(No Model.)

G. S. NORRIS.

BOTTLE STOPPER.

No. 516,726. Patented Mar. 20, 1894.

Fig. 1

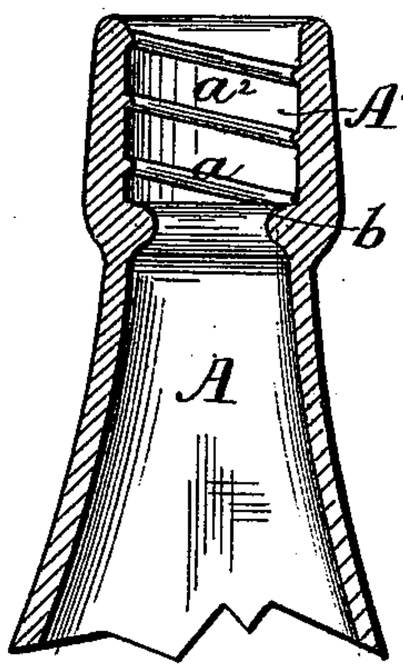

Fig. 2.

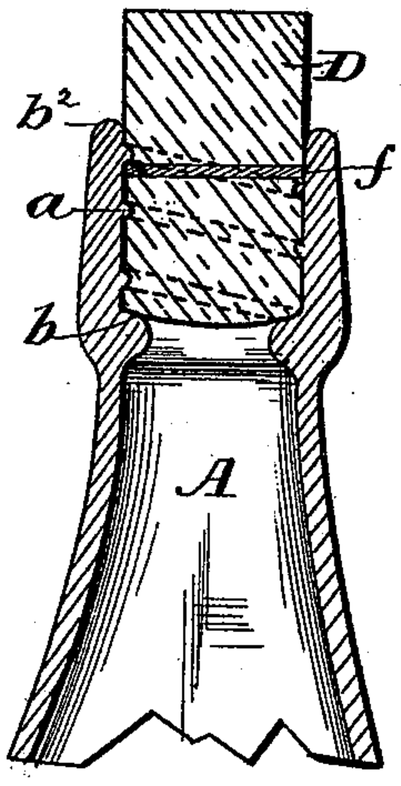

Fig. 3.

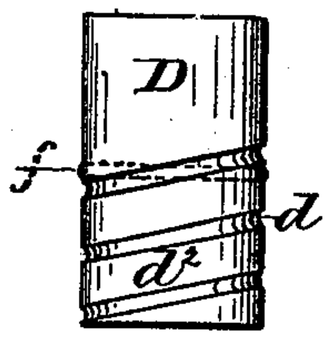

Fig. 4.

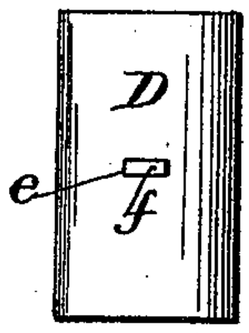

Fig. 5.

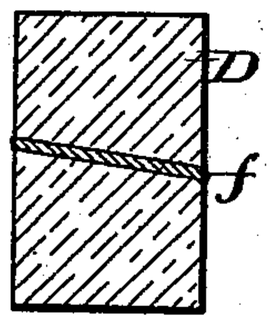

Fig. 6

WITNESSES

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BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 516,726, dated March 20, 1894.

Application filed August 17, 1893. Serial No. 483,337. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. NORRIS, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in that class of stoppers used with bottles having their necks internally screw threaded; and the objects of my improvement are to provide the interior of the neck of that class of bottles with a screw thread of peculiar form to permit a smooth surface plug of cork to be forced or turned by hand into engagement with said screw thread without danger of ripping the material off the surface of said plug, although the latter is possessing much less cohesion than the glass of said bottle; and also to provide cork plugs either end of which is adapted to obtain a bearing surface upon an internal ledge in the lower portion of the neck of the bottle and against the thread formed on said neck, the bearing surface on the periphery of the cork being reinforced by a pin passing transversely through said cork and having its ends in engagement with the screw threaded neck of the bottle. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section through the neck of a bottle provided with internal screw threads constructed in accordance with my invention. Fig. 2 is a vertical section of the neck of a bottle having an internal screw thread similar to that in Fig. 1, but with a cork plug therein constructed in accordance with my invention. Fig. 3 is a side view of said improved cork plug showing the spiral indentation formed thereon after remaining a length of time within the neck of the bottle, the reinforcing diametrical pin being shown in dotted lines. Fig. 4 is a side view of the improved cork plug with the reinforcing pin in end-view. Fig. 5 is a vertical section of the cork plug, with the reinforcing pin therein retained at an angle to the horizontal, corresponding to the inclination of the screw thread within the neck of the bottle. Fig. 6 is a perspective view of the cork reinforcing pin.

Bottle stoppers made of cork wood are to be preferred on account of their inexpensiveness, freedom of offensive odors, and lasting qualities, but when used to close bottles containing effervescent mineral waters or liquids containing gases under heavy pressure, the friction of said stoppers with the necks of the bottles is not found sufficient to retain them in position, and strong cord, wire, or other means have been used for additional security, but they entail loss of time in their application and generally deform the stopper so that it cannot be used again end for end. These defects are intended to be remedied by my construction.

In the accompanying drawings A represents the neck of a bottle having the interior portion of its mouth provided with an internally projecting (round) screw thread *a* constructed in accordance with my invention. The mouth A^2 has in its lower end an annular ledge *b* that projects inwardly within said mouth. The convex (round) thread *a* is of a size relatively to the flat surface a^2 between each coil of said thread, substantially as three to one. In other words the surface a^2 within the mouth of the bottle is substantially three times that occupied by the width of the thread *a*. The form given to the thread *a* is "round" or semi-cylindrical in cross-section but presents a continuous spiral from the lower ledge *b* to the upper edge b^2 of the bottle's mouth. The peculiar form and arrangement of the thread *a* causes a corresponding semi-cylindrical "round" but spiral groove *d* to be formed in the convex surface of the cork D, the portions d^2 between the grooves *d* being substantially three times the size of said grooves. The engagement of the thread *a*, in the groove *d* of the stopper renders the latter capable of resisting a very strong pressure of gas often found in bottled mineral water and other liquids, and the relatively wide surface d^2 between the coils of the groove *d* permit said surface d^2 to withstand said pressure without much danger of being ripped or torn off from the fibers of the cork body. But to increase the power of the cork to resist the pressure of the gas or liquid within the bottle, and thus to reinforce it, the cork plug D is provided with a pin *f* made to pass diametrically through said cork in a small perforation *e* for that purpose in the

cork. The pin *f* is preferably made of hard wood and either round or in the form of a parallelogram in cross section with the ends slightly rounded and corresponding with the internal periphery of the surface a^2 of the neck of the bottle. The pin *f* is inserted in the cork preferably in the middle of the length of the latter to render said cork reversible end for end. If the pin *f* is located horizontally in the cork only one of its ends becomes seated under the screw thread *a* but if slightly inclined as in Fig. 5 both ends of the pin take bearing against the under side of said screw-thread. When the cork is introduced into the bottle, it is revolved at the same time that it is slightly pressed down until its lower end rests upon the ledge *b* at the bottom of its chamber and a close fit is obtained between the lower end of the cork and said ledge. The cork is of such a length that after it has been rotated (while being grasped by the operator's fingers) until its lower end bears strongly upon the ledge *b*, its upper end projects above the top of the mouth or ledge b^2 a sufficient distance to be easily grasped. As the cork is cylindrical it is reversible end for end, and as wire is not required to retain it in position in the bottle's mouth, and a cork-destroying cork-screw is not used for its removal the same cork can be used to tightly close a bottle a dozen times or more against the gas pressure of aerated liquids.

Having now fully described my invention, I claim—

1. A bottle stopper consisting of a cylindrical plug of cork having a pin of a length substantially equal to the diameter of the cork and passing transversely therethrough substantially as described.

2. The combination of a bottle having a spiral screw thread within its mouth and a ledge at the bottom of said mouth with a yielding cylindrical plug and a pin of a length substantially equal to the diameter of the plug and passing transversely through said plug substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE S. NORRIS.

Witnesses:
W. THORN,
A. F. GIBSON.