

No. 862,308.

PATENTED AUG. 6, 1907.

F. W. H. CLAY.
BOTTLE CLOSURE.
APPLICATION FILED JAN. 11, 1907.

Fig. 1.

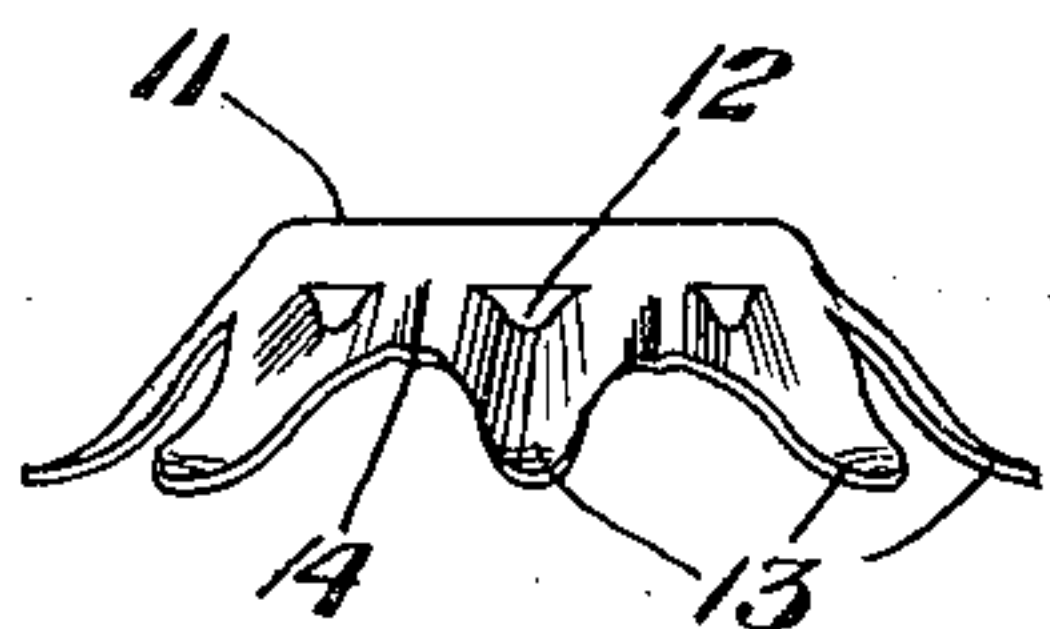


Fig. 3.

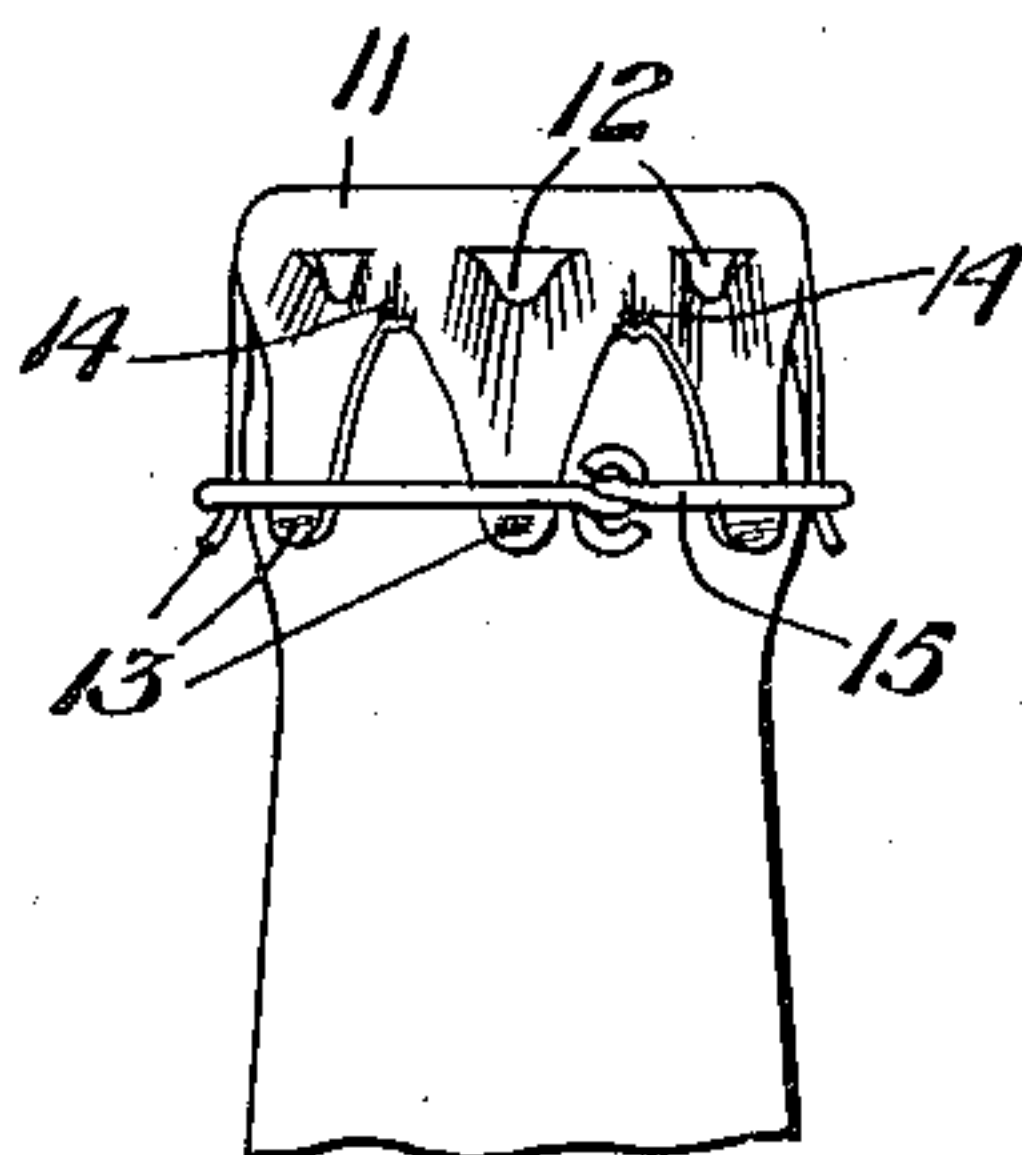


Fig. 4.

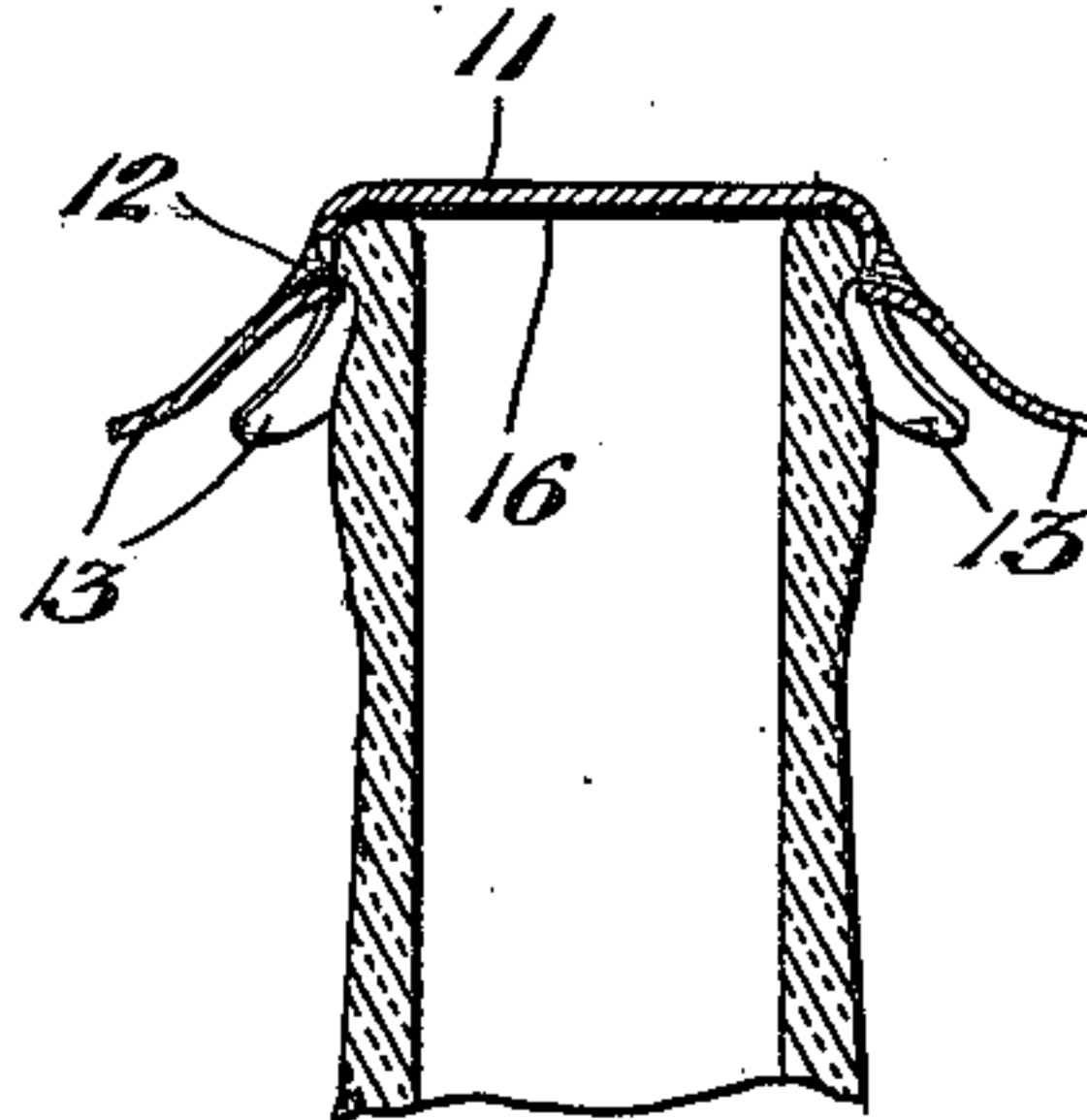


Fig. 2.

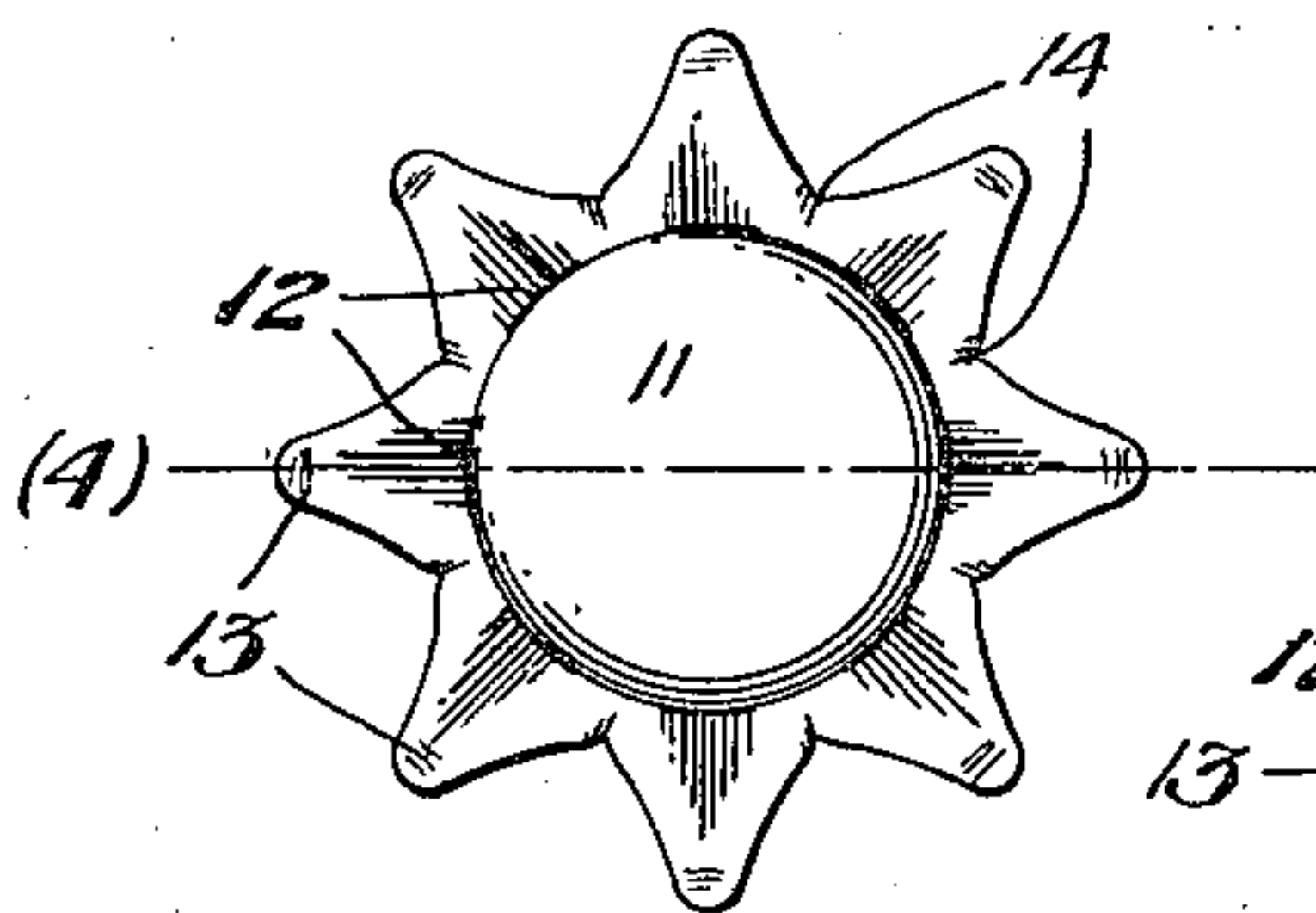


Fig. 5.

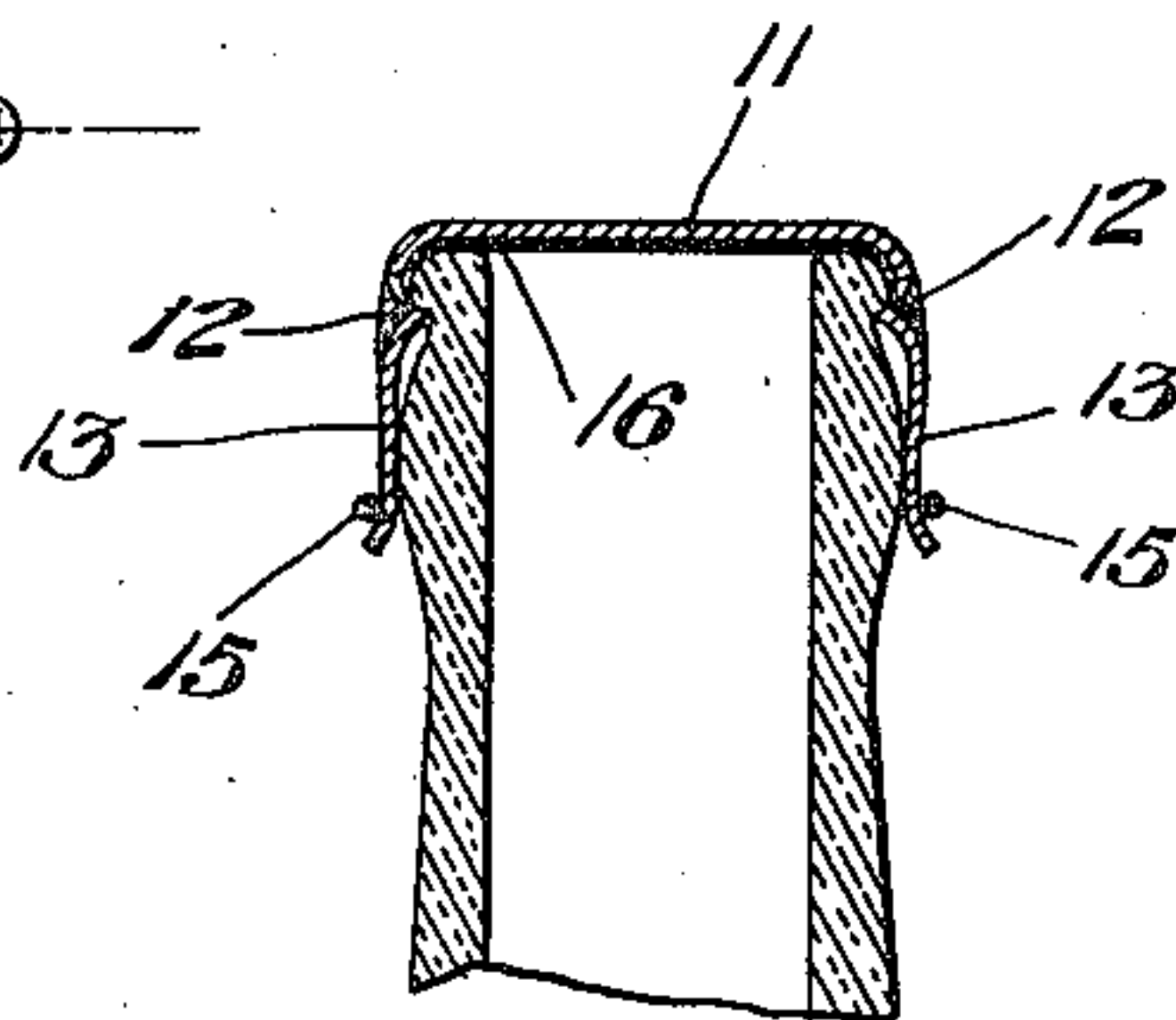


Fig. 6.

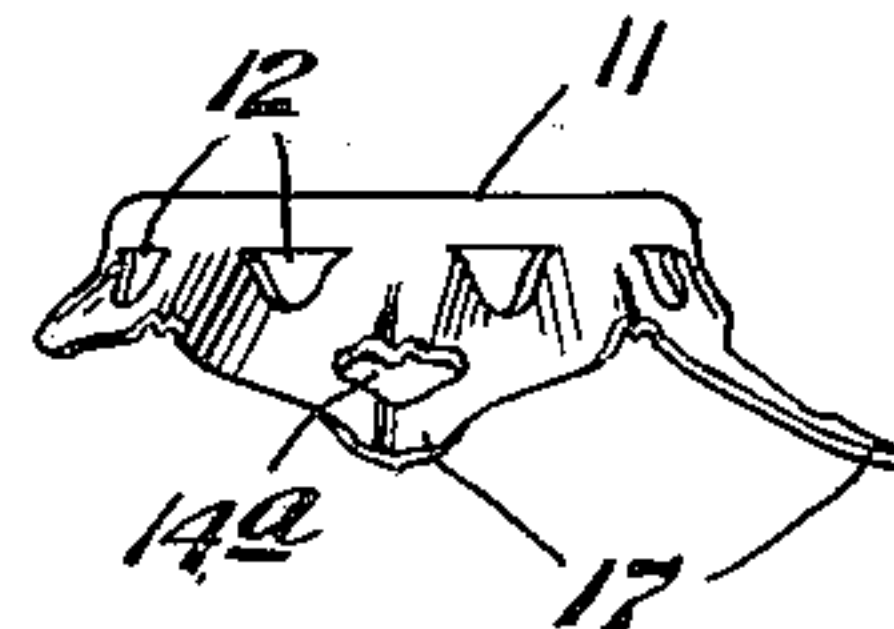


Fig. 9.

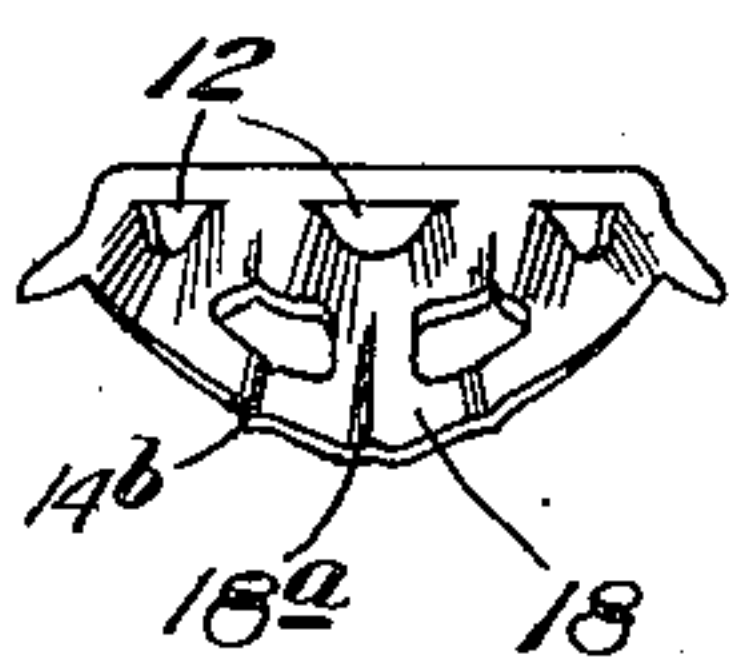


Fig. 7.

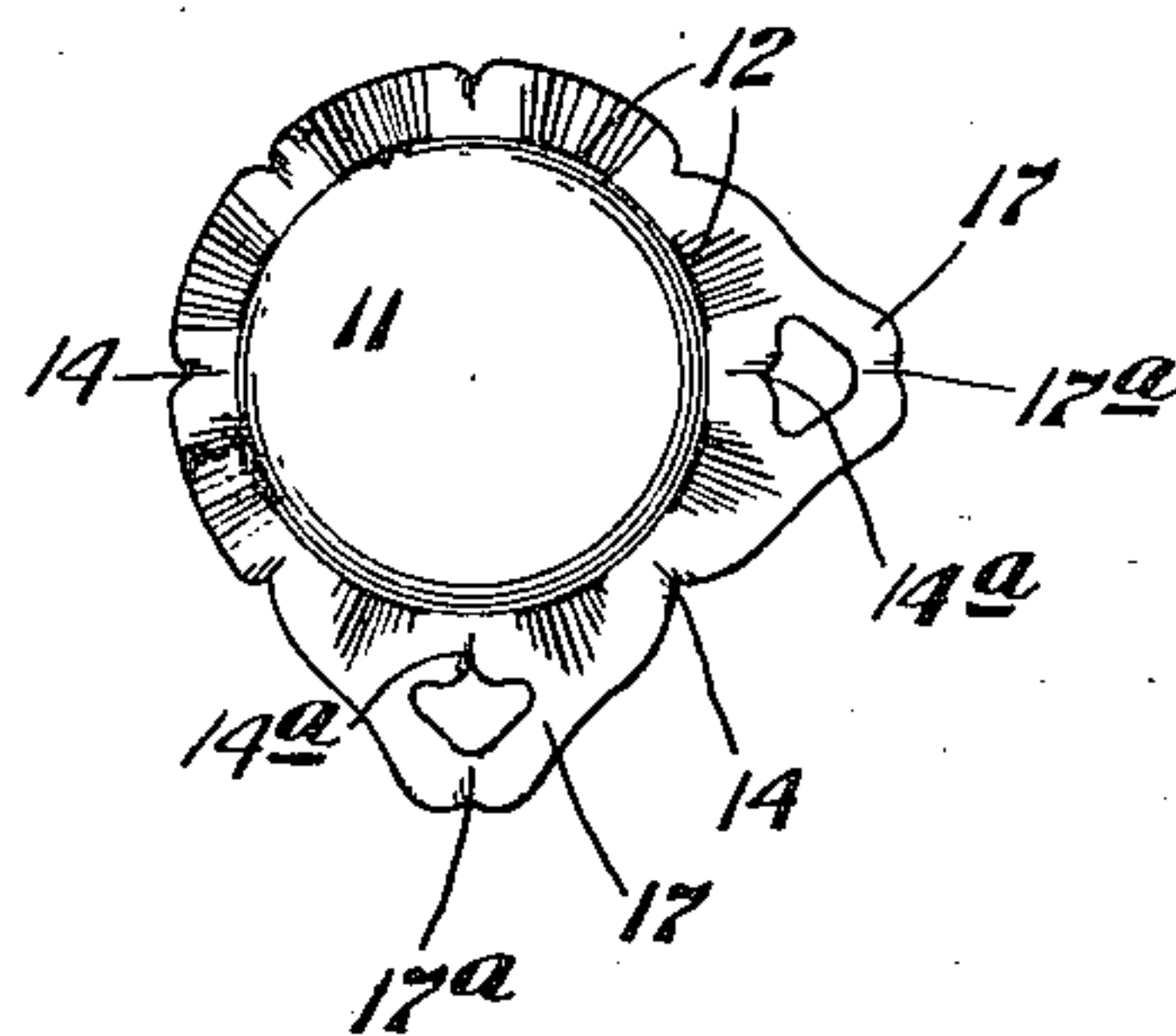


Fig. 8.

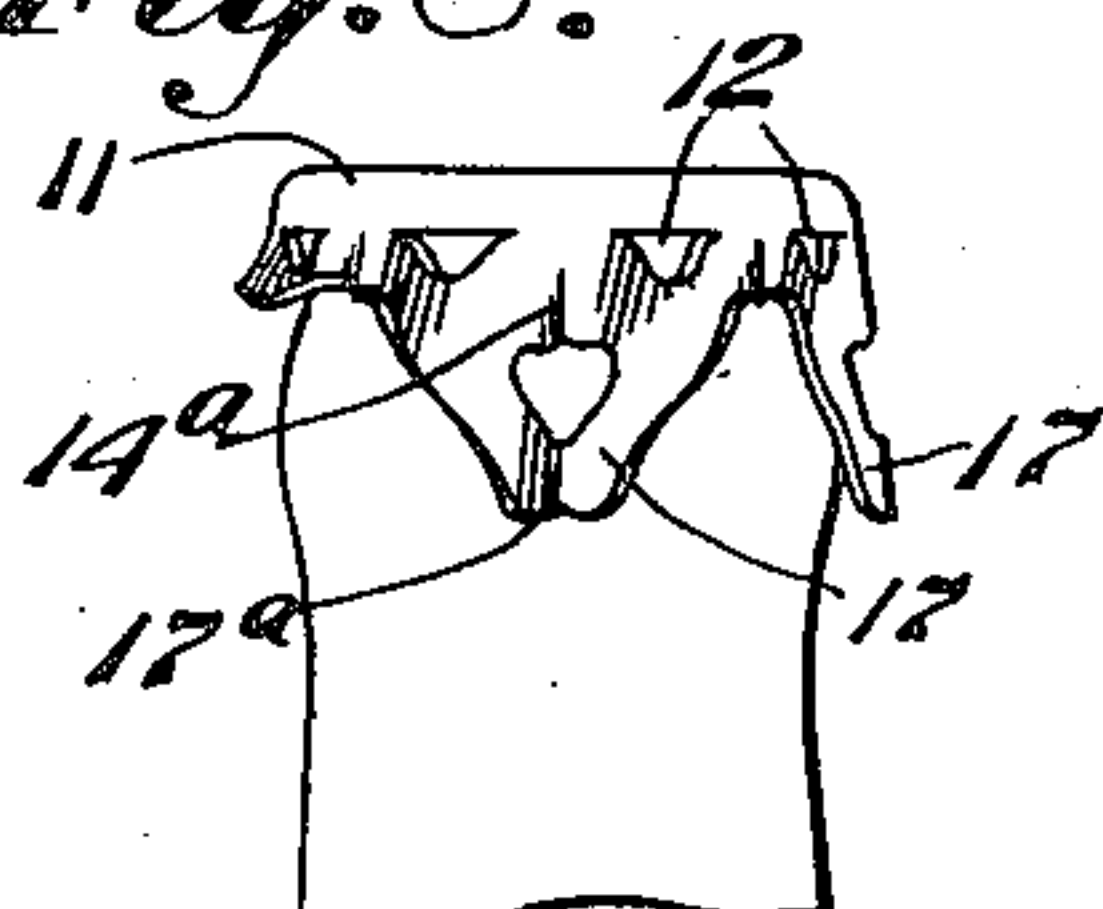
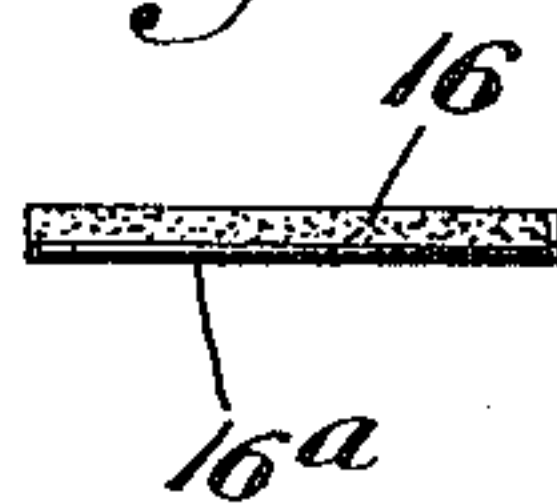


Fig. 10.



Witness:
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UNITED STATES PATENT OFFICE.

FRANCIS W. H. CLAY, OF PITTSBURG, PENNSYLVANIA.

BOTTLE-CLOSURE.

No. 862,308.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed January 11, 1907. Serial No. 351,864.

To all whom it may concern:

Be it known that I, FRANCIS W. H. CLAY, a citizen of the United States, residing at Pittsburg, county of Allegheny, in the State of Pennsylvania, have invented certain new and useful Improvements in Bottle-Closures, of which the following is a specification.

My invention relates to metallic stopping devices for bottles and jars and the like, and is an improvement on prior devices patented to me in which the metal of the stopper is made to provide the vertical resiliency necessary to effect the seal, and in which also the securing means for holding on the stopper is devised to induce this pressure of its own accord, in the process of placing the stopper on the bottle.

The objects of the present invention are to provide a more secure locking device for the holding members of the stopper, to provide for more efficient action in applying the pressure, and to provide for easy removal of the stopper. These objects and other advantages are gained by the structure illustrated on the accompanying drawing.

Figures 1 and 2 are respectively a side elevation and a top plan of the stopper before placing on the bottle. Fig. 3 is a side elevation of the stopper wired in place. Figs. 4 and 5 are vertical central sections on line (4) in Fig. 2, showing the stopper before it is fastened and afterward respectively. Figs. 6 and 7 are respectively a side elevation and a top plan of a modified form of a stopper designed for easy opening by the fingers. Fig. 8 is a view of the same stopper in place on the bottle. Fig. 9 is a side elevation of a modified form of construction and Fig. 10 shows a section of the packing disk I prefer to use.

In Figs. 1 to 5 the covering disk 11 is provided with a down-turned flange which has portions at intervals separated from the body and depressed to make gripping arches 12. These arches have extending arms 13 which form levers for pushing and holding down the arches 12. The metal of the flange between the downward arches 12 is arched upward and preferably also slightly indented as at 14, so that when the arms 13 are pushed downward the lever action forces the arches 12 inward to grip upon the bottle head and induce a vertical pressure on the packing disk 16, while the metal of the upper arches may fold inward, at 14, as shown in Fig. 3. It will be evident from Figs. 4 and 5 that when the arms 13 are pushed downward and inward the edge of the arch of metal 12 will be forced under the lip of the bottle head and result in a drawing down with great power, of the top covering disk 11 of the stopper. It is also evident that the engagement with the bottle will be resilient and that the edge of the metal 12 will automatically find its own seat and by its tendency to spring back to normal position will maintain a constantly exerted resilient pressure. The arms 13 may be held down for additional security by

means of a wire or band 15. When desired the band may be used to push down the arms 13. This form of stopper is more especially designed for bottles containing liquid under very heavy pressure of gas.

In Figs. 6, 7 and 8 is shown a form of stopper in which the gripping arches 12 are held downward by means of the folding in of the metal at 14 and 14-a, at the apex of the upward bent arches. It is thus self-retaining, after being put on with a tool which affects this change of form. This feature has been covered in my prior patents, but I have now added to it the feature of the extended lever arms 17 each of which forms a continuation of two of the gripping arches 12 so that the stopper may be opened by raising the levers 17 by the fingers, thus releasing the grip of four of the arches 12 to release the stopper.

In Fig. 9 is shown a form in which the extension 18 is provided with folds 14-b and 18-a so that it may be bent downward when the three gripping arches to which the extension 18 is attached, are bent down. In the use of these stoppers on beer bottles and in other places where an impervious stopper disk is necessary and where the packing disk must be subjected to heat, I find that a very excellent packing disk is made as illustrated in Fig. 10, in which the part 16 is some fibrous material such as paper pulp and on it is placed a facing 16-a of such material as pyroxylin. The soft pyroxylin may readily conform to the surface of the glass, while the paper part may be harder and of sufficient thickness to take up any unevenness in the surface of the glass.

In these forms of the stopper it is to be noted that the placing tool for applying them may engage only the upward bent arches of the cap and by pushing them downward and inward the gripping arches 12 are swung inward and upward and meanwhile the folds of metal at 14 and 14-a may take up the extra metal and are free to fold as much as necessary under the pressure. When the operation is completed, the folds 14 form very short, sharp bends and when the tool is removed the spring back of the metal which always takes place when any bend of metal is changed in form, will be more than compensated for by the relatively large arch 12 whose tendency to open is counteracted by the opening tendency of the small bends. The gripping of the stopper on the bottle therefore does not loosen by removal of the tool, as is the case with all other stoppers heretofore known. The various other advantages of the device in the way of cheapness and simplicity, will readily occur to those familiar with the art.

Having thus described my invention, and illustrated its use, what I claim as new and desire to secure by Letters Patent is the following.

1. A metallic bottle closure comprising a covering disk having a downwardly bent flange separated at intervals from the disk, the separated portions thereof being de-

pressed to form gripping arches, and extended arms upon the arches for moving them to apply or release the stopper.

5 2. A bottle closure comprising a covering disk having a depressed radially fluted flange with the downward bends thereof severed from the cover, and extended rigid arms on said downward bends forming levers.

10 3. A bottle closure comprising a covering disk having a radially fluted flange with the downward bends thereof severed and depressed to engage the bottle head by the edge of the metal, said downward bends having outward lever extensions, and a band 15 to hold said extensions down, substantially as described.

4. A metallic bottle cap having a flange with severed downwardly bent arches adapted to engage a bottle head, 15 said arches being connected by upward bends integral with the cap and indented to fold inwardly at their apexes when all the arches are pushed downward, some of said gripping arches being provided with lever handles, substantially as described. 20

In witness whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

FRANCIS W. H. CLAY.

In presence of—

C. M. CLARKE,

CHAS. S. LEPLEY.