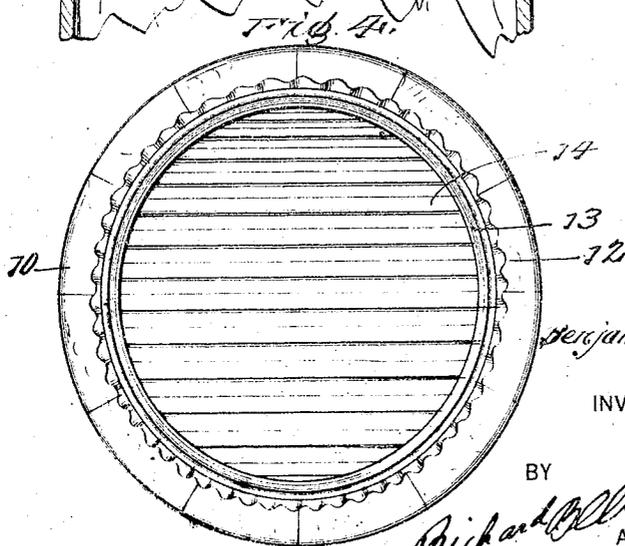
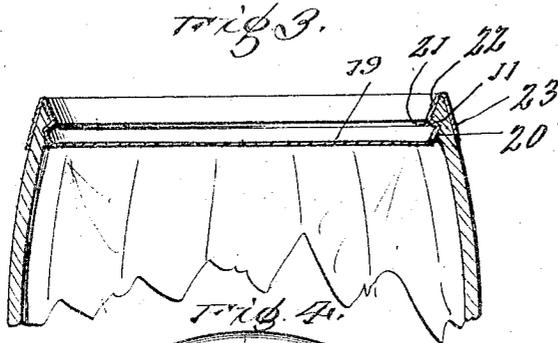
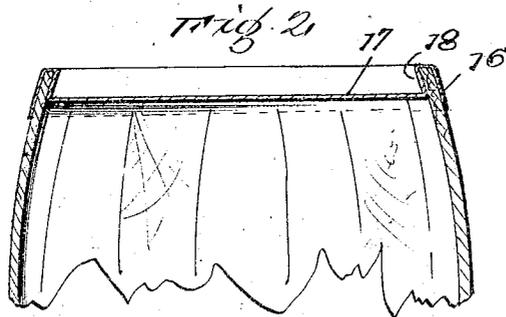
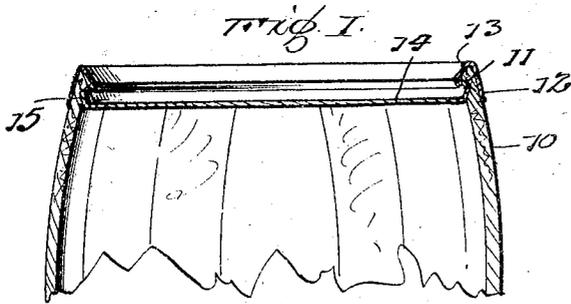
Jan. 15, 1924.

1,480,689

B. B. MICHAELS

BARREL

Filed April 16, 1920



Benjamin B. Michaels

INVENTOR

BY

Richard C. Owen
ATTORNEY

UNITED STATES PATENT OFFICE.

BENJAMIN B. MICHAELS, OF BROOKLYN, NEW YORK.

BARREL.

Application filed April 16, 1920. Serial No. 374,291.

To all whom it may concern:

Be it known that I, BENJAMIN B. MICHAELS, citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Barrels, of which the following is a specification.

This invention has relation to barrels, and has for an object to provide a new top for barrels constructed of wooden staves, said top being preferably of metal and formed in one or more pieces, thereby enabling the top to be readily applied in a manner more expeditious than possible with tops of the wooden or sectional variety.

In addition to the foregoing this invention comprehends improvements in the details of construction and arrangement on parts, to be hereinafter described and particularly set forth in the appended claim.

In the accompanying drawings in which similar and corresponding parts are designated by the same characters of references throughout the several views in which they appear.

Figure 1 is a view in section of the upper end of a barrel illustrating the application thereto of my improved barrel top.

Figure 2 is a similar view in section of a modified form of barrel top.

Figure 3 is a similar view of a still further modified form of barrel top,

Figure 4 is a view in top plane of my form of the invention shown in Figure 1.

With reference to Figures 1 and 4, 10 indicates a conventional form of barrel constructed of staves in the usual manner and having the upper end of each stave provided with a notch 11 in the conventional manner, designed ordinarily to receive the edge of the wooden cover. This notch, forms an annular groove which is utilized for the purpose of my invention in a manner to be presently shown. I next provide a hoop 12 of metal, designed to surround exteriorly the upper end of the barrel, said hoop being formed with an inner annular portion bent at an angle to the hoop portion 12 and constituting the chime, as indicated at 13. The hoop portion 11 is preferably corrugated as shown in the Figure 4 to give strength. The top portion consists of a disc 14 which is preferably corrugated and is formed at its edge with an inturned portion 15 forming

the crows, said inturned portion being designed to enter the groove 11 and is therefore shaped to conform to the configuration of said groove.

In practice the disc 14 is embedded in the barrel and fitted within the groove 11, and finally the hoop 12 is placed upon the top end of the barrel and driven in place thereby contracting the same and securely holding the top 14 in place.

I have illustrated in Figure 2 a slightly modified form in which the hoop and top are bulged all in one piece. The hoop is indicated at 16 and the top at 17, the latter being circular designed to fit within the open end of the barrel, while the periphery of the disc is bent up as at 18 to form an annular portion to engage the inner surface of the barrel, said portion 18 then being bent around over the top edge of the staves and merging into the hoop portion 16. The portions 13 and 18 are thus in spaced relation to receive the upper end of the barrel staves which need not be notched. The hoop 16 is driven on the end of the barrel staves in the usual manner, thus forming a combined hoop and top.

In Figure 3 I have illustrated a still further modified form in which a hoop and top are formed in one piece and utilizing in this manner the annular groove 11 for the purpose of securing the structure more firmly in place. The top portion 19 is in the form of a disc having its edge bent upward and outward as at 20 to enter the groove 11, and then bent inward again at an angle to the portion 20 to form a portion 21 also seating in the groove 11 and conforming to the transverse configuration thereof. The material is then bent outward and upward to form the chime 22, and then downward again to form the hoop 23 which encircles the barrel exteriorly. By utilizing the groove 11 in this manner it will be seen that the top and hoop will be more firmly held in place. In any of the forms just described the tops 14, 17 and 19 may be plain or corrugated as desired.

While I have illustrated and described my invention with some degree of particularity, I realize that in practice various alterations therein may be made. I therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the cor-

related parts without departing from the spirit of the invention or the scope of the appended claim.

Having thus described my invention what I claim as new and desire to secure by United States Letters Patent is:—

In combination with a container having an inner, circumferential groove adjacent one end thereof, a closure for said container comprising a top, said top having a peripheral, upwardly and outwardly bent portion adapted to snap and be seated in the groove of the container, said upwardly and outwardly bent portion being formed integral with a chime and hoop encircling the top edge externally of the container.

in testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN B. MICHAELS. [L. s.]

Witnesses:

JULIA BAMONTE,
BENJAMIN B. MICHAELS.

June 12, 1951

H. G. BELL ET AL

2,556,789

BARREL AND BARREL HEAD THEREFOR

Filed May 25, 1948

3 Sheets-Sheet 1

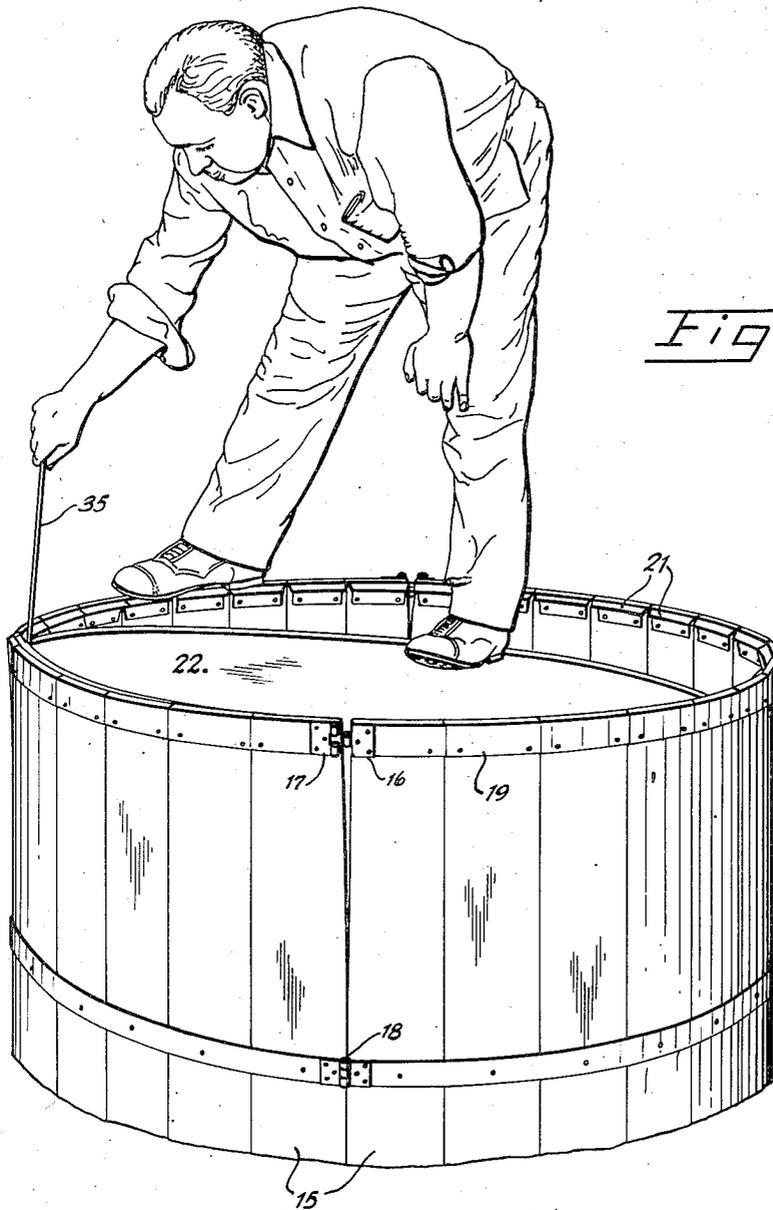


Fig. 1.

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June 12, 1951

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2,556,789

BARREL AND BARREL HEAD THEREFOR

Filed May 25, 1948

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FIG. 3.

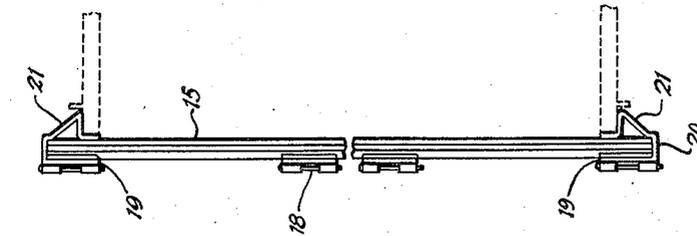
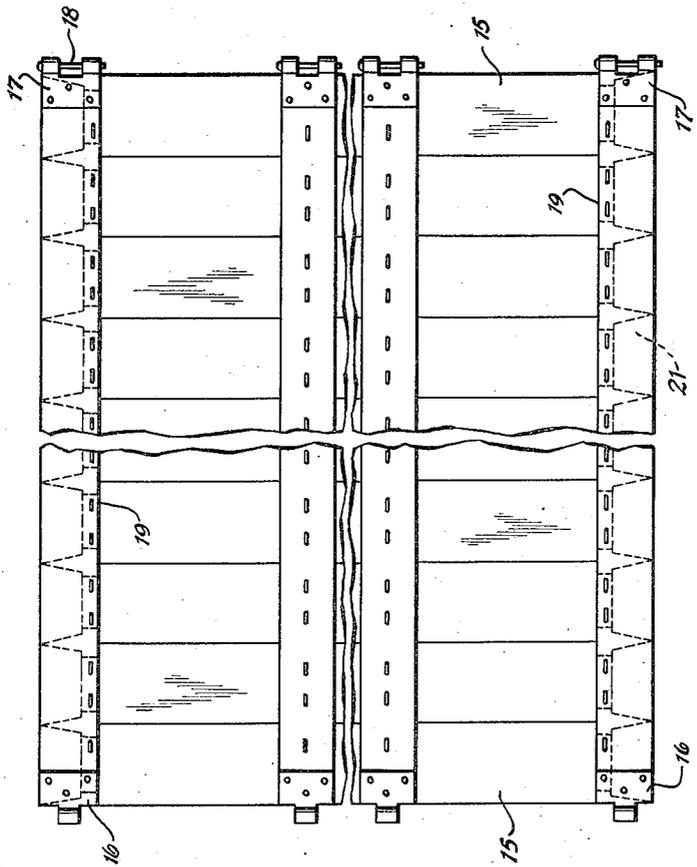


FIG. 2.



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UNITED STATES PATENT OFFICE

2,556,789

BARREL AND BARREL HEAD THEREFOR

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Application May 25, 1948, Serial No. 29,173

1 Claim. (Cl. 217—76)

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This invention relates particularly to tobacco hogsheads yet in its broadest respect it applies to the construction of barrels generally and heads for the same including means for reinforcing the staves and the periphery of the heads where-
by each of these parts are strengthened at the points most subjected to wear and injury in the packing of the barrels and in their transportation.

Our invention also has for its object to provide in conjunction with knockdown barrels and their heads, in which the staves and heads are made comparatively thin and preferably of wood laminations, reinforcing elements for the respective parts which cooperate to strengthen the completed barrel structure and to secure the heads in the two ends thereof against the outward force exerted by the contained material during the handling of a loaded barrel in which it is both rolled and upended repeatedly.

More specifically, with respect to the staves our invention provides an end hoop enclosing their ends and having internal projections for securing the circular heads and with respect to the heads it comprehends an edge reinforcement and stiffener which cooperates with said projections.

To these and other ends our invention comprises further improvements and advantages as will be further described in the accompanying specification, the novel features thereof being set forth in the appended claim.

In the drawings:

Figure 1 is a perspective view of the upper end of a tobacco hogshead and illustrates a barrel and a head thereof embodying the features of our invention and showing the manner in which the head is brought into position to secure the contents.

Figure 2 is a plan view illustrating one of the sections of a knockdown barrel in which the staves are connected by end hoops embodying our invention.

Figure 3 is an end view of Fig. 2.

Figure 4 is a plan view of a barrel head showing the reinforcing binding thereon.

Figure 5 is a vertical cross section taken on the line 5—5 of Fig. 4.

Figure 6 is a vertical cross sectional view similar to Figs. 3 and 5 and including the end of a stave to show the reinforcement thereon and the manner in which it cooperates with the head binding to hold the latter within the barrel.

Figure 7 is a plan view of a barrel head illustrating a modification of the elements for reinforcing it.

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Figure 8 is a vertical cross section taken on the line 8—8 of Fig. 7.

Figure 9 is a view corresponding to Fig. 6 but showing the head of Fig. 7 in conjunction with the stave reinforcement.

Figure 10 is a cross sectional view as would be seen if taken through the edge of a barrel head and showing another modification of the channel used for reinforcing the edge of a head.

Similar reference numerals, in the several figures, indicate similar parts.

In the manufacture of knockdown tobacco hogsheads it is customary to make the body of two half portions, such as shown in Fig. 2, 15, the sets of staves comprising such portions being connected together by hoop sections. The latter are provided at their opposite ends with hinge members 16, and 17 the eyes of which are united by pintles 18 to secure the barrel body in circular form.

In carrying out our present invention we provide a special hoop and liner construction for connecting the ends of the staves 15 comprising channel members having the outer continuous bands or hoop portions 19, the spaced top portions 20 which extend over the end of each stave and the inner leaves on which are formed angular offsets 21 which extend into the completed barrel for the purpose of forming shoulders or stops with which the barrel heads engage to hold them firmly in place. This channel construction of the end hoops by extending over the ends of the staves not only prevents them from becoming chipped or broken but in a large measure serves to exclude the entrance of moisture to the several laminations of the wood.

The barrel heads are circular wooden pieces and it will be realized that in sawing them in this shape that the grain of the wood in some places is substantially parallel to cords of the periphery while at others it extends transversely to other cords, assuming that such heads are constructed of boards of a single thickness. However, as it is preferable to make the heads of laminated material it will be seen that the thin pieces of such components, which are superposed with the grain of the respective layers laid cross wise to each other presents a more serious problem with respect to the periphery of these discs so that one or another of such layers may be broken or chipped quite readily, due to their thinness, at any point on the circumference of a head.

In order to overcome the possibility of injury to a barrel head from careless handling, as well as to strengthen it, and to provide a head that

may be quickly inserted in place and will also add strength to the barrel body we have designed a special peripheral reinforcement to cooperate with the aforescribed hoop and liner shoulders on the barrel staves. In carrying out this feature of our invention we provide metal channel sections equal to one half of the diameter of a barrel head, as indicated by A and B in Fig. 4, wherein such a head is designated by 22. These reinforcements are made by rolling, or otherwise forming a strip of flat metal into a curved channel to provide a circumferential portion 23 and two side wings 24—25 which embrace the inner and outer sides of the head. These pieces are secured in position by suitable fastenings as indicated by 26 which may be rivets or staples penetrating both of the wings. These parts so far described are illustrated in the enlarged cross sectional view Fig. 10.

Our invention further comprehends the provision of a stiffener rib on the exterior face of the barrel head in the form of an abutment which also cooperates with the inwardly extending projections or shoulders 21 on the staves. This stiffening rib, indicated by 27, is formed by turning an outwardly extending flange on the wing 25.

Figures 7, 8 and 9 illustrate a modification of the invention. Therein the barrel head is indicated by 30 and the edge reinforcement comprises two semi-circular angle pieces each having the peripheral edge facing 31 carrying a wing 32 which lies against the inner face of the head. On the outer face of the head there are a series of narrow segmental plates 33 each carrying a short outwardly extending flange 34. These separate parts are assembled as shown and suitable fastening devices 35 extend through the wings 32 and plates 33.

In the assembly of a barrel of the knockdown construction described the body sections are first shaped into a generally cylindrical form and secured together by inserting the pintles 18 into the eyes of the hinge members 16—17 on the meeting ends of the hoops. The bottom head is then inserted in place against the inwardly extending shoulders on the lower ends of the staves. Thereafter the barrel may be packed and in the case of a tobacco hogshead, in which the load may approximate a thousand pounds, the tobacco is compressed under hydraulic pressure sufficient to position its upper surface well within the top of the barrel. The modus operandi of then inserting the upper barrel head is to release the upper ends of the staves by withdrawing the fastening pintles of

the top hoop thus permitting some of the staves to be sprung outwardly sufficiently to enable the top head to be slid crosswise in a canted position in which, while it extends fully across the barrel, lies partly within and partly without the barrel. The succeeding operation is the point at which a barrel head is most liable to be damaged and emphasizes the importance of our present invention since chipping or breaking the edges of the wood is most liable to occur as a result of forcing the canted part of the periphery downwardly beyond the inwardly extending projections 21 on the staves.

Our improved features of construction have enabled us to originate the idea of "walking in" the top head as it is now possible for an operator to mount the barrel and while using his weight to hold the head depressed he can move around thereon. In doing so some of the staves will yield under the pressure of the metal bindings A—B on the inclined surfaces of the individual projections which they engage. Where this is not a free movement under the operator's weight alone he can trip separate staves successively by using a prying bar 35 as shown in Fig. 1. The head being thus seated will be locked against outward movement by the series of abutments on the staves and the latter will be secured by drawing the ends of the hoop sections together and again inserting the pintles 18.

We claim:

A reinforcement for the edge of a circular barrel head comprising a plurality of curved angle pieces each having a portion fitting and in close contact with the circumference of the head and a wing portion embracing the margin of the lower face of the head, a plurality of segmental wing plates fitted on the margin of the outer face of the head, fastening devices passing through said wings and head and a stiffening flange extending outwardly from each of the segmental plates.

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JACOB D. GAY, JR.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,481,462	Forsman	Jan. 22, 1924
2,065,320	Lockett	Dec. 22, 1936
2,241,210	Lockett	May 6, 1941
2,454,267	Bell et al.	Nov. 23, 1948
2,466,542	Gilmore	Apr. 5, 1949

[54] STAVE ASSEMBLIES, STAVES, AND TUBS
CONSTRUCTED THEREWITH

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[21] Appl. No.: 12,762

[22] Filed: Feb. 16, 1979

[51] Int. Cl.³ E04G 11/06; A47B 5/00

[52] U.S. Cl. 52/36; 52/248;
217/76; 4/513

[58] Field of Search 52/36, 248; 4/172, 173 R;
217/76, 80, 88, 96, 90-93, 4

[56] References Cited

U.S. PATENT DOCUMENTS

474,101	5/1892	Sawyer	217/90
558,824	4/1896	Maiden	217/76
679,583	7/1901	Woodruff	52/248
699,602	5/1902	White	217/93
918,718	4/1909	Williamson	217/76

1,096,373	5/1914	Jones	52/248
1,150,209	8/1915	Krieger	217/76
1,223,853	4/1917	Cope et al.	217/76
1,452,578	4/1923	Van Cott	52/248
2,260,652	10/1941	Ashley	217/4

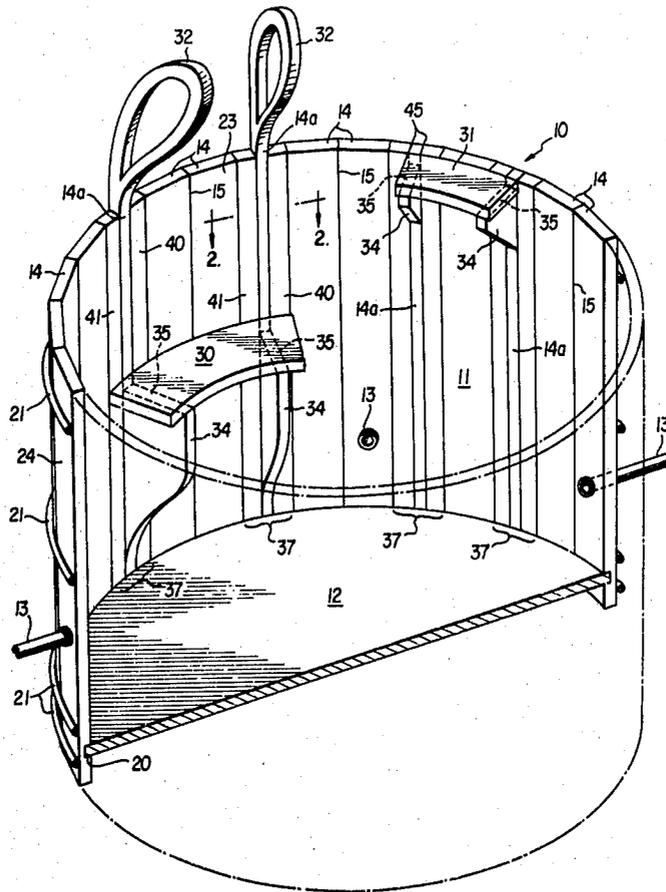
Primary Examiner—James L. Ridgill, Jr.

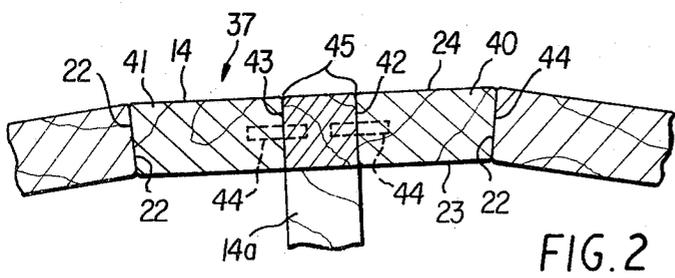
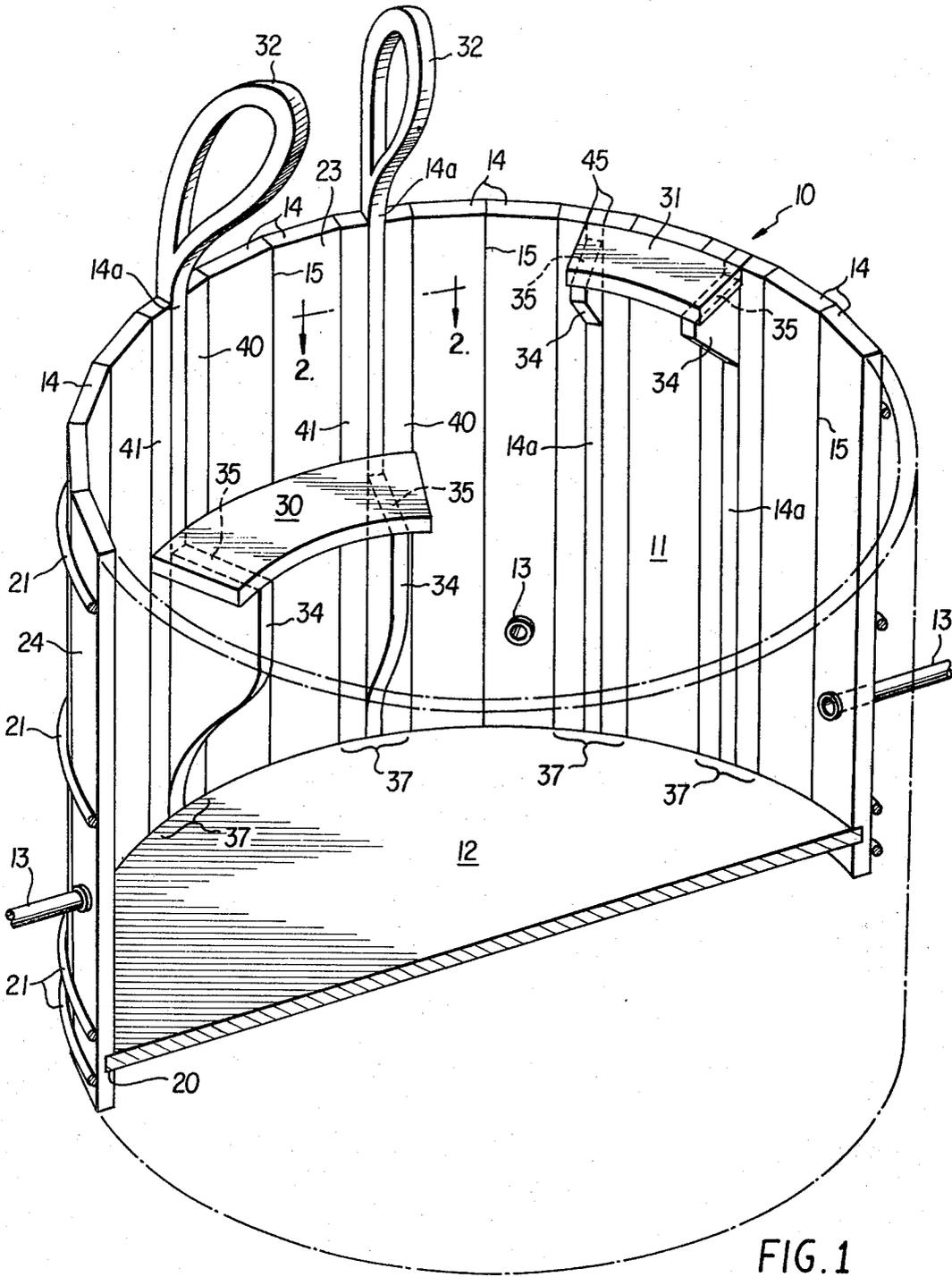
Attorney, Agent, or Firm—Schwartz, Jeffery, Schwaab,
Mack, Blumenthal & Koch

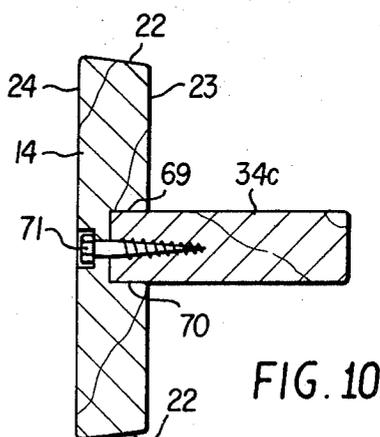
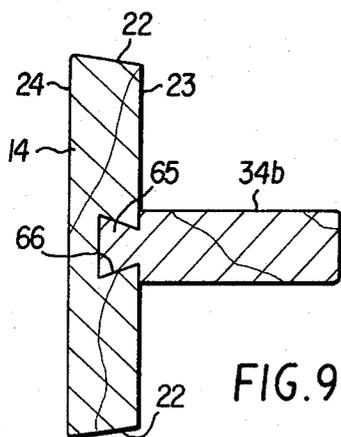
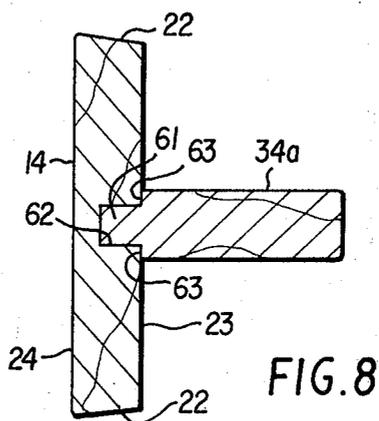
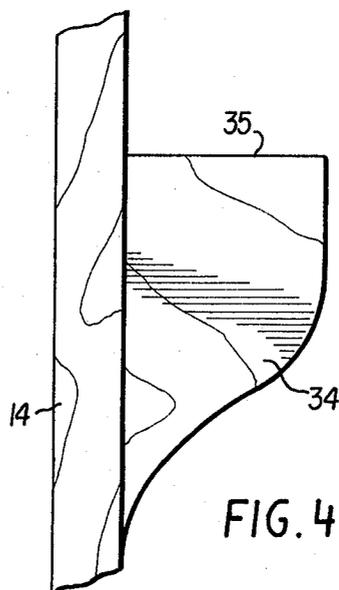
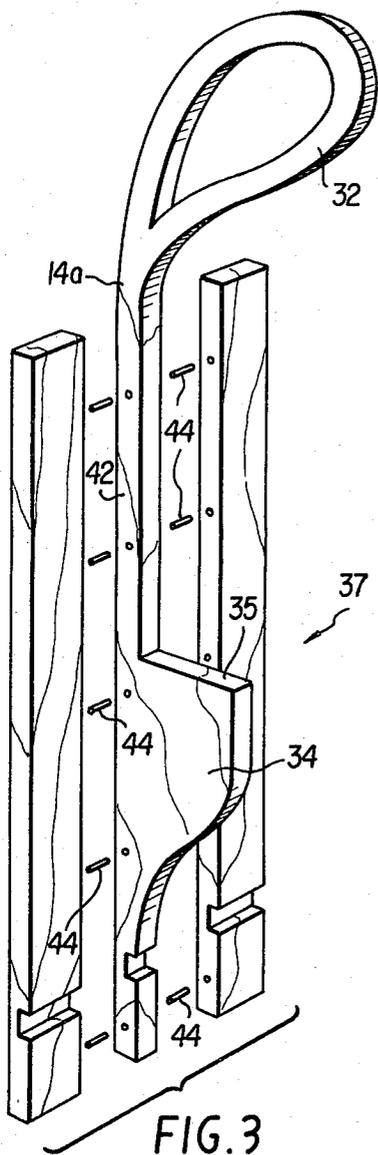
[57] ABSTRACT

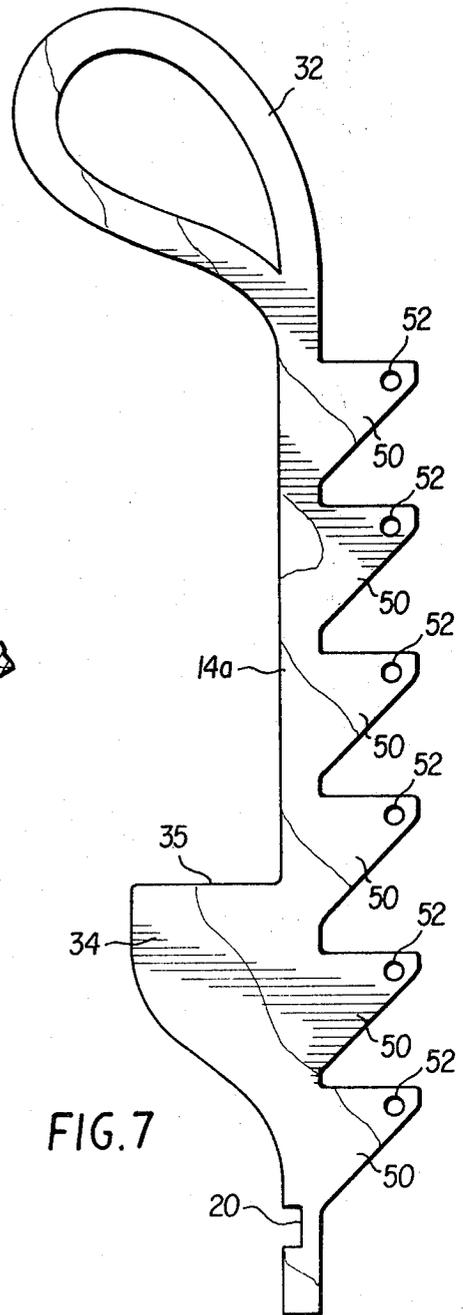
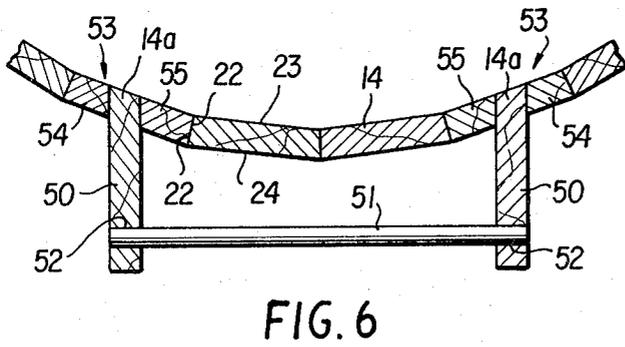
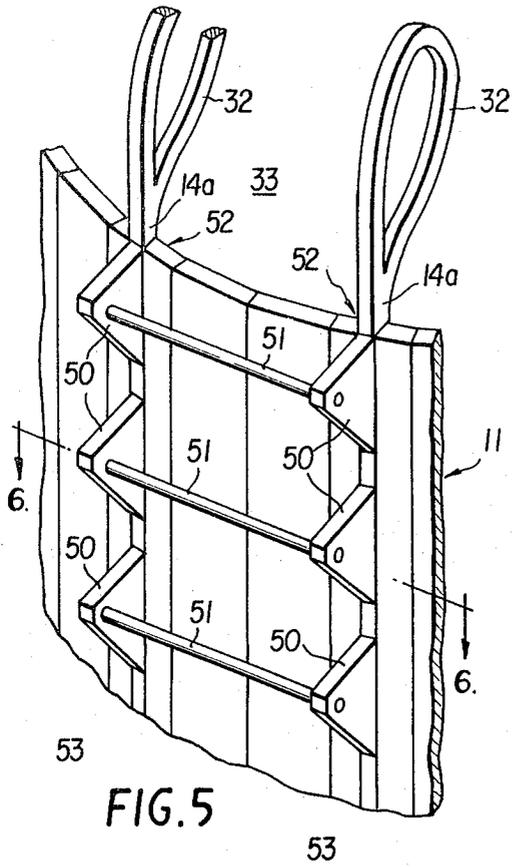
A stave assembly which cooperates with a plurality of staves to form a hot tub wall includes in a preferred embodiment a narrow stave having a projecting support for a seat, shelf, ladder or the like. The narrow stave is abutted by a pair of slats each of which have a chamfered edge for abutting adjacent staves. In other embodiments the stave assembly includes a stave with a support for a seat, step or the like embedded therein.

12 Claims, 10 Drawing Figures









STAVE ASSEMBLIES, STAVES, AND TUBS CONSTRUCTED THEREWITH

TECHNICAL FIELD

This invention relates to staves, stave assemblies and to tubs constructed therewith. More particularly, this invention relates to staves and stave assemblies which are especially useful in constructing wooden bathing tubs which are generally known as "hot tubs".

BACKGROUND AND PRIOR ART

Currently there is increasing interest in large bathing tubs known as "hot tubs" which are filled with hot water to a level sufficiently high for bathers to completely immerse their bodies. These tubs are often large enough to accommodate several people and are generally marketed for home use and enjoyment.

Although hot tubs may be made of any material which will hold water, they are preferably constructed of relatively heavy wooden staves. There are several reasons for this. A primary reason is that wood is a good insulator. Moreover, wood can be dressed to have a surface which is both attractive and pleasant to touch.

Most hot tubs are now sold in kit form. The tubs are assembled from staves arranged peripherally about a circular floor and held in abutment with one another by hoops made from rods or wires. The abutting sides of the staves are chamfered to form bevels so that the staves can be readily arranged in a circular configuration. Seals are effected between each stave as the wood absorbs water causing the staves to expand against one another while being held in abutment by the hoops. Preferably, the staves are made from cyprus or redwood, however, they may be made from teak, if one desires a rather expensive tub, or from other woods.

The staves are generally rather thick in order to insulate hot water within the tubs, in order to enhance the appearance of the tubs and to facilitate assembly of the tubs. Moreover, the staves are generally straight with parallel sides so as to give the tubs a cylindrical shape.

Since hot tubs tend to be relatively deep, getting in and out can be difficult. Accordingly, hot tubs require ladders, steps and decks as well as seats. Preferably, any step or seat placed in the tub is made of wood; however, wood tends to float so that the seat should be anchored to the inner wall of the tub. According to current practice this is accomplished by boring holes through the tub wall and inserting screws or other fasteners through the wall and into the step or seat or a support therefor. This type of fastening has caused problems because of leakage through holes which subsequently require caulking or plugging. Current approaches to the problem of providing accessory structure supports are not satisfactory from either a safety, an aesthetic or an assembly point of view. Accordingly, there is a need for an improved structure to attach accessory structures to hot tubs.

OBJECTS OF THE INVENTION

In view of the foregoing considerations it is an object of the invention to provide new and improved tub staves and tubs constructed therewith.

It is a further object of the instant invention to provide hot tubs with stable, attractive auxiliary structures.

It is a further object of the instant invention to provide hot tubs with supports for auxiliary structures which are integral with the hot tub structure.

It is a further object of the instant invention to provide a new and improved stave for a hot tub or the like wherein the stave includes a projecting support as an integral part thereof.

It is a further object of the instant invention to provide new and improved supports for auxiliary hot tub structures wherein the supports are included in kit components that may be easily assembled by the average purchaser.

It is a further object of the instant invention to provide a new and improved hot tub, which when assembled does not require expenditures for, or installation of, additional structure in order to be a useful and safe device.

It is a further object of the instant invention to provide a new and improved stave for assembly with other staves to form a wall wherein at least a portion of that stave projects from the surface of the wall to form a support or the like.

It is a further object of the instant invention to provide a new and improved support for auxiliary hot tub structures wherein the support is an integral part of a stave and is made from essentially the same stock as other staves used to assemble the tub.

SUMMARY OF THE INVENTION

In view of these and other objects, the instant invention contemplates a stave assembly for combination with other staves to construct a wall of a tub wherein the stave assembly includes a stave having a pair of longitudinally extending side faces and a lateral projection and wherein the assembly further includes a pair of slats for abutment with the side faces whereby when the wall is constructed the projection extends therefrom to form a support.

The instant invention further contemplates a hot tub wall constructed of a plurality of staves wherein at least one stave extends laterally away from the wall of the tub to form a support.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view, partially cut away, showing a hot tub according to the instant invention which utilizes stave assemblies of the instant invention;

FIG. 2 is an enlarged cross section of a stave and stave assembly in accordance with the instant invention taken along lines 2—2 of FIG. 1;

FIG. 3 is an exploded view in perspective of a stave assembly constructed in accordance with the principles of the instant invention.

FIG. 4 is a fragmentary side view of the stave assembly of FIG. 3;

FIG. 5 is a partial perspective view showing an exterior ladder for a hot tub utilizing stave supports in accordance with the principles of the instant invention;

FIG. 6 is an enlarged sectional view taken along lines 6—6 of FIG. 5;

FIG. 7 is an enlarged side view of a stave or portion of a stave assembly having projecting support structures thereon; and

FIGS. 8-10 are sectional views, taken through FIG. 4, of the stave assembly embodiment showing support structures embedded within staves.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1, there is shown a hot tub 10 constructed in accordance with the instant invention. The hot tub 10 includes a wall 11 and a floor 12 which form a receptacle for retaining water. Preferably, inlet and outlet lines 13 pass water through the hot tub 10 in accordance with well known procedures in which water is circulated by a pump through a filter and heater (not shown) and/or chlorinator (not shown).

The wall 11 of the hot tub 10 is assembled by abutting staves 14 against one another at seams 15 to provide a wall of substantially uniform thickness. The floor 12 is conveniently made from joined planks and is seated within a croze 20 cut into each of staves 14 a short distance from the lower end of each staff. The staves 14 are held in abutment with one another by rod hoops 21 which are tightened around the staves 14 by screw lugs or the like (not shown). Ideally, no caulking is needed because the staves 14 swell to close the seams 15 as the wood from which the staves are made absorbs water from the bath.

As is seen in FIG. 2, each staff 14 is chamfered along two sides thereof to form beveled faces 22 which abut beveled faces 22 of adjacent staves 14. The angle that the beveled faces 22 make with interior and exterior surfaces 23 and 24, respectively, of the staves 14 is determined by the number of staves used and the width of the staves. For example, if each staff is made from a "2x6" then a five foot diameter tub would require each staff to have one beveled face 22 chamfered at plus one and one-half degrees and the other beveled face 22 chamfered at minus one and one-half degrees. Generally, the narrower the staves 14, the smaller the angle of the bevels 22 will be for a tub 10 of a given diameter.

In order to improve the safety and convenience of hot tubs, such as the tub 10, it is advantageous to provide auxiliary structures such as the seat 30, the shelf 31 and the loops 32 shown in FIG. 1 and the ladder 33 shown in FIGS. 5-7. These auxiliary structures are necessary because hot tubs are preferably at least four feet high in order to permit a bather to completely immerse in the tub without lying down. The ladder 33 and loops 32 permit bathers to climb over the top edge of the tub 10 while the seat 30 serves as a platform allowing bathers to slowly immerse themselves in the hot water so that their bodies can become adapted to the water.

Instead of loops 32, or in addition thereto, there may be provided other supporting structures which serve, for example, to support a roof or converging for the hot tub, or provide a privacy screen or the like. In fact, the loops may be replaced by a design serving a purely esthetic function or may also serve as a screening function.

Auxiliary structures such as the seat 30 and shelf 31 require supports. In accordance with a preferred embodiment of the instant invention, this is accomplished by modifying selected staves to form narrow staves 14a to provide integral projecting portions 34 which have support surfaces 35 to which auxiliary structures such as the seat 30 or shelf 31 may be attached. The narrow staves 14a are cut from lumber stock having substantially the same thickness as the other staves 14 by sawing the stock normal to its width according to a desired pattern. In the preferred embodiment, the projecting portions 34 are integral with the staves 14a and there-

fore need not be secured thereto by screws, adhesives, dovetailing or other arrangements.

In accordance with a preferred embodiment, each staff 14a is incorporated in staff assembly 37 such as that shown in exploded perspective in FIG. 3 and in cross section in FIG. 2. The assembly 37 is constructed by positively securing slats 40 and 41 to longitudinally extending faces 42 and 43 of the staff 14a with pegs 44. Instead of using the pegs 44, other rod members such as metal screws or bolts or even adhesives may be used. In any event, there is a seam 45 between the staff 14a and slats 41 and 40 which closes when the staff assembly 37 is exposed to water within the tub 10. The staff assembly 37 can be provided as a unitary structure when marketing the tub 10 in kit form.

Since the staff 14a is preferably cut from the same stock as the other staves 14, it has a dimension between the two faces 42 and 43 which is equal to the thickness of the other staves and to the thickness of the wall 11. Due to the projection 34, the staff 14a also has a dimension greater than the thickness of the slats 40 and 41 and the wall 11 so that the staff projects laterally past the surfaces of the slats and wall while the side faces 42 and 43 are within the wall.

As is seen in FIGS. 1 and 2, the seams 45 extend generally normal to the inner and outer wall surfaces 23 and 24 incorporated in the staff assembly 37 so that the projecting portions 34 are within the parallel planes defining the longitudinally extending side faces 42 and 43 and extend radially toward the center of the tank 10.

The seat 30 and shelf 31 are generally formed as arcuate segments which conform to the curvature of the tub wall 11. Although only two supports 34 are shown for the seat 30 and for the shelf 31, it should be kept in mind that additional supports can be added, if needed, in order to increase the lengths of the seat 30 or shelf 31.

Referring now to FIGS. 5, 6 and 7, where the exterior ladder 33 is shown, the staves 14a have exterior projections 50 thereon which serve to support ladder rungs 51 in bores 52 in the projections 50. In this embodiment each staff 14a may also have a loop 32 and a seat supporting projection 34. Furthermore, in this embodiment each staff 14a is preferably incorporated in a staff assembly 53. As is seen in FIG. 6, each staff assembly 53 differs from the staff assembly 37 of FIG. 2 in that, in staff assembly 53 the staff 14a is disposed between slats 54 and 55 at an angle aligning the staves with parallel chords of the circle generally defined by the wall 11 of the tub 10. Consequently, the rungs 51 forming the ladder 33 can be straight and oriented perpendicularly to the projections 50, resulting in a ladder 33 which is relatively easy to assemble and has a pleasing appearance. In constructing the staff assemblies 53, pegs, bolts, screws or adhesives may be used in the same manner as used in constructing the assembly 37.

While it is preferred to configure the staves 14a having projecting portions in a staff assembly, it is also part of this invention to simply insert the staves 14a in the array of other staves 14 without first incorporating the staves 14a in an assembly.

FIGS. 8, 9 and 10 show additional embodiments of the instant invention wherein the projection 34 shown in FIG. 4 is retained within slots in a staff 14. In FIG. 8, a support 34a is mounted on the staff 14 by a projecting retaining portion 61 which seats in a groove 62. The retaining portion 61 is rectangular and has a cross section less than the support 34a so as to create a pair of shoulders 63 which abut the inside surface 23 of the

stave 14 in order to form a stable joint between the stave and support.

In FIG. 9 a support 34b has a retaining portion 65 thereon which has diverging beveled sides that dovetail with converging beveled sides of a groove 66 to form a stable joint. The groove 66 opens upwardly to a relatively wide cross section (not shown) or to the top of the stave 14 so that the retaining portion 65 may be slid down thereinto.

In FIG. 10 a support 34c has a retaining portion 69 received in a groove 70. The retaining portion 69, support 34c and groove 70 have approximately the same cross-sectional area so that the support is stabilized by the groove. A screw 71 passed through the exterior surface 24 retains the support 34c in place and projecting from the interior surface 23.

While particular embodiments of the present invention have been herein illustrated and described, it is not intended to limit the invention to such disclosure, but changes and modifications may be made herein and thereto within the scope of the following claims.

What is claimed is:

1. A hot tub comprising:

- (a) a plurality of staves forming a wall for said tub,
- (b) a bottom,
- (c) a pair of support staves, each support stave having longitudinally extending side faces and an inwardly, laterally extending projection,
- (d) each projection having a support surface positioned intermediate the bottom of said tub and the top of said stave for supporting a seat,
- (e) each of said support staves formed of a single fabricated board,
- (f) said pair of support staves spacedly positioned in the wall of said tube for forming a portion thereof, and
- (g) a seating board having ends thereof supported by the support surfaces of said stave projections for forming said seat.

2. A hot tub as recited in claim 1 wherein, the wall has a substantially uniform thickness and wherein the distance between opposite side faces of said support stave is substantially equal to the thickness of the wall,

whereby the support stave is formed from lumber stock having the same thickness as said plurality of staves forming the wall.

3. A hot tube as recited in claim 1 or 2, wherein said support stave has a projection extending away from and exterior to the tub wall for supporting a rung of a ladder, said stave, including said rung support projection, formed of a single fabricated board.

4. A hot tub as recited in claim 1, wherein at least one of said staves has side faces extending longitudinally beyond the top of said tub wall and laterally away from the wall of said tub to form a hand-hold projection.

5. A hot tub as recited in claim 4, wherein said stave having said hand-hold projection is formed of a single fabricated board.

6. A hot tub as recited in claim 5, wherein said stave having said hand-hold projection is one of said pair of support staves.

7. A hot tub as recited in claim 6, further comprising a second stave having side face extending longitudinally beyond the top of said tub wall and laterally away from the wall of said tub to form a hand-hold projection.

8. A hot tub as recited in claim 7, wherein said second stave with said hand-hold projection is formed of a single fabricated board.

9. A hot tub as recited in claim 8, wherein said second stave having said hand-hold projection is the other of said pair of support staves.

10. A hot tub comprising:

- (a) a plurality of staves forming a wall of said tub,
- (b) a bottom, and
- (c) at least one stave having a hand-hold projection extending longitudinally beyond the top of said tub wall and laterally away from the wall of said tub to form a support for entry into an exit from the tub.

11. A hot tub as recited in claim 10, wherein said hand-hold projection extends laterally inwardly to the tub wall.

12. A hot tub as recited in claim 10 or 11, wherein said hand-hold projection and said stave are formed of a single fabricated board.

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(12) **United States Patent**
Weil

(10) **Patent No.:** **US 6,616,002 B2**
(45) **Date of Patent:** **Sep. 9, 2003**

- (54) **BARREL WITH TRAPDOOR**
- (75) Inventor: **William J. Weil**, Waverly, OH (US)
- (73) Assignee: **Canton Wood Products Company**,
Waverly, OH (US)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

2,069,531 A	2/1937	Lehner	
4,105,139 A *	8/1978	Scholle	222/105
5,052,570 A	10/1991	Johansen	
5,092,488 A *	3/1992	Pradel	220/320
5,188,402 A *	2/1993	Colgate et al.	285/332
5,537,913 A	7/1996	Vowles	
5,702,018 A *	12/1997	Montgomery	220/203.13
5,740,935 A *	4/1998	Desfarges	217/110
6,183,982 B1 *	2/2001	Nastasia	435/41

FOREIGN PATENT DOCUMENTS

- (21) Appl. No.: **09/794,557**
- (22) Filed: **Feb. 27, 2001**
- (65) **Prior Publication Data**
US 2002/0117474 A1 Aug. 29, 2002

DE	265148	6/1912	
DE	391568 C	3/1924	
DE	28 22768 A	11/1979	
GB	870752	6/1961	
GB	2167048 *	5/1986	217/76
IT	707593	5/1966	

* cited by examiner

Related U.S. Application Data

- (60) Provisional application No. 60/246,180, filed on Nov. 6, 2000.
- (51) **Int. Cl.⁷** **B65D 43/00**
- (52) **U.S. Cl.** **217/76; 220/592.19**
- (58) **Field of Search** 217/76, 72, 79,
217/88, 90, 91, 98, 99, 109, 110; 220/592.19,
FOR 177, 592.18, 192.17, FOR 178

Primary Examiner—Lee Young
Assistant Examiner—Lien Ngo

(74) *Attorney, Agent, or Firm*—Greenebaum Doll & McDonald PLLC; James C. Eaves, Jr.; Karen L. Lynd

(56) **References Cited**

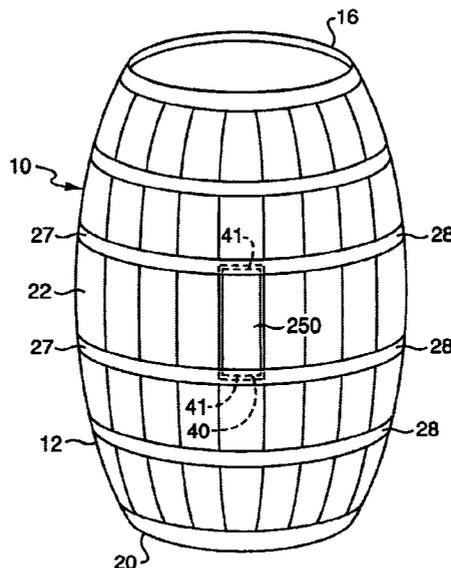
U.S. PATENT DOCUMENTS

199,405 A	1/1878	Blye	
503,580 A *	8/1893	David et al.	217/76
625,814 A *	5/1899	Terry, Jr.	217/76
744,879 A *	11/1903	Schleich	217/76
747,740 A	12/1903	Malone	
924,649 A *	6/1909	Emmrich	217/76
969,205 A	9/1910	Shields	
1,182,495 A	5/1916	Liston	
1,458,579 A	6/1923	House	
1,667,460 A	4/1928	Hussey	

(57) **ABSTRACT**

The barrel of the present invention contains a removable trapdoor which fits snugly into an aperture in the barrel and which is easily removed from the aperture, thereby providing for easy access to the interior of the barrel. The present invention provides distinct advantages over the prior art because it allows a worker lacking the skills of a cooper to remove or replace the wood chips or additional staves inside the barrel without removing a barrel head. Since the wood replacement can be done by regular employees, the barrels can be serviced when needed or convenient, rather than accumulating a large number of barrels for a cooper to service at one time.

8 Claims, 5 Drawing Sheets



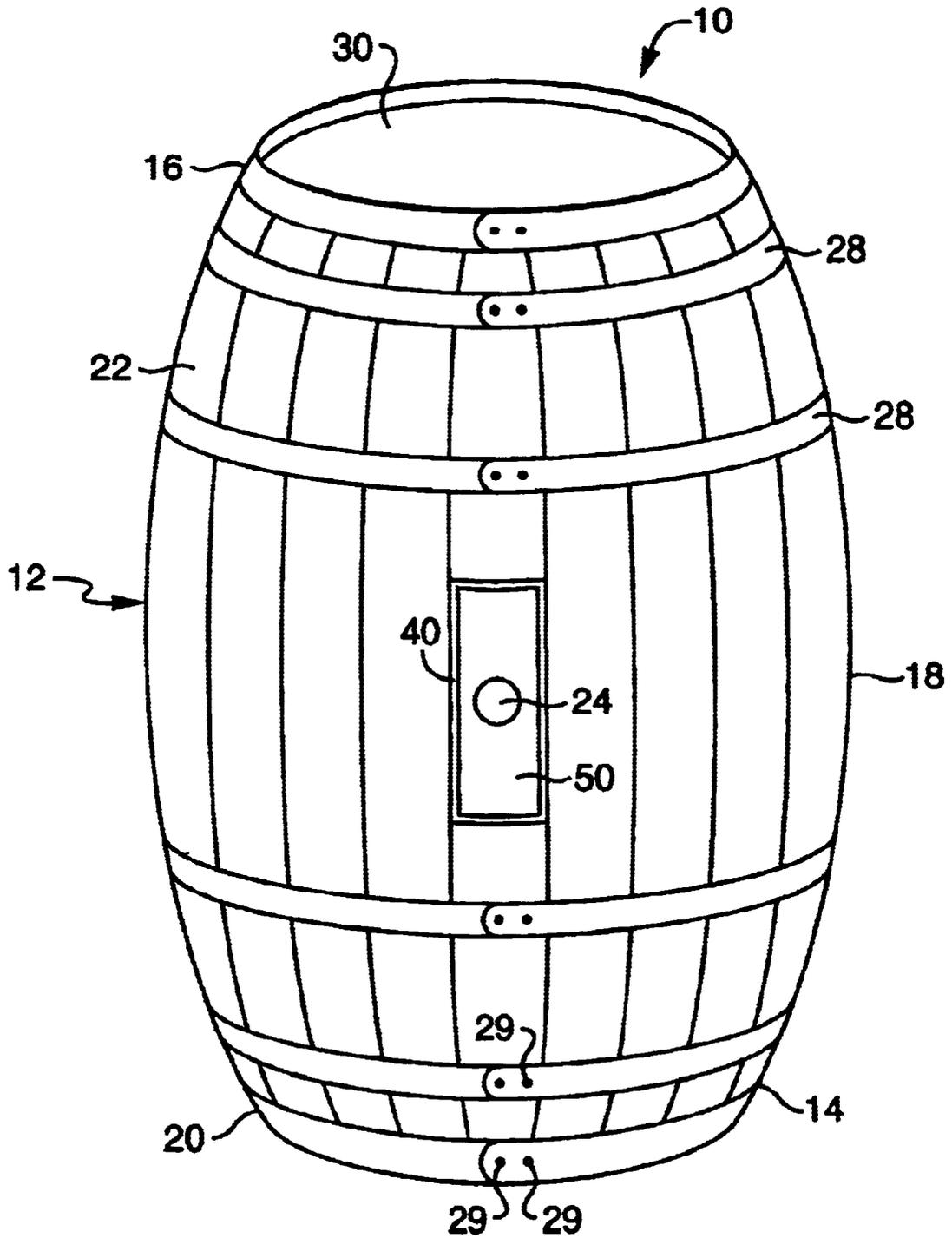


FIG. 1

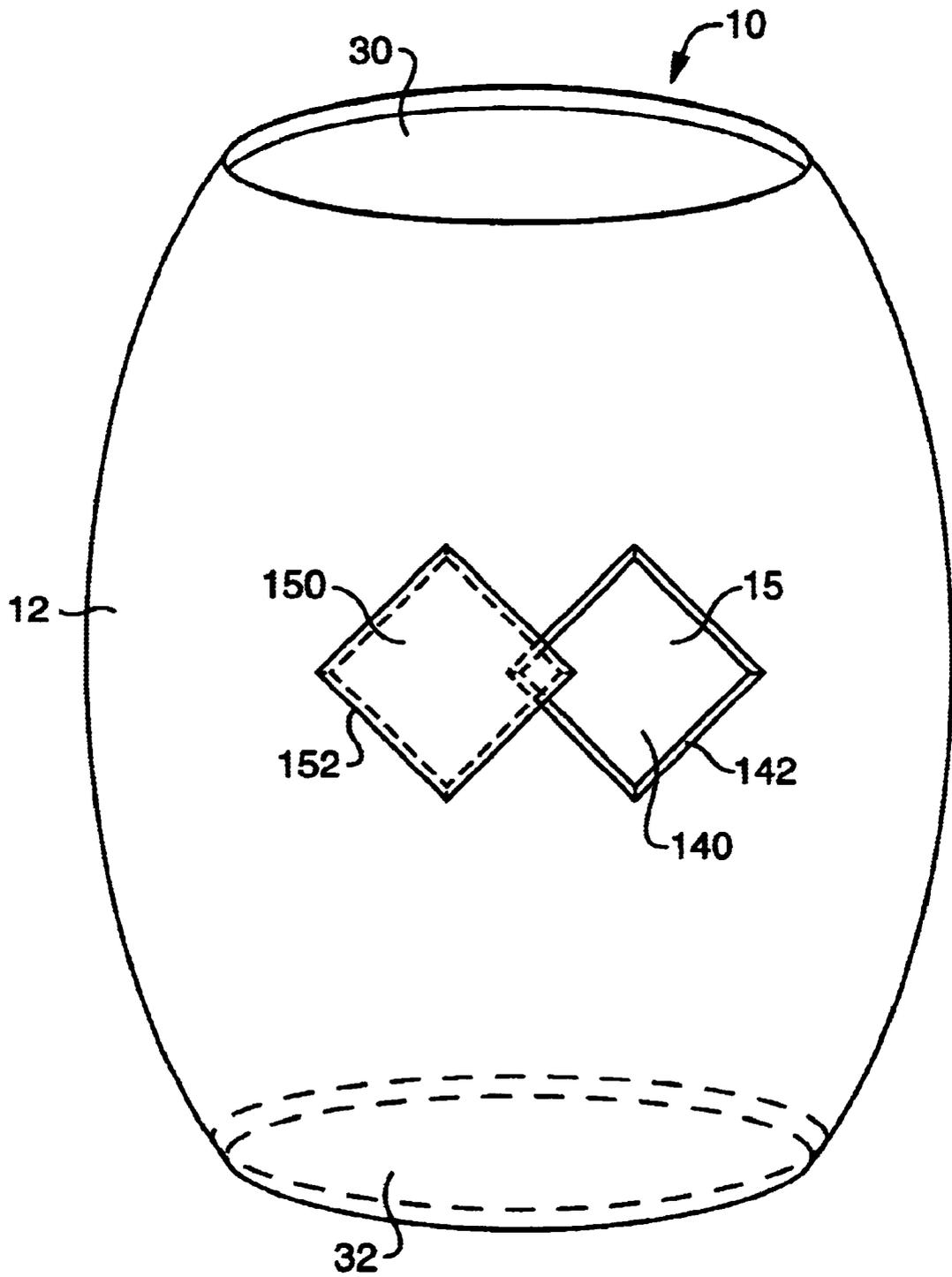


FIG. 2

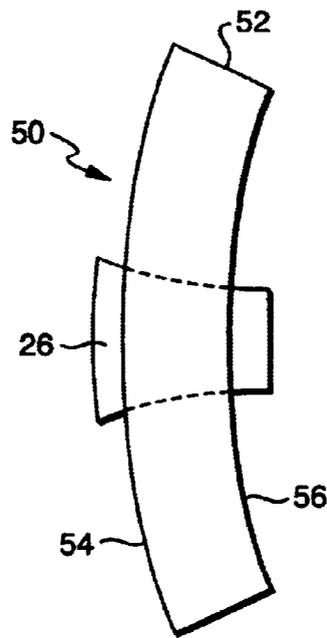


FIG. 3

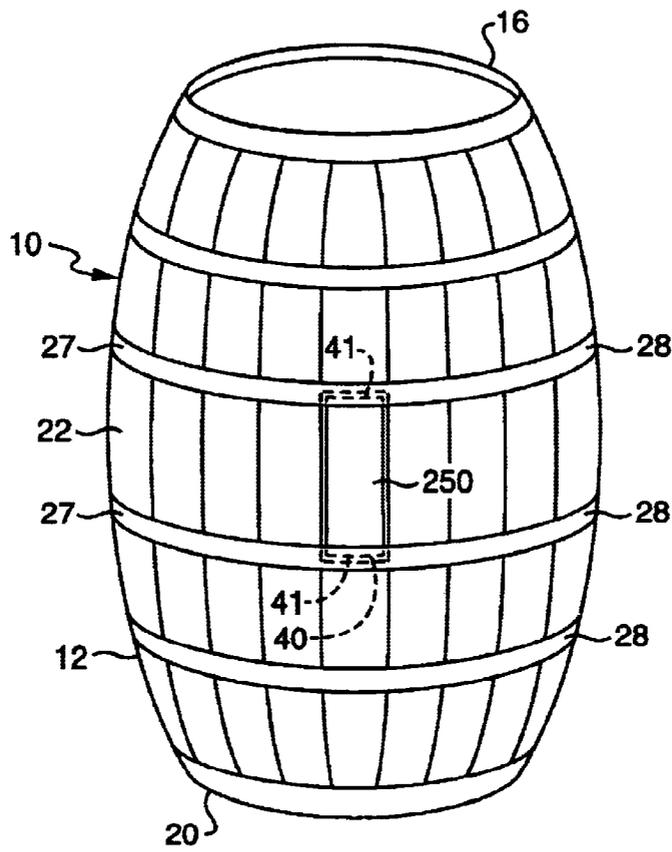


FIG. 4

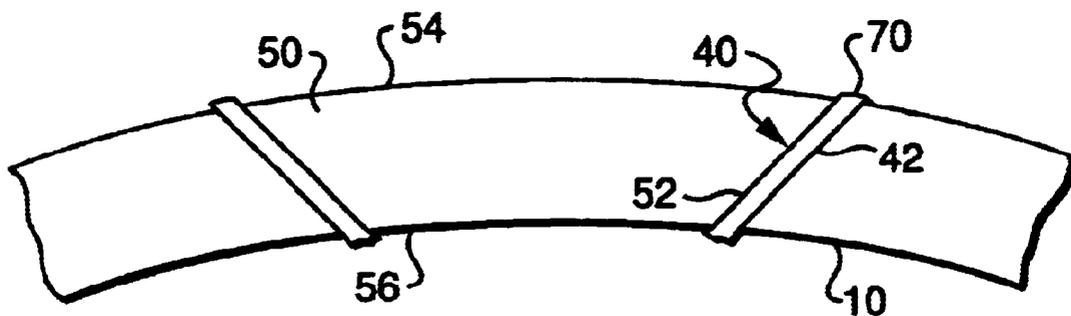


FIG. 5

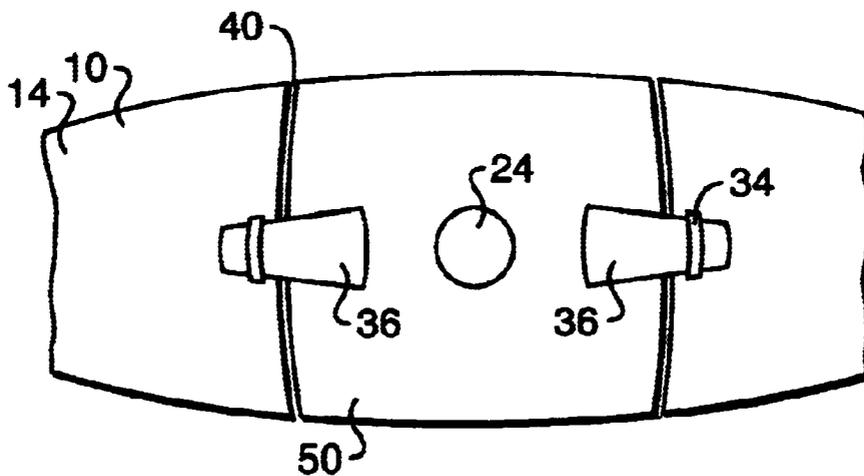


FIG. 6

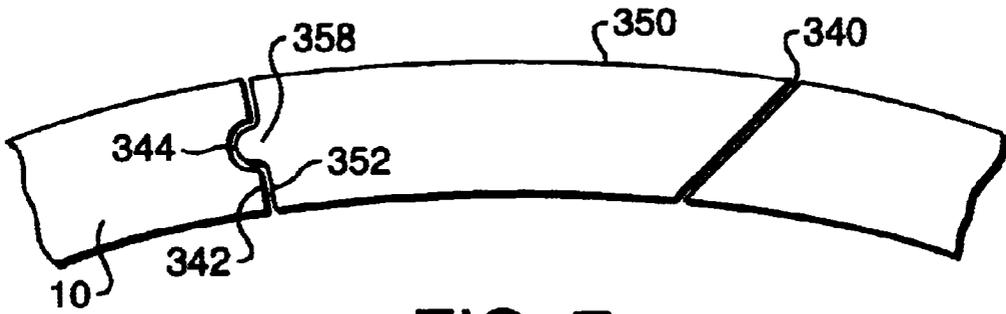


FIG. 7

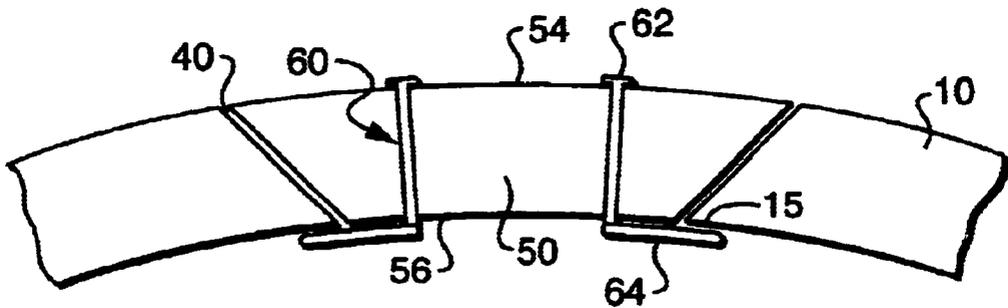


FIG. 8

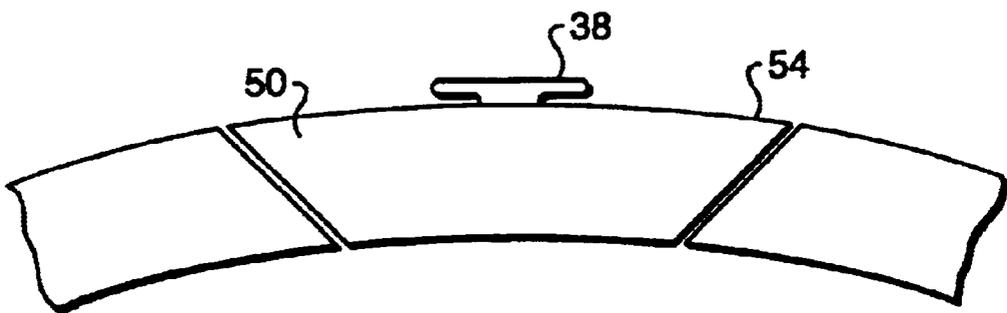


FIG. 9

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BARREL WITH TRAPDOOR

This application claims the benefit of U.S. Provisional Application No. 60/246,180, filed Nov. 6, 2000.

BACKGROUND OF THE INVENTION**(a) Field of the Invention**

The present invention relates to a trapdoor in a barrel used for storing and aging alcoholic spirits or wine to allow ready access to the interior of the barrel. Accessing the interior of a barrel after construction and sealing of the head has been problematic. This invention provides a barrel which contains a convenient, fast and simple entry point for accessing the interior area of the barrel for addition and removal of material for aging the wine or spirits.

(b) Description of the Prior Art

The storing and aging of spirits and wine has historically been accomplished through the use of wood barrels, often made of oak. It is well known that oak imparts natural wood components to alcoholic spirits and wine which enhances flavor and adds other desirable characteristics during the aging process. Toasting the oak further enhances the flavors imparted.

The body of the barrel is generally of greater length than breadth and has a cross-section, with the largest diameter at the body middle portion with decreasing diameters towards the ends. The barrel body is traditionally made of wooden staves which are bound together by hoops, usually made of metal. A head, which is usually a flat wooden circular disc of wood, is removably attached at each end of the barrel towards the ends of the wooden staves, forming a generally flat top and bottom. The barrel is constructed to be liquid tight, although there is some natural evaporation of the wine through infiltration of air into the barrel through the wood. The barrel has a bunghole, which is usually a small hole with a usual diameter of two inches or less, for addition and removal of the wine or spirits. The bunghole is usually located on the barrel body and can be sealed with any of a variety of materials, such as a bung made of silicon or wood, which provides a liquid tight seal and does not chemically react with the wine or spirits in an adverse manner. However, barrels also may be constructed of certain types of metal or synthetic material and may be of any size or shape.

Unfortunately, wooden barrels are expensive and difficult to maintain, and may only be used for a limited period of time before they must be replaced. The natural wood components in the interior surface of the wooden barrels become depleted after several years of use and cease to impart flavor to the wine or spirits. After a few batches of wine or spirits have been aged in the containers, new containers must be used or new wood must be inserted in the barrel to provide a new source of wood components.

Wood barrels are expensive to produce, and winemakers have developed varying methods of prolonging the life of the barrel. An increasing number of wine or spirit makers now insert additional wooden staves made of oak or small pieces of wood derived from oak into used wood barrels in order to provide additional sources of wood for extraction of the wood compounds. The staves are usually mounted in a rack installed in the barrel. The wood pieces usually take the

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form of strips, rods, chips of irregular shapes or cubes. These wood pieces and wooden staves also become depleted and must be removed and replaced. This method of adding and removing racks, wooden staves and wood pieces is very difficult with traditional wine-making or spirits-making barrels. The barrel's bunghole is small, and it is very difficult, if not impossible, to remove the small wood pieces from the barrel through the bunghole. Removal of a barrel head is required to add, replace or remove the rack and additional wooden staves. Removal of the barrel head is difficult and can damage the barrel. Therefore, a trained cooper is typically required to remove the head and service the barrel. This process can be time consuming and high in labor costs.

The vast majority of wineries and distilleries do not have a cooper on site with the skills required to properly service the barrels. They must hire outside help and then coordinate the timing of the work to coincide with the availability of empty barrels in large enough quantities to make it feasible to have a cooper visit the premises. This requires the wineries or distilleries to have additional warehouse space available to house the empty barrels awaiting servicing.

SUMMARY OF THE INVENTION

The present invention relates to a trapdoor in a barrel used for storing and aging alcoholic spirits or wine to allow ready access to the interior of the barrel. Accessing the interior of a barrel after construction and sealing of the head has been problematic. This invention provides a barrel which contains a convenient, fast and simple entry point for accessing the interior area of the barrel for addition and removal of material for aging the wine or spirits.

The barrel of the present invention contains a removable trapdoor which fits snugly into an aperture in the barrel and which is easily removed from the aperture, thereby providing for easy access to the interior of the barrel. The present invention provides distinct advantages over the prior art because it allows a worker lacking the skills of a cooper to remove or replace the wood chips or additional staves inside the barrel without removing a barrel head. Since the wood replacement can be done by regular employees, the barrels can be serviced when needed or convenient, rather than accumulating a large number of barrels for a cooper to service at one time.

The present invention relates to a barrel, comprising a body having a top end, a middle portion, a bottom end, an interior surface, and an exterior surface; a first head and a second head, the first head toward the top end, the second head toward the bottom end; a bunghole; a removable trapdoor having a geometrical shape, edges, an inner surface and an outer surface; and an aperture having a similar geometrical shape to the geometrical shape of the trapdoor, where the trapdoor is received and retained therein.

More particularly, the present invention comprises a wooden barrel with a removable trapdoor, the barrel comprising: a body having a top end, a middle portion, a bottom end, an interior surface, and an exterior surface; a first head and a second head, the first head toward the top end, the second head toward the bottom end; a bunghole; the removable trapdoor having a geometrical shape, edges, an inner surface and an outer surface; an aperture having a similar but

slightly larger geometrical shape to the geometrical shape of the trapdoor, where the trapdoor is received and retained therein; the aperture being sized and shaped to receive the trapdoor with the aperture edges abutting and able to be in intimate contact with the trapdoor edges when the trapdoor is inserted into the aperture; the aperture edges being beveled; the trapdoor edges being beveled; the surface area of the trapdoor outer surface being greater than the surface area of the trapdoor inner surface; the aperture being located in the barrel body middle portion between two adjacent hoops; the barrel body comprised of a multiplicity of wooden staves wrapped perpendicularly around the multiplicity of wooden staves, each said wooden stave in said multiplicity of wooden staves having a width; the aperture located in one wooden stave of the multiplicity of wooden staves; the aperture being the width of one wooden stave; the trapdoor being composed of material similar to the barrel; and the bunghole being located in the trapdoor.

Additionally, a seal material may be compressed between the trapdoor edges and the aperture edges, forming a liquid-tight seal when the trapdoor is inserted into the aperture. The seal material may consist of cork, rubber, neoprene, silicone, plastic or any suitable sealing material. In an alternate embodiment, the trapdoor may be composed of material different from that used for the barrel, such as wood, rubber, plastic or any suitable material. In a further alternate embodiment, the barrel may be constructed of suitable metal or synthetic material and may be of any size or shape.

In the preferred embodiment, the aperture is located in a single stave between two adjacent hoops, with the aperture extending beneath the two adjacent bilge hoops. The two hoops are loosened to allow insertion and extraction of the trapdoor. The hoops, in their tightened position, secure the trapdoor in the aperture.

In a further alternate embodiment, at least two brackets may project from an exterior surface of the barrel in proximity to and approximately parallel to opposed edges of the aperture, and at least two securing members are receivably accepted and clasped by the at least two brackets. In a further alternate embodiment, a portion of the aperture edges contains a groove approximately parallel to the aperture edges, a mating lip protrudes from a reciprocal portion of the trapdoor edges, and the groove receives and accepts the mating lip. A further embodiment further comprises at least two flange mechanisms affixed through and to the trapdoor inner surface, each flange mechanism having a flange and a screw, the screw having a head, a shaft and a tip, the shaft and the tip driven through the trapdoor from the outer surface to the inner surface, the screw head resting against the trapdoor outer surface, the screw tip attached to the flange which rotates when the screw head is rotated, the flange rotating from an insertion position resting against the inner surface of the trapdoor to a securing position resting against the interior surface of the barrel when the screw head is rotated. The flange mechanism is composed of material, such as stainless steel, which does not chemically react with the wine or spirits in an adverse manner. In a further embodiment, at least one handle is attached to the outer surface of the trapdoor.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the present invention will be had upon reference to the following description in conjunction with the accompanying drawings, wherein:

FIG. 1 shows a front view of one embodiment of the present invention, depicting a wooden barrel with an aperture located in the barrel body, the aperture being located on one stave between two adjacent hoops, with the trapdoor inserted in the aperture and a bunghole in the trapdoor;

FIG. 2 shows an exploded front view of an alternate embodiment of the present invention, depicting a barrel with an alternative geometrically shaped aperture and trapdoor;

FIG. 3 shows a side view of the trapdoor of FIG. 1, depicting the beveled edges of the trapdoor and a bung inserted in the bunghole in the trapdoor;

FIG. 4 shows a front view of the preferred embodiment of the present invention, depicting a wooden barrel with a geometrically shaped aperture with trapdoor inserted, where the aperture is located on one stave between and extending beneath the two adjacent bilge hoops, with the trapdoor inserted in the aperture;

FIG. 5 shows a cross-sectional view of an alternate embodiment of the present invention, depicting a trapdoor inserted in the aperture and a seal material compressed between the trapdoor edges and the aperture edges;

FIG. 6 shows a top view of an alternate embodiment of the present invention, depicting a trapdoor inserted in the aperture, the trapdoor having a bunghole, and two brackets projecting from an exterior surface of the barrel in proximity to and approximately parallel to opposed edges of the aperture with two securing members inserted in the brackets;

FIG. 7 shows a cross-sectional view of an alternate embodiment of the present invention, depicting an aperture with a portion of the aperture edges containing a groove approximately parallel to the aperture edges and depicting a trapdoor with a mating lip protruding from a reciprocal portion of the trapdoor edges, where the groove receives and accepts the mating lip.

FIG. 8 shows a cross-sectional view of an alternate embodiment of the present invention, depicting an aperture and trapdoor with beveled edges where two flange mechanisms are mounted through the trapdoor and rotated into a securing position against the interior surface of the barrel;

FIG. 9 shows a cross-sectional view of an alternate embodiment of the present invention, depicting an aperture and trapdoor with beveled edges where a handle is attached to the outer surface of the trapdoor.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In the barrel **10** of the embodiment shown in FIG. 1, an aperture **40** is located in the barrel body **12**, most preferably in the middle portion **18** of the body **12** between two of the barrel support hoops **28**. Hoops **28** are shown in FIG. 1 as metal strips held by rivets **29**. The two hoops closest to the top **16** and bottom **20** ends are known as "head hoops". The two hoops **28** closest to the barrel middle portion **18** are known as "bilge hoops". The two hoops **28** between the head hoops and the bilge hoops are known as "quarter hoops". As best shown in FIGS. 1-2, the aperture **40** may be of any size and geometric shape which will accommodate insertion or removal of a rack or the additional wooden staves or wood pieces used for flavoring. As best shown in FIG. 1, the aperture **40** in a wooden barrel **10** is located on one stave **22**

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and is preferably the width of that stave **22**. The size of the aperture **40** should be no larger than required, in order to maximize the structural integrity of the barrel **10**, and most preferably measures no more than six inches at its widest point or points. As best shown in FIGS. 2-3, 5, and 8-9, the edges **42**, **142** of the aperture **40**, **140** are typically beveled, so that the aperture surface area on the interior **15** of the barrel is smaller than the aperture surface area on the exterior **14** surface of the barrel. The trapdoor **50** is the same geometric shape as the aperture **40** and is only slightly smaller in size, so that the trapdoor **50** is insertable into and removable from the aperture **40**. The edges **52** of the trapdoor are cut with the same bevel as the aperture **40**, so that when the trapdoor **50** is inserted, the trapdoor edges **52** may be in intimate contact with the aperture edges **42** along the entire length of all edges, forming a liquid tight seal. The beveled edges **42** of the aperture **40** accept and support the trapdoor **50** and prevent it from falling or being pushed into the interior **15** of the barrel.

The trapdoor **50** may be made of any of a variety of materials which will not adversely chemically react with the stored liquid, such as wood, plastic or rubber. The trapdoor **50** is preferably made of the same material as the barrel **10**. As shown in FIG. 5, a seal or gasket **70** made of a suitable bonding or sealing material may be placed against the edges **42** of the aperture **40**, so that when the trapdoor **50** is inserted, the seal or gasket **70** is compressed between the edges **42**, **52** of the respective aperture **40** and trapdoor **50**, forming a liquid tight seal. The seal or gasket **70** may be composed of any of a variety of materials which will not adversely chemically react with the stored liquid, such as cork, plastic, neoprene or rubber.

In the embodiment depicted in FIG. 1, the bunghole **24** is located in the trapdoor **50** to provide an easy method for grasping the trapdoor **50** and removing it from the aperture **40**. A worker would extract the bung **26** (FIG. 3) from the bunghole **24** and then insert one or more fingers or an instrument into the bunghole **24** and apply upward pressure to the inner surface **56** (FIG. 3) of the trapdoor **50**, pulling it from the aperture **40**. However, as shown in FIGS. 2, 4-5, and 7-9 it is not required that the bunghole **24** be located in the trapdoor **50**, **150**, **250**, **350**. The trapdoor **50**, **150**, **250**, **350** may be removed by inserting a wedge into the small space between the aperture **40**, **140**, **340** and trapdoor edges **52**, **152**, **352** and then urging the trapdoor **50**, **150** upward. Further, as shown in FIG. 9, any suitable handle **38** or handles for grasping may be affixed to the trapdoor outer surface **54**, whereby the trapdoor would be pulled free from the aperture when outward force is applied to the handle. The trapdoor **50** may be secured in the aperture **40** by applying inward pressure on the outer surface **54** of the trapdoor **50**. Further, as shown in FIGS. 4 and 6-8, any suitable locking mechanism may be used to securely hold the trapdoor in the aperture.

In the preferred embodiment depicted in FIG. 4, the aperture **40** is preferably located in a single stave **22** between two adjacent hoops **28** with the aperture extending beneath the two adjacent hoops **28**. As shown, aperture **40** extends beneath the two bilge hoops **27**, although it could extend beneath hoops **28** closer to the top **16** and bottom **20** ends. To cut the aperture **40**, bilge hoops **27** are "loosened", that

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is they are moved toward respective top **16** and bottom **20** ends. The trapdoor **250** cuts are then made in stave **22**. With the barrel hoops **27** loosened, the trapdoor **250** can be inserted into or extracted from aperture **40**. The barrel hoops **27**, in their tightened position, secure the trapdoor **250** in the aperture **40**. If desired, a bead of silicon-type caulking seal **41** can be placed at the cut stave **22** ends of aperture **40** to aid in sealing trapdoor **250** in aperture **40**. In addition to caulking, other seals **70** as described above can be used. This is felt to be the preferred embodiment because the tightening of bilge hoops **27** helps the trapdoor **250** and aperture **40** form a liquid tight engagement.

In an alternate embodiment depicted in FIG. 6, brackets **34** may be affixed on the barrel **10** near the edges **42** of the aperture **40** or on the trapdoor **50** itself, so that one or more wedges **36** of wood or other securing material may be inserted through the brackets **34**, placing inward pressure upon the trapdoor **50** and holding the trapdoor edges **52** securely against the aperture edges **42**. In an alternate embodiment depicted in FIG. 8, rotating flange mechanisms **60** may be affixed through and to the inside of the trapdoor **50**, so that the flanges **64** may be turned by a screw **62** to rest against the interior surface **15** of the barrel, securing the trapdoor **50** into the aperture **40** from the interior of the barrel. In a further alternate embodiment depicted in FIG. 7, a portion of the edges **342** of the aperture **340** contains a groove **344** approximately parallel to the aperture edges **342**, and a mating lip **358** which protrudes from a reciprocal portion of the trapdoor edges **352** is received and accepted by the groove **344**. The trapdoor **350** portion containing the mating lip **358** is fitted first into the aperture **340** portion containing the groove **344**. Inward pressure is then exerted upon the trapdoor **350**, snapping the trapdoor **350** into the appropriate position within the aperture **340**.

An advantage of the present invention is that wood flavoring pieces or staves can be much more easily removed through the trapdoor **50**, **150**, **250**, **350** than through the bunghole **24** or by removing either a first head **30** from the barrel **10** top end **16** or a second head **32** from the barrel **10** bottom end **20**. Wood chips will jam and pack with each other and make removal through the bunghole difficult or impossible. Likewise, larger wood rods or strips are very difficult to remove through the bunghole because of their overall size and the difficulty of orienting them with respect to the hole for removal through the hole.

The foregoing detailed description is given primarily for clearness of understanding and no unnecessary limitations are to be understood therefrom, for modifications can be made by those skilled in the art upon reading this disclosure and may be made without departing from the spirit of the invention.

What is claimed is:

1. A barrel, comprising:

- a. a body having a top end, a middle portion, a bottom end, an interior surface, and an exterior surface, said body comprised of a plurality of wooden staves bound in assembled relationship with at least two hoops wrapped around said plurality of wooden staves;

- b. a first head and a second head, said first head toward said top end, said second head toward said bottom end;
 - c. a bunghole;
 - d. a removable trapdoor having a geometrical shape, edges, an inner surface and an outer surface; and
 - e. an aperture located in said body between two adjacent hoops of said at least two hoops and extending at least partway beneath said two adjacent hoops, said aperture having edges and a similar geometrical shape to said geometrical shape of said trapdoor, said trapdoor being receivable by said aperture.
2. The barrel as recited in claim 1, where said aperture is sized and shaped to receive said trapdoor with said aperture edges abutting and in intimate contact with said trapdoor edges when said trapdoor is inserted into said aperture.
3. The barrel as recited in claim 1, where the surface area of said trapdoor outer surface is greater than the surface area of said trapdoor inner surface.
4. The barrel as recited in claim 1, where said aperture is located in said middle portion of said body.
5. The barrel as recited in claim 1, where said bunghole is located in said trapdoor.
6. The barrel as recited in claim 1, where each wooden stave in said plurality of wooden staves has a width, where said aperture is located in one wooden stave of said plurality of wooden staves and where said aperture is not wider than the width of said one wooden stave.
7. The barrel as recited in claim 1, where said aperture has cut stave ends beneath said two adjacent hoops.

8. A barrel, comprising:
- a. a body having a top end, a middle portion, a bottom end, an interior surface, and an exterior surface;
 - b. a first head and a second head, said first head toward said top end, said second head toward said bottom end;
 - c. a bunghole;
 - d. a removable trapdoor having a geometrical shape, edges, an inner surface and an outer surface;
 - e. an aperture having edges and a similar geometrical shape to said geometrical shape of said trapdoor, said trapdoor being receivable by said aperture;
 - f. said bunghole located in said trapdoor;
 - g. said body comprised of a plurality of wooden staves bound in assembled relationship with at least two hoops wrapped around said plurality of wooden staves;
 - h. said aperture located in said body between two adjacent hoops of said at least two hoops and extending at least partway beneath said two adjacent hoops;
 - i. each wooden stave in said plurality of wooden staves having a width;
 - j. said aperture located in one wooden stave of said plurality of wooden staves;
 - k. said aperture being not wider than the width of said one wooden stave; and
 - l. said aperture having cut stave ends beneath said two adjacent hoops.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,616,002 B2
DATED : September 9, 2003
INVENTOR(S) : William J. Weil

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page.

Item [*] Notice, delete "0 days" and insert instead -- 9 days --.

Column 8.

Line 30, insert the following claim:

9. The barrel as recited in claim 1 further comprising a seal material compressed between said trapdoor edges and said aperture edges where said seal material forms a liquid-tight seal when said trapdoor is inserted into said aperture.

Signed and Sealed this

Twenty-sixth Day of April, 2005

A handwritten signature in black ink on a light gray dotted background. The signature reads "Jon W. Dudas" in a cursive style.

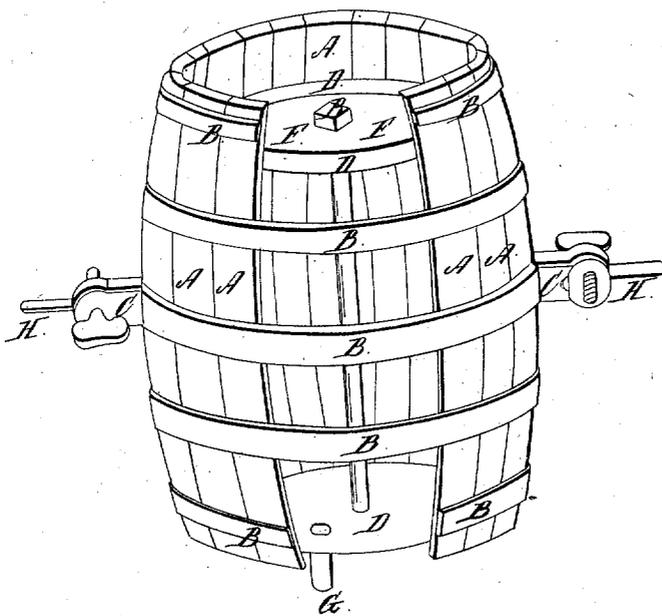
JON W. DUDAS

Director of the United States Patent and Trademark Office

9579X

No Printed Specification Available

*Boston & Bryan,
Soda Fountain,
Patented Apr. 11, 1836.*



9579 X

an. 13
Apr. 11. 1896

301.

Robert Boston and Thomas Bryan, New York

Letters Patent.

The schedule referred to in these Letters Patent, and making part of the same, containing a description in the words of the said Robert Boston & Thomas Bryan, themselves of their improvement in the construction of fountains for soda or other mineral waters.

To all to whom these presents shall come: Be it known that we Robert Boston and Thomas Bryan, both of the City and County of New York, and State of New York, have invented a new and useful improvement in the construction of fountains of wood for soda water or other mineral waters, or other liquids, where great pressure or condensing of gases is necessary, and that the following is a full true and exact description of the said improvement. Fountains are made of wood in the ordinary form of barrels or casks with staves bound together by a sufficient number of hoops, of sufficient strength to sustain the pressure or condensing of gas required, some or all of the said hoops are so constructed as to clasp the fountain with screws; so that the said staves of the fountain may be tightened or compressed together from time to time as may be required. The end heads of the said fountain, in addition to the ordinary means of forming the heads of barrels or casks are secured by one or more metallic bolts or bars passing through sufficient and suitable apertures in the said ends or heads, and through the interior of the fountain, the said bolts or bars are secured on the outer surface of one head or end of the fountain by sufficient and suitable flanges, and on the other end or head of the fountain by similar flanges and nuts screwed upon corresponding screws on the said bolts or bars so that the said end or head may be from time to time tightened as may be required. In case the said bolts or bars are constructed of any metallic substance or substances, in order to prevent and avoid the corrosive effects of

soda

Soda or other Mineral water upon such Metallic substances the said metallic bolts or bars are trimmed, or covered with a lamish or some other substance insoluble in said Mineral water, or they may be saed or inclosed in bars of wood sufficiently bored for that purpose, and so secured at each extremity as to be water tight. The fountain may rest or swing upon pivots attached to the middle hoop and the staves may be so constructed as to project above the upper end or head of the fountain, sufficiently to form a suitable receptacle for sea for the purpose of cooling the contents of the fountain when desired, a flange and screw are inserted in one head or end of the fountain to which a pipe or tube may be attached so as to draw off with a suitable tap, the contents of the fountain each fountain may be placed so as to fix with accuracy, the pressure remaining of gas it will bear, and the said Robert Boston and Thomas Bryan have herunto annexed a view or drawing of the said above described fountain, the particular parts whereof are marked with the letters of the alphabet, and to which particular parts respectively we hereinafter refer by corresponding letters. A represent the said staves, B represent the said hoops, C represent the mode of tightening by means of screws affixed to the hoops as herein before described, D represent the said ends or heads, E, represent the said bolts or bars, F represent the aforementioned fastenings of the said bolts or bars, G represent the flange and screw to which a pipe or tube may be attached as herein before described, H represent the said pivots herein before mentioned. In order that the drawing or view may represent the interior of the said fountain it presents the appearance of a fountain from which one or more staves have been taken, the upper and lower hoops also for the like purpose are represented as imperfect, and we the said Robert Boston and Thomas Bryan, claim as our joint and original invention in the above described fountain, the use of the said bolts or bars and of the said flanges thereto or affixed so as to prevent the bursting of the said fountain when constructed of wood as herein before described and set forth, by

the

95794

903

The pressure or condensing of gases &c therein. And we have
therefore herewith set our hands the thirtieth day of January
in the year one thousand eight hundred and thirty six.

Witness

A. Tucker
P. Fisk

A. Boston

Wm. Bryan

(Signature)

855 n. 31

Drawing

855
117