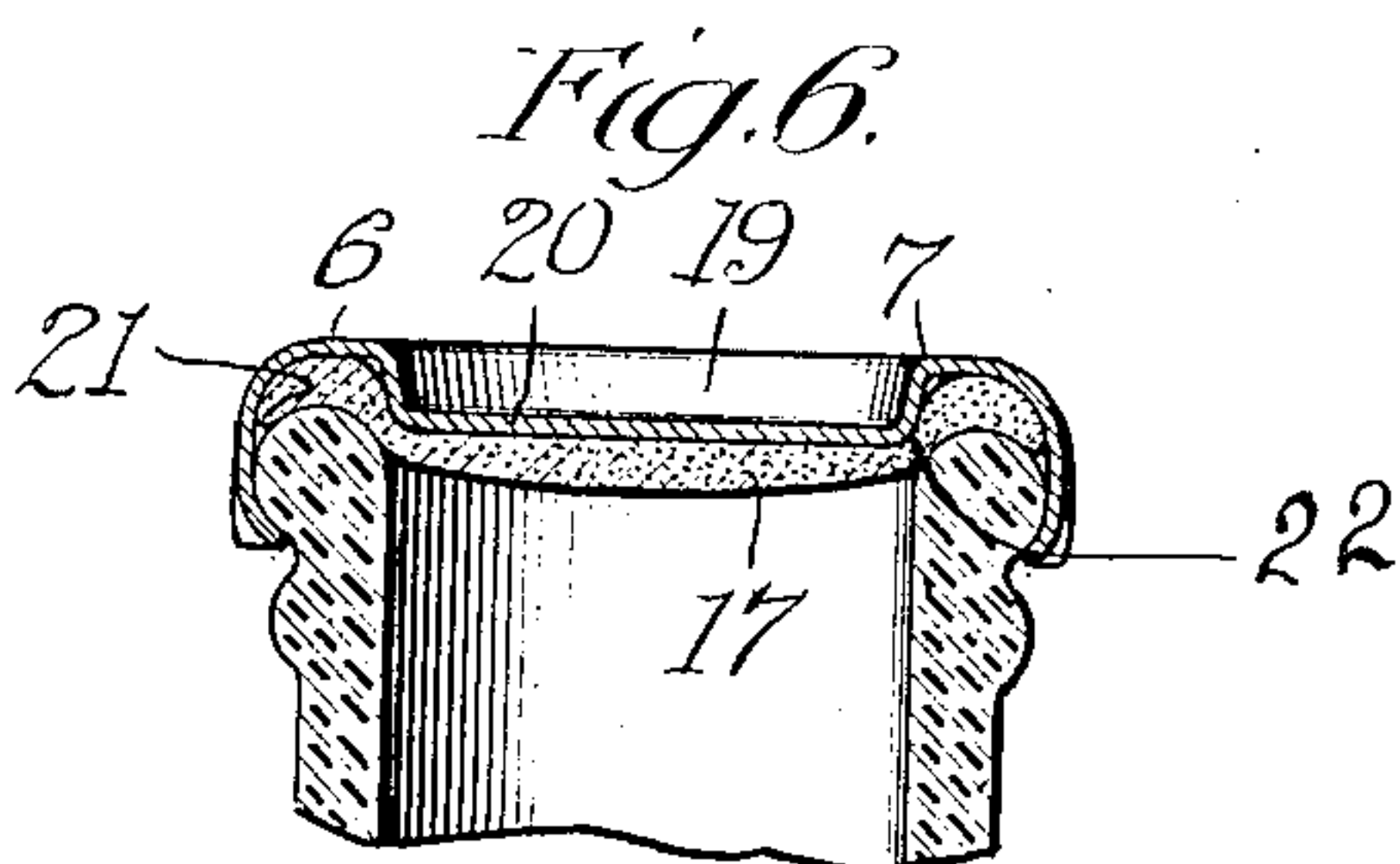
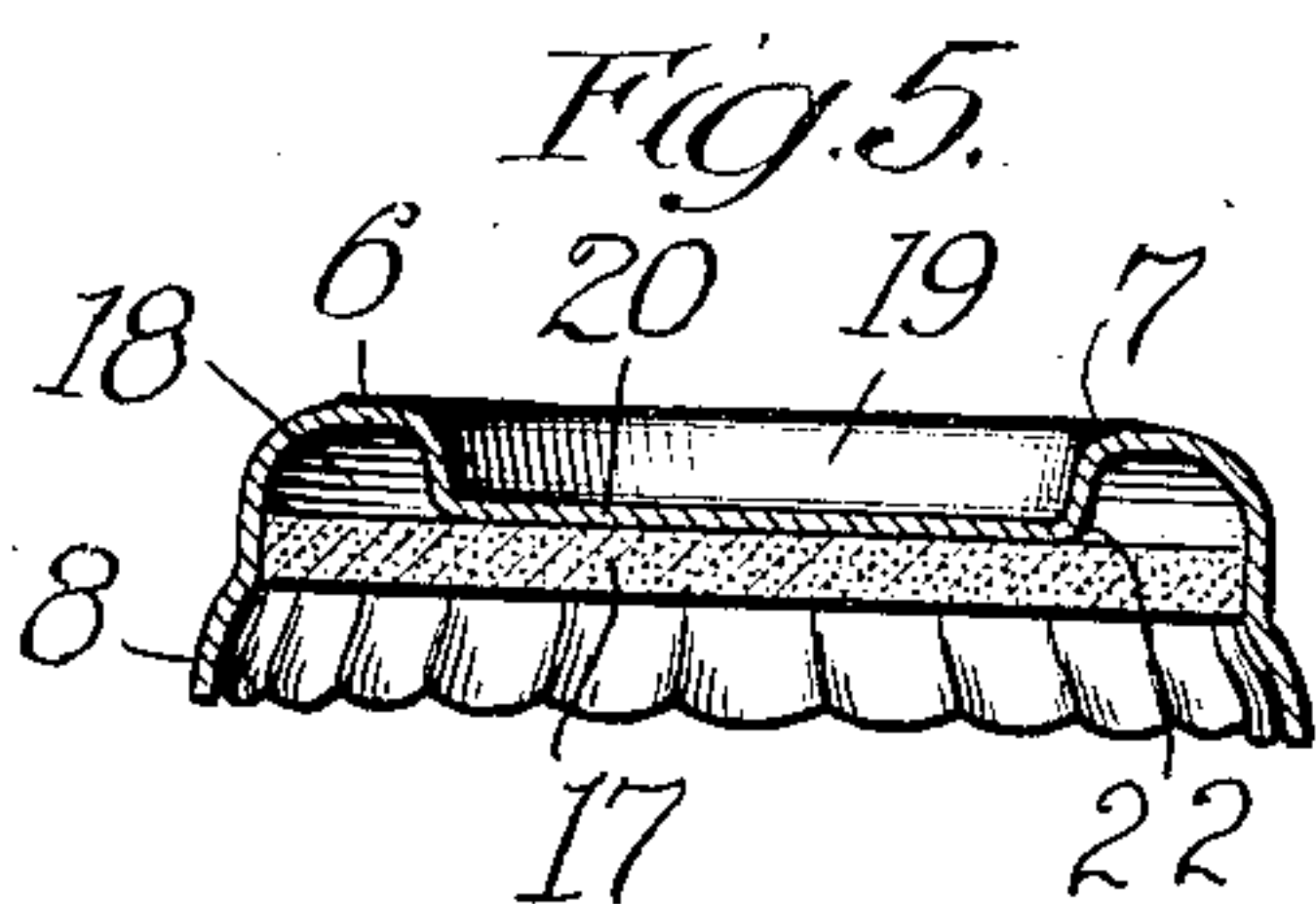
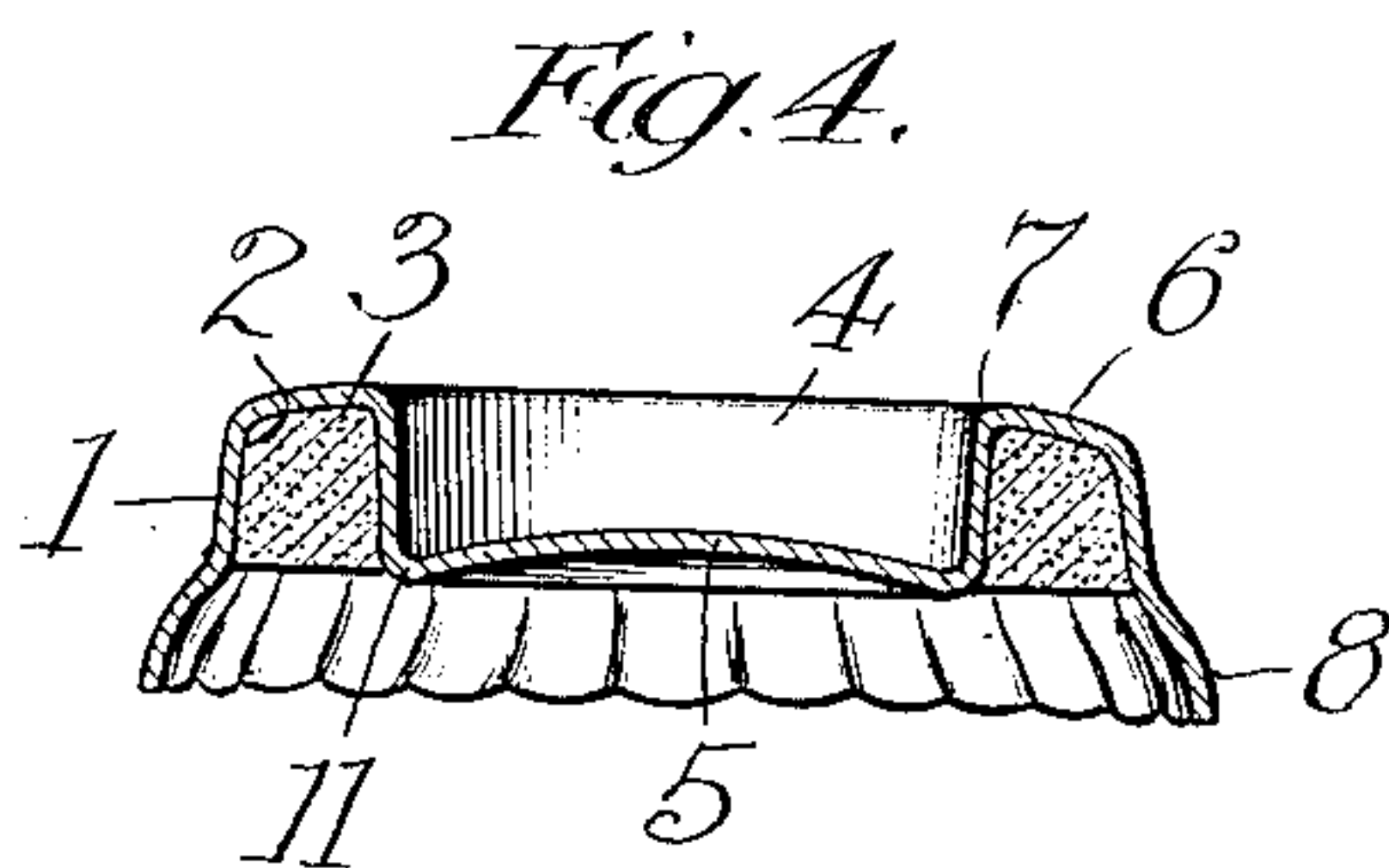
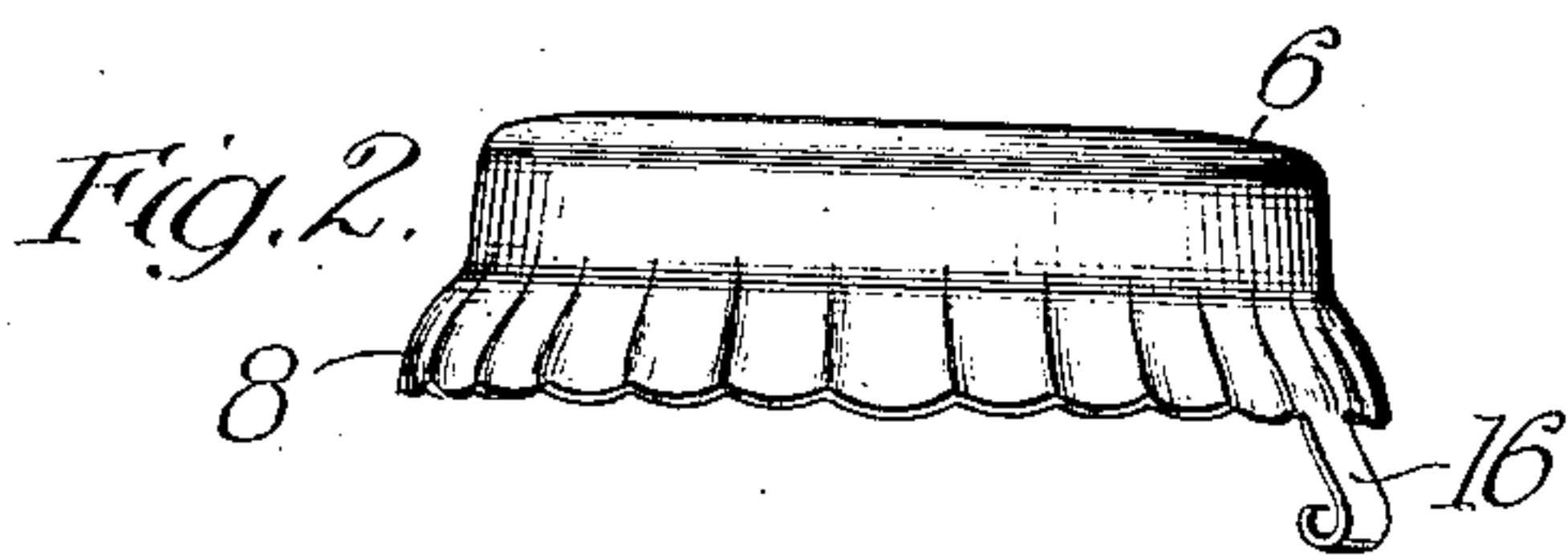
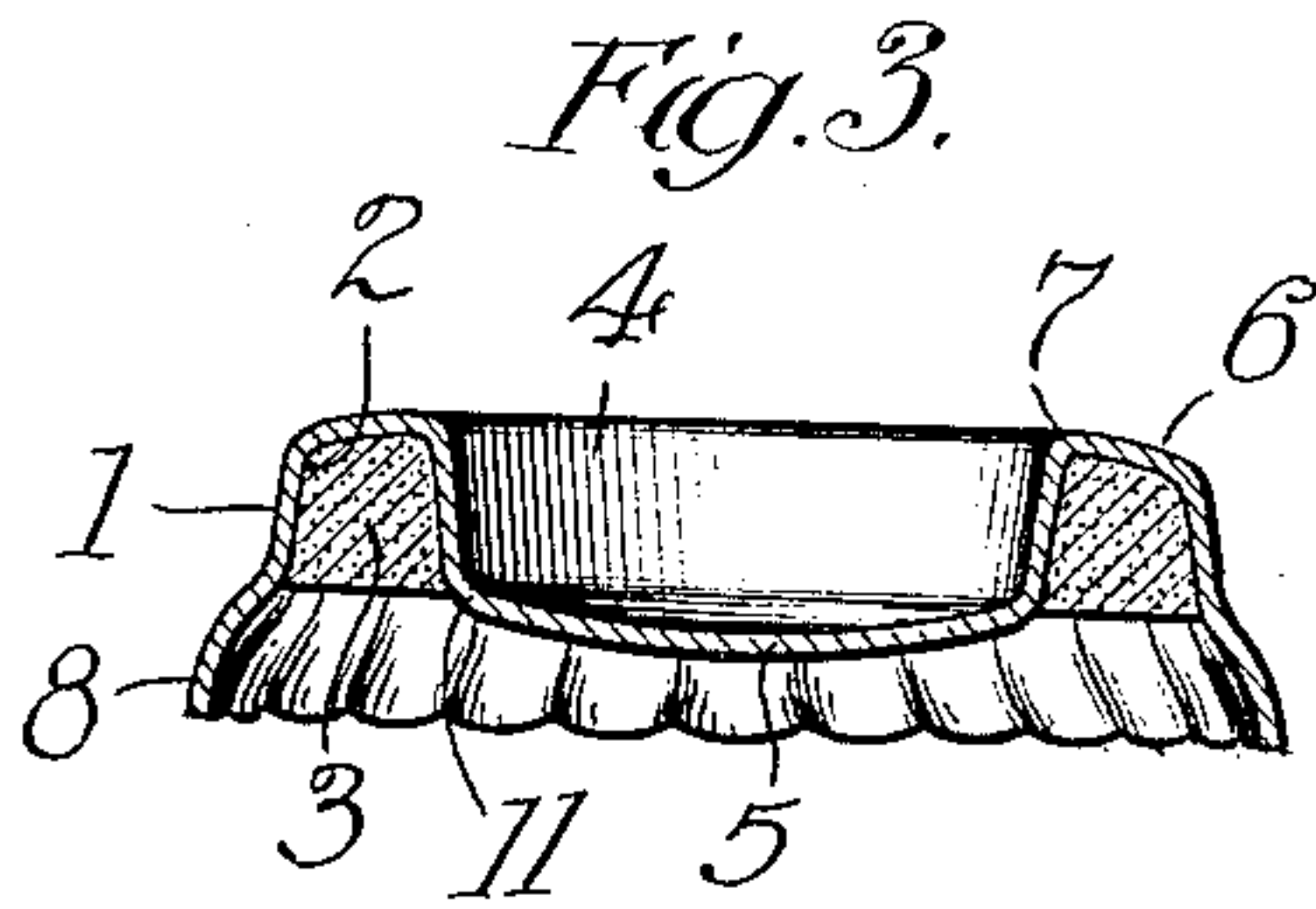
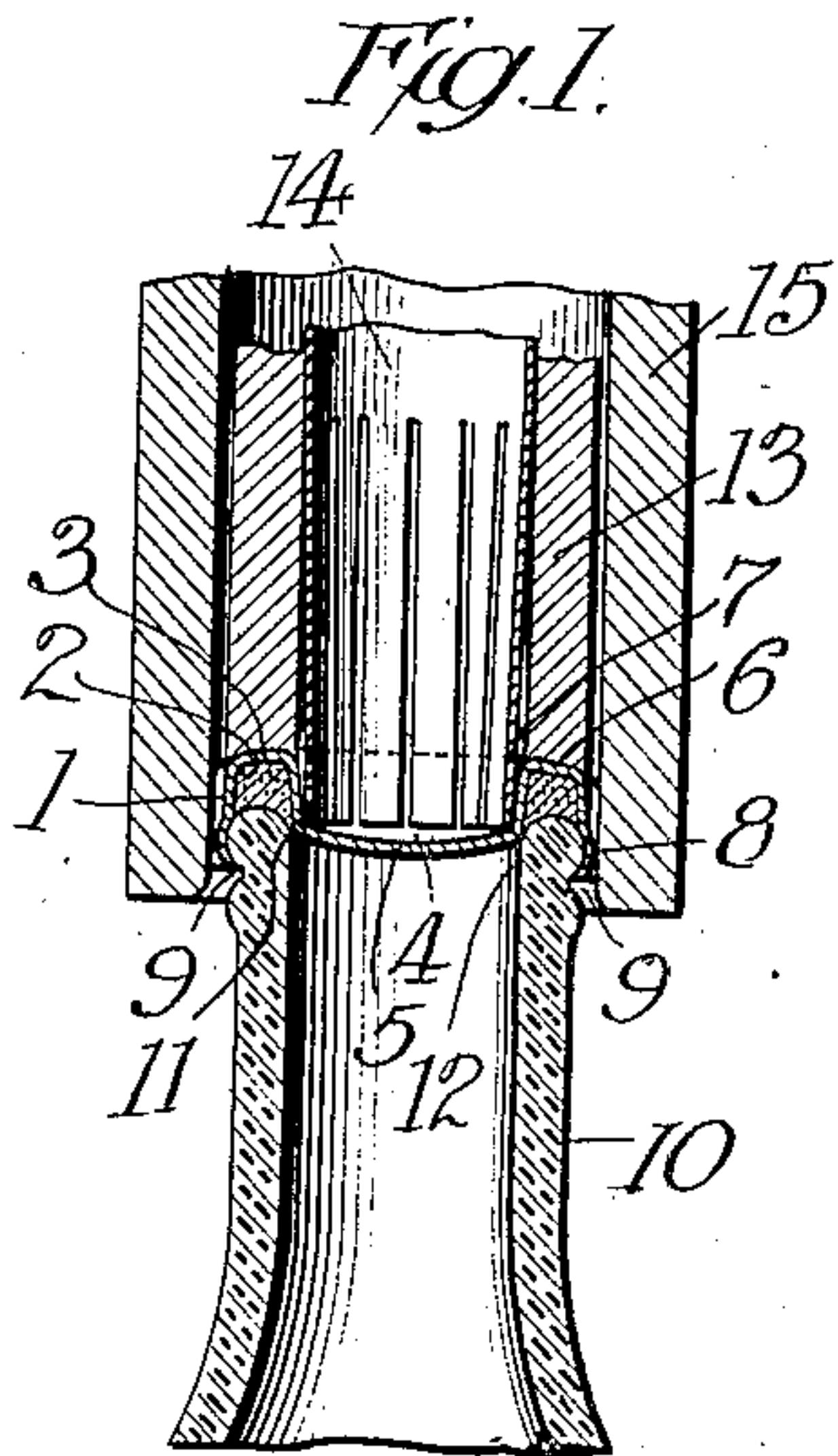


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BOTTLE CLOSURE.
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935,296.

Patented Sept. 28, 1909.



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BOTTLE-CLOSURE.

935,296.

Specification of Letters Patent.

Patented Sept. 28, 1909.

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To all whom it may concern:

Be it known that we, JOHN A. BUTKUS and JOSEPH BUTKUS, citizens of the United States, and residing, respectively, at Baltimore, in the State of Maryland, and at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bottle-Closures, of which the following is a complete specification.

This invention relates to improvements in bottle closures and more particularly to a metallic closure having a sealing medium therein adapted to be compressed squarely upon the neck of the bottle.

Heretofore in devices of this class a great deal of difficulty has been encountered by reason of the sealing medium being cut by and slipping off from the top of the bottle when the closure is being secured in place, and thereby permitting air and gases to pass the closure and destroy the contents of the bottle. It has also been found that metallic closures as heretofore constructed are easily forced off by the pressure of the gases from within the bottle. This is especially true where cases of bottles have been stacked up with each case resting on the tops of the bottles in the next lower case, which tends to spring the closures to such an extent that the locking flanges are easily forced out of their seats.

The main objects of this invention are to provide an improved bottle closure having a yielding sealing medium therein adapted to seat upon the mouth of the bottle, and which is so constructed that it is compressed both vertically and laterally in two directions so as to effectually close its pores.

It is also an object of this invention to provide a bottle closure adapted to hold the sealing medium squarely upon the neck of the bottle and prevent its slipping or rolling off when pressure is applied to the closure to secure it in place, and which will fill all of the niches or notches which may have been formed in the bottle mouth.

A further object of the invention is to provide a bottle closure so constructed that the pressure of gases from within the bottle

will tend to tighten the grip on the sealing medium, and so constructed that weight on the top thereof will tend to tighten the closure on the bottle instead of loosen it.

A specific construction embodying this invention is illustrated in the accompanying drawings, in which:

Figure 1 is a vertical section of a bottle provided with a closure embodying this invention, and a bottle sealing tool in the act of securing the closure on the bottle. Fig. 2 is an enlarged, side elevation of the closure. Fig. 3 is a central section of the same. Fig. 4 is a view similar to Fig. 3 but showing the bottom of the cup depression arched under the influence of the gas pressure. Fig. 5 is a central section of a modified form of the device. Fig. 6 is a similar view showing the closure in place.

As shown in said drawings, referring first to Figs. 1 to 4 inclusive, an aluminum closure is provided in which 1 indicates the outer wall of an inverted annular channel or seat 2 for the annular sealing medium 3 of cork or the like. The inner wall of said seat is formed by the cup shaped depression 4, the bottom 5 of which is depressed or concaved, as shown in Figs. 1 and 3. The top 6 of said seat is curved transversely and slants from its inner corner 7 downwardly and outwardly, so that said inner corner is the highest point on the closure.

Extending downwardly from the bottom of the wall 1 is the crimped locking flange 8 adapted to be locked in the groove 9 in the outer side of the bottle neck 10 and near the top thereof. Said cup shaped depression 4 is of such diameter that its lower corner 11 contacts with the throat 12 of the bottle when the closure is in place, as shown in Fig. 1, and prevents the sealing medium from slipping downwardly therepast into the bottle.

Any preferred means may be provided for attaching the closure to the bottle, but, as shown, the tool 9 of a bottle sealing machine is employed, which comprises a cylinder 13 adapted to engage the top of the channel 2 directly above the bottle neck and force the closure into place, a split expanding cyl-

inder 14 adapted to fit within the cup 4 and expand the same into contact with the bottle throat, and a crimping cylinder 15 adapted to fit over the flange 8 and force it into the groove 9.

Both the internal and the external dimensions of the necks of a given size of bottles vary in size, and it oftentimes happens with the closures as heretofore constructed that there is not enough metal in the locking flange to enter the groove 9 a sufficient distance to secure the closure properly in place. This difficulty is obviated by this invention, by means of the curvature of the top 6 of the channel which permits the metal to yield slightly either inwardly or outwardly, so that should there not be enough metal in the locking flange to enter the locking groove 9, it will be drawn over by the crimping cylinder, thereby reducing the curvature on the top of the channel, or should there be too much metal it will yield inwardly under the influence of the expanding cylinder. Likewise if the throat 12 of the bottle varies in size the concaved bottom of the cup will yield and permit the corner 11 of the depression to be spread into contact with the throat of the bottle, or to be contracted to enter said throat. The sealing medium 3 is compressed laterally both inwardly and outwardly by the sides 1 and 4 of the channel, and downwardly by the top 6 of the channel, and is held squarely upon the mouth of the bottle.

The force of the gases on the depressed bottom 5 tends to straighten it and as a consequence the corner 11 is forced more tightly against the bottle throat. If the pressure should be sufficient to reverse the curvature of said bottom, as shown in Fig. 3, it will only tend to throw the top of the channel outwardly and thereby force the locking flange more firmly into its seat.

If preferred an integral releasing tongue 16 of metal may extend downwardly from the flange 8, and its lower end is turned inwardly to receive a nail or other object which may be secured thereto, and when an upward pull is exerted thereon acts to release the closure.

In the construction shown in Figs. 5 and 6 the cap of the closure is constructed of tin or other corrosive metal which must be protected from contact with the contents of the bottle, and for this purpose the sealing medium is constructed in the form of a disk 17 which extends across the entire inner surface of the cap. The channel 18 has the same general contour as the channel 2 but is not as deep and is broader at its mouth so that the cup depression 19 does not contact with the throat of the bottle, and the bottom 20 of the depression is straight. In this construc-

tion when the closure is forced into the bottle the outer wall of the channel, which inclines or curves inwardly and upwardly at its top, first engages the edge of the disk and draws it over the top of the bottle, as shown at 21 in Fig. 6, and then the corner 22 of the cup depression forces the disk slightly into the throat of the bottle and binds it securely thereagainst. The outer edge of the disk is thereby forced into the channel and is prevented from rolling or slipping off from the mouth of the bottle.

In either of the constructions shown the high corner 7 of the channel will receive the weight of cases of bottles piled thereon, and if the metal yields the cup depression will be forced farther into the bottle and the locking flange will be drawn tighter against the bottle, while the metal in the top of the channel will be drawn inwardly.

Obviously a bottle closure constructed in accordance with this invention is adapted to prevent the sealing medium from slipping off the mouth of the bottle and to firmly compress the medium simultaneously from both sides and downwardly, so that its pores are entirely closed and any chipped or notched places in the mouth of the bottle are entirely filled, obviously also many details of form and construction may be varied without departing from the principles of this invention.

We claim as our invention:

1. A bottle closure comprising an external locking flange, and an internal cup depression having its side wall extending above the upper edge of the flange, and a sealing medium held therebetween.

2. A bottle closure comprising a sealing medium, a channel therefor having inner and outer walls adapted to compress said sealing medium laterally in opposite directions, and a transversely curved, downwardly and laterally inclined top adapted to compress the sealing medium downwardly, and a crimped locking flange extending downwardly from the outer wall.

3. A bottle closure comprising an inverted channel downwardly and laterally slanting top, a sealing medium therein, a locking flange extending downwardly from the outer wall, and means connected with the inner wall adapted to force the lower margin against the throat of the bottle.

4. A bottle closure comprising a sealing medium, means adapted to compress said medium laterally in opposite directions and vertically, a locking flange on said means adapted to lock to the outer surface of the bottle neck and means adapted to tighten the grip of the flange on the bottle when weight is applied to the closure.

5. A bottle closure comprising a cup adapt-

ed to enter the mouth of a bottle, a channel
on the outer side thereof having a down-
wardly and outwardly inclined top, a sealing
medium in said channel adapted to seat on
5 the top of the bottle neck, and a crimped
locking flange extending downwardly from
the outer side of said channel.

6. A bottle closure comprising an annular
channel having the inner side thereof higher
10 than the outer side, a locking flange extend-
ing downwardly from the outer side of said
channel, a sealing medium adapted to be
compressed in said channel, and a bottom

member connected to the lower edge of the
inner wall of said channel.

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In testimony whereof we have hereunto
subscribed our names in the presence of wit-
nesses.

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