

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN WOOD-INCASED BARRELS.

Specification forming part of Letters Patent No. **199,405**, dated January 22, 1878; application filed September 13, 1876.

To all whom it may concern:

Be it known that I, ALPHONSO W. BLYE, of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Wood-Incased Barrels, which improvements are fully set forth in the following specification and accompanying drawings.

The object of my invention is to furnish to the trade an improved barrel for the carriage and shipment of, as well as to permanently hold, volatile fluids, such as benzine and naphtha, and also those which possess great penetrating power, such as kerosene-oil.

It is well known that a wooden barrel will not carry such liquids without loss from leakage, owing to their penetrating and gradually oozing through the wood; and this especially occurs when this class of liquids is exposed to the heat of the sun, or encounters the heat of warm climates in shipment or otherwise. An all-metal barrel would obviate this difficulty, but without a protecting-casing would be very liable to damage by jamming, or by a knock breaking or cracking the metal.

In view of the facts above set forth a metal-lined wooden barrel, or a wood-incased metal barrel, having the outward shape of an ordinary oil-barrel, and combining the qualities of cheapness, durability, and facility of handling, has long been a desideratum; and to supply such a barrel is the object of my invention.

In carrying out this object I form a straight cylindrical inner case of one piece of sheet metal, and support it centrally within a bilged wooden case or barrel formed of staves; and I provide it with firmly-secured inner metal heads and outer wooden heads, and also with spigot and bung holes suitably covered and guarded, and especially adapted to the barrel as otherwise constructed, and all of which will be hereinafter fully described with reference to the drawing, which represents a longitudinal central section of my invention.

In constructing a barrel according to my invention, I first form a hollow cylinder, A, of galvanized iron or other suitable sheet metal, and of about the length of an ordinary oil-barrel, and having near each end a circumferential bead, *b*, the concavity of which is inward. Into each of these ends I let a dished

metal head, B, its concave face outward, and its periphery extending into the concavity of the bead *b*, which holds the concave head, and, in addition to this function, gives firmness to the end of the cylinder. These heads may be further secured by soldering.

In one of the heads I make a spigot-hole, and surround it with a screw-nozzle, *a*, covered by a screw-cap, *a'*, and in one side of the cylinder, at its middle, I cut a bung-hole and surround it with a similar but larger nozzle, *c*, covered by a screw-cap, *c'*. These nozzles and caps project into apertures in the outer wooden case, which will be hereinafter described. The inner metal part of my barrel being thus formed, I surround it with an outer wooden casing, C, made of staves, after the fashion and having the bilge of an ordinary oil-barrel, the edges of said staves being close together, and the ends thereof flush with the ends of the cylinder.

In order to support the metal cylinder centrally within its wooden case, and also to strengthen the latter and assist in preserving its bilging shape, I place around said cylinder bands or thick hoops D, the inner peripheries of which are parallel with and fit closely upon the surface of said cylinder, while their outer peripheries are beveled to conform to the increasing diameter toward the bung of the wooden case, against the inner surface of which closely fit the beveled faces of said bands or thick hoops D, which should be placed equidistant from the bung at each side thereof, two bands being usually sufficient; but four or more may be used if necessary.

Around the outer wooden casing I place iron hoops E, similar to those ordinarily used, for the purpose of holding the staves in place. Two of these hoops are of such size that when driven tightly upon said case they will be in the same diametrical plane with the bands D, and keep the staves snugly thereagainst.

In each end of the cylinder I place a plano-convex wooden outer head, F, which fits tightly within the projecting end or chine G, its convex face fitting the dished or concave face of the metal head B, and this wooden head is secured in its place by a stout metal ring, H, fitting outside thereof and within the chine G. Around the ends or chines of the outer wooden

casing C are chine-hoops E', through which (the staves of the wooden casing and the head-ring H) I pass rivets e, which secure in place both the chine-hoops and the head-rings. In addition to their function of retaining in position the wooden heads, the rings H serve to re-enforce the metal chines G, and prevent their being driven away from the chine of the wooden casing; and the complete rigid chine thus formed for my barrel renders it capable of being turned on end without injury.

In one of the staves, usually called the "bung-stave," of the outer casing C, I cut an aperture similar to a bung-hole, but a little larger than a bung-hole is usually cut, and into the aperture project the screw-nozzle c and its cap c', before referred to, the top of the cap being flush with the outer surface of the wooden casing, so that the barrel may be rolled without interference from the said nozzle. The aperture in the bung-stave is of such size as to allow ready access to the screw-cap c' when it is desired to remove the same. The spigot-nozzle a in the head of the barrel projects into a similar aperture in the wooden head F, and is thus protected from injury, while its cap a' may be readily removed.

The wooden heads may, if desired, be flat on both sides, and join the metal heads only at their beaded seats.

The placing of the metal heads B in their seats, formed by the outward-projecting beads b, and with their concave sides outward, gives the advantage of avoiding upsetting or flanging the edges of said heads, and of using rivets to secure them. This is important, as it does not do to use rivets to effect the connection of the heads in metal oil-barrels.

The inward concave grooves formed by the beads and the solder at the grooves seal the junction at these parts. With the beaded seats the metal heads could not be secured with their concave sides inward, because in such case the wooden heads would be their

only support; but as I have combined the two heads B F with the inward cylinder-groove, the latter not only makes the seal, but gives the necessary support for the metal head.

The wooden bands D, while serving to give the required bilge to the wooden case, serve also to prevent the metal cylinder from spreading between the heads B B, and thus prevent the possible opening of the sealing and holding grooves, as these bands are firmly bound by the outer hoops and staves.

I claim—

1. In a wood-incased metal barrel, the straight metal cylinder A, having inward grooves formed by the outward beads b b, in combination with the metal heads B B, having their concave sides outward and their edges fitted into said grooves and sealed, as described.

2. The combination, in a wood-incased metal barrel, of the concave metal heads B B, the straight metal cylinder A, having the beads b b, forming inward grooves to receive and seal the edges of said concave heads, the plano-convex heads F F, and the metal end rings H H, all constructed for use as herein set forth.

3. A wood-incased metal barrel having the inner metal heads B, the outer wooden heads, and the beads b, the inner grooves of which and the circumference of the wooden heads join and give the proper support and seat to the circumference of the metal heads, having their concave sides outward, as herein set forth.

4. The combination, with the metal cylinder A, having inward grooves in its body, the metal heads B B, inwardly curved and fitted into said body-grooves, and the outer heads F F, of the outer staves C, their binding-hoops E E', and the inner bilging-bands D, all constructed as herein set forth.

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Witnesses:

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