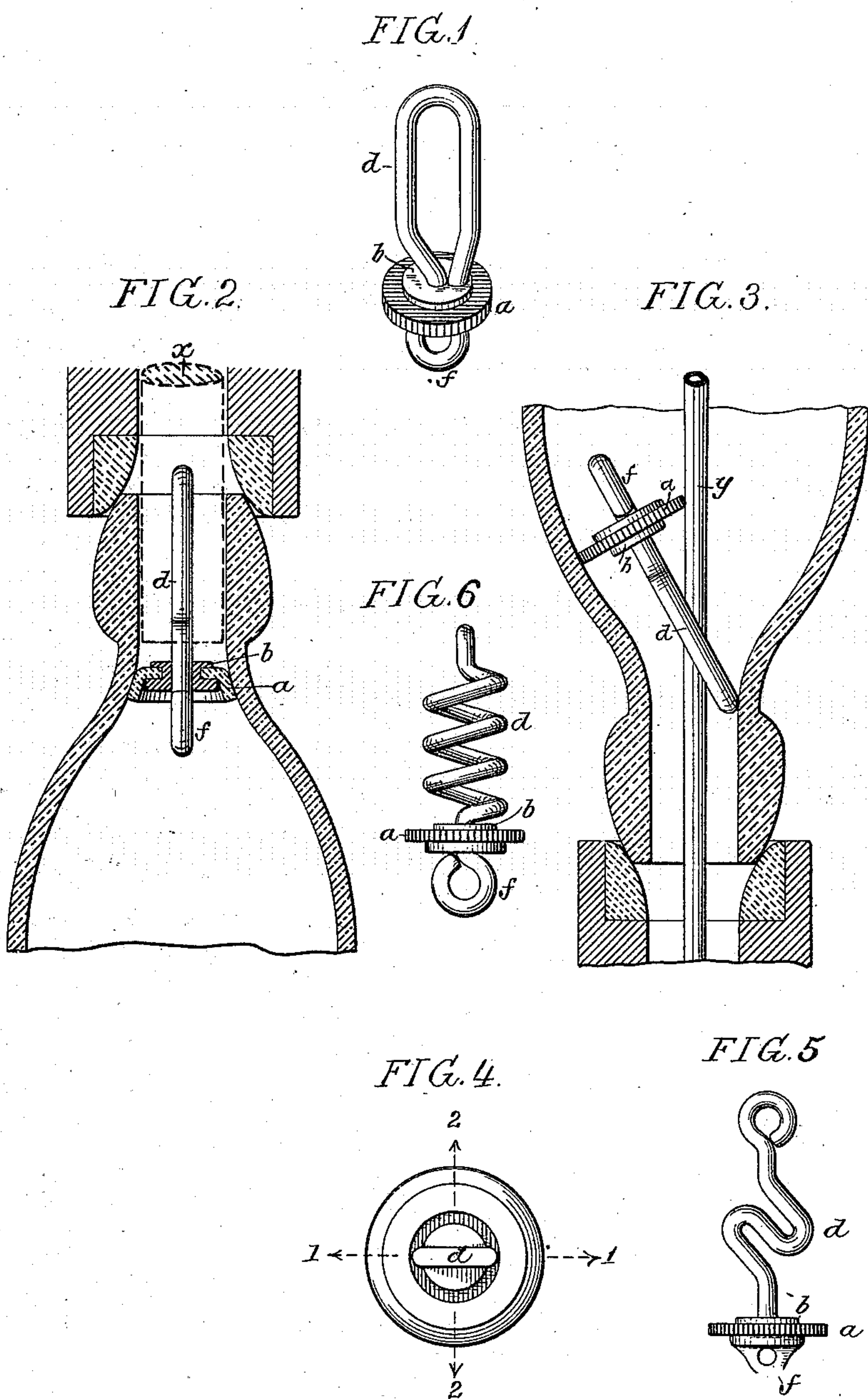


(No Model.)

E. L. LLOYD.  
BOTTLE STOPPER.

No. 402,338.

Patented Apr. 30, 1889.



Witnesses:  
Hamilton R. Turner  
William D. Warner.

Inventor:  
Edwin L. Lloyd  
by his Attorneys  
Howson & Howson



# UNITED STATES PATENT OFFICE.

EDWIN L. LLOYD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
JOLY STOPPER COMPANY, OF SAME PLACE.

## BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 402,338, dated April 30, 1889.

Application filed January 16, 1889. Serial No. 296,494. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN L. LLOYD, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented an Improved Bottle-Stopper, of which the following is a specification.

The object of my invention is to construct a bottle-stopper which will be of a cheap and simple character, will not interfere with the free pouring of the contents from the bottle, and will be equally adapted for stoppering bottles whether the latter are filled in the upright or inverted position. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a bottle-stopper constructed in accordance with my invention. Fig. 2 is a view showing the manner in which the stopper is inserted when the bottle is filled while in the upright position. Fig. 3 is a view showing the mode of stoppering when the bottle is filled while in the inverted position. Fig. 4 is a plan view of the neck of a bottle provided with my improved stopper, and Figs. 5 and 6 are views showing modified forms of the stopper.

Two classes of stoppers are now used for closing bottles containing effervescent or gaseous liquids, which cause the sealing of the stopper by internal pressure. The first form of stopper is one consisting of a stem or yoke with sealing ring or disk at its lower end, this stem being thrust into the neck of the bottle by the plunger of the filling-machine until the sealing-disk at the lower end can expand sufficiently to permit the rise of the stopper by the internal pressure, and thus cause the bearing of the sealing-disk against the walls of the neck to form a tight joint therewith and prevent the escape of gas or liquid from the bottle. The other form of stopper is one which remains in the bottle, the latter being filled while in an inverted position, and the stopper falling into its proper position in the neck of the bottle by gravity in order to seal the same.

The object of my invention is to provide bottlers with a stopper which is capable of use in both of these ways.

The stopper shown in Fig. 1 consists of a sealing-ring, *a*, of rubber or like material, confined to a grooved collar, *b*, which has a stem projecting both above and below it, the upper portion, *d*, of the stem being in the form of a yoke or bail, while that portion of the stem beneath the collar is bent to form an eye, *f*. The bail, or yoke *d* of the stopper forms what is practically a flat shank, the width of which viewed in one direction, as in Fig. 2, for instance, is simply that of the thickness of the wire of which the stem is composed, while viewed in the other direction this flat shank is almost as wide as the diameter of the bottle-neck, as shown in Fig. 4, no portion of the shank, however, being of greater width than the diameter of the most contracted portion of the neck, and the shank being rigid—that is to say, not capable of expanding, so as to bind in the bottle-neck. The flat shank of the stopper can therefore be readily grasped by the plunger *x* of the filling-machine, which enters the neck of the bottle, as shown by dotted lines in Fig. 2, when the bottle is filled and the stopper pushed into the neck of the same while said bottle is in an upright position. On the other hand, the flat shank of the stopper, being less in width than the most contracted portion of the bottle-neck, permits said stopper to be pushed completely into the bottle, so as to form an inside or gravity stopper therefor when the bottle is being filled in an inverted position, the stopper in this case occupying an inclined position in the bottle during the filling operation, as shown, for instance, in Fig. 3, but dropping at once into position for sealing the mouth of the bottle on the withdrawal of the air-vent tube *y* of the filling-machine after the filling of the bottle has been completed.

It is important that the flat shank of the stopper should fit rather snugly in the neck, as shown in Fig. 4, in order to prevent it from being moved laterally in any direction, as such lateral movement would have a tendency to tilt the sealing-ring of the stopper, and thus remove a portion of the same from contact with the bottle-neck and permit the escape of gas or liquid from the bottle.

It will be evident that where the width of



the flat shank of the stopper is equal or almost equal to the diameter of the neck movement of said shank, either in the direction of the arrows 1 or in the direction of the arrows 2, Fig. 4, is effectually prevented and the unsealing of the bottle due to the tilting of the sealing-ring is rendered impossible.

The unsealing of the bottle is effected by depressing the stem, so as to remove the sealing-ring from its seat in the bottle-neck and permit the gas and liquid to pass around said ring, and it will be evident that the shank *d* of the stopper, filling as it does a very small portion of the neck of the bottle, will offer no material obstacle to the free pouring of the contents from the bottle and will not cause that sputtering or splashing which frequently results when the shank of the stopper is in the form of a solid cylindrical plug.

The eye *f* at the lower end of the stopper is for the reception of a suitable implement, whereby the stopper can be withdrawn from the bottle when said stopper is inverted, the upper flange of the grooved collar *g* being of less diameter than the lower flange of said collar, as shown in Fig. 2, so as to permit the sealing-ring to yield sufficiently to permit the withdrawal of the stopper when inverted.

It is not necessary in carrying out my invention to have the flat shank of the stopper in the form of a yoke, as a simple wire bent so as to give the shank the proper width in

one direction may be used, as shown in Fig. 5, in which view also is shown a modified plan of forming the eye *f* beneath the sealing-ring.

The stopper may even be made with a shank of spiral or equivalent open or skeleton form, as shown, for instance, in Fig. 6.

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

1. The combination, in a bottle-stopper, of the sealing-ring, with a stem having a rigid skeleton shank which fits snugly in the neck above said sealing-ring, and has an eye or loop below the same, no portion of said shank being of greater width than the most contracted portion of the neck, substantially as specified.

2. The combination, in a bottle-stopper, of the sealing-ring, with a stem having a flat shank above the ring and an eye or loop below the same, said shank being rigid and of a width equal or almost equal to the inside diameter of the bottle-neck, but having no portion of greater width than the most contracted portion of said neck, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWIN L. LLOYD.

Witnesses:

WILLIAM D. CONNER,  
HARRY SMITH.