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1,861,343

BARREL AND APPARATUS FOR AND METHOD OF FORMING THE SAME

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2 Sheets-Sheet 1

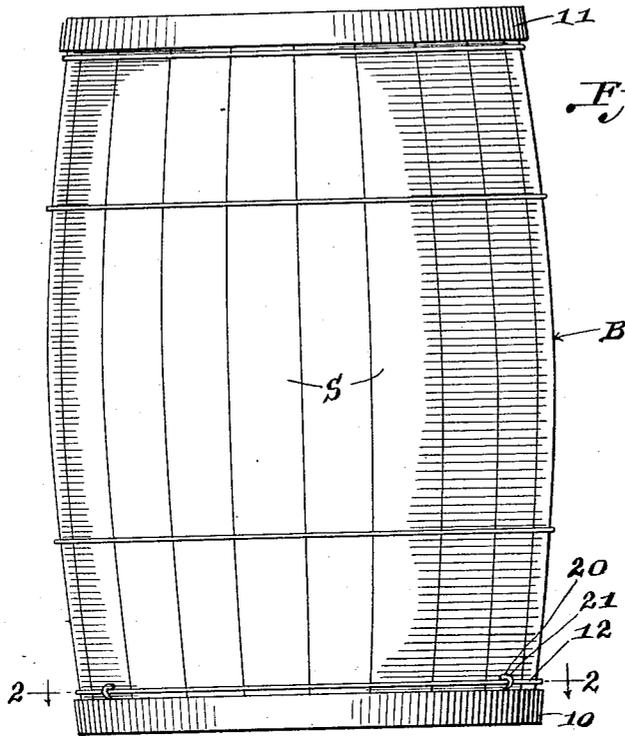


Fig. 1.

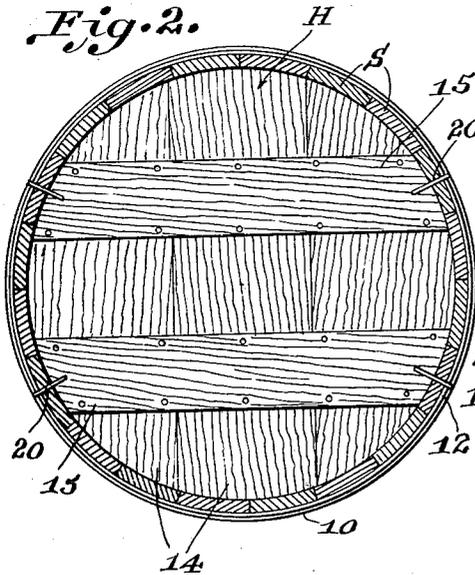


Fig. 2.

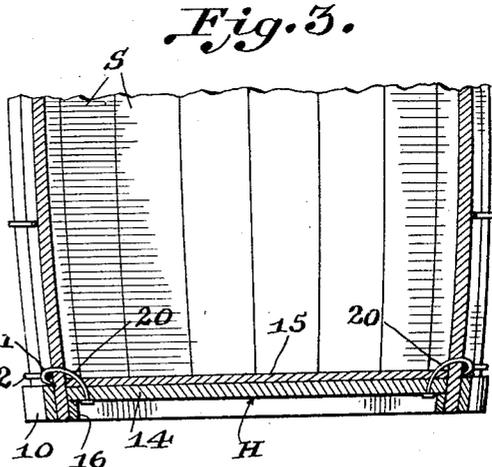


Fig. 3.

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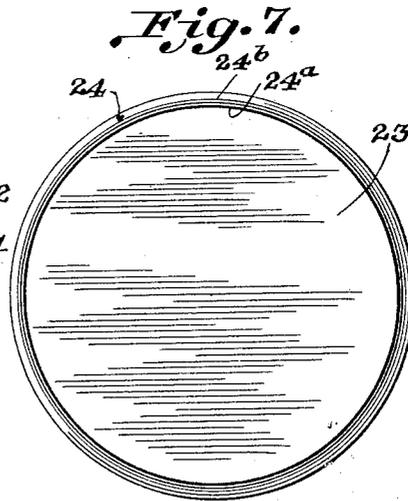
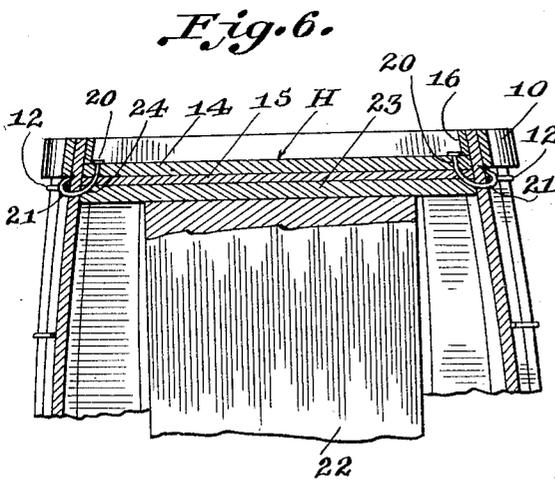
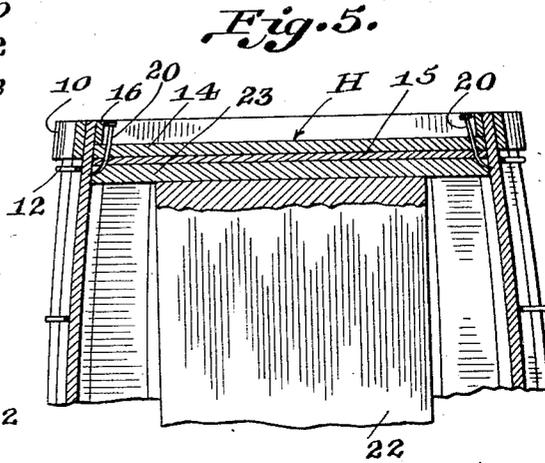
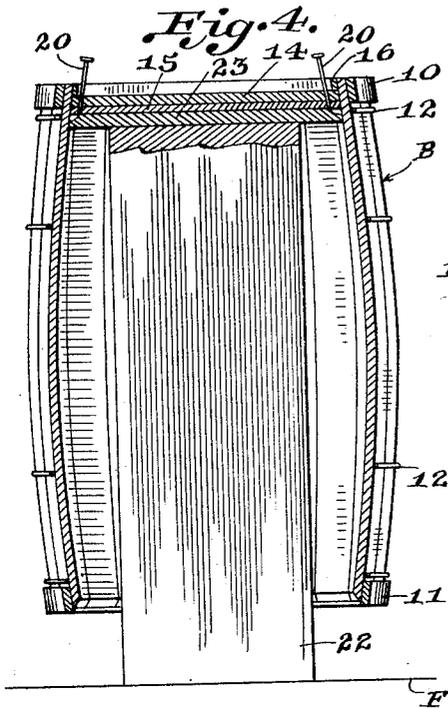
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BARREL AND APPARATUS FOR AND METHOD OF FORMING THE SAME

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2 Sheets-Sheet 2



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BARREL AND APPARATUS FOR AND METHOD OF FORMING THE SAME

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This invention relates to certain improvements in barrels and apparatus for and method of forming the same; and the nature and objects of the invention will be readily recognized by those skilled in the art in the light of the following explanation and detailed description of the accompanying drawings illustrating what I at present consider to be the preferred embodiments or mechanical expressions of my invention from among various other forms, arrangements, combinations and constructions of which the invention is capable within the spirit and the scope thereof.

In the handling of empty barrels, particularly in the loading and unloading thereof in shipment and in the transfer of such barrels from place to place, the barrel bottoms, unsupported against inward displacement by a contained load, are subjected to blows and forces tending to break the bottoms from secured position and force or displace the same inwardly of the barrels. A considerable loss of barrels frequently results from bottom breakage or displacement from secured position, under such conditions, and such damage is especially encountered with the generally used bottom constructions for the so-called "produce" types of barrels, such as potato and the like barrels. A further difficulty is encountered with such bottom constructions with filled barrels by the frequent outward displacement and breaking away of the bottoms from secured position under the loads and forces imposed thereon by the contained loads in the handling of filled or loaded barrels.

I have by my present invention provided a bottom construction for barrels and an arrangement of bottom fastening and securing elements, by which the above referred difficulties are substantially overcome and practically eliminated, and in which a barrel bottom is rigidly and firmly held and maintained in secured position in a barrel against the forces encountered in the handling of the barrel when empty which tend to break or displace the bottom inwardly of the barrel, and also in which the forces tending to break or displace the bottom outwardly in the

handling of a barrel when filled, are resisted and the bottom held securely in position.

A feature, from among others, of my invention resides in the utilization of fastening elements or members of conventional and standard types in the securing of the bottom in a barrel, and in the cooperative arrangement of such elements with and in the barrel structure to permit of a minimum number thereof being used, so that, the cost in both time, labor, and materials is relatively low, yet a strong, rigid bottom mounting is obtained without material addition of weight or structural complexity and without detracting from the appearance of the finished barrel.

My invention further provides a novel method of securing a barrel bottom in position in accordance with the structural features and arrangements of the invention, in which method a minimum number of steps are required and by which bottoms can be secured in position with great rapidity and high efficiency of workmanship and resulting uniform quality of bottom mounting in the finished barrels.

A further feature of my invention is found in the design, construction and arrangement of the apparatus for carrying out my method, which apparatus is structurally simple and relatively inexpensive, and with which bottoms can be mounted and secured in the barrels quickly and efficiently by relatively unskilled labor.

With the foregoing features and results in view, as well as certain others which will be readily apparent from the following explanation, the invention consists in certain novel features in construction and in combinations and arrangements of parts, as well as in certain novel steps forming the method, all as will be more fully and particularly referred to and specified hereinafter.

Referring to the accompanying drawings in which similar reference characters refer to corresponding parts and elements throughout the several figures thereof;

Fig. 1 is a view in elevation of a barrel having the bottom thereof mounted and

secured therein in accordance with my invention.

Fig. 2 is a horizontal section through the barrel of Fig. 1 taken on the line 2—2, showing the secured bottom in top plan.

Fig. 3 is a vertical transverse section through the lower portion of the barrel of Fig. 1 and the barrel bottom, showing particularly the arrangement of the bottom securing nails engaged over the exterior barrel hoop.

Fig. 4 is a view partly in elevation and partly in vertical section of the bottoming apparatus of my invention with a barrel shown in vertical section mounted thereon and the bottom securing nails in position for driving to secured position through the barrel bottom.

Fig. 5 is a view similar to Fig. 4, but showing the bottom securing nails in partially driven position engaged by the nail clinching block.

Fig. 6 is a view similar to Fig. 5, but showing the bottom securing nails in final position.

Fig. 7 is a top plan view of the nail clinching block member of the apparatus.

I have selected as an example a barrel of the ventilated "produce" type, such as used for containing and shipping potatoes, because the construction of such type presents the problems and difficulties overcome by my invention in a high degree, and hence such type of barrel will serve to clearly bring forth the results and advantages of the invention. However, it is not desired to limit the invention to the specific type of barrel of the selected example, as the various features of my invention are adapted generally to the securing of bottoms in barrels of various other types and constructions.

Such a "produce" type of barrel B is disclosed in Fig. 1 of the drawings, and includes the barrel body formed of the ventilated staves S, with the bottom exterior wood hoop 10 and the top exterior wood hoop 11 therearound. Intermediate, vertically spaced wire hoops 12 are suitably secured around the exterior of the barrel, as by stapling the same, and the lowermost of these wire hoops 12 is disposed adjacent and in proximity to the bottom wood hoop 10, in the specific example hereof being spaced a slight distance from the upper edge of such wood hoop 10, although the invention is not so limited.

The lower end of the barrel B is closed by the usual or any desired barrel bottom or head H which may be formed from a plurality of pieces of board 14 secured together by the battens 15 nailed or otherwise secured thereto and thereacross, as will be clear by reference to Figs. 2 and 3 of the drawings. An inner bottom liner 16 is secured around the interior of the barrel at the lower end thereof, which liner in the example hereof is

of smaller width than the exterior bottom wood hoop 10, and provides a shoulder around the interior of the lower end of the barrel on which the bottom or head H seats and is secured in position. The head or barrel bottom H is positioned in the barrel B on liner 16 with the battens 15 uppermost and within the barrel.

Now, in accordance with my invention, suitable fastening elements or members, such as the conventional and standard wire or the like nails 20, are driven upwardly at an outward inclination through the barrel bottom H at spaced intervals therearound and are extended outwardly through adjacent staves S, and then bent or curved inwardly and downwardly on the exterior of the barrel over and embracing the exterior bottom wire hoop 12, with the ends of such nails or fastening members 20 embedded and engaged into the adjacent barrel stave structure. Thus, the intermediate portion 21 of each nail or fastening member 20 forms in effect an eye secured over the lowermost wire hoop 12 on the exterior of the barrel and ties and secures the barrel bottom in position seated on the inner liner 16.

I happen to have selected in the specific example hereof, the barrel bottom H as including the spaced battens 15, and have used four (4) of the fastening members or nails 20 spaced equal distances apart therearound adjacent opposite ends, respectively, of the two battens 15, through which they extend. Attention is here specifically directed to the fact that the invention is not, however, limited to the specific number, spacing or locations of members 20 here shown, but any desired or suitable number of fastening members 20, arranged to meet the requirements of a particular type of barrel, or of a particular barrel bottom construction, may be employed.

With the fastening members or nails 20 in position extended upwardly through the barrel head or bottom H and engaged over the exterior hoop 12, the bottom H is securely and firmly fastened and held in position against inward displacement or breaking away from the liner 16, under the blows and forces to which subjected when the barrel is empty. The ends of the fastening members or nails 20 are embedded and engaged into the adjacent barrel stave structure or into the exterior wooden hoop 10, as the case may be, to thus more firmly and securely hold and fasten the nails in position, as well as to eliminate any projecting, pointed nail ends to engage or damage the person or clothing of a handler, or adjacent structure.

The barrel bottom H is further more securely held in position against outward breaking away or displacement under the loads or forces to which subjected with the

barrel filled or loaded. The nails 20, in effect, suspend or tie the bottom H from and to the exterior wire hoop 12 and adjacent barrel structure against displacement from position in either an outward or an inward direction, thus providing a strong bottom securing and attaching mounting with a minimum of added structure and weight, while retaining the desired finished and exteriorly unencumbered appearance of the barrel.

The invention includes and provides a method of applying and securing a barrel bottom H in position by the fastening members 20, and for curving and causing the members to bend over and engage the adjacent exterior wire hoop 12 and the adjacent barrel structure; and further provides one possible form of apparatus for carrying out such method.

The instant example of a form of apparatus capable of carrying out the method of the invention is disclosed in Figs. 4 to 7 of the drawings, and includes a suitable post or column 22 supported in vertical position on a suitable supporting base structure, such as a floor F, and the barrel receiving and supporting fastening member bending and clinching block or plate 23 mounted in horizontally disposed position on the upper end of the column or post 22.

The clinch block or plate 23 is formed of a suitable metal and is circular in form with flat upper and lower sides in the specific example hereof. This block 23 is formed with a circumferential groove therearound at the upper outer edge portion thereof to provide a relatively smooth concave nail engaging and curving face or surface 24, the vertically and inwardly inclined face 24a of which is disposed spaced inwardly from the peripheral edge of the block, and which edge then curves downwardly and outwardly to terminate in the horizontally disposed face or surface 24b extending outwardly to the edge of the block. Where, as in the example hereof, the groove forming surface 24 is formed from the integral metal block or plate 23 which may be of cast iron, such metal surface 24 is suitably hardened, as by so-called metal "chilling" or in other ways.

The invention contemplates and includes as an equivalent arrangement for the integral block and surface 24 of the instant example, the formation of a separate ring or annulus with the surface 24 formed therearound, which ring can be detachably mounted on and around a supporting block 23 on a suitable peripheral shoulder formed therearound, or can be supported in any other suitable manner, as will be readily apparent and understood.

The diameter of the clinch plate or block 23 and the height of the vertical block supporting column 22, are such that a barrel B can be inverted and fitted thereover with the barrel

bottom H supported and fitted on the upper side of the block 23. The clinch block 23, referring now to Fig. 4 of the drawings, relatively snugly fits into the inner (lower) end of the barrel B, and the depth or thickness of the block, and the depth and width of the surface 24 therearound, are such as to position surface 24 at the proper location in the barrel adjacent bottom exterior wood hoop 10 and approximately opposite and concentric with the adjacent and lowermost exterior wire hoop 12.

After the barrel is applied in mounted position on and supported by clinch block 23, the fastening members or nails 20 are then applied and driven or forced to bottom securing and attaching position. The bottom securing nails 20 can be individually applied one at a time, or by suitable driving means (not shown) can be simultaneously driven to secured position. In either event, each nail 20, referring to Fig. 4, is applied in an outwardly inclined position on the exterior of the barrel bottom H at a point adjacent the inner liner 16 and substantially in line with the inclined vertically disposed face 24a of the surface 24. The fastening member or nail 20 is then driven downwardly through the bottom H and the point of the nail strikes and engages face 24a and is curved or bent outwardly by the concave nail grinding and clinching face 24, as will be clear by reference to Fig. 5 of the drawings.

The horizontally disposed, outwardly extending face 24b of surface 24, then curves the nail outwardly and upwardly through the adjacent stave structure S below the wire hoop 12, and continued driving of the nail 20 causes the outer end of the nail to curve or bend inwardly around and over hoop 12, until the end thereof embeds or drives into the staves S or the wood hoop 10, while the nail head engages against the bottom H, as disclosed by Fig. 6 of the drawings. As a final step, when found necessary and to prevent projecting of the nail-end, such end can be struck a blow with a suitable instrument to insure its embedding in the barrel structure. Thus, each fastening member or nail 20 is quickly accurately drive and formed into the exterior eye portion 21 over and embracing a wire hoop 12, and tying and securing the bottom in firmly seated and attached position against displacement.

By the foregoing method the securing nails 20 can be rapidly driven with accuracy and a barrel bottom secured in position in accordance with my invention. With the apparatus above described such method can be very rapidly carried out by unskilled labor and a uniformity and accuracy in the finished work consistently maintained. The apparatus is structurally simple, relatively inexpensive, and readily installed in a minimum of

space, and once installed requires practically no maintenance or upkeep.

While the invention is here shown applied to a barrel and the securing of the bottom therein, the invention contemplates and includes application to various other types of containers, such as boxes, packages and such like, where the problems and conditions overcome by the invention may be encountered.

Attention is also directed to the fact that wood hoops can be and frequently are employed in place of the wire hoops 12 of the specific example hereof. Further, a wood hoop in place of the lowermost wire hoop 12, can be used and nails 20 bent over or extended therethrough to engage the same, within the range of my invention. So, if desired, the nail ends can engage or be embedded in the wood hoop 10, or other adjacent structure of the barrel.

It is also evident that various changes, modifications, variations, substitutions and additions might be resorted to both in the product and in the apparatus for producing the same, as well as in the method, without departing from the spirit and scope of my invention, and hence I do not wish to limit my invention in all respects to the exact and specific disclosures hereof.

Desiring to protect my invention in the broadest manner legally possible, what I claim, is:

1. In a barrel, a barrel bottom, the lower end of the barrel formed with an internal seat therearound on which the barrel bottom is supported, an exterior wire hoop around the lower end of the barrel adjacent the barrel bottom, and a series of fastening members extended inwardly through the barrel bottom at spaced intervals therearound, said fastening members extended outwardly through the adjacent barrel wall, and then bent inwardly over and across said exterior wire hoop.

2. In a barrel, a bottom in and closing the lower end of the barrel, a hoop around the exterior of the barrel adjacent said bottom, and headed fastening nails extended inwardly through the barrel bottom with the nail heads on the exterior thereof, said nails extended outwardly through the adjacent barrel wall and inwardly over and across said hoop on the exterior of the barrel, the ends of said nails embedded in the adjacent barrel wall.

3. In a barrel and the like container, a barrel bottom within and closing the lower end of the barrel, the barrel providing an internal seat therearound at the lower end thereof on which said bottom is seated and held against outward displacement from the barrel, a series of driven fastening members extended inwardly through said bottom at intervals therearound in proximity to and substantially parallel with the barrel wall,

said members extended outwardly from the inner side of said bottom through the adjacent barrel wall to the exterior thereof, and the outer ends of the fastening members at the exterior of the barrel wall bent back inwardly toward said wall to form portions securing the members in position holding the barrel bottom against inward displacement from said barrel bottom supporting seat.

4. In a barrel and the like container, a closure at and closing one end of the container, a hoop around the exterior of the container adjacent said closure, fastening members extended inwardly through the closure and outwardly through the adjacent container wall, and the outer ends of said members bent back inwardly toward the container wall over and across said exterior hoop to secure the members thereto in position holding said closure against displacement.

Signed at Elizabeth City, county of Pasquotank, State of North Carolina, this 1st day of July, 1931.

ALFRED B. HOUTZ.