(No Model.)

G. R. NAFIS.

CASK OR TUB.

No. 356,882. Patented Feb. 1, 1887.

Fig 1.

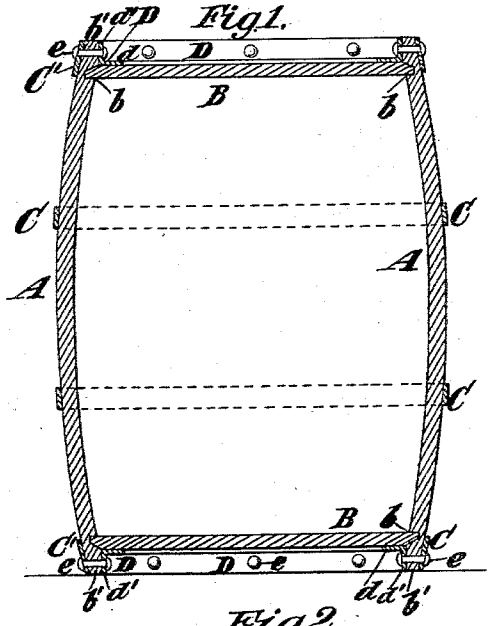


Fig 2.

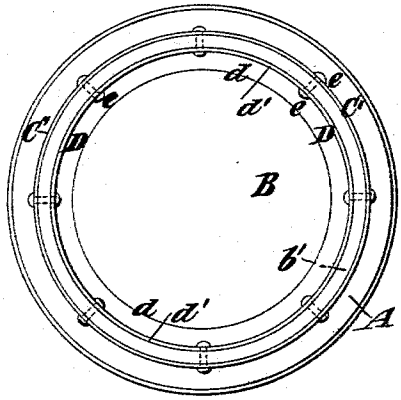


Fig 3.

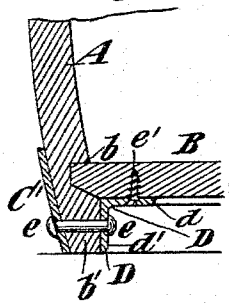


Fig 4.

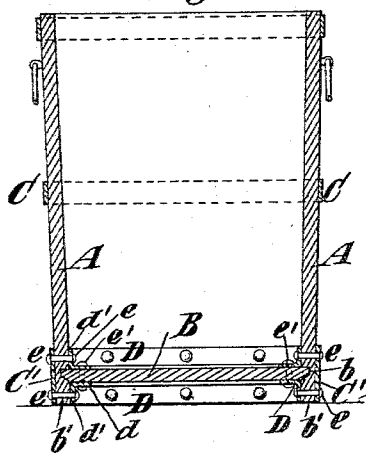
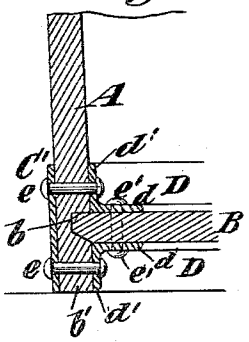


Fig 5.



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UNITED STATES PATENT OFFICE.

GEORGE R. NAFIS, OF BROOKLYN, NEW YORK.

CASK OR TUB.

SPECIFICATION forming part of Letters Patent No. 356,882, dated February 1, 1887.

Application filed November 1, 1886. Serial No. 217,647. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. NAFIS, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Casks and Tubs, of which the following is a specification.

My invention is applicable to barrels or other casks and also to tubs and analogous vessels in which the staves are formed with a croze or groove for receiving the head or bottom, and the object of my invention is to secure the bottom or head against outward displacement and also to support the staves beyond the croze against any force or blow delivered upon the exterior of the staves, and which will tend to break off their ends projecting beyond the croze.

The invention consists in the combination, with a cask or tub composed of staves and a head or bottom fitting a croze or groove in the staves, and beyond which the staves extend to form a chine or analogous projection, of an angle-iron hoop secured within the staves and outside the head or bottom and having one flange overlapping the head or bottom and the other flange lapping the chine or projection of the staves and terminating at or inward of the ends of the staves, whereby the head or bottom is held in place and the ends of the staves are sustained beyond the croze or groove which receives the head or bottom. Such a hoop of angle-iron may be employed in connection with the outer hoop which encircles the staves at their ends, and rivets or other securing devices common to both hoops may be inserted directly through the inner and outer hoops and the interposed staves. In connection with the hoop of angle-iron as applied to the bottom of a tub, I may also provide a second angle-iron hoop arranged upon the inner side of the bottom, and rivets or securing devices may be inserted directly through both the angle-iron hoops, the outer hoop, and the intervening staves.

In the accompanying drawings, Figure 1 is a sectional view of a barrel or cask embodying my invention. Fig. 2 is an end view thereof. Fig. 3 is a detail sectional view upon a larger scale, showing one corner portion of the barrel. Fig. 4 is a vertical section of a tub or ash-receiver, also embodying my invention; and Fig. 5 is a detail sectional view upon a larger scale, showing one lower corner portion of the tub shown in Fig. 4.

Similar letters of reference designate corresponding parts in all the figures.

Referring first to Figs. 1, 2, and 3, A designates the staves, and B the heads, of a barrel or cask, the heads being fitted to a groove or croze, *b*, in the staves, as is usual. Intermediate between the ends of the cask or barrel are hoops C, and at the ends are hoops C′, which encircle the end portions of the staves that project beyond the heads B to form the chine *b*′.

Upon the outer side of each head, and within the chine *b*′ or circular projection of the staves, I place a hoop, D, which is made of angle-iron bent into circular form. One flange, *d*, of this hoop overlaps the outer side of the head B, while the other flange, *d*′, laps upon the inner side of the chine *b*′ or circular projection of the staves beyond the head. The flange *d*′, which laps upon the chine, does not project beyond the edge of the chine, but terminates at or inward of said edge, and the hoop D of angle-iron is entirely distinct from the outer hoop C. In this example of the invention the inner hoop D is secured in place by rivets *e* or analogous securing devices, which are inserted through the flange *d*′, the outer hoop C′, and the intervening staves or chine *b*′ of the cask.

If desired, the flange *d* of the inner hoop D might be secured to the head by screws *e*′ or analogous devices, as is shown in Fig. 3; but this is not necessary, as the angle-iron hoops D have simply to resist the outward pressure upon the heads.

In Figs. 4 and 5, A designates the staves, and B the bottom, of a tub or analogous vessel which may be used for an ash or garbage receptacle or for containing an ice-cream freezer. The staves A project beyond the bottom to form a chine projection, *b*′, and the head B is inserted in a croze or groove, *b*, as before described. In this example of the invention the hoops D of angle-iron are secured upon both the inner and outer sides of the bottom, and have their flanges *d* lapping upon the bottom and their flanges *d*′ lapping upon the staves. The tub has at the bottom an outer hoop, C′,

which encircles the staves, and, as here shown, the two angle-iron hoops are secured in place by rivets or securing devices *e'*, inserted directly through the bottom and the flanges *d* of the upper and lower hoops D, and by rivets or analogous securing devices *e*, inserted through the flanges *d'* of both the angle-iron hoops, the outer hoop C', and the intervening staves A. By this construction the bottom B is held both against downward pressure, which would result from the weight of the contents of the tub, and against any upward pressure or blow which would result from the tub being thrown down upon a stone or other obstruction which would strike the bottom before the chine projection *b'* comes in contact with the ground.

My invention, without materially increasing the cost of manufacture of casks and tubs, adds greatly to their strength. The ends of the angle-iron employed to form the hoops D may be welded together, if desired; but it is not necessary that they be united, and the hoop may be made by simply bending a piece of angle-iron of proper length to form a circle of the desired size, the ends being left unconnected with each other.

It is advantageous to employ the angle-iron hoop or hoops as above described, because by the outer and inner hoops D D the head or bottom is prevented from becoming displaced, and by the outer hoop D the end portions of the staves which project beyond the croze or groove receiving the head or bottom are sustained against breakage. The angle-iron hoops D have a broad bearing on the head or bottom, and the securing devices *e*, extending through their flanges, the staves, and the outer hoop, C', may be comparatively short.

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

1. The combination, with a cask or tub composed of staves and a head or bottom fitting a croze or groove in the staves and beyond which the staves extend to form a chine or analogous projection, of an angle-iron hoop secured within the staves and outside the head or bottom and having one flange lapping the chine or projection of the staves and terminating at or inward of the ends of the staves, whereby the head or bottom is held in place and the projecting ends of the staves are sustained beyond the croze, substantially as herein described.

2. The combination, with a cask or tub composed of staves and a head or bottom fitting the croze or groove in the staves and beyond which the staves extend to form a chine or analogous projection, of an outer hoop, C', encircling the staves at their ends, and a second hoop made of angle-iron separate from the first secured within the staves and outside the head or bottom, and having one flange lapping the head or bottom and the other flange lapping upon the chine or projection of the staves, and securing devices inserted through both said hoops and the intervening staves, substantially as herein described.

3. The combination, with the bottom or head B and the staves A, projecting beyond the same and formed with the croze or groove receiving the bottom or head, of the outer hoop C', the inner hoops D D, made separate from the outer hoop and of angle-iron and applied at opposite sides of the bottom or head, and securing devices inserted through the outer hoop, the flanges *d'* of the inner hoops, and the intervening staves, substantially as herein described.

GEORGE R. NAFIS.

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FREDK. HAYNES.