(No Model.) 2 Sheets—Sheet 1.

W. F. SCHOPFER.

TAP HOLE PROTECTOR FOR CASKS OR BARRELS.

No. 469,872. Patented Mar. 1, 1892.

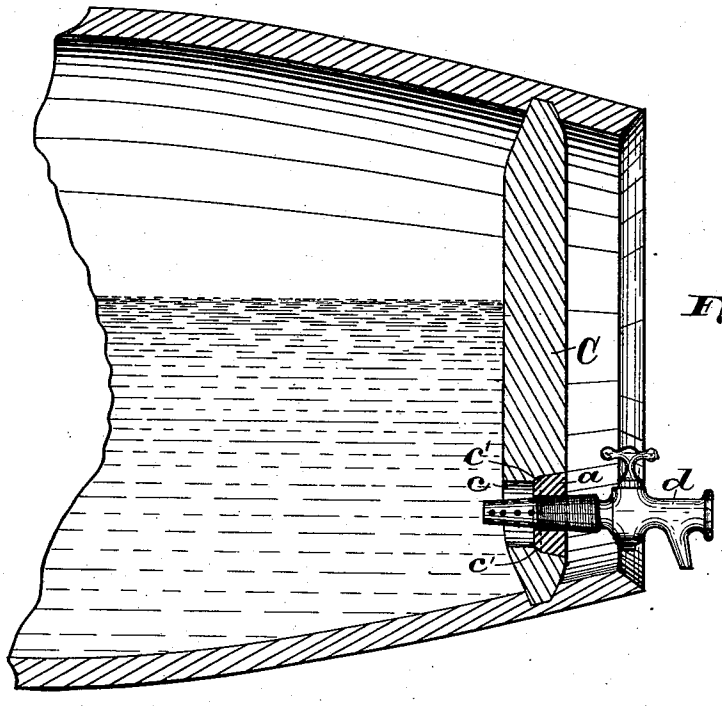

Fig. 1

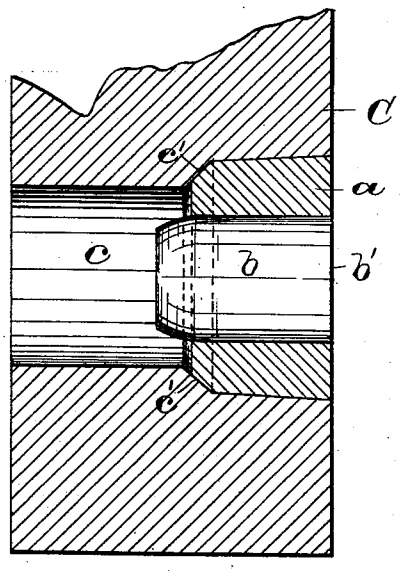

Fig. 2

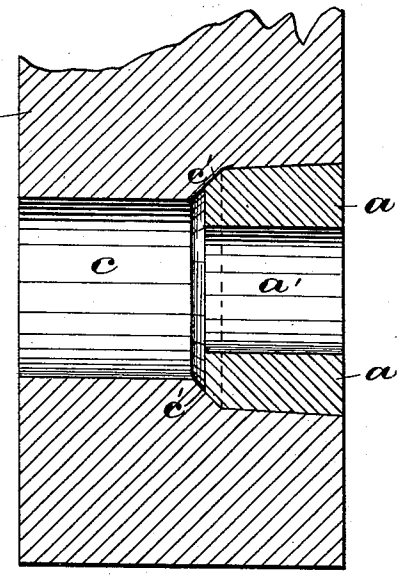

Fig. 3

WITNESSES:

Wm. H. Canfield

INVENTOR:

William F. Schopfer,

BY Fred'k C. Fraentzel, ATTY.

(No Model.) 2 Sheets—Sheet 2.

W. F. SCHOPFER.

TAP HOLE PROTECTOR FOR CASKS OR BARRELS.

No. 469,872. Patented Mar. 1, 1892.

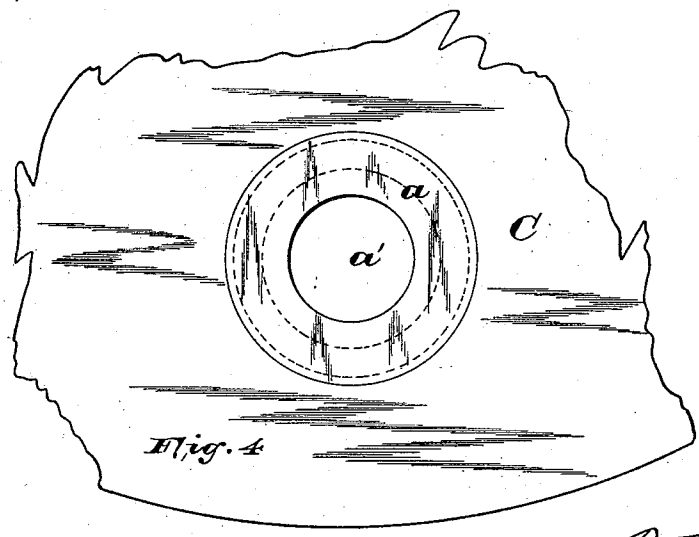

Fig. 4

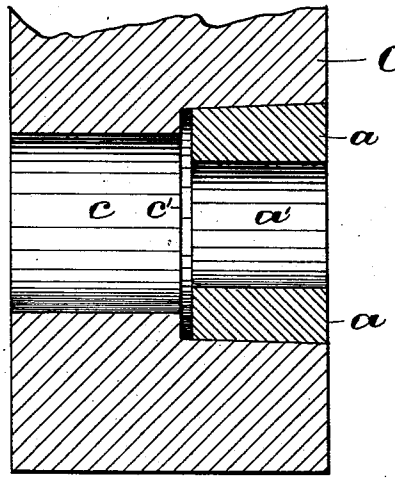

Fig. 5

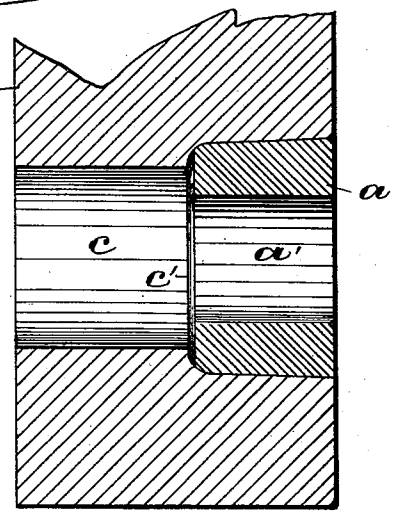

Fig. 6

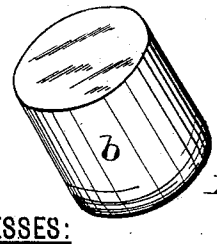

Fig. 7

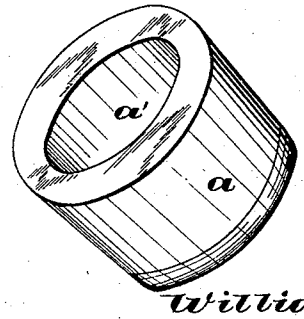

Fig. 8

WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM F. SCHOPFER, OF NEWARK, NEW JERSEY.

TAP-HOLE PROTECTOR FOR CASKS OR BARRELS.

SPECIFICATION forming part of Letters Patent No. 469,872, dated March 1, 1892.

Application filed October 7, 1889. Serial No. 326,254. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. SCHOPFER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Tap-Hole Protectors for Casks or 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of the present invention is to provide a tap-hole protector adapted to be used more particularly on casks or barrels in which there is great gaseous pressure, especially in ale-casks provided with a tapping-plug, which is secured within a bushing or protecting-ring to enable the spigot to be driven against said plug and to force the same therethrough without any danger of breaking or destroying the circumferential edge of the tap-hole in the head of the cask or barrel.

To attain this purpose the invention is designed, a tap-hole protector and plug being produced which is of simple and cheap construction and which when arranged in the head of the barrel cannot become disarranged or the plug driven out of its bushing by means of the very great pressure found in casks containing ale.

The invention is further designed to provide a bushing or protecting-ring which cannot be forced out of place when in position within the tap-hole in the head of the cask or barrel when the plug within the said bushing is being driven therethrough during the insertion of the spigot into the protecting-ring.

In the views shown in the accompanying two sheets of drawings, Figure 1 represents a vertical section of an ale-cask and its head, to which is attached my tap-hole protector. Fig. 2 is an enlarged vertical section of part of the head, illustrating the tap-hole therein provided with a conical seat upon which rests the bushing or protecting-ring and within which is securely arranged the tapping-plug. Fig. 3 is a view similar to Fig. 2 with the plug removed to illustrate more clearly the arrangement of the conical protecting-ring within the hole in the head. Fig. 4 on Sheet 2 represents a front elevation of part of the head and the protecting-ring with the plug removed. Figs. 5 and 6 are sectional views of the head and protecting-ring in the tap-hole in said head, and Figs. 7 and 8 are perspective views of the plug and the protecting-ring, respectively.

Similar letters of reference indicate corresponding parts in each of the several views.

The tap-hole protector shown in the above-described views consists of two separable parts, viz: the protecting-ring or bushing *a* and the plug *b*.

The head C of the cask or barrel is provided with a tap-hole *c* therein, which is formed as indicated, being of larger diameter near the front of the head than at the back, and which is provided with an annular shoulder forming a seat *c'*, which is preferably conical, as in Figs. 1, 2, and 3, or which may be straight, as in Fig. 5, or may be a quadrant of a circle, as in Fig. 6. The enlarged portion of the tap-hole *c* is of the same diameter throughout, and into said portion of the hole is driven the tapering bushing or protecting-ring *a*, which is provided with a tubular hole or perforation *a'* for the purpose as will be stated hereinafter. The minimum diameter of the protecting-ring *a* is slightly smaller than the largest diameter of the hole *c* in the head to enable the ready insertion of the protecting-ring within the same. The sides of the ring or bushing *a* taper to such a degree that when the latter is forced into its position within the tap-hole *c* the same completely fills the hole and an air-tight joint is the result. When the ring has been driven into place, the plug *b*, which is also tapering and the maximum diameter of which is greater than that of the perforation *a'* in the protecting-ring, is driven home therein until the latter is flush with the outer end of the protecting-ring, and the head in the barrel and the protecting-ring and its plug tightly close up the tap-hole in the said head and prevent any possible leakage of gas or liquid through the several parts of the tap-hole protector.

When it becomes necessary to tap the

cask, the end of the spigot d is placed against the edge b' of the plug b and the latter is driven through the protecting-ring or bushing into the cask and the spigot forced into the protecting-ring, as is clearly illustrated in Fig. 1.

In order to prevent the protecting-ring a from being forced through the tap-hole c into the interior of the cask when the spigot d is driven up against the plug b, a circumferential shoulder or seat c' has been provided by making the tap-hole in the head of a larger and a smaller diameter, and against this seat the protecting-ring is forced and is held in place while the plug b is being driven through the ring and into the cask.

As is indicated in Figs. 1, 2, and 3, the seat c' is conical, thereby increasing the holding power of the ring a and causing the latter to sit squarely on the seat c' and resulting in the spigot being driven in a straight line into the head of the cask or barrel.

The tap-hole c, provided with the conical seat c', is the preferred form of construction, as it insures perfect safety in driving the spigot in a straight direction when the end of the ring comes in contact with said seat and prevents all possibility of the protecting-ring a, which is of wood, from splitting, as might be the case where a straight seat is used, as in Fig. 5, and which does not insure the straight driving of said protecting-ring when the spigot is being forced into the perforation a' therein. This arrangement of the protecting-ring and its plug, all of which are of wood and preferably of oak, is very satisfactory in the results obtained, as all of the parts are constructed so as to be driven perfectly tight, and when in place and the cask has been filled with the liquid the parts of the tap-hole protector become enlarged and swell, due to contact with the liquid in the barrel, and thereby form a protector for the tap-hole, all the parts of which are perfectly air-tight and prevent any possible escape of gas or liquid.

Another great advantage is in that when the perforation in the protecting-ring a has become worn or damaged by the constant driving of the spigot therethrough the hole in the head of the cask can be replaced with a new protecting-ring with but little labor.

I am aware that protecting-rings of iron for bung-holes have been in use, and to such I waive all claim. Such rings, however, are expensive, being secured with a thread for securing the bung in the barrel. Furthermore, when a wooden ring arranged within an iron bushing is used the wooden ring will very easily split when the spigot is driven home. In my present invention I dispense with the iron ring, whereby a large hole in the head of the barrel or cask is avoided, which unnecessarily weakens the head. My improved tap-hole protector is adapted especially for use in casks containing ale, in which there is a great pressure of gases, being generally one hundred pounds per square inch. It is a well-known fact that the holding affinity between wood and iron is not as great as that between two wooden surfaces, and hence the construction herein described is better adapted for its use on ale-casks.

Having thus described my invention, what I claim is—

The combination, with the head of a cask or barrel having a tap-hole c, being of a larger diameter at the front than at the back and provided with a seat c', said enlarged portion of the hole c being of a conical shape, of a wooden ring a in said conical portion of the hole c, arranged on said seat c', and a plug b, driven home into said ring, whereby the said ring is also driven tight in the conical portion of the hole c and upon the seat c' therein, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 4th day of October, 1889.

WILLIAM F. SCHOPFER.

Witnesses:
FREDK. C. FRAENTZEL,
WM. H. CAMFIELD.