

1,324,445.

UNITED STATES PATENT OFFICE.

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METALLIC BARREL.

1,324,445.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES H. GEORGE, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented a certain new and useful Improvement in Metallic Barrels, of which the following is a specification.

My invention relates to metallic packing and storing vessels more particularly designed for the shipment of liquids and more particularly to that class of such receptacles which may be "knocked down" and the parts nested for transportation when empty.

The object of my invention is to produce such a vessel which will be strong and durable in use, which will not leak at the joints and will be of simple and inexpensive construction.

A further object is to provide means for securely locking the parts together to withstand rough usage in handling and transportation, such locking means being readily separable to facilitate the knock down operation.

A still further object is to so construct the vessel that the meeting edges of the sections will be smooth on the outside so as to minimize the danger of injury to persons handling the same.

These and further objects will more fully appear in the following specification and accompanying drawings, considered together or separately.

I have illustrated several embodiments of my invention in the accompanying drawings in which like parts are designated by corresponding characters of reference in all of the several figures.

Figure 1 is a longitudinal section of a barrel embodying my invention the section being taken on the line 1—1 of Fig. 2;

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1;

Fig. 3 is a detail elevation of the meeting edges of a pair of staves before they are flanged;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 is a view similar to Fig. 3 but with the meeting edges flanged;

Fig. 6 is a section on the line 6—6 of Fig. 5;

Fig. 7 is a view similar to Fig. 3 but with the meeting edges joined;

Fig. 8 is a section on the line 8—8 of Fig. 7;

Fig. 9 is a section on the line 9—9 of Fig. 7;

Fig. 10 is a similar view of a modification;

Fig. 11 is a similar view of another modification;

Fig. 12 is a similar view of still another modification;

Fig. 13 is a detail sectional view of the heading means shown in Figs. 1 and 2;

Fig. 14 is a similar view of a modification, and

Fig. 15 is a similar view of another modification.

In the embodiment of the invention illustrated I show a bilge barrel composed of two sheet steel staves 1 and 2. The staves are each cut to proper shape and formed to the shape of a semi-cylinder with bulged sides. The staves are identical as to form so that only one forming machine is necessary.

Along one edge of each staff is a wing 3 and the opposite edge of the staff has a wing 4. These wings 3 and 4 are of less length than the staff, as shown at 5. The wing 3 is slitted at intervals to produce tongues 6, and at points corresponding to the tongues 6, slots 7 are cut at the base of the wing 4. These slots are of a size sufficient to permit the tongues 6 of the companion staff to be inserted therein. The wing 3 between the tongues is bent inward at substantially a right angle to the edge of the staff. The tongues 6 will be bent inward a distance equal to the thickness of the staff and then bent back to lie parallel with the curve of the staff. The wing 4 is bent toward the center of the staff at approximately the radial line.

Two staves formed as above described are brought together with the wing 3 of one abutting against the wing 4 of the other, with the tongues 6 projecting through the slots 7. A sealing substance 8 such as spelter, or the like, is run in the seam between the staves, from the outside. This will fill the groove formed by the bending of the wings 3 and 4 for the full length of the wings and form a surface flush with the staves.

The necessary hoops 9 are driven on the barrel, thus formed, and when they are in proper position, are secured in place per-

fectly by driving a center punch into them at intervals. This operation will force the material of the hoops into the staves at the points operated on by the punch and the hoops will be securely retained in position. The barrel is now in condition to receive the heads.

Each end of the barrel is provided with a head, which comprises, in the preferred embodiment of the invention, shown in Figs. 1, 2 and 13, a disk 10 having an annular rim 11 projecting from one face thereof. The free edge of the rim carries a peripheral flange 12. The rim 11 is provided with bolt holes 13 which correspond in number and position with bolt holes 14 in the staves 1 and 2 near the ends thereof. A head is placed in position in each end of the barrel with the disk 10 resting upon the ends of the wings 3 and 4, and the flange 12 resting upon the ends of the staves 1 and 2.

Chime hoops 15 are employed to strengthen the ends of the barrel and retain the heads in position. The chime hoop comprises an annulus having a wall 16 of a shape to snugly fit the end portion of the body of the barrel, a flat portion 17 of a width equal to that of the flange 12, and a cylindrical member 18 with a depth equal to that of the rim 11. The wall 16 and member 18 are provided with perforations 19 and 20 respectively corresponding in number and spacing with the perforations 13 and 14 in the head and staves. The chime hoops 15 are placed in position over the heads with the walls 16 engaging the staves, the portions 17 resting on the flanges 12 and the members 18 engaging the rims 11 and resting on the disks 10 with the bolt holes 13, 14, 19 and 20 in alinement. Stave bolts 21 are passed through the alined bolt holes and nuts 22 are set up on the inner ends thereof against the rims 11.

Spelter or any suitable cement which is insoluble in the liquid to be transported in the barrel is now run in through the filling opening 23 and forms a dam 24 in the space between the rim 11 and the end portions of the staves. This dam will effectively seal the joints between the staves above and below the wings 3 and 4 and also seal the joint between the edges of the staves and the flanges 12 of the heads.

In the modification shown in Fig. 10 the wings 3^a and 4^a are plain flanges and are secured together at intervals by means of bolts 4^b.

The modification shown in Fig. 11 illustrates a channel 3^b surrounding the free edges of the wings 3^a and 4^a and secured thereto by bolts 4^c which pass through the sides of the channel and the wings. Between the base of the channel and the edges of the wings spelter is run to doubly seal the joint.

In the modification shown in Fig. 12 the tongues 6, after passing through the slots 7, are bent up alongside of the wing 4. This construction will produce an extremely strong lock for the staves.

Fig. 14 shows a modification wherein is employed a ring 11^a having an outturned flange 12^a which rests on the edges of the staves, and an inturned flange 12^b at its opposite end. A plane disk 10^a rests upon the flange 12^b and forms the head of the barrel. An annulus 11^b is placed inside the ring 11^a and rests upon the disk 10^a. A chime hoop is placed over the end of the barrel with its rim 18 resting on the disk and all of the chime members are bolted together as before.

The modification shown in Fig. 15 is in all respects the same as that shown in Fig. 14 except that the annulus 11^a is omitted.

In order to prevent leakage around the disk shown in Figs. 14 and 15, spelter may be run between the disk and the member 18 of the chime hoop, or a gasket 25 may be inserted between the disk and the ring 11^a.

When it is desired to take the barrel apart for shipment empty, the nuts are removed from the bolts in the chime and the bolts withdrawn. The chime hoops are driven off. A few blows of a hammer on the staves near the ends thereof will destroy the dam 24 if the same be composed of cement, resin or the like or if low temperature fusible metal be employed it may be melted. The heads are now removed from the staves. The hoops 9 are driven off in the usual manner with a chisel and hammer the force of the blows of the hammer flattening the projections on the hoops. The staves are now pulled apart, the thin dam 8 of spelter peeling off during the operation. The parts are now ready to be packed or nested for return shipment.

While I have shown barrels composed of two staves it will be understood that I do not desire to limit myself to such a construction but may employ any desired number of staves.

In accordance with the provisions of the patent statutes, I have described the principle of my invention (together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the device shown is merely illustrative and that the invention may be carried out in other ways.

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

1. A metallic knock-down barrel comprising a plurality of staves, each stave being provided at each longitudinal edge with a wing, said wings being of less length than that of the stave, one of said wings being continuous and having slots there-

in, the other of said wings being interrupted, tongues at the points of interruption, said tongues projecting at an angle to the wing and parallel to the body of the staves, whereby the tongues of one stave may engage the slots of the adjoining stave, and means for sealing the joint between the staves, and hoops for securing the staves against lateral displacement.

2. A metallic knock-down barrel comprising a plurality of staves, each stave being provided at each longitudinal edge with a wing, said wings being of less length than that of the stave, one of said wings being continuous and having slots therein, the other of said wings being interrupted, tongues at the points of interruption, said tongues projecting at an angle to the wing and parallel to the body of the staves, whereby the tongues of one stave may engage the slots of the adjoining stave, and breakable means on the outside of the staves for sealing the joint between the staves, and hoops for securing the staves against lateral displacement.

3. A metallic knock-down barrel comprising a plurality of staves, each stave being provided at each edge with an intumed wing, said wings being of less length than the length of the stave, one of said wings having a slot therein, the other of said wings having a tongue projecting at an angle therefrom and parallel to the bodies of the staves, and breakable means engaging the wings for securing the wings of adjoining staves together, and a hoop for securing the staves against lateral displacement.

4. A metallic knock-down barrel comprising a plurality of staves, a longitudinal wing on the edge of each stave, said wing being of less length than that of the stave, means integral with the staves for securing the same together, a head supported on the ends of the staves and resting on the wings, breakable sealing strips between the staves, and a gasket for sealing the joint between the staves and the head and a hoop for securing the staves against lateral displacement.

5. A metallic knock-down barrel comprising a plurality of staves, a longitudinal wing on the edge of each stave, said wing being of less length than that of the stave, means integral with the staves for securing the same together, a head supported on the ends of the staves and resting on the wings, a breakable sealing strip on the outside of the barrel for sealing the joints between the staves, and a gasket for sealing the joint between the staves and the head.

6. A metallic knock-down barrel comprising a plurality of staves, a longitudinal wing on the edge of each stave, said wing being of less length than that of the stave, means inside of the barrel and integral with

the staves for securing the staves together, a head supported on the ends of the staves and resting on the wings, means on the outside of the barrel for sealing the joints between the staves, said sealing means being applied to the joint after the staves are assembled, and means on the inside of the staves for sealing the joint between the staves and the head.

7. A metallic knock-down barrel comprising a plurality of staves, means inside of the barrel and integral with the staves for preventing relative longitudinal movement of the staves, a head in the end of the barrel, said head being supported on the ends of the staves, a removable hoop engaging the head over its point of support, said hoop engaging the head and the outsides of the staves, and independent means for removably securing the hoop to the staves.

8. A metallic knock-down barrel comprising a plurality of staves, means inside of the barrel and integral with the staves for preventing relative longitudinal movement of the staves, a head in the end of the barrel, said head being supported on the ends of the staves, a removable hoop engaging the head over its point of support, said hoop engaging the head and the outsides of the staves, and removable means for securing the hoop to the staves and to the head.

9. A metallic knock-down barrel comprising a plurality of staves, means inside of the barrel and integral with the staves for securing the staves together, a head in each end of the barrel, a removable hoop on each end of the barrel, said hoops engaging the head and staves, a sealing material between the head and staves, bolts securing said hoops and heads to the staves, said bolts passing through the sealing material and nuts on the bolts, said nuts lying within the dimensions of the barrel.

10. A metallic knock-down barrel comprising a plurality of staves, each stave being provided at each longitudinal edge with an intumed radial wing, one wing on each stave being continuous and having a slot therein, said slot being located inside of the barrel, the wing on the opposite edge having a right angled tongue extending beyond the edge of the stave but parallel to the stave and so positioned as to engage the slot when the staves are assembled with the wings of one stave engaging the wings on the adjacent edges of adjoining staves, a fluid sealing material applied to the outside of the joint between the staves and penetrating between adjoining wings which, upon hardening, will seal the joints between the staves, the engagement of the tongue and slot preventing longitudinal relative movement of the staves, and hoops for securing the staves against lateral displacement.

11. A metallic knock-down barrel com-

prising a plurality of staves, each stave being provided at each longitudinal edge with an intumed radial wing, one wing on each stave being continuous and having a plurality of slots therein, said slots being located inside of the barrel, the wing on the opposite edge having a right angled tongue corresponding to each slot and extending beyond the edge of the stave but parallel to the stave and so positioned as to engage the slots when the staves are assembled with the wings of one stave engaging the wings on the adjacent edges of adjoining staves, a fluid sealing material applied to the out-

side of the joint between the staves, and penetrating between adjoining wings which, upon hardening, will seal the joints between the staves, the engagement of the tongues and slots preventing longitudinal relative movement of the staves, and hoops for securing the staves against lateral displacement.

This specification signed and witnessed this 28th day of July, 1916.

JAMES H. GEORGE.

Witnesses:

JAS. F. COLEMAN,
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