

No. 889,500.

PATENTED JUNE 2, 1908.

J. C. ANDERSON.
BOTTLE.

APPLICATION FILED JUNE 12, 1907.

Fig. 1.

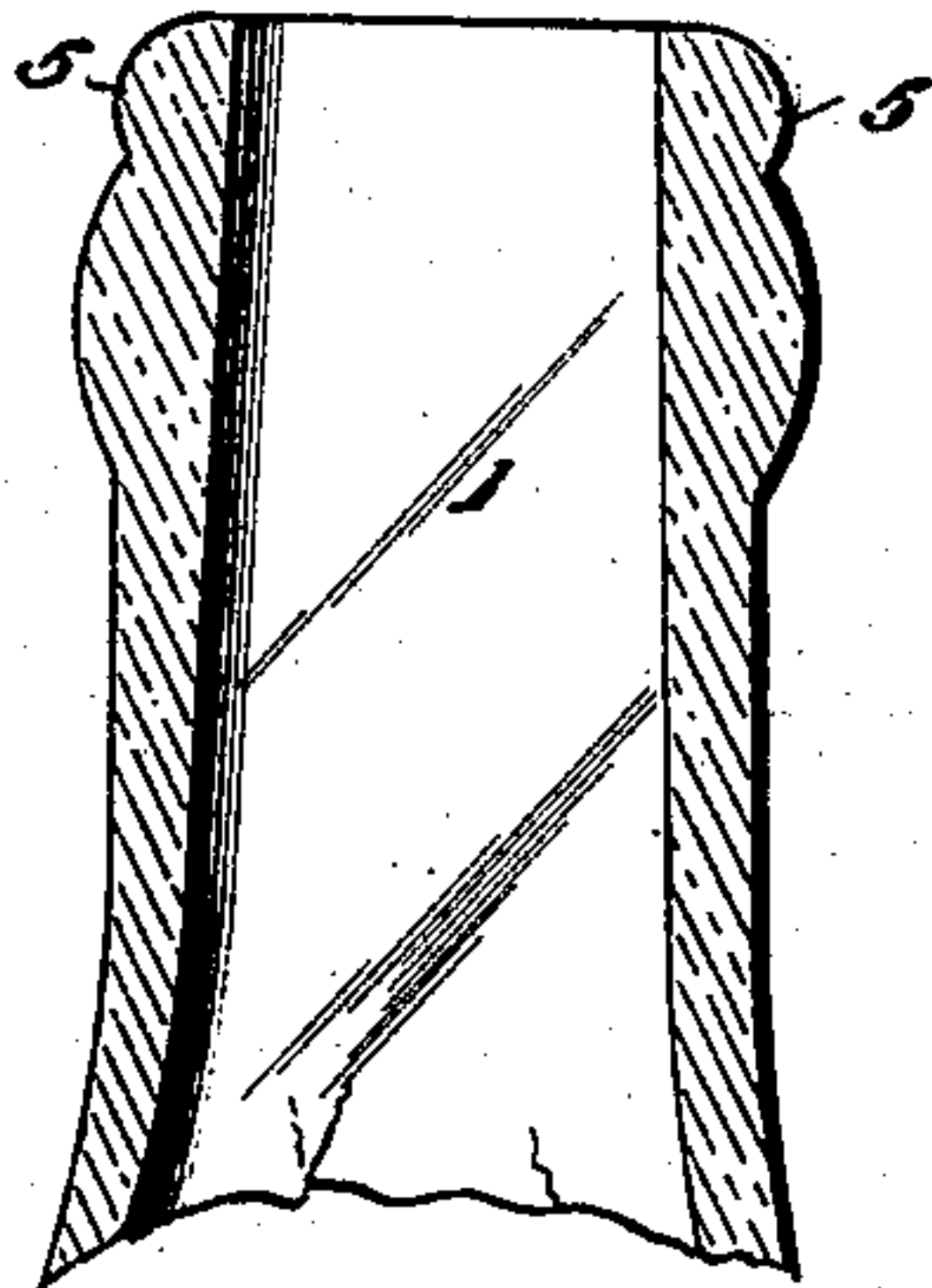


Fig. 2.

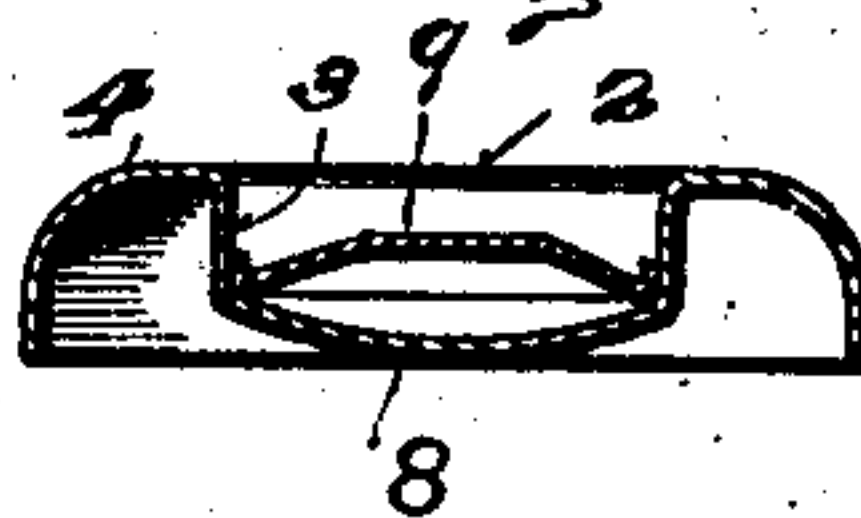


Fig. 3.

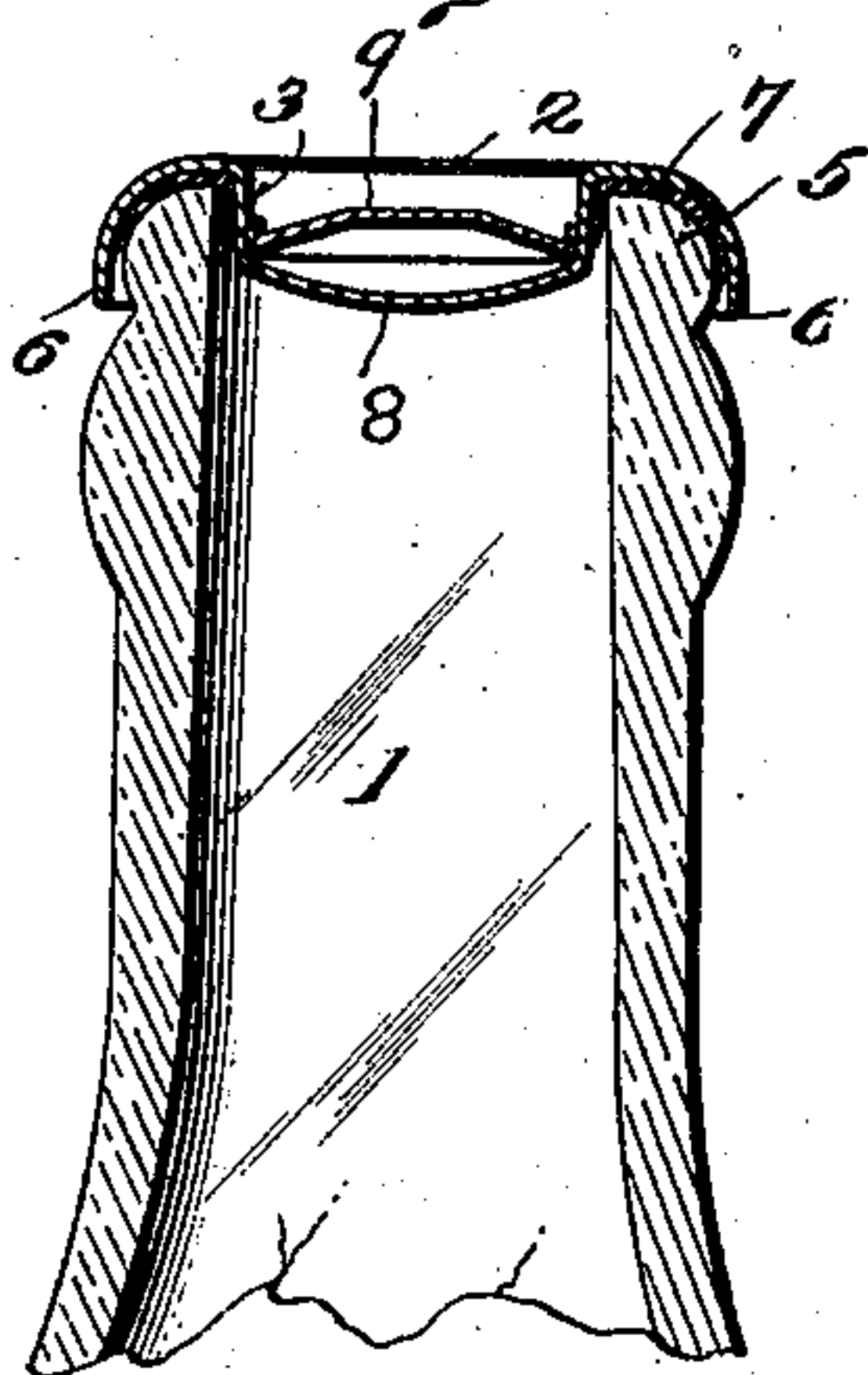
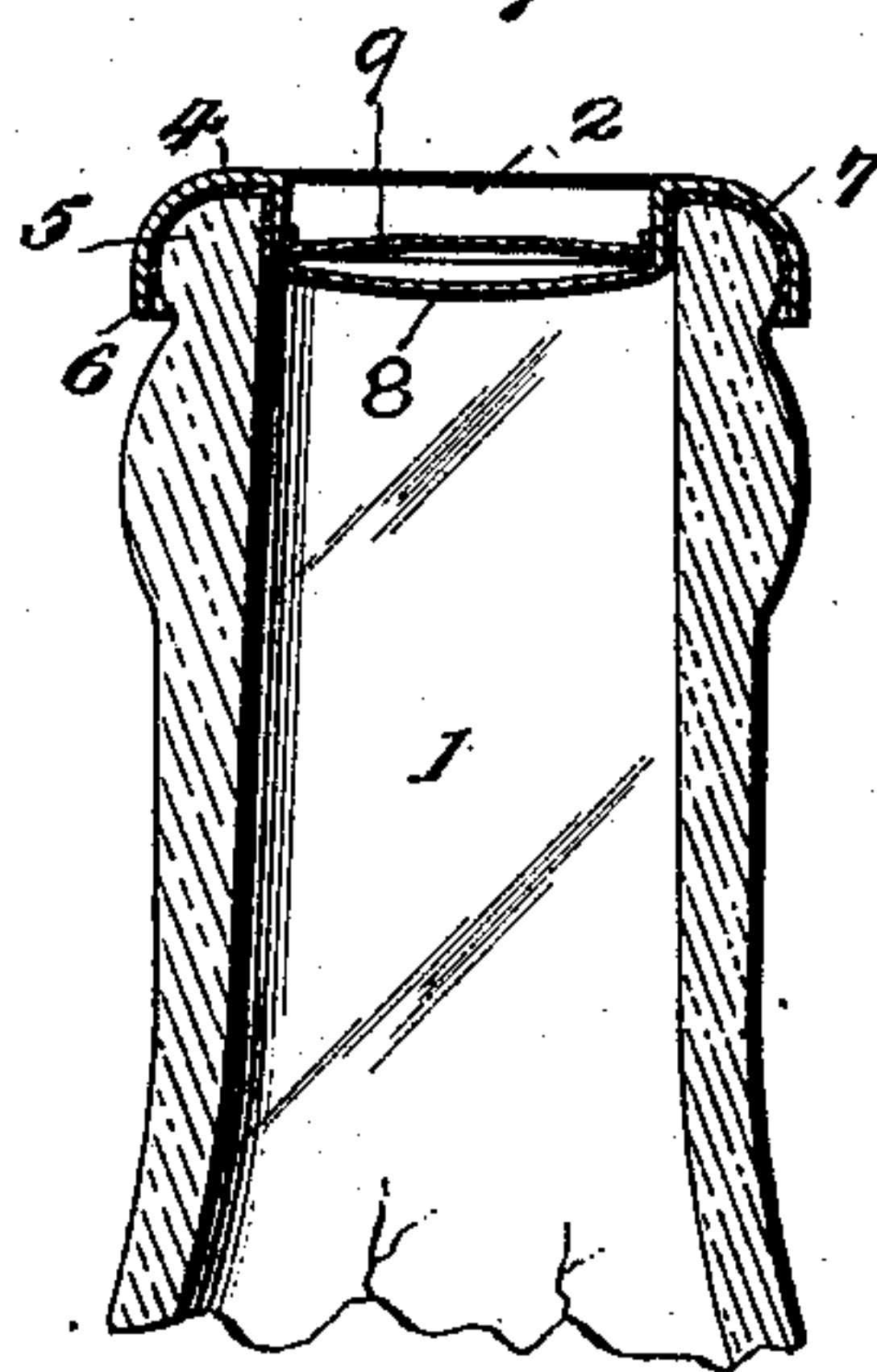


Fig. 4.



Witnesses

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BOTTLE.

No. 889,500.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed June 12, 1907. Serial No. 378,545.

To all whom it may concern:

Be it known that I, JAMES C. ANDERSON, a citizen of the United States, residing at Washington city, in the District of Columbia, have invented certain new and useful Improvements in Bottles; and I do hereby 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.

My invention relates to certain new and useful improvements in bottles of that class in which the closure is effected by means of a sheet metal cap secured in removable relation with the neck of the bottle.

In the type of bottles referred to, the neck is generally provided at its upper extremity with an exterior rib and the sheet metal cap is secured in position by crimping it upon the exterior rib on the bottle, the projecting portion of the crimps or corrugations being adapted to receive a suitable tool employed to remove the cap when desired. Bottles of the type referred to have also been made with depressions in the interior surface of the neck at its upper extremity and inverted caps or cups of sheet metal placed within the neck and expanded within the annular recess of the same. Bottles of this last described type have also been provided with a secondary sheet metal cap crimped or otherwise secured upon an annular rib on the outer surface of the neck and covering and concealing the interior cup-shaped device. In the first named type a disk, or a ring-shaped gasket is interposed between the cap and the upper end of the neck of the bottle and in the other described types a packing or gasket is located between the side walls of the cap and the cylindrical surface of the bottle.

My invention relates particularly to that type in which the cap is compressed against the inner wall of the bottle neck and it has for its object to dispense entirely with any recesses or depressions in the surface of the glass, which recesses or depressions render it more or less difficult to cleanse the bottle after the contents have been removed; also to reduce to a minimum any liability to fracture the bottle in applying the cap and also to render the air and gas-tight joint between the bottle and cap constant and more effective.

With these objects in view my invention consists in the details of construction herein-after more fully described.

In order that those skilled in the art to which my invention appertains may know how to make my improved bottle and fully appreciate its advantages I will proceed to describe the same referring by numerals to the accompanying drawing in which—

Figure 1 is a central vertical section of the neck of a bottle embodying one of the features of my invention. Fig. 2 is a central vertical section of my improved cap. Fig. 3 is a similar section showing the cap and bottle in proper relation for securing the cap in place, and with the sealing gasket located between the cap and bottle neck, and Fig. 4 is a similar view showing the relation of parts after the cap has been secured in air and gas-tight position.

Similar reference numerals indicate like parts in the several figures of the drawing.

1, is the neck of the bottle which as will be seen is so formed on its inner surface that it is of smaller diameter at its upper extremity than below that locality, or in other words is tapered toward the extremity thus producing a form with which the sheet metal cap will successfully interlock when expanded, and at the same time avoid the necessity for any projections or recesses for that purpose.

2, is my improved sheet metal cap with its central portion depressed and adapted to enter the neck of the bottle readily regardless of the usual caliber variations which result in the manufacture of the bottles. This depression of the central portion necessarily produces an interior wall 3, adapted to be expanded into close contact with the interior surface of the bottle neck. The remaining outer portion or rim 4, of the cap is of a form corresponding substantially with that of the upper extremity of the neck as clearly shown and extending in a vertical direction below the longest radius of the exterior rib 5, on the bottle neck as indicated at 6, to constitute means by which the cap may be removed when desired.

7, is a gasket of soft metal or other suitable compressible material conforming with the inner wall 3, and rim 4, and constituting as will be obvious, a continuous sealing joint with the inner upper and outer surfaces of the bottle and also the upper extremity and thus providing an effective closure.

The cap 2, has its bottom formed concave as shown at 8, and is provided with an independent convex sheet metal disk 9, or the bottom of the cap may be convex and the

disk concave as fully described and shown in another application filed by me on even date herewith and having Serial No. 378,544.

In applying my improved cap to the improved bottle, the cap is located as shown at Fig. 3, with its central depressed portion entering the bottle neck and with its rim resting upon the upper extremity of the bottle and with the extreme outer portion 7, extending vertically below the exterior rib 2, of the bottle.

The interior vertical wall 3, is at its upper extremity substantially in contact with the extreme inner surface of the bottle neck while the remainder of the wall 3, of the cap is a slight distance therefrom as clearly shown. The gasket 7, surrounds the upper extremity as clearly shown and when the cap is secured in position as shown at Fig. 4, the inner vertical wall is expanded by the force exerted upon the independent disk 9, into close relation with the converging terminus of the bottle neck while the rim portion 4, with the exception of its vertical terminus tightly embraces the upper extremity of the bottle, the gasket 7, being tightly compressed and making a close air and gas-tight joint throughout its entire extent.

During the operation described the concave central portion 8, of the cap being of greater area than the cross section of the cylindrical depressed portion compensates for the outward movement of the vertical wall 3, and this action takes place whether the bottom of the cap is concave, and the expanding disk 9, is convex as shown, or the reverse respectively, as shown and described in the copending application hereinbefore referred to, and as the bottom in either case is necessarily under strain as the side wall 3, is expanded toward the bottle neck it operates to restrain and prevent any sudden and excessive movement of the wall tending to the fracture of the bottle neck, and exerts a pulling action which draws the outer rim portion 4, coincidentally toward the outer surface so that at the time when the wall 3, is being forced into such contact as to compress the soft metal gasket 7, equal pressure is being exerted on the opposite surfaces of the bottle neck. I however prefer the form herein shown, for the reason that after the cap has been permanently affixed to the bottle there will still remain a slight concavity in the bottom and if the contents of the bottle be of a gaseous nature the force exerted against the bottom by such gases will have the effect of keeping the joint between the wall 3, of the cap and the bottle tight and continuous.

Particular attention is called to the fact that the convergence of the inner surface of the bottle neck toward its extremity while providing a surface with which the wall 3, of the cap may be securely interlocked, avoids the presence of any abrupt projection or re-

cess which would retard or render ineffective the effort to cleanse the bottle for reuse.

Another important feature of my invention resides in the fact that when the wall 3, of the cap is being forced into close contact with the inner surface of the bottle, the outer arc of the rim 4, being substantially in contact with the corresponding part of the bottle serves as a brace to protect the bottle neck from accidental fracture which might otherwise take place, and which frequently occurs especially in that type of bottles in which the cap is secured by pressure exerted upon the outside of the cap.

It will be seen that as a result of the construction of the cap 2, with its vertical terminal 7, that when the cap is removed from the bottle and the lower extremity of the inner wall 3, consequently forced inward, the cap may then be used as an ordinary cover to protect any contents remaining in the bottle.

As stated hereinbefore I prefer to make the gasket 7, of soft metal which as will be obvious may be readily stamped or pressed into form adapted to be readily assembled with the cap 2.

Having described the construction and advantages of my improved bottle what I claim as new and desire to secure by Letters Patent is—

1. In combination with a bottle having the inner surface of the neck terminating in an unbroken upward taper, a sheet metal cap having an inner wall interlocked with the tapered surface of the bottle neck, substantially as hereinbefore set forth.

2. In combination with a bottle having the inner surface of the neck terminating in an unbroken upward taper, a sheet metal cap embracing the outer surface and upper extremity of the bottle neck and interlocked with the inner converging extremity thereof, substantially as hereinbefore set forth.

3. In combination with a bottle having the interior surface of the neck terminating in an unbroken upward taper, and having an annular rib on the outer extremity; a sheet metal cap having a depressed central portion secured in sealed relation with the inner upwardly tapered extremity of the bottle neck and an outer rim portion embracing the exterior rib on the bottle neck and extending vertically below the same, substantially as and for the purpose set forth.

4. In combination with a bottle having the inner surface of the neck terminating in an unbroken upward taper; and a sheet metal cap formed with a central depressed portion adapted to enter the neck of the bottle and to be expanded against the converging tapered surface thereof and having a lateral and vertical rim; a soft metal gasket interposed between the sheet metal cap and the inner and outer surfaces of the bottle neck, substantially as and for the purpose set forth.

5 5. In combination with a bottle having the interior surface of the neck terminating in an unbroken upward taper and having on its exterior extremity a circumferential rib; a sheet metal cap secured in air and liquid tight relation with the interior tapered surface of the bottle and having an overhanging rim extending in a vertical line below the circumferential rib, substantially as and for
10 the purpose set forth.

6. In combination with a bottle having the interior surface of the neck terminating in an unbroken upward taper, and a sheet metal closure device open at its outer end and
15 closed at its opposite end by an integral ex-

pansible bottom; an independent expansible sheet metal disk adjacent to the bottom of the closure device and adapted to cooperate therewith to hold the wall of the same in close and constant contact with the interior surface of the neck of the bottle, substantially as hereinbefore set forth. 20

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES C. ANDERSON.

Witnesses:

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