

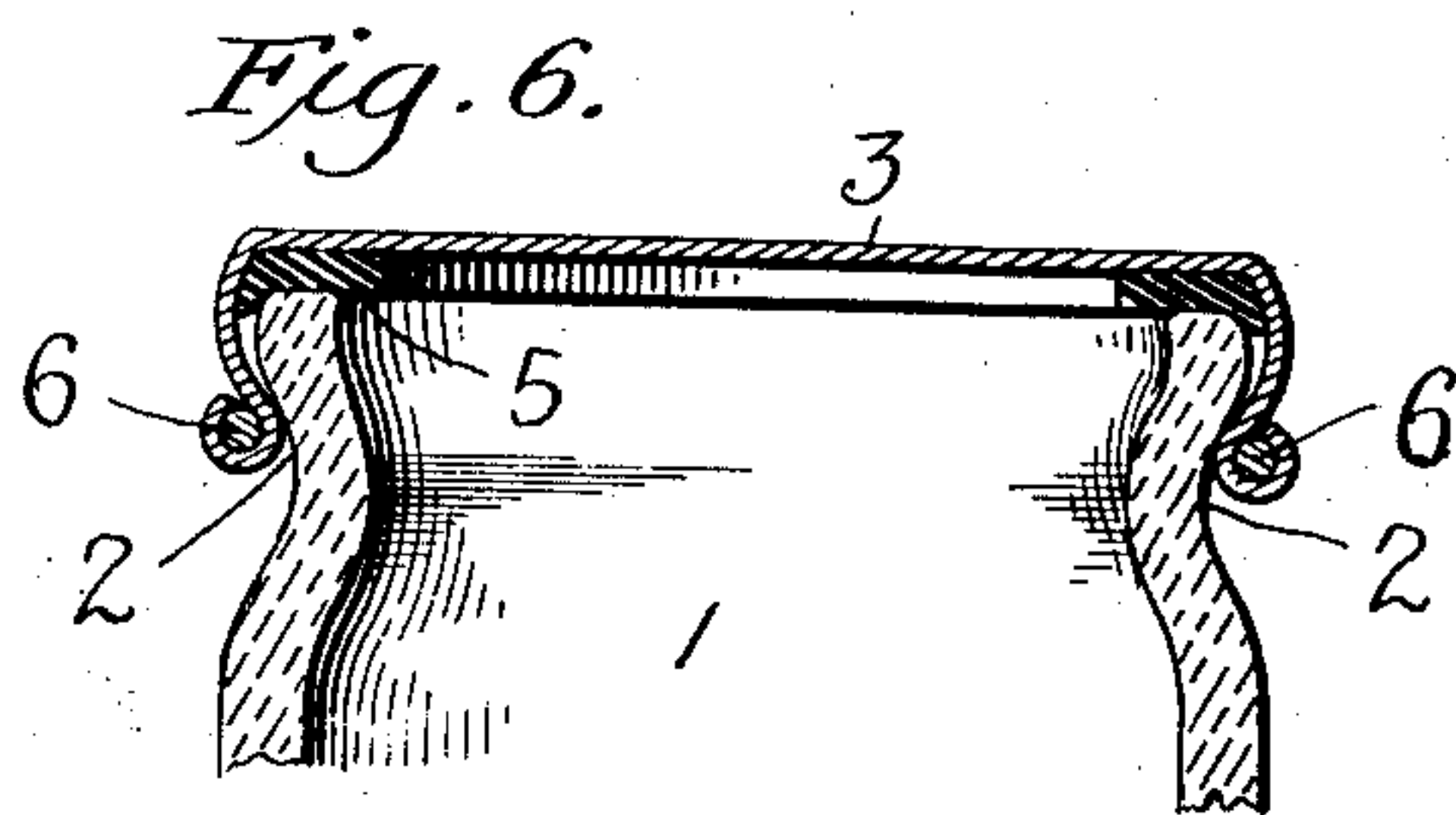
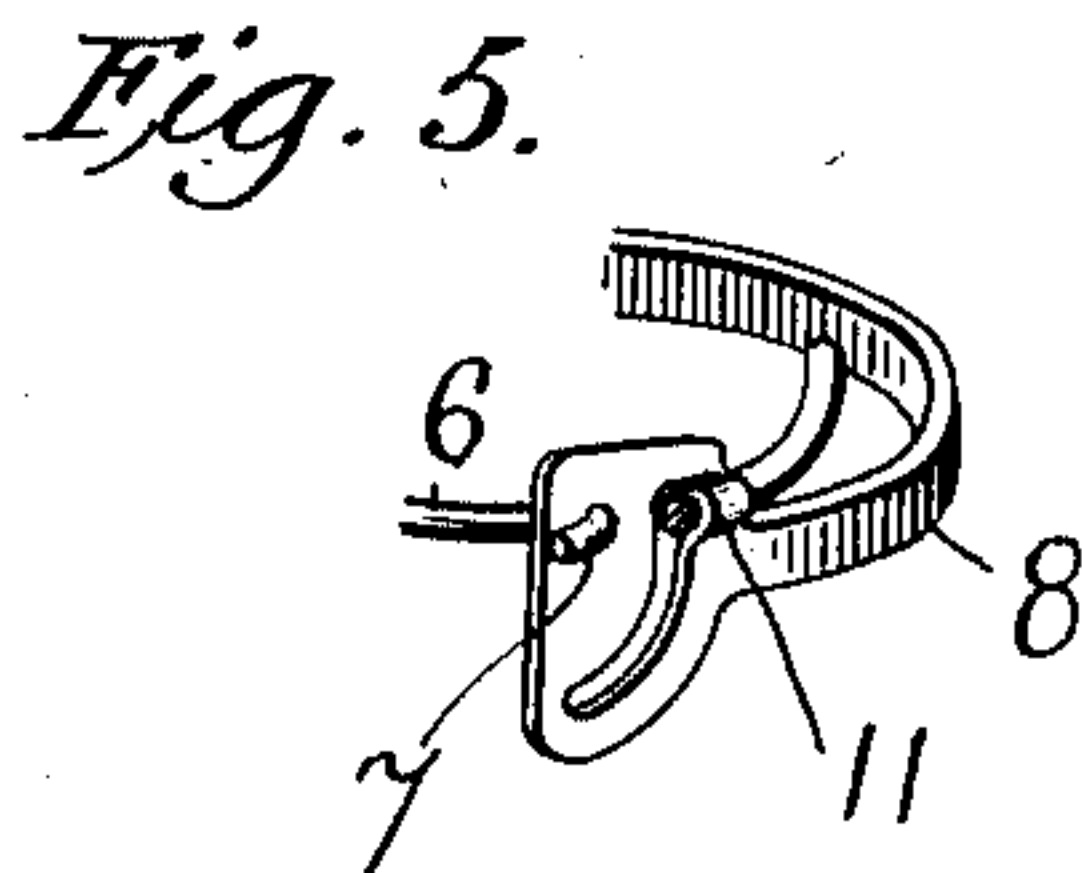
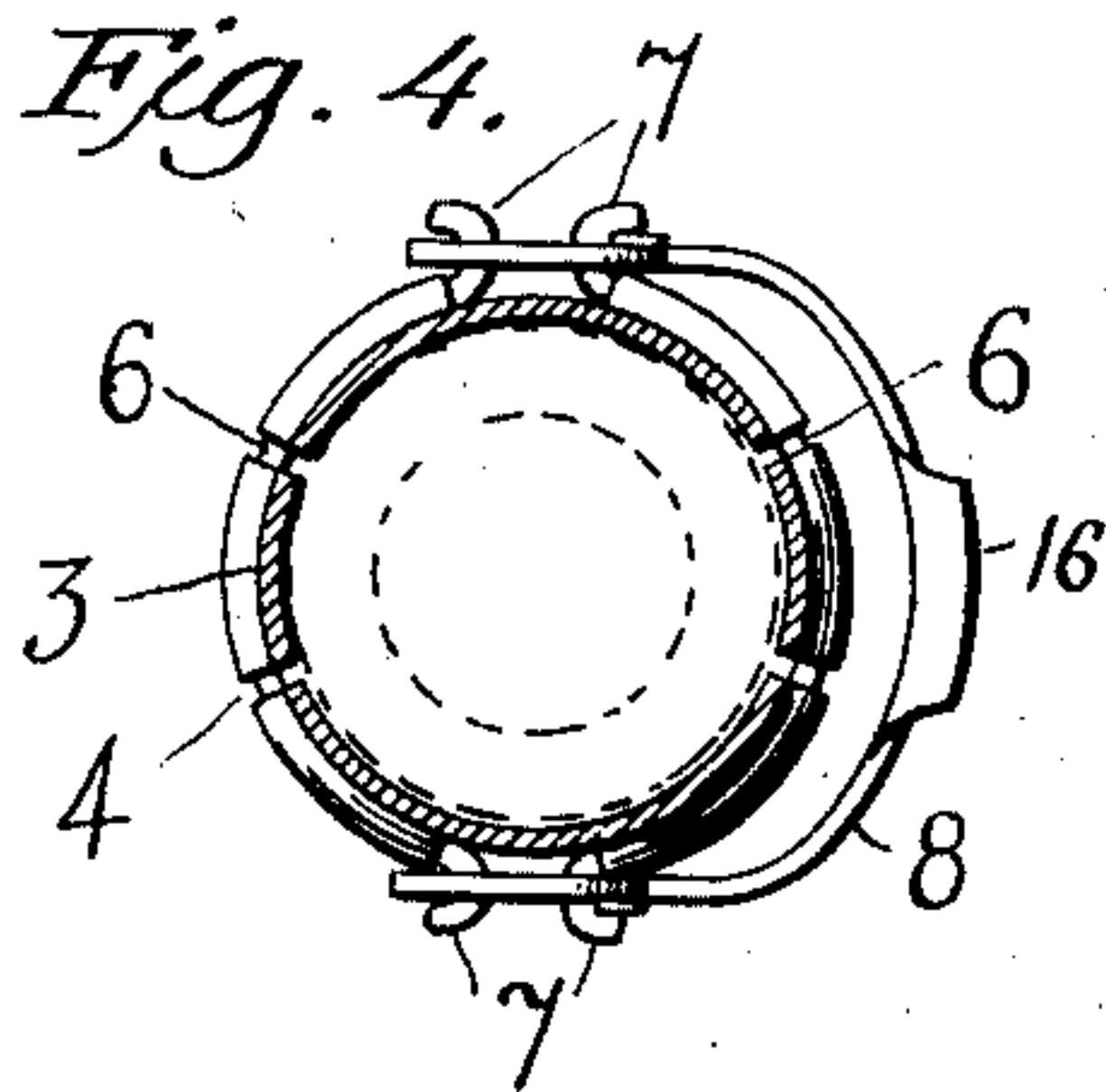
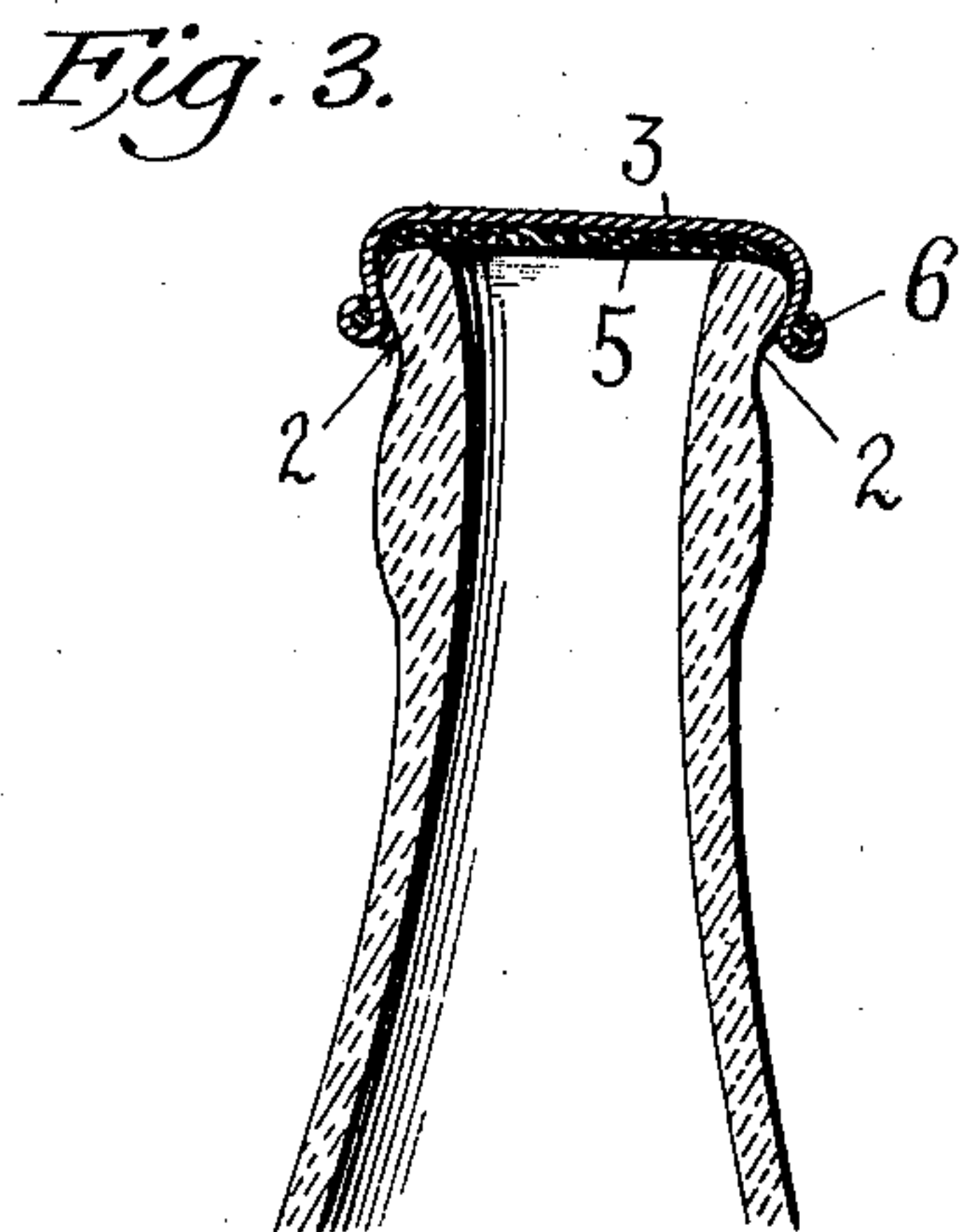
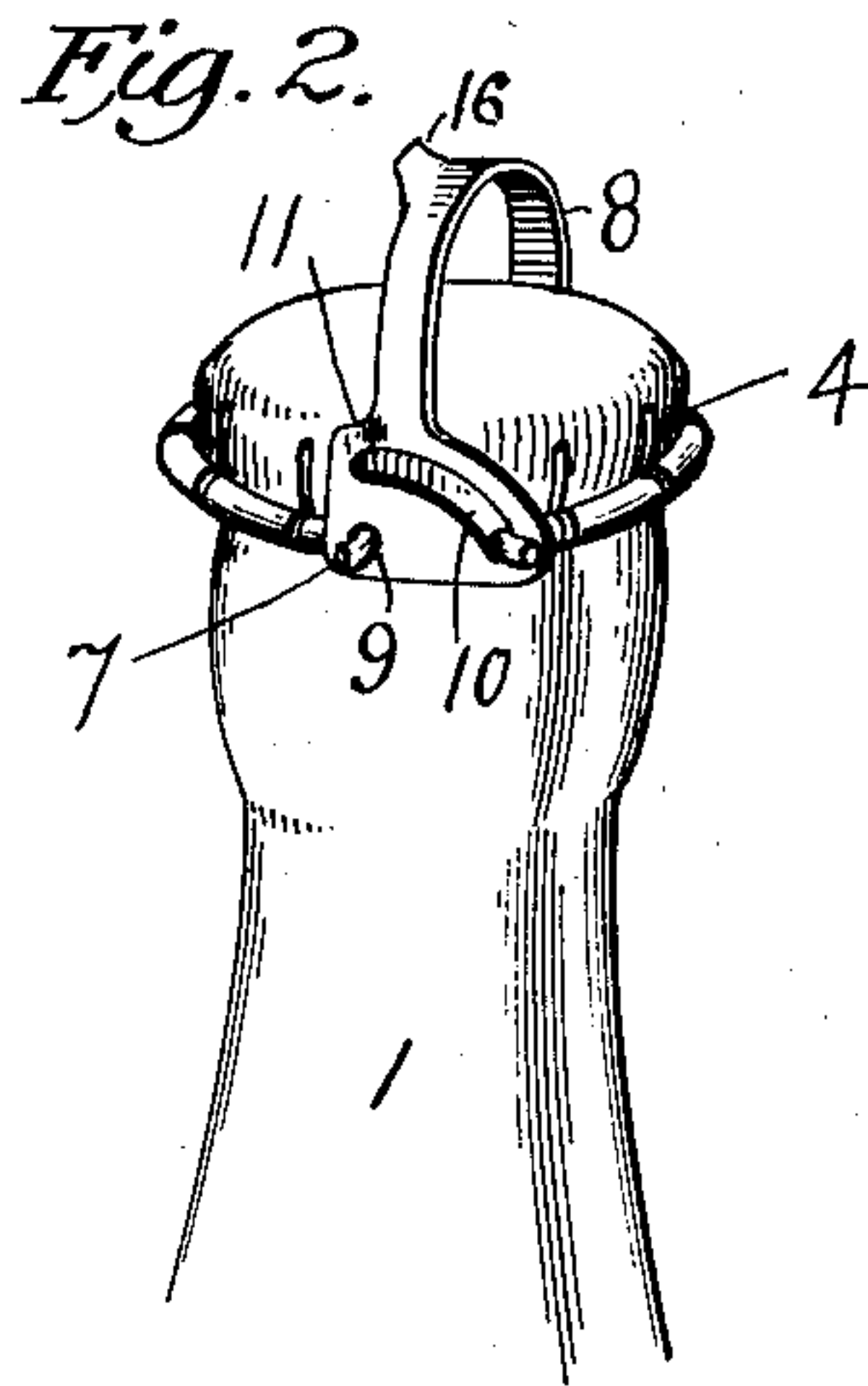
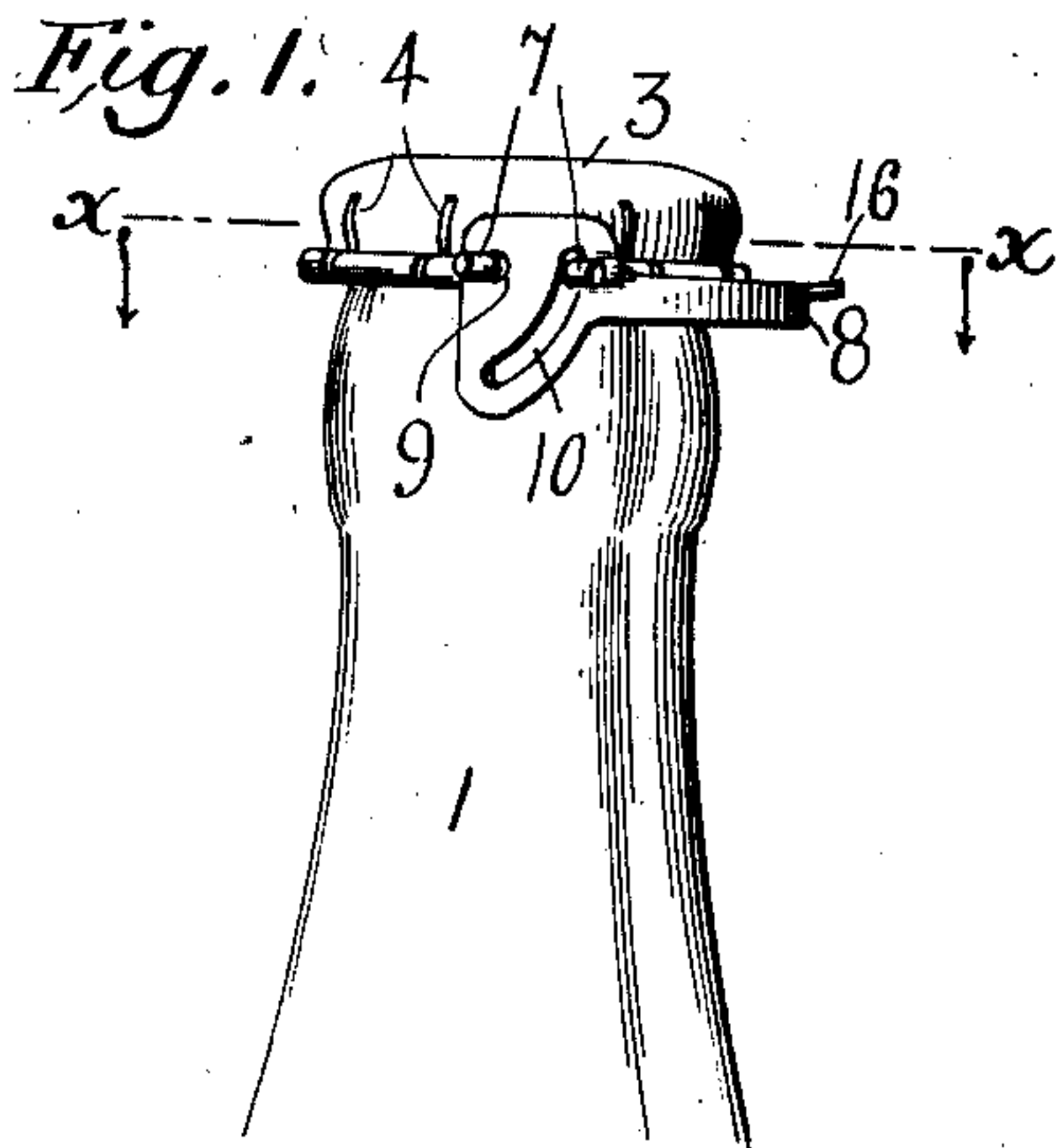
No. 883,544.

PATENTED MAR. 31, 1908.

G. KIRKEGAARD & F. JEBSEN.

BOTTLE STOPPER.

APPLICATION FILED APR. 15, 1904.



Witnesses  
James F. Duhamel  
Waldo M. Chapin

Inventors  
G. Kirkegaard & F. Jepsen  
By their Attorney  
W. A. Rasmussen



# UNITED STATES PATENT OFFICE.

GEORG KIRKEGAARD AND FRIDTJOF JEBSEN, OF NEW YORK, N. Y.

## BOTTLE-STOPPER.

No. 883,544.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed April 15, 1904. Serial No. 203,256.

*To all whom it may concern:*

Be it known that we, GEORG KIRKEGAARD and FRIDTJOF JEBSEN, a citizen of the United States, and subject of the King of Norway and Sweden, respectively, residing at the city of New York, in the boroughs of Brooklyn and Manhattan, respectively, and State of New York, have invented certain new and useful Improvements in Bottle-  
10 Stoppers, of which the following is a full, clear, and exact description.

This invention relates to means for closing and hermetically sealing bottles, jars and other similar packages and is an improve-  
15 ment upon the invention described in an application filed by G. Kirkegaard, December 16, 1903, Serial No. 185,338. In the application referred to a stopper is described consisting of a metal cap containing a disk of  
20 packing material and having a flexible edge adapted to pass over the outside of the mouth of a bottle, said edge being provided with a flange above which is seated an open clamping ring, the ends of which are engaged  
25 by an eccentric wrench whose function is to contract the ring upon the edge of the cap to hold the latter upon the bottle. The bottle to which such a cap is adapted is provided with an annular, inwardly-inclined, exterior  
30 shoulder, against which the edge of the cap is forced when it is contracted by the wrench, such operation causing the edge of the cap to not only move inward, but to slide downward upon said inclined shoulder to thereby com-  
35 press the disk of packing material between the cap and the edge of the mouth of the bottle. The present invention is an improvement upon this device, consisting in the manner of connecting the clamping ring  
40 with the edges of the cap and in the construction of the wrench for tightening and loosening the ring.

In the first feature of improvement, the clamping ring instead of being placed above  
45 the bead or flange upon the base of the cap, is located within the said bead, so that it cannot be readily detached from the cap and also so that its working position can be more accurately fixed in the manufacture of  
50 the cap.

The improvement in the wrench consists in making it double-ended, by providing eccentric devices at each end of a strap or  
55 bail and engaging it at two opposite points with the clamping ring, which for this purpose, instead of being open at one point

only, is open at two diametrically opposite points, the clamping ring being thus made in two semicircular parts. The double-ended wrench serves to draw the opposed extremi-  
60 ties of the ring together or separate them. The wrench being in the form of a bail is less prominent and more attractive to the eye when in its closed position, than the single wrench described in the previous application  
65 and when in its open position it serves as a handle or loop by which the cap can be readily withdrawn from the bottle.

The invention will be described in detail with reference to the accompanying draw-  
70 ing, in which:

Figure 1 is a side elevation of the neck of a bottle with the improved cap applied there-  
to in the closed position; Fig. 2 is a perspec-  
75 tive view showing the parts of the cap in the open or loose condition; Fig. 3 is a vertical section through the neck of the bottle and the cap; Fig. 4 is a section on line  $x-x$  of Fig. 1; Fig. 5 is a detail perspective, and Fig. 6 is  
80 a vertical section of the mouth of a jar to which the improved cap is applicable and upon which the cap is shown.

1 indicates the neck of the bottle, which for the purposes of this sealing device, is provided with an external, inwardly-inclined,  
85 annular shoulder 2 immediately below the mouth of the bottle.

3 is a metallic cap having a depending flange, preferably slitted vertically at various points indicated at 4 and provided with an  
90 internal disk or ring 5 of packing material, which when the cap is in place upon the bottle is interposed between the cap and the edge of the bottle.

6 indicates a clamping ring made prefer-  
95 ably in two semicircular parts or halves; it is attached to the extreme edge of the depending portions of the cap by curling said edge around it, the curled edge thus forming a tubular housing for the ring. The two  
100 parts of the ring terminate in hooks 7 arranged opposite each other in pairs and projecting laterally from the tubular edge of the cap.

8 is a double-ended wrench and handle con-  
105 sisting of a strap in the form of a bail having an enlargement at each end containing two openings, one being a small circular perforation 9 and the other being a slot 10 arranged  
110 eccentrically to said perforation. At each end, the perforation 9 engages one of the hooks 7, while the slot 10 engages the adja-



cent corresponding hook, while a similar engagement is made between the perforation and slot of the lever and the hooks 7 on the opposite side of the cap. At the middle point of the bail it is furnished with a turned-over lip 16 which serves as a thumb-piece in manipulating the device. Near one end of each of the slots 10 the metal of the lever is offset, as shown at 11, to furnish a seat for the ring which serves as a latch to hold the device in its locked position.

The operation of closing and opening the stopper is as follows: The bail 8 is raised to the position shown in Fig. 2, in which position the edge of the cap is expanded and it can therefore be easily passed over the mouth of the bottle. When thus placed in position, the bail is pushed by means of the thumb or otherwise, into a horizontal position, as shown in Fig. 1, the hooks in the eccentric slots being thereby caused to travel to that end of the respective slots nearest to the corresponding perforations 9, which draws the two halves of the ring towards each other and exerts a clamping or contracting force upon the edge of the cap, within which the ring is securely housed. In thus tightening the ring, the edge of the cap is forced against the external, inwardly-inclined shoulder 2 on the bottle and naturally seeks to travel towards the bottom of said incline. This, therefore, causes the top of the cap to be drawn downward and compress the packing against the edge around the mouth of the bottle to form a hermetical seal. When the bail reaches its horizontal or closed position, shown in Fig. 1, the clamping ring falls into the seat 11 at each end of the bail and prevents any tendency of the bail to return to the open position, unless the normal force required to lift the bail is exerted.

By putting the clamping ring inside of the curled edge of the cap, it is prevented from becoming detached from the cap and the pressure exerted by the ring is applied to the extreme edge, a shorter incline on the bottle being thus possible.

The method of opening the bottle is obviously that of simply lifting the bail to the position shown in Fig. 2, which causes the hooks 7 to separate and free the edge of the cap; then by passing the finger under the bail, the cap can be readily pulled from the bottle.

Having described our invention, we claim:—

1. A bottle or jar stopper comprising a metallic cap having a depending edge terminating in a curled tubular formation, an open clamping ring housed within said curled tubular formation and an eccentric wrench applied to the ends of said ring, for the purpose set forth.

2. The combination of a bottle or jar having an inwardly-inclined, annular, exterior

shoulder below its mouth, a cap adapted to fit over the mouth of the bottle or jar and having a curled tubular edge opposed to said shoulder and also containing a packing material, an open clamping ring housed within said tubular edge and means for contracting said ring to force said edge against the annular shoulder and cause it to travel inwardly and downwardly along the same.

3. A bottle or jar stopper comprising a metallic cap having a flexible edge, a ring in two parts embracing said edge and a bail-shaped lever having two openings at each end, one of which is eccentric to the other, said openings respectively engaging the extremities of the parts of said ring, substantially as described.

4. A bottle or jar stopper comprising a metallic cap having a flexible edge terminating in a curled, tubular formation, a two-part clamping ring housed within said curled, tubular formation, the extremities of said ring projecting laterally from said formation and a bail-shaped lever engaging the projecting ends of the ring and having an eccentric formation by which said ends can be drawn together or separated.

5. A bottle or jar stopper comprising a cap in combination with a clamping ring surrounding said cap and inseparably secured thereto and a cam lever or wrench applied to the ends of said ring, for the purpose set forth.

6. A bottle or jar stopper comprising a metallic cap in combination with a clamping ring permanently secured to the lower edge of said cap and a cam lever or wrench permanently engaging the ends of said clamping ring, for the purpose set forth.

7. A bottle or jar stopper comprising a metallic cap in combination with a clamping ring surrounding said cap and permanently secured thereto and a cam lever or wrench applied to said ring and adapted for lifting the cap from the bottle.

8. A bottle or jar stopper comprising a cap in combination with a clamping ring surrounding said cap and inseparably secured thereto, and a cam-lever or wrench for contracting and expanding said ring.

9. A bottle or jar stopper comprising a metallic cap in combination with a clamping ring permanently secured to the lower edge of said cap, and a cam-lever or wrench for contracting and expanding said ring.

10. A bottle or jar stopper comprising a metallic cap in combination with a clamping ring permanently secured to the lower edge of said cap, and a cam-lever or wrench permanently embracing the ends of said clamping ring and adapted to contract and expand the said ring.

11. A bottle or jar stopper or closure comprising a metallic cap containing packing material, in combination with a clamping ring



surrounding said cap and a cam-lever or wrench for contracting and expanding said ring and for lifting the cap from the bottle.

12. A bottle or jar stopper comprising a 5 metallic cap containing packing material, an open or divided clamping ring surrounding said cap at a point below the mouth of the bottle or jar and having projecting ends, and a cam-lever or wrench engaging with and 10 permanently retained by said projecting ends and adapted to cause them to approach and recede from each other according as the said lever is moved in one or the other direction.

13. In a bottle or jar stopper, the combination with a metallic cap or crown having 15 pendent fingers of an open or divided clamping ring surrounding the same and attached to said fingers, and an operating lever in the form of a bail having a pivotal bearing at 20 each side of the cap or crown and provided with means for contracting and expanding said ring and the pendent fingers attached thereto, said bail having an enlarged central portion that is turned up or folded so as to 25 provide a suitable grip for the fingers or hand.

14. The combination with a bottle having an inwardly inclined, annular exterior surface below its mouth, of a metallic cap adapted to fit over the mouth of the bottle and 30 having a yielding edge opposed to said surface, an open clamping ring engaging said edge and an eccentric wrench engaging the ends of the ring to force said edge against the annular surface and cause it to travel inwardly and downwardly along the same 35 when the ring is contracted by the movement of the wrench in one direction, and to force said edge away from said annular surface so as to release its hold upon the same 40 and to remove the cap from the bottle when the wrench is moved in the reverse direction, substantially as described.

15. A bottle or jar stopper comprising a metallic cap containing a packing material 45 and having a yielding or flexible edge bounded by a bead or flange, in combination with an open ring secured within said bead or flange, and a wrench or cam-lever having eccentric slots adapted to engage the ends of 50 said ring, substantially as described.

16. A bottle or jar stopper comprising a metallic cap containing packing material, in combination with a clamping ring surrounding said cap and inseparably secured thereto, 55 and a cam-lever or wrench for contracting and expanding said ring.

17. A bottle or jar stopper comprising a metallic cap containing packing material, in combination with a clamping ring permanently secured to the lower edge of said cap, 60 and a cam-lever or wrench for contracting and expanding said ring.

18. A bottle or jar stopper comprising a metallic cap containing packing material, in 65 combination with a clamping ring permanently

secured to the lower edge of said cap, and a cam-lever or wrench permanently retained by and embracing the ends of said clamping ring and adapted to contract and expand the said ring.

19. A bottle stopper comprising a soft 70 metallic crown or cap; an open wire ring embracing the lower edge of said crown or cap and held in position thereby, and a cam-lever or wrench engaging the ends of said 75 ring and forming a permanent part of the stopper, said lever or wrench when moved in one direction, contracting said ring and thereby causing said crown or cap to seal the bottle, and when moved in the opposite 80 direction, expanding said ring and with it the soft metal crown or cap, and also with the same motion lifting or removing the same from the bottle.

20. A bottle stopper comprising a soft 85 metal cap or crown having its flange portion slotted so as to form independent yielding fingers having their lower edges turned up to form one or more retaining grooves, an open clamping ring embraced within and retained 90 in place by said groove or grooves, and means for contracting and expanding the ring and for maintaining it in its contracted and expanded condition, respectively.

21. A bottle stopper or seal comprising a 95 soft metal cap or crown having a retaining bead formed in its lower edge, said cap or crown containing a packing disk, an open or divided wire ring inclosed within said retaining bead or beads formed in the lower edge 100 of said cap or crown, and a cam-lever or wrench forming a permanent and inseparable part of said stopper or seal and having eccentric bearing surfaces to forcibly open and close said ring. 105

22. A bottle or jar stopper comprising a metallic cap adapted to engage a flange or lip surrounding the mouth of a bottle, in combination with a clamping ring permanently secured to and surrounding said cap, 110 and a cam-lever or wrench to contract and expand said ring and cap and to lift the same from the bottle when expanded.

23. A bottle or jar stopper comprising a yielding cap adapted to engage a flange or lip 115 surrounding the mouth of a bottle, combined with means for alternately contracting and expanding said cap, said means being combined with and forming a permanent part of the stopper. 120

24. A bottle or jar stopper comprising a yielding cap containing packing material and adapted to engage a flange or lip surrounding the mouth of a bottle or other vessel, combined with means for alternately contracting 125 and expanding said cap and for removing the same from the bottle, said means being combined with and forming a permanent part of the stopper.

25. A bottle stopper or seal comprising a 130



yielding soft metal cap adapted to engage a flange, lip or recess surrounding the mouth of a bottle, means combined with and forming part of said stopper or seal for alternately  
5 contracting and expanding said cap and a stop for locking said cap in its contracted condition.

26. As a new article of manufacture, a bottle seal or stopper comprising a metal cap  
10 or crown having a tightening ring permanently secured to the lower edge thereof, and

a cam-lever mounted upon the ends of said ring and thereby permanently secured to the seal or stopper so as to form an inseparable part thereof, substantially as described. 15

In witness whereof, we subscribe our signatures, in presence of two witnesses.

GEORG KIRKEGAARD.  
FRIDTJOF JEBSEN.

Witnesses:

FRANK S. OBER,  
WALDO M. CHAPIN.