

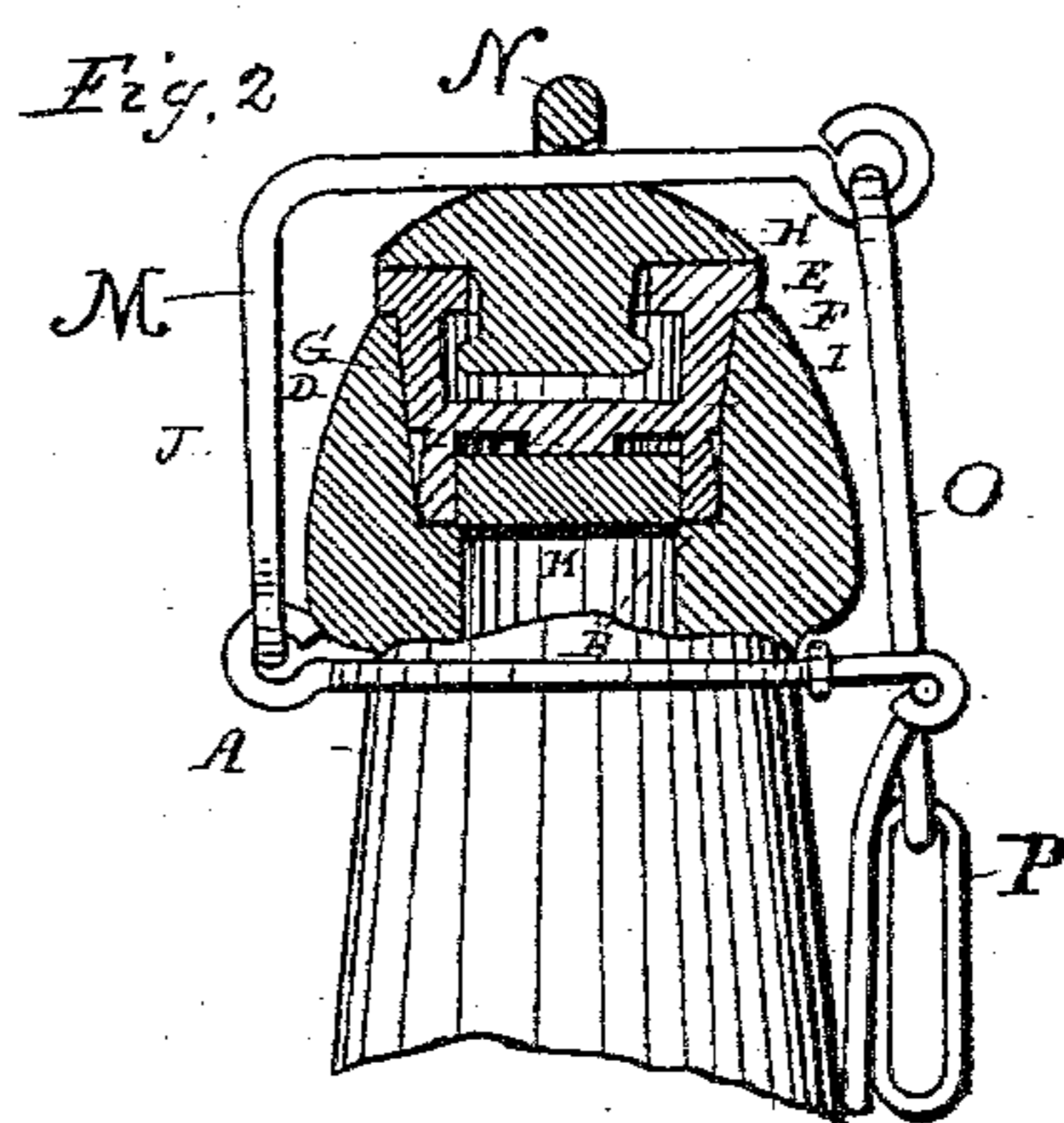
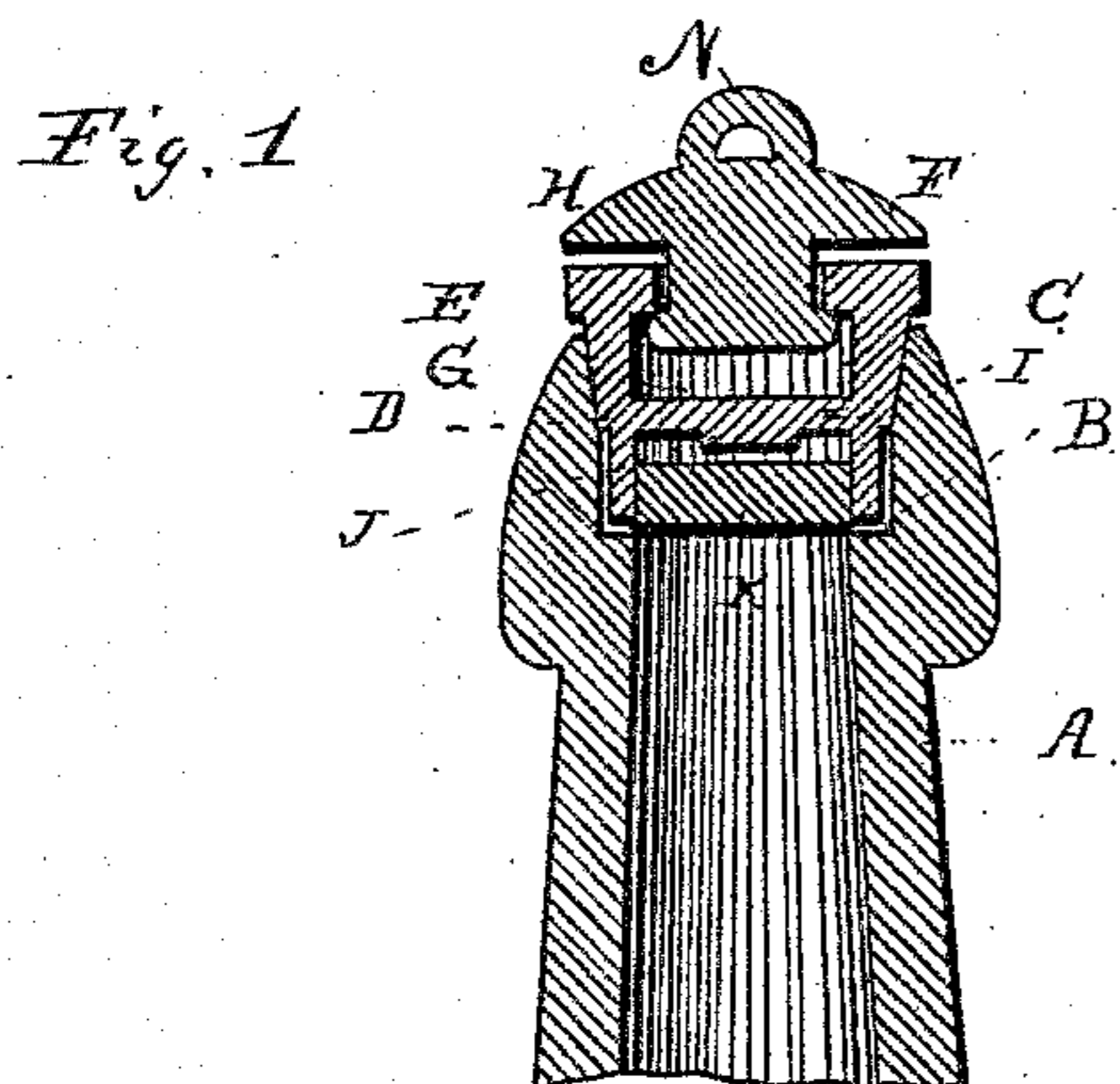
(Model.)

J. T. WALKER.

BOTTLE STOPPER.

No. 296,655.

Patented Apr. 8, 1884.



WITNESSES
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UNITED STATES PATENT OFFICE.

JAMES T. WALKER, OF BALTIMORE, MARYLAND.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 296,655, dated April 8, 1884.

Application filed January 17, 1884. (Model.)

To all whom it may concern:

Be it known that I, JAMES T. WALKER, a citizen of the United States, residing at Baltimore, in the county of Baltimore and 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.

10 This invention relates to improvements in bottle-stoppers of that class wherein india-rubber is employed and adapted to be expanded radially, so as to occupy the entire area of the neck or mouth of the bottle or other vessel to which it is applied; and it is designed as an improvement in construction over the form of stopper shown and described in Letters Patent numbered 288,521, and issued to me November 13, 1883.

20 It has for its objects, first, to provide means for effectually cutting off all contact of the contents of the bottle with the india-rubber portion of the stopper, and yet at the same time to form a solid shoulder against which the rubber may be forced and seated, whereby the rubber is more positively resisted, and the pressure applied thereto made to result in the radial expansion of the rubber, effecting its perfect contact with the mouth of the bottle; second, to provide means whereby the india-rubber portion of the stopper is prevented from collapsing while undergoing extreme pressure.

30 In carrying out the first object of my invention, I provide the stopper, in addition to the upper pressure-disk, with a cavity in its lower end, in which is fitted a slightly-protruding plug of material not affected by the contents of the bottle, and a bottle whose mouth is formed with a shoulder, against which the plug normally rests. When pressure is applied to the stopper, the plug being resisted by the shoulder, the stopper moves down independently of the plug until it is solidly resisted by the shoulder, when the increased pressure causes its radial expansion.

45 In carrying out the second object of my invention, I provide the india-rubber portion of the stopper with a diaphragm, which acts to prevent the same from collapsing while undergoing extreme pressure, and which at the same

time also acts to transmit the pressure of the stopper upon the plug.

In the accompanying drawings, forming a part of this specification, and on which like letters of reference indicate corresponding features, Figure 1 represents a vertical sectional view taken diametrically through my improved bottle-stopper and the bottle-neck, showing the relative position of the stopper and the mouth when the stopper is free from pressure. 55 Fig. 2 represents a similar view, showing the stopper under pressure and its relative position with the mouth.

The letter A refers to the neck of the bottle, the mouth of which is provided, a suitable distance from its upper edge, with an annular shoulder, B, whose function is to form a seat of resistance to the stopper and its plug, as will presently more fully appear. 65

The letter C refers to the stopper proper, 70 the same consisting of india-rubber, and provided on its exterior with circumferential shoulders D and E, the former adapting the stopper to pack well within the mouth of the bottle, and the latter upon the upper edge of the bottle when under pressure. The upper portion of the stopper C is provided with an aperture, F, which leads into a slightly larger recess, G. A metallic pressure-cap, H, is adapted to fit upon the stopper, and is provided with a knob and neck, which respectively occupy the recess G and the aperture F, whereby the said cap is secured. About mid-way the stopper is a diaphragm, I, projecting from the lower side of which is a stud, J, adapted to bear firmly upon a plug, K, constructed of cork, wood, soft metal, or other material adapted to withstand the action of the contents of the bottle or other vessel to which the stopper is applied. This plug is fitted somewhat tightly within a recess, L, formed in the lower part of the stopper. The diameter of the plug is slightly larger than that of the interior of the bottle-neck immediately below the shoulder B, whereby the plug, when forced down, is made to impinge and rest upon the said shoulder. This plug also normally projects slightly beyond the face of the stopper, the result of which is that the plug is first resisted by the shoulder B, and as the pressure 100

is continued upon the stopper the latter is made to settle down firmly and positively upon the shoulder, the result of which is to cause the stopper to expand radially against the inner wall of the bottle-mouth.

The diaphragm, it will be observed, serves the twofold purpose of preventing the stopper from collapsing, and yet at the same time, through the stud J, serves to transmit the pressure of the stopper upon the plug K.

The object of the stud J is to admit of the stopper being forced down to the shoulder, as will be seen in Fig. 2, wherein the upper wall of the recess L (which is the bottom of the diaphragm) is shown at an angle to the upper face of the plug K.

The fastener employed in connection with this stopper may be of any approved form, though by preference I desire that illustrated in the present instance, the same being secured to me by Letters Patent numbered 287,350, and dated October 23, 1883. This fastener consists, essentially, of a wire passing around the neck of the bottle, immediately below the shoulder, on the outside thereof, and is provided with a loop, to which is attached a bent arm, M, passing through an eye, N, formed on the pressure-cap H. This arm is connected, through the medium of the link O, with a lever, P, flexibly secured to the termini of the band, whereby when the said lever is thrown downward it will force the stopper and plug upon the shoulder B in the manner described.

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

1. A bottle-stopper having a cavity in its

lower end, in which is fitted a slightly protruding plug, and a diaphragm which acts to transmit the pressure of the stopper upon the plug, and to prevent the stopper from collapsing while undergoing extreme pressure.

2. A bottle-stopper having a cavity in its lower end, in which is fitted a slightly protruding plug, and having a diaphragm forming the upper wall of said cavity, with a stud projecting therefrom arranged to bear upon the plug, and provided with an upper pressure-disk.

3. In a bottle-stopper, the combination, with a bottle having a shoulder formed in its mouth, and a stopper having a cavity in its lower end, in which is fitted a slightly protruding plug, the stopper and the plug arranged to bear upon the shoulder, and the stopper to move downward independently of the plug until it is solidly resisted by the shoulder, of fastening devices whereby the stopper and plug are forced and held upon the shoulder.

4. In a bottle-stopper, the combination, with a bottle having a shoulder formed in its mouth, and a stopper having a cavity in its lower end, in which is fitted a slightly protruding plug, and having a diaphragm with a projecting stud which acts to press upon the plug and prevent the stopper from collapsing, of fastening devices whereby the stopper is forced and held against the shoulder.

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

JAMES T. WALKER.

Witnesses:

FLORETTA W. WALKER,
ELLIS P. BRUCE.