

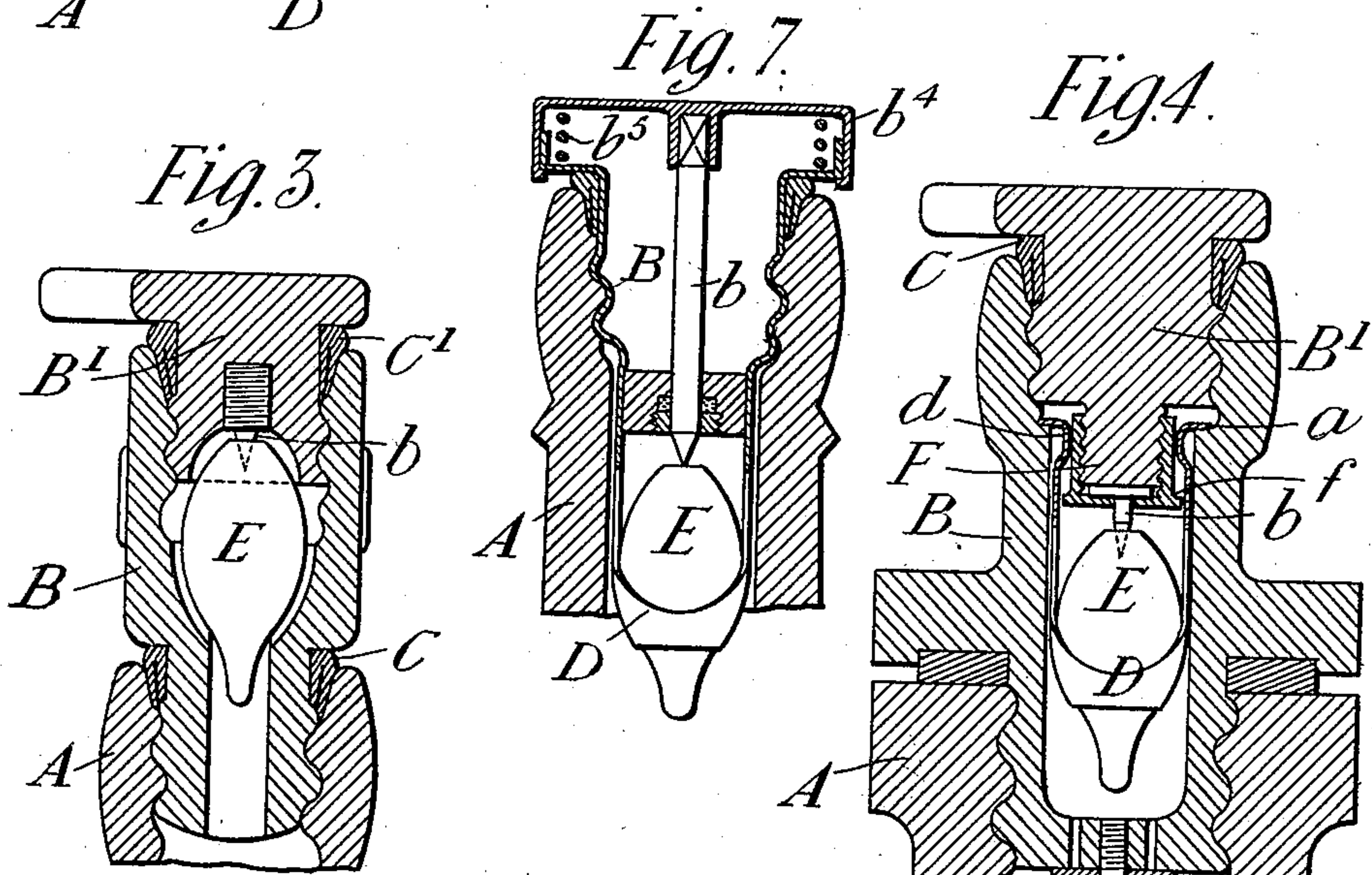
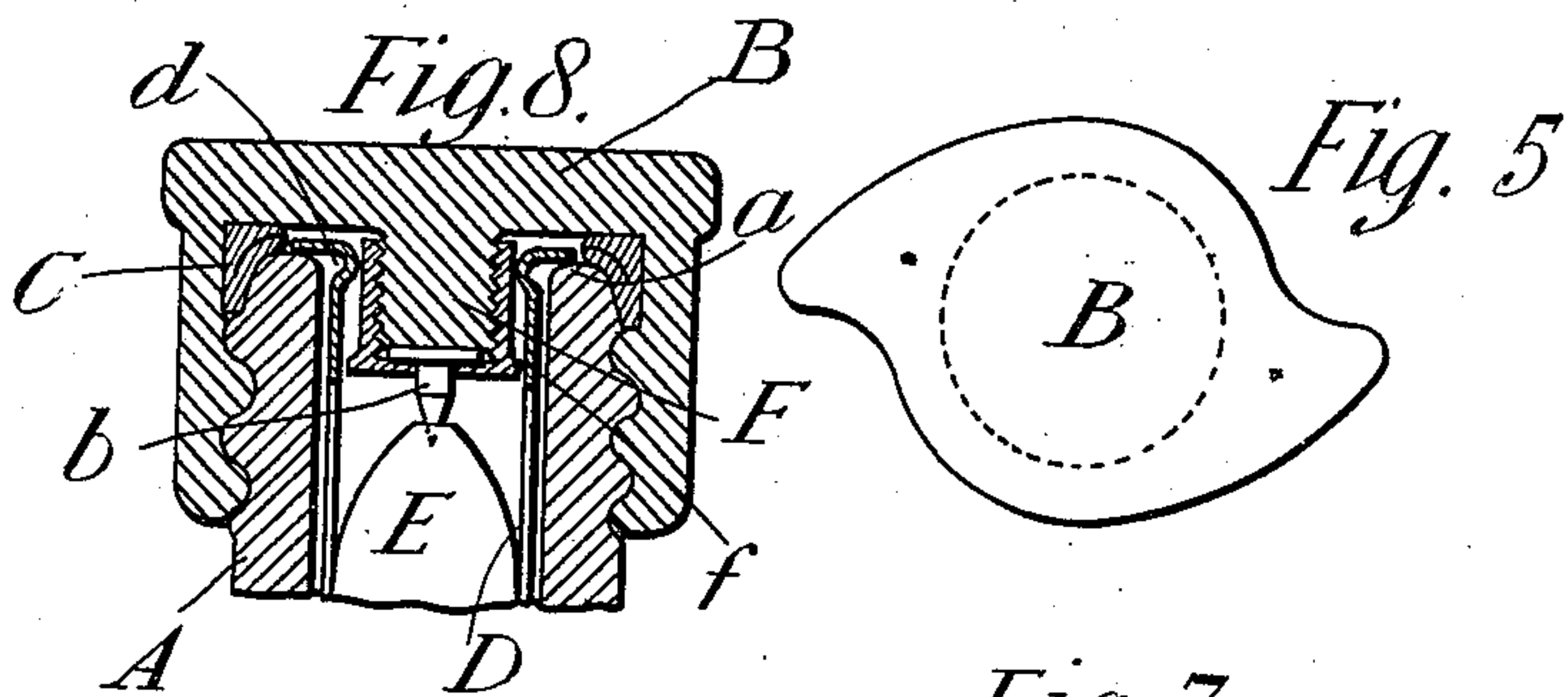
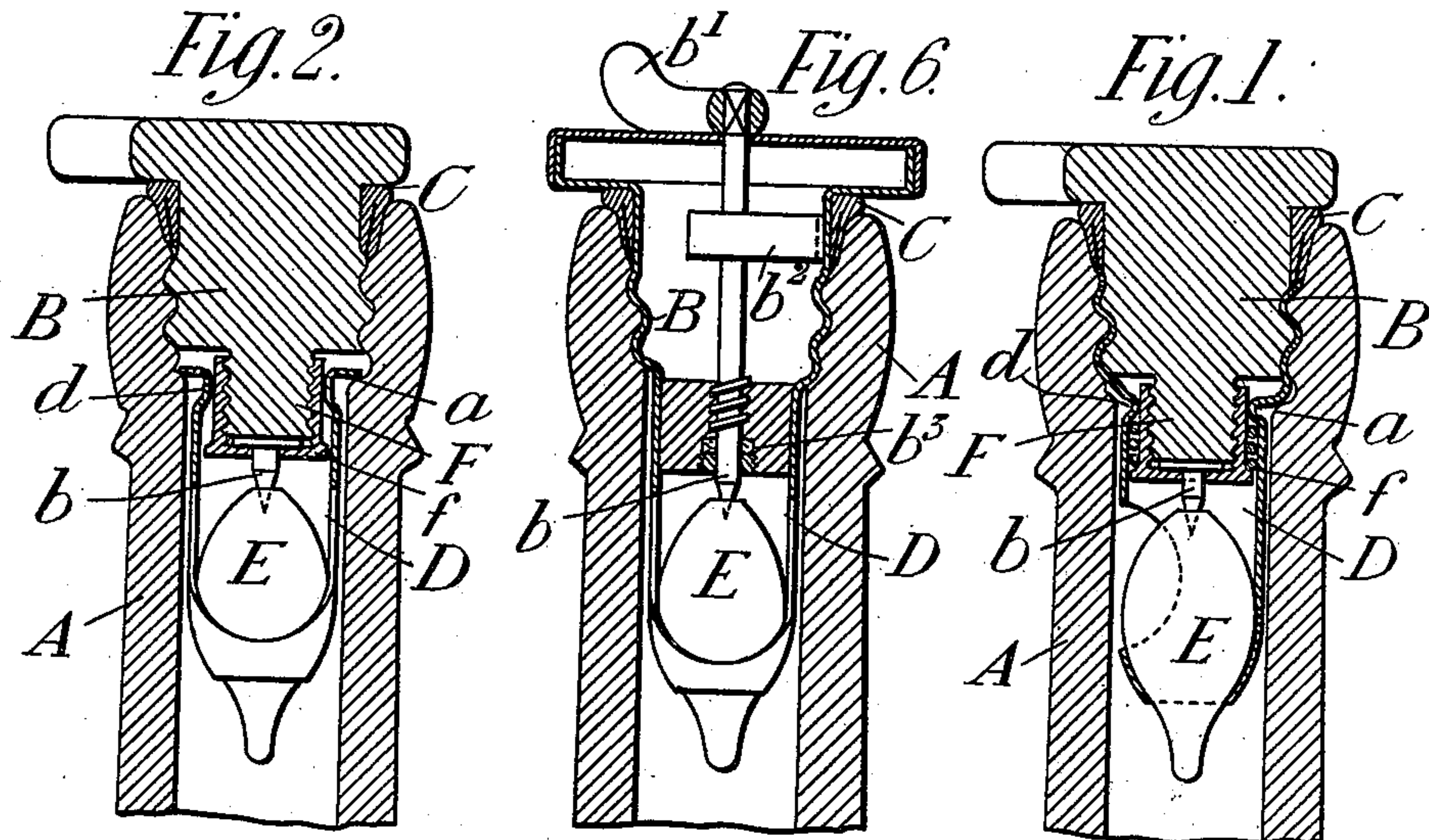
(No Model.)

H. V. R. READ.

STOPPER FOR DISCHARGE OF AERATING CAPSULES.

No. 602,269.

Patented Apr. 12, 1898.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

HARRY V. RUDSTON READ, OF LONDON, ENGLAND.

## STOPPER FOR DISCHARGE OF AERATING CAPSULES.

SPECIFICATION forming part of Letters Patent No. 602,269, dated April 12, 1898.

Application filed February 25, 1897. Serial No. 625,052. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY VAUGHAN RUDSTON READ, a citizen of England, residing at Broadstreet avenue, in the city of London, England, have invented a certain new and useful Stopper for Discharge of Aerating Capsules, of which the following is a specification.

Small capsules made of strong metal are charged under very high pressure with carbonic-acid gas or with this liquefied and are placed inside a bottle charged with water or other liquid which is tightly closed. The capsule being then pricked, the gas escapes from it and becomes absorbed by the liquid in the bottle, aerating it.

My invention relates to the construction of a stopper adapted to receive such a capsule to effect tight closure of the bottle and to prick the capsule, as I shall describe, referring to the accompanying drawings.

Figure 1 is a vertical section of a stopper according to my invention. Fig. 2 is a vertical section of a modification. Fig. 3 is vertical section of a stopper arranged to contain the capsule. Fig. 4 is a vertical section of a modification, the stopper being provided with a check-valve. Fig. 5 is a plan showing a convenient form of stopper-head. Fig. 6 is a vertical section showing a stopper and capsule-holder made in one. Fig. 7 is a vertical section of a modification. Fig. 8 is a section of a stopper for an externally-screwed bottle-neck.

In all the figures like letters are employed to denote similar parts.

A, Fig. 1, is the neck of a bottle, having an internal screw-thread to receive a screw-stopper B, provided with a caoutchouc or other suitable packing-washer C and having at its end a pricking-pin *b*. On the screwed part of the stopper B, which is somewhat loose in the bottle-neck, I fit a sleeve D, which extends downward and is nearly closed at the bottom, having there a small hole to admit the small end of the capsule E, for introducing which the sleeve is made with a lateral opening. Having placed the capsule in the sleeve, the stopper along with the sleeve is screwed down until the thread of the sleeve reaches the termination of the thread of the bottle-neck, the sleeve being thus prevented from being screwed farther down. At this time, however,

the washer C is sufficiently compressed by the collar of the stopper to make a practically tight closure. On turning the stopper a little more it is screwed a little down within the sleeve, and its pricking-pin *b* penetrates the capsule, allowing the contents to escape. A spring between the shoulder *a* and the collar *f* causes the screwed part of the sleeve to take such frictional hold on the screw of the stopper that at first both screw together into the bottle-neck.

According to the modification shown in Fig. 2, in which the same letters as in Fig. 1 are used to denote like parts, the bottle-neck has below its screw-thread an inwardly-projecting shoulder *a*, and the sleeve or capsule-holder D, instead of extending up with a screw-thread inclosing the thread of the stopper, terminates at the top with a small flange or lip, which rests on the shoulder *a*. In order to prevent the sleeve or capsule-holder from separating from the stopper, it is made with an inwardly-projecting rib *d*, which is free to move along a boss F, projecting down from the stopper, but is prevented from coming off the boss by a collar *f*. When a stopper according to this modification is employed, the capsule is introduced laterally into the sleeve, which is inserted along with the stopper in the bottle-mouth. As the stopper is screwed down while the flange of the sleeve rests on the shoulder *a*, first the washer C is somewhat compressed and then the capsule is pricked as in the former case.

As shown in Fig. 3, the stopper B is made with a cavity to contain the capsule E, and this cavity is closed by a second stopper B', which is made with a pricking-pin *b* and provided with a packing-washer C'. In this case the stopper B is screwed into the bottle having the capsule E either in it or put in afterward. Then on the second stopper B' being screwed down, the washer C' is compressed and the capsule is pricked.

As shown in Fig. 4, the stopper B is made with a cavity to receive the capsule E and its sleeve or holder D, which is attached to the second stopper B', having a pricking-pin *b*. There are holes through the bottom of the stopper B, these holes being covered by a flap G, of caoutchouc or the like, constituting a check-valve. In this case after discharging



one capsule the second stopper may be unscrewed, the empty capsule removed, a fresh one put in the holder and discharged, and in this way several capsules may be successively  
 5 discharged, so as to aerate a considerable volume of liquid, the valve G preventing escape of gas after each discharge.

As shown in Fig. 6, the pricking-pin *b* is on a screwed stem and is depressed by turning a wing *b'*. The stem may pass through  
 10 a volute spring *b<sup>2</sup>*, which causes it to turn back, withdrawing the pricking-pin. A stuffing-box *b<sup>3</sup>* prevents escape of gas.

As shown in Fig. 7, the stopper has a cover  
 15 *b<sup>4</sup>*, which can slide a little up or down, but must turn with stopper, between which and the cover *b<sup>4</sup>* there is a helical spring *b<sup>5</sup>*. After the stopper is screwed into the bottle by turning the cover *b<sup>4</sup>* then the cover can be  
 20 pushed down, causing the pricking-pin to penetrate the capsule, and thereupon the spring *b<sup>5</sup>* causes the cover to rise, raising the pricking-pin out of the hole in the capsule.

As shown in Fig. 8, the stopper B is internally screw-threaded, so as to fit on a bottle-neck externally threaded. In this case the  
 25 sleeve D has a flange which rests on the mouth of the bottle.

Each of the pricking-pins *b* is preferably  
 30 made with a longitudinal groove, so as to allow escape of the gas when the pin is inserted in the capsule. The washers C may be ordi-

nary caoutchouc rings. I prefer, however, to double the ring on itself, so that there is, as it were, a split from the under edge into  
 35 which the gas can enter, tending to expand the washer and thus insuring the tightness of the joint.

Having thus described the nature of this invention and the best means I know for carrying the same into practical effect, I claim—  
 40

1. The combination with a bottle or vessel, having a screw-threaded neck, of a screw-threaded stopper arranged to engage the same, a sleeve arranged to hold a capsule  
 45 and having a lip arranged to rest upon an inner shoulder of the bottle-neck, and a pin upon the stopper arranged to prick the capsule, substantially as described.

2. The combination with a bottle or vessel,  
 50 of a stopper arranged to carry a capsule, and having a pin arranged to prick the same, and a check-valve arranged between the capsule and the interior of the bottle or vessel; substantially as described.  
 55

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of February, A. D. 1897.

H. V. RUDSTON READ.

Witnesses:

JNO. P. M. MILLARD,  
 JOSEPH LAKE.