

No. 685,225.

Patented Oct. 22, 1901.

E. D. SCHMITT.
BOTTLE SEALING DEVICE.

(Application filed Feb. 2, 1901.)

(No Model.)

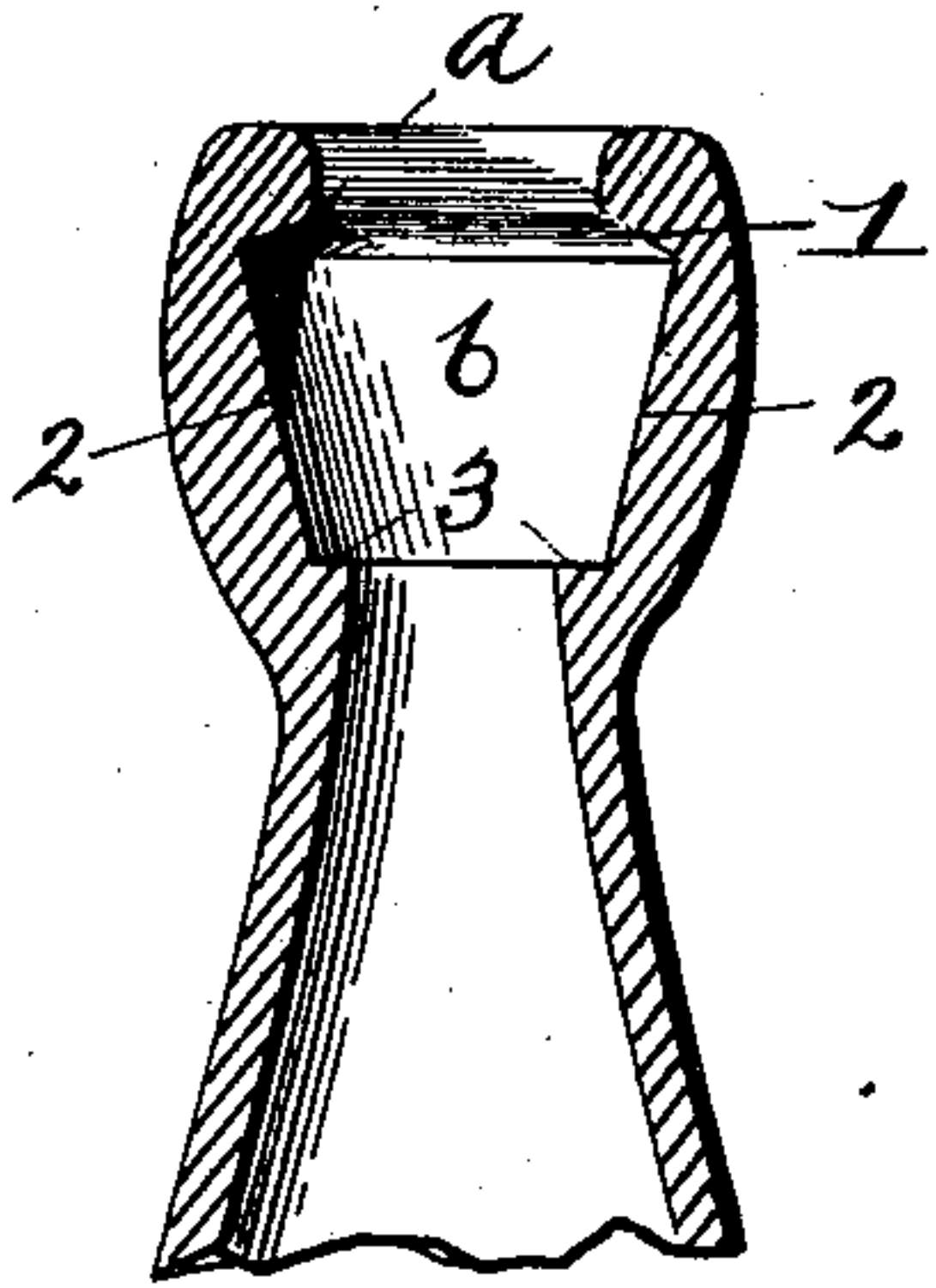


Fig. 1.

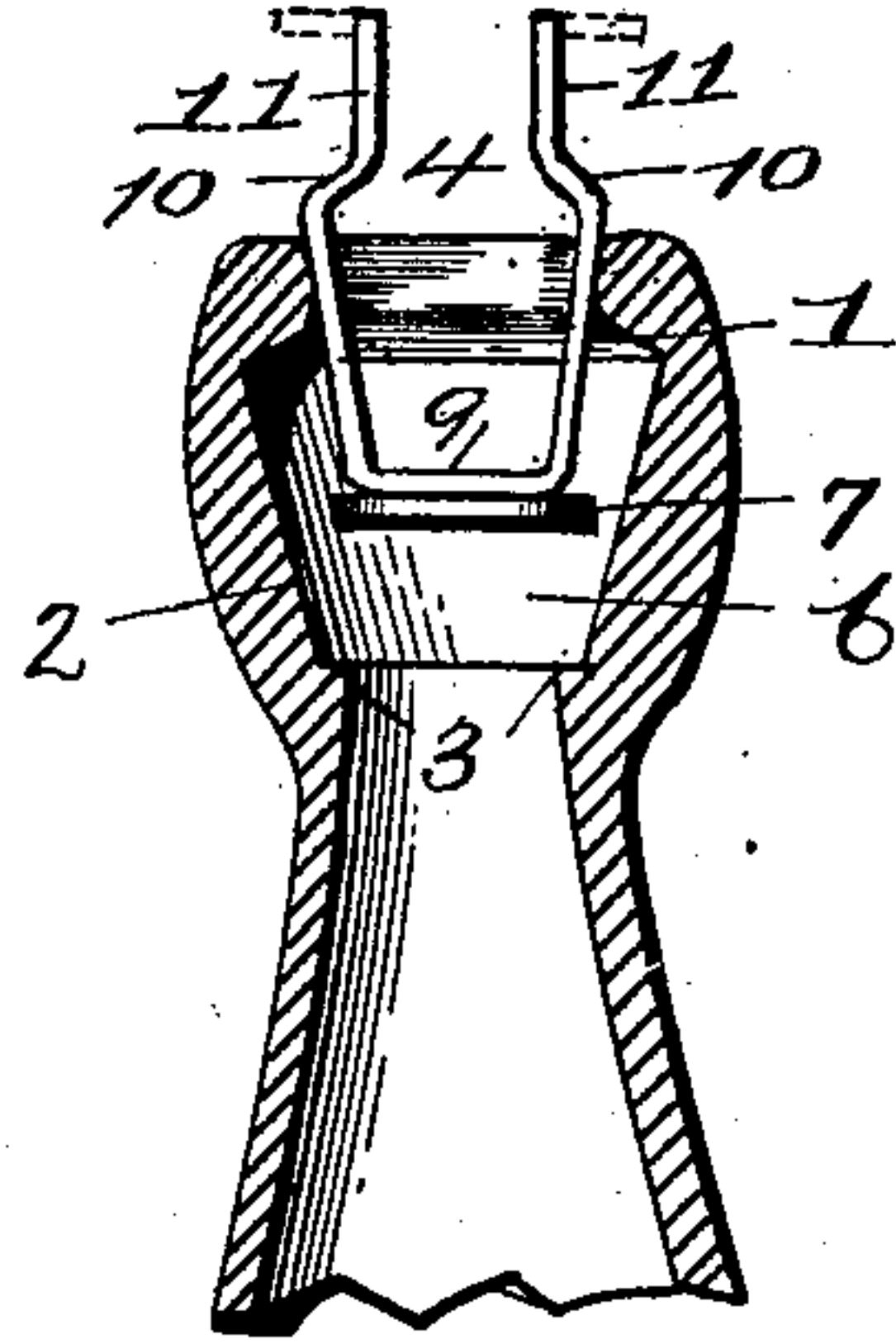


Fig. 2.

Fig. 3.

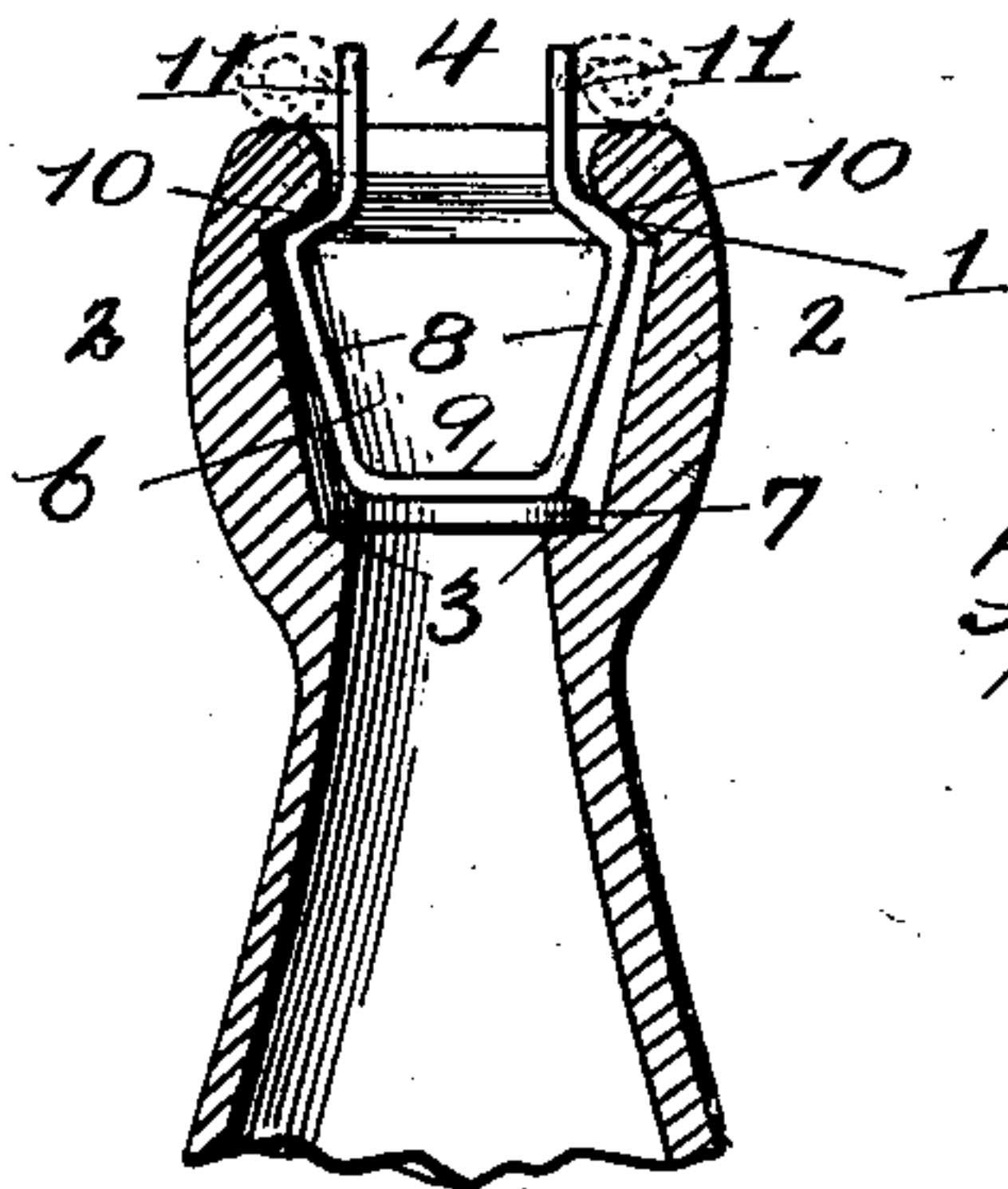


Fig. 7.

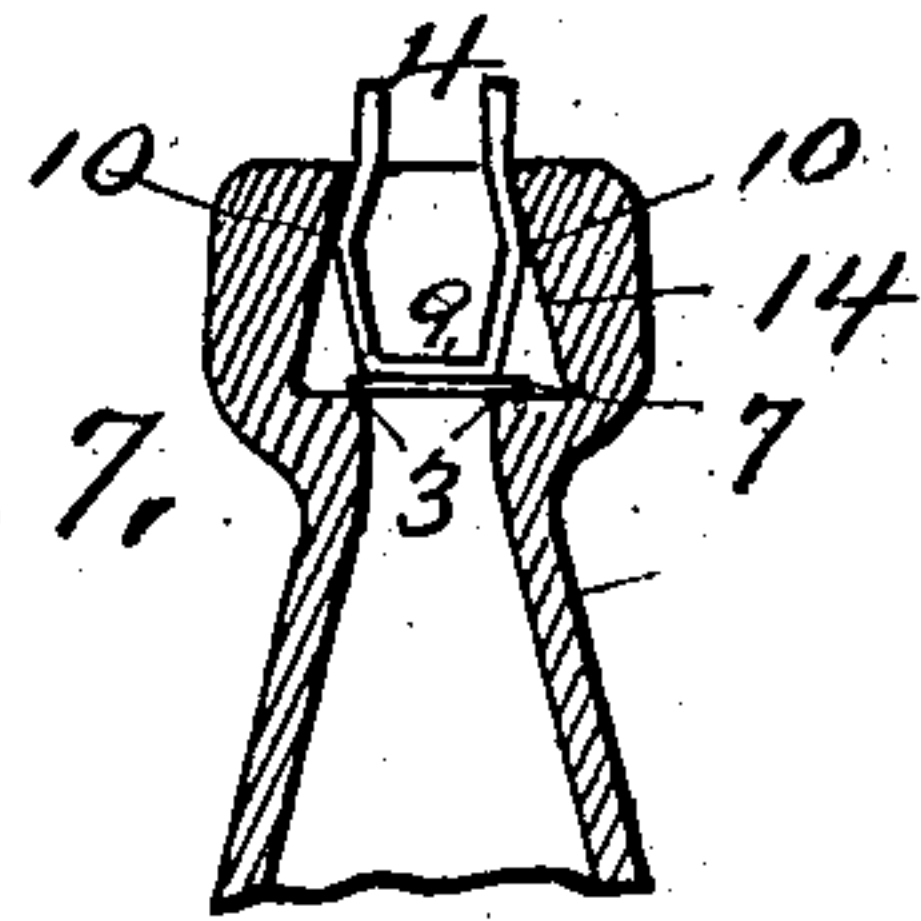


Fig. 4.

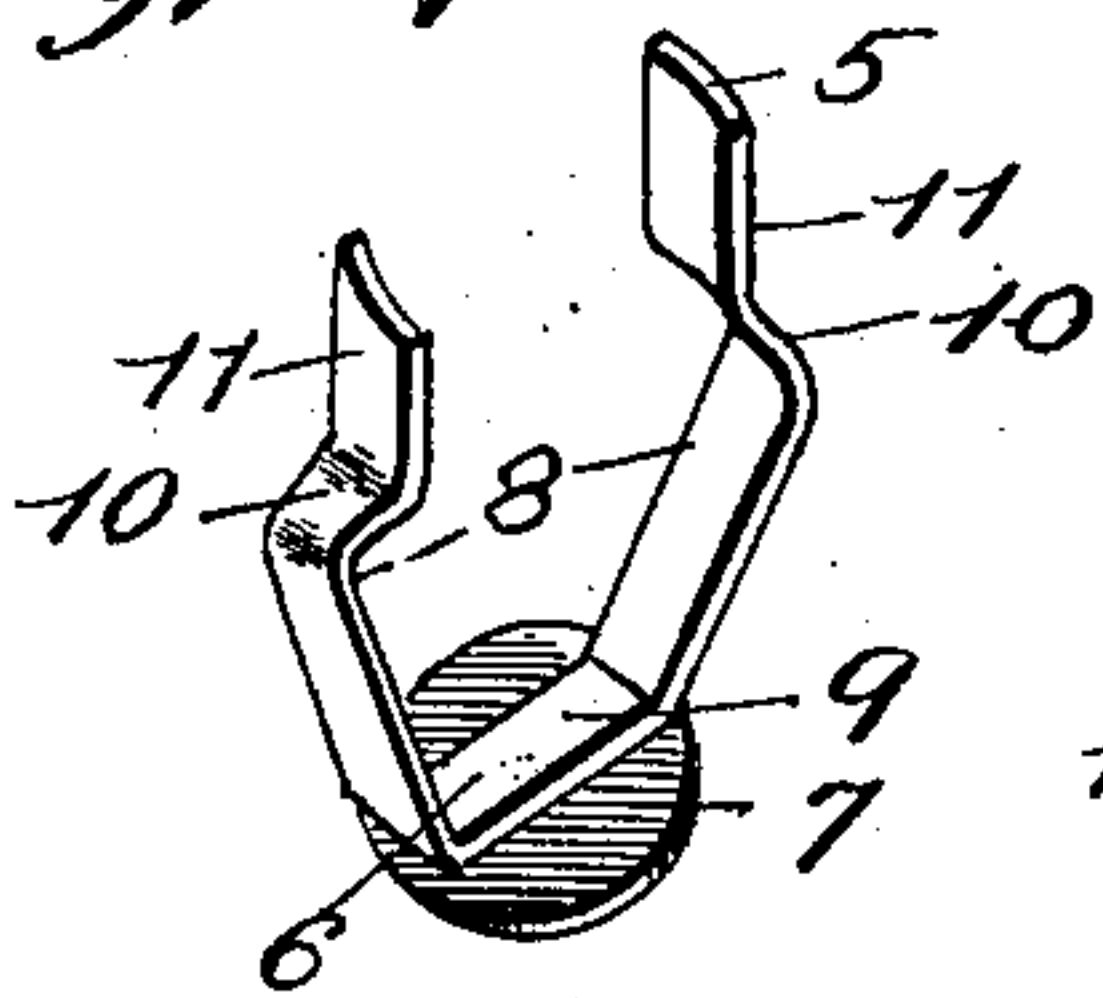


Fig. 5.

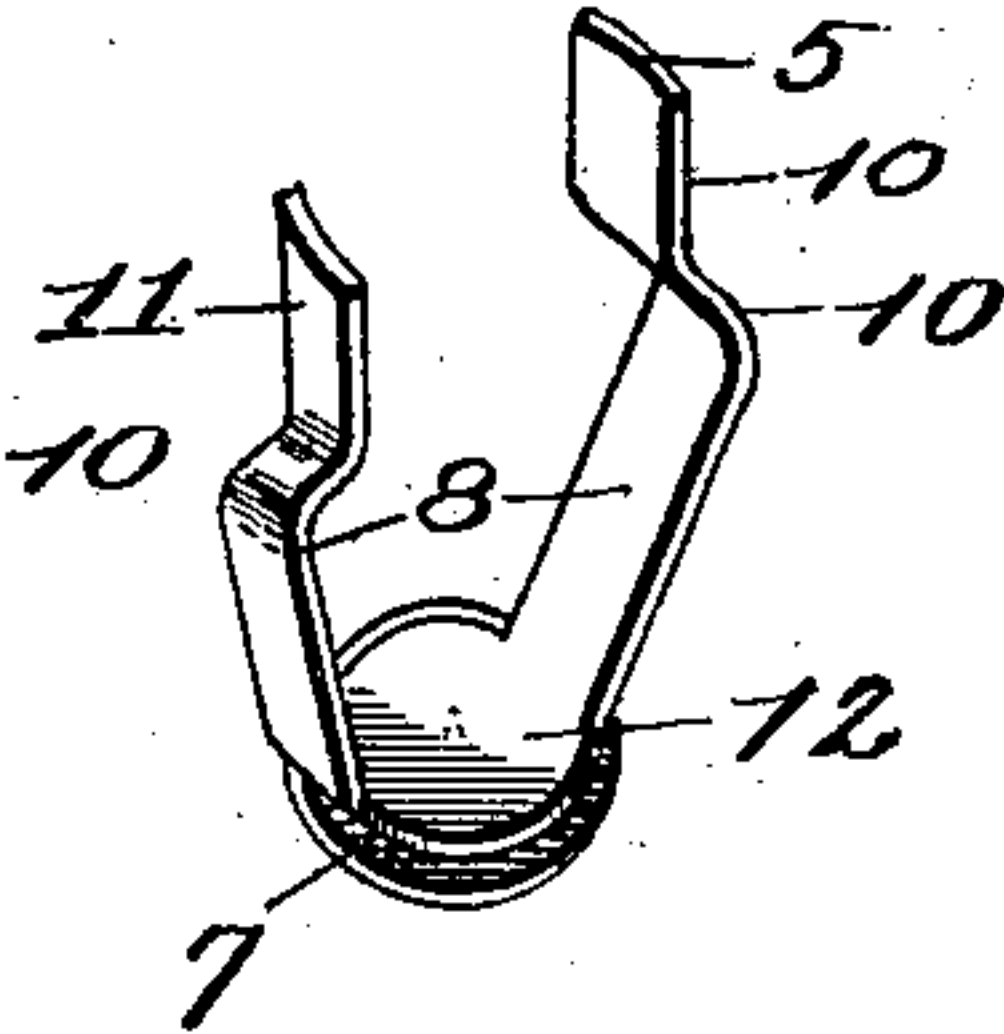
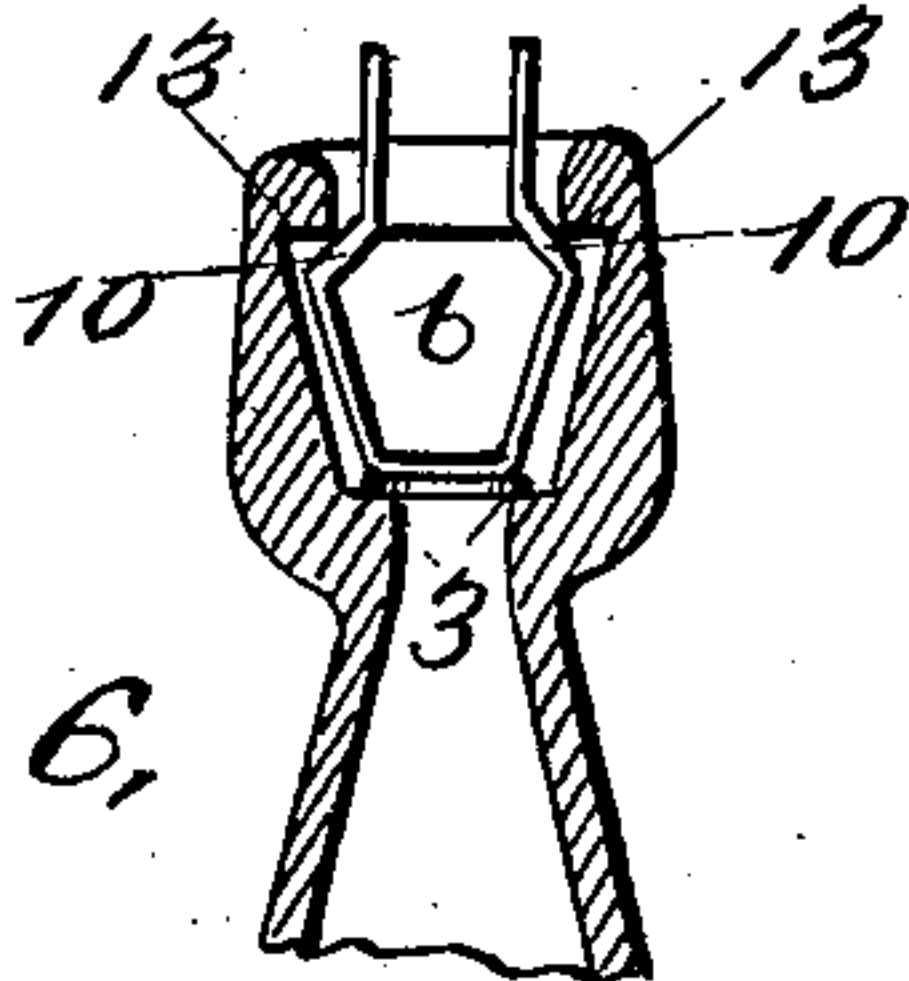


Fig. 6.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWARD D. SCHMITT, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE UNIVERSAL SEAL AND STOPPER COMPANY, OF CAMDEN, NEW JERSEY.

BOTTLE-SEALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 685,225, dated October 22, 1901.

Application filed February 2, 1901. Serial No. 45,721. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. SCHMITT, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Bottle-Sealing Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in bottle-sealing devices especially adapted for sealing charged beverages.

Objections are made to seals of the "cap" type, in which the seal is effected between the sealing-disk and the edge of the bottle-neck, in that when the bottles in handling become chipped, as they frequently do, an absolutely air-tight seal cannot be made and the bottles are rendered useless.

One of the principal objects of my invention is to overcome these objections, and I do so by effecting the seal in the neck of the bottle, a place that is protected and cannot possibly be affected by use in such a way as to prevent an absolutely perfect seal as long as the bottle lasts.

A further object is to provide a seal inexpensive in itself and which may be reused as many times as desired, a seal simple in operation and construction, and one which will not require a special tool to apply or remove the same.

Other objects and advantages will become apparent in the course of the following description, and the points wherein novelty consists will be set forth in the claims.

In the drawings illustrating my invention, Figure 1 represents a section of the upper portion of a bottle forming part of my invention. Fig. 2 is a similar view of the bottle with the sealing device in the position it would assume just before the seal is effected. Fig. 3 is a sectional view showing the bottle sealed. Fig. 4 is a detail perspective view of the securing member. Fig. 5 is a perspective

view of another form of securing member. Figs. 6 and 7 are modifications showing internal formations of the bottle-neck with which seals can be made in accordance with my invention.

In carrying out my invention I form a bottle with an annular inclined shoulder 1 in the neck thereof inclining downwardly from a point *a*, Fig. 1, preferably at about an angle of thirty degrees to the side walls 2 of the bottle-neck. At the bottom of said walls an annular shoulder 3 is formed with which sealing contact is made, the said shoulders and walls forming a chamber *b*.

The numeral 4 designates what I term the "securing" member, which is formed of a sufficiently wide strip of spring metal slightly curved, as indicated at 5, so as to conform to the curve of the interior of the bottle-neck, but flat, as shown at 6, so as to be conveniently attached by any suitable means to the sealing member 7. This securing member is formed with oppositely-disposed inclined spring-arms 8, bent to form a horizontal cross-piece 9 at its lower portion and inclined shoulders 10 near its terminals, which are extended a desirable distance above the mouth of the bottle, forming straight vertical arms 11, by the aid of which the spring-arms are pressed toward each other when it is desired to unseal the bottle.

In effecting a seal the securing member and sealing member, which latter may be formed of any suitable material—such as cork, suitably-faced tin, wood, or the like—are placed in the neck of the bottle and forced down until the sealing member is made to make sealing contact with the shoulder 3. The securing member in entering the mouth of the bottle will have its arms pressed together until said member has passed far enough to permit its arms to expand into the chamber *b*, bringing the shoulders 10 into engagement under the inclined shoulder 1 of the bottle-neck. Obviously the tendency of the spring-arms to separate will bring their shoulders against the inclined shoulders in the bottle-neck with considerable force and exert a downward pressure upon the sealing member in propor-

tion to the distance they separate against the inclined shoulders of the bottle-neck, which in turn depends upon the stiffness of the spring. This seal being especially adapted
 5 for sealing charged beverages, such as beer, the internal pressure of the beverage is utilized to some extent in my invention to effect an air-tight seal—that is to say, as the pressure exerts an upward force upon the sealing
 10 member 7 said force is brought against the horizontal cross-piece of the securing member, which it will be seen is considerably narrower than the width of said member at the part where the shoulders 10 are provided and
 15 will have a tendency to cause the arms to separate, and thus wedge the said shoulders more closely against the shoulder 1 and cause them to ride down the said shoulders 1. Of course it will be understood that this move-
 20 ment is so infinitesimal as to be scarcely worthy of mention, and the utilization of the internal pressure is merely incidental to the formation of the bottle-neck and the securing member, but is by no means essential.
 25 To remove the seal, it is only necessary to press the arms 11 toward each other with the thumb and forefinger for a distance sufficient to disengage the shoulders 10 from the shoulder 1 of the bottle-neck, and the securing and
 30 sealing members will be forced out by the pressure in the bottle. The arms 11 may be bent approximately at right angles, as indicated in dotted lines, Fig. 2, for the purpose of presenting a convenient hold for the hand
 35 in unsealing the bottle, or as shown in dotted lines, Fig. 3. Either of these modifications shown in dotted lines may be used to advantage where the bottle sealed does not contain liquid under pressure, which would force
 40 the securing member and the sealing member carried thereby out of the bottle.

In Fig. 5 the securing member is so shaped as to form a substantially circular bearing portion 12, adapted to bear upon the sealing
 45 member at all points of the shoulder 3. In this form the sealing member may be made just the size of the portion 12, which would be wide enough to bridge the shoulder 3 and make sealing contact therewith.

50 From the foregoing description it will be seen that a particularly cheap seal is provided and one that is so inconsiderable that it may be thrown away with trivial loss, yet which can be used over and over again, if
 55 desired, thus in cases where very large quantities are used effecting a very great saving.

Having described the form which I consider preferable, I will now proceed to describe the modifications shown in Figs. 6 and 7. In
 60 Fig. 7 the internal formation of the bottle-neck is precisely that shown in Figs. 1, 2, and 3, with the exception that a straight shoulder 13 is provided instead of the inclined shoulder 1. The inclined shoulders 10 of the
 65 securing member engage this straight shoulder when it expands, and thus exerts a downward pressure upon the sealing member. In

Fig. 7 the upper shoulder is dispensed with and internal inclined walls 14 provided, against which the securing member expands. 70

I claim—

1. In a bottle-seal, the combination with a bottle having an inclined shoulder in the neck thereof and a shoulder below said inclined shoulder, of a sealing member adapted
 75 to make sealing contact with the lower shoulder, a spring-metal securing member having engagement with the inclined shoulder and bearing upon the sealing member and having a constant tendency to expand against the
 80 said inclined shoulder whereby the sealing member is firmly seated upon the lower shoulder, substantially as described.

2. In a bottle-seal, the combination with a bottle formed with an inclined shoulder in the
 85 neck thereof and a shoulder below said inclined shoulder, a sealing member adapted to make sealing contact with the lower shoulder, a spring-metal securing member formed with arms having inclined shoulders thereof adapted
 90 to engage the inclined shoulders, and a portion adapted to bear upon the sealing member whereby the sealing member is caused to make sealing contact with the lower shoulder when the shoulders on the arms are in engagement
 95 with the inclined shoulder in the bottle-neck, substantially as described.

3. In a bottle-seal, the combination with a bottle having an annular inclined shoulder in the neck thereof and a shoulder below said
 100 inclined shoulder, of a sealing member adapted to make sealing contact with the lower shoulder, a spring-metal securing member having inclined shoulders in engagement with the inclined shoulder in the bottle-neck and
 105 bearing upon the sealing member, whereby the same is firmly seated upon the lower shoulder, and means carried by the securing member to disengage it from the inclined shoulder to unseal the bottle, substantially
 110 as described.

4. In a bottle-seal, the combination with a bottle formed with an inclined shoulder in the neck thereof and a shoulder below said
 115 inclined shoulder, a sealing member adapted to make sealing contact with the lower shoulder, a spring-metal securing member formed with arms extending above the mouth of the bottle for the purpose set forth and inclined
 120 shoulders to engage the inclined shoulder in the bottle-neck, and a portion adapted to bear upon the sealing member whereby the same is firmly seated upon the lower shoulder and made to form sealing contact therewith, sub-
 125 stantially as set forth.

5. In a bottle-seal, the combination with a bottle formed with an inclined shoulder in the neck thereof and a shoulder below said
 130 inclined shoulder, a sealing member adapted to make sealing contact with the lower shoulder, a spring-metal securing member formed with arms having inclined shoulders thereon to engage the inclined shoulders in the bottle-neck and a portion adapted to bear upon the

sealing member, whereby the said sealing member is caused to make sealing contact with the lower shoulder, and means for compressing the arms of the securing member to
 5 disengage the shoulders thereof from the inclined shoulder in the bottle-neck, substantially as and for the purpose set forth.

6. In a bottle-seal, the combination with a bottle formed with an inclined shoulder in
 10 the neck thereof and a shoulder below said inclined shoulder, of a spring-metal securing member formed with arms having inclined shoulders thereon adapted to engage the inclined shoulder in the bottle-neck, and carrying a sealing member adapted to make sealing
 15 contact with the lower shoulder when the inclined shoulders on the arms expand into engagement with the said inclined shoulder, and means for compressing the arms of the
 20 securing member to remove the seal, substantially as described.

7. In a bottle-seal, the combination with a bottle having an annular shoulder near the mouth thereof and a shoulder below said first-
 25 mentioned shoulder, of a sealing member adapted to make sealing contact with the lower shoulder, a spring-metal securing member engaging the upper shoulder and expanding against the upper shoulder with a constant
 30 tendency to exert a downward pressure on the sealing member, substantially as and for the purpose set forth.

8. In a bottle-seal, the combination with a bottle having an annular shoulder near the
 35 mouth thereof and a second shoulder below the first-mentioned shoulder, of a sealing member adapted to make sealing contact with the lower shoulder, of a spring-metal securing member having inclined shoulders thereon

and extending out of the bottle-neck and a
 40 lower portion adapted to bear upon the sealing member when the inclined shoulders of said securing member are in engagement with the upper shoulder.

9. In a bottle-seal, the combination with a
 45 bottle formed with an annular shoulder in the neck thereof and walls inclining inwardly and upwardly toward the bottle-mouth, of a sealing member adapted to make sealing contact with said shoulder, a spring-metal securing
 50 member formed with arms having inclined shoulders thereon and extended beyond the bottle-mouth for the purpose described, said inclined shoulders on the securing member bearing against the inclined
 55 walls of the bottle-neck, and a lower portion adapted to bear upon the sealing member, substantially as described.

10. In a bottle-seal, the combination with a bottle having an annular shoulder near the
 60 mouth thereof and a shoulder below said first-mentioned shoulder, of a sealing member adapted to make sealing contact with the lower shoulder, a spring-metal securing member engaging the upper shoulder and expanding
 65 against said upper shoulder with a constant tendency to exert a downward pressure on the sealing member, means carried by the securing member whereby it can be compressed to unseal the bottle, substantially as
 70 described.

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

EDWARD D. SCHMITT.

Witnesses:

THOS. K. LE BROU,
 CAMPBELL CARRINGTON.