

(No Model.)

W. B. LANGAN.
BOTTLE STOPPER.

No. 423,481.

Patented Mar. 18, 1890.

Fig. 1.

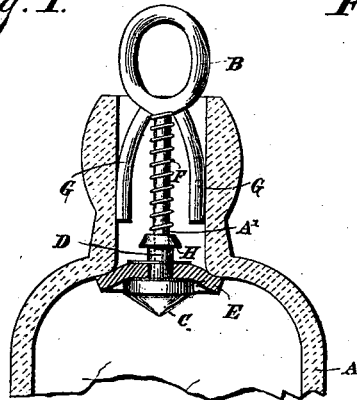


Fig. 2.

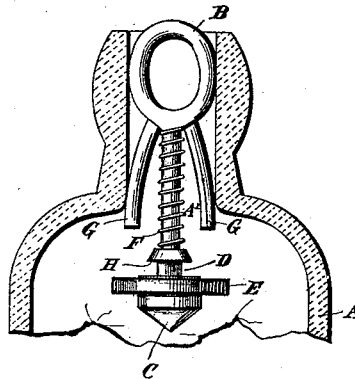


Fig. 3.

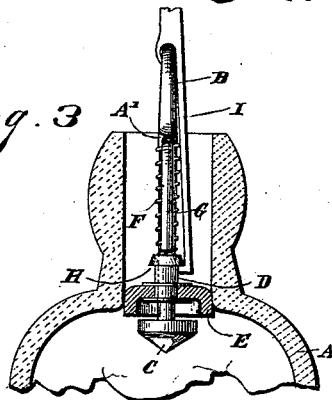


Fig. 4.

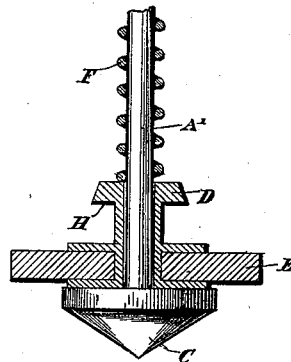
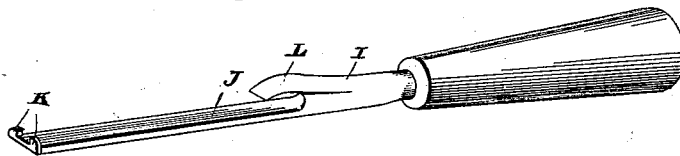


Fig. 5.



Witnesses,

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UNITED STATES PATENT OFFICE.

WILLIAM B. LANGAN, OF HAWLEY, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO PATRICK J. LANGAN, OF SAME PLACE, AND JUDSON J. CURTIS, OF HONESDALE, PENNSYLVANIA.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 423,481, dated March 18, 1890.

Application filed November 29, 1889. Serial No. 331,885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. LANGAN, a citizen of the United States, residing at Hawley, in the county of Wayne and State of Pennsylvania, have invented a new and useful Bottle-Stopper, of which the following is a specification.

This invention relates to bottle-stoppers, more particularly of that class known as "internal;" and the same consists, generally speaking, of an operating-stem and arms thereon projecting downwardly into the neck of the bottle, a disk at the lower end of said stem, a carrier with an elastic washer mounted loosely on said stem, and a spring bearing said carrier downwardly.

The invention consists, also, of certain details of construction and arrangements of parts which are necessary to its successful operation, all as hereinafter described.

In the accompanying drawings, Figure 1 is a view showing the end of a bottle in vertical section and my improved stopper in elevation therein. Fig. 2 is a similar view showing the stopper arranged to permit the escape of the contents of the bottle. Fig. 3 is a view showing the manner of removing the stopper to permit cleaning of the bottle. Fig. 4 is a sectional view of the stopper. Fig. 5 is a detail view of the device for removing the stopper.

The bottle A is of the usual construction, and my improved stopper is fitted therein and consists of a stem A', having an eye or ring B at its upper end and the disk or stop C at its lower end, and a carrier D on the stem, as shown. The carrier D consists of a ring or collar loosely fitted on the stem and a rubber washer E secured on the said collar. The carrier is normally projected against the disk or stop C by a spring F, coiled around the stem between the carrier and the ring B. Laterally-projecting arms G G are formed on the stem, and are adapted to bind on the neck of the bottle to prevent lateral movement of the stopper. The disk C is of less diameter than the interior of the neck of the bottle, while the elastic washer is slightly greater in diameter than the neck of the bottle.

The carrier is provided with an annular groove H above the elastic washer, and this

groove is engaged by the extractor I when it is desired to remove the stopper to permit cleaning of the bottle. The extractor I consists of a bar or shank J, provided at its lower end with the lugs K, adapted to engage in the groove H, and having the lip or hook L on its side at an intermediate point of its length adapted to engage over the end of the stem of the stopper.

When inserting the stopper into the bottle, it is pushed downward through the neck of the same and the edges of the elastic washer will fold upward, so that the stopper may be easily pushed into position. When the elastic washer has cleared the inner end of the neck of the bottle, it will resume its normal position and will be pressed against the inner side of the bottle by the disk C, so as to effectually close the bottle and prevent the escape of the contents.

When it is desired to open the bottle, the stopper is pushed inward until the ring B impinges and binds on the inner side of the neck of the bottle, and the spring around the stem will then throw the washer away from the neck of the bottle, so as to open the same. The spring will not, however, throw the washer away from the neck of the bottle at once; but the pressure of the gases in the bottle will hold the washer against the neck of the bottle until it comes into contact with the arms G, when the said arms will push the washer away from the bottle, and, the pressure of the gases being thus overcome, the spring at once throws the washer against the disk C.

When it is desired to remove the stopper to permit cleaning of the bottle, the extractor is inserted through the neck of the bottle, with the lugs engaging the groove H and the lip or hook L fitting over the end of the stem. The extractor is then pulled outward, thus drawing the carrier against the tension of the spring, so that the washer may fold downward and thus pass through the neck of the bottle. The hook L holds the extractor to the stopper, so that it can have no lateral motion and consequently can slip from its operative position.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A bottle-stopper consisting of a stem

having a ring at one end and a disk at the other end, and a carrier loosely fitted on the stem and provided with an elastic washer, and the spring coiled around the stem and bearing on the carrier, all arranged and operating substantially as described.

2. A bottle-stopper consisting of a stem having a ring at one end and a disk at the other end, a carrier loosely mounted on the stem and having an annular groove near its upper end, an elastic washer mounted on the carrier, and a spring on the stem between the ring and the carrier, as set forth.

3. A bottle-stopper consisting of a stem A', having a ring or loop B at one end and a disk C at the other end, said disk being of less diameter than the interior of the neck of the

bottle, the carrier D, loosely fitted on the stem above the disk and provided with a washer E which is larger in diameter than the interior of the neck of the bottle, the spring F, coiled on the stem above the carrier and bearing against the same, and curved arms G, formed on the stem and adapted to bind against the interior of the bottle-neck, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM B. LANGAN.

Witnesses:

J. H. THOMPSON,
E. M. THOMPSON.