

No. 859,121.

PATENTED JULY 2, 1907.

C. R. SCHMIDT.

METHOD OF EFFECTING THE CLOSURE OF BOTTLES.

APPLICATION FILED JAN. 8, 1907.

Fig. 1.

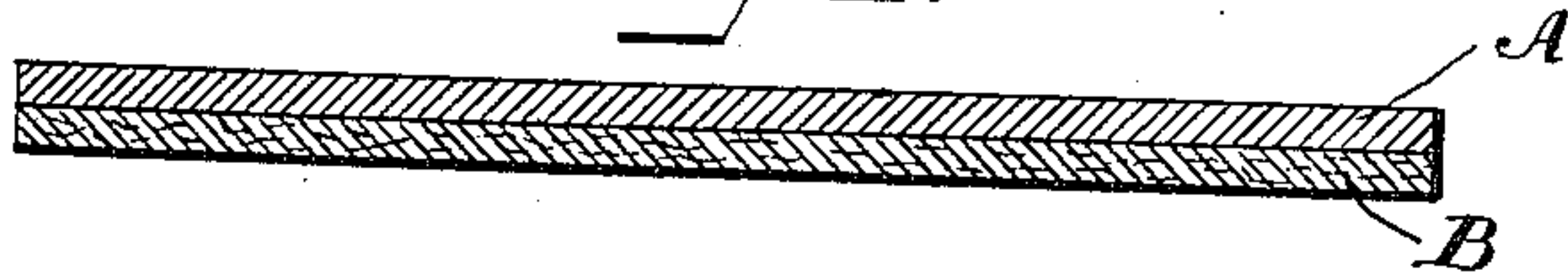


Fig. 2.

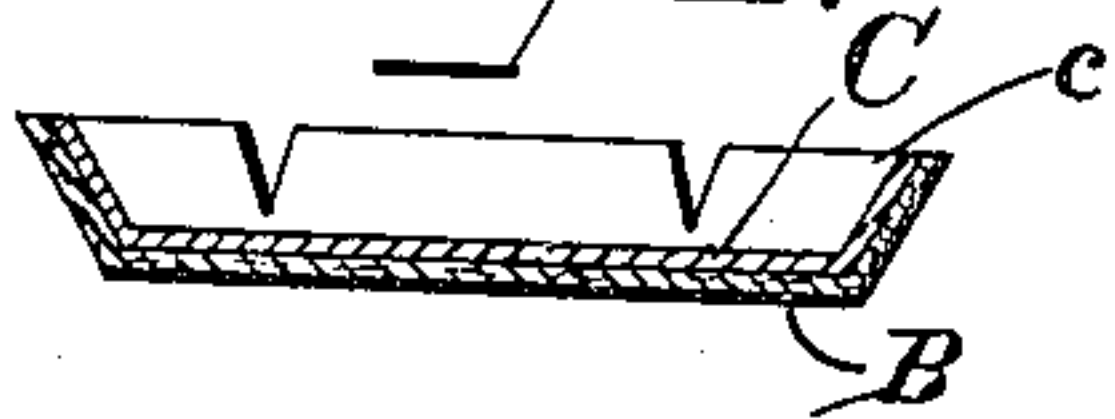


Fig. 3.

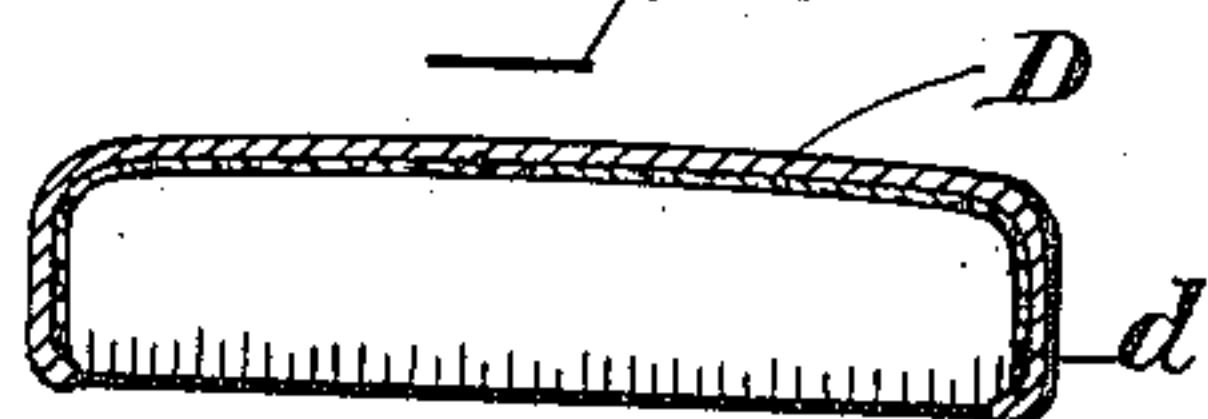


Fig. 4.

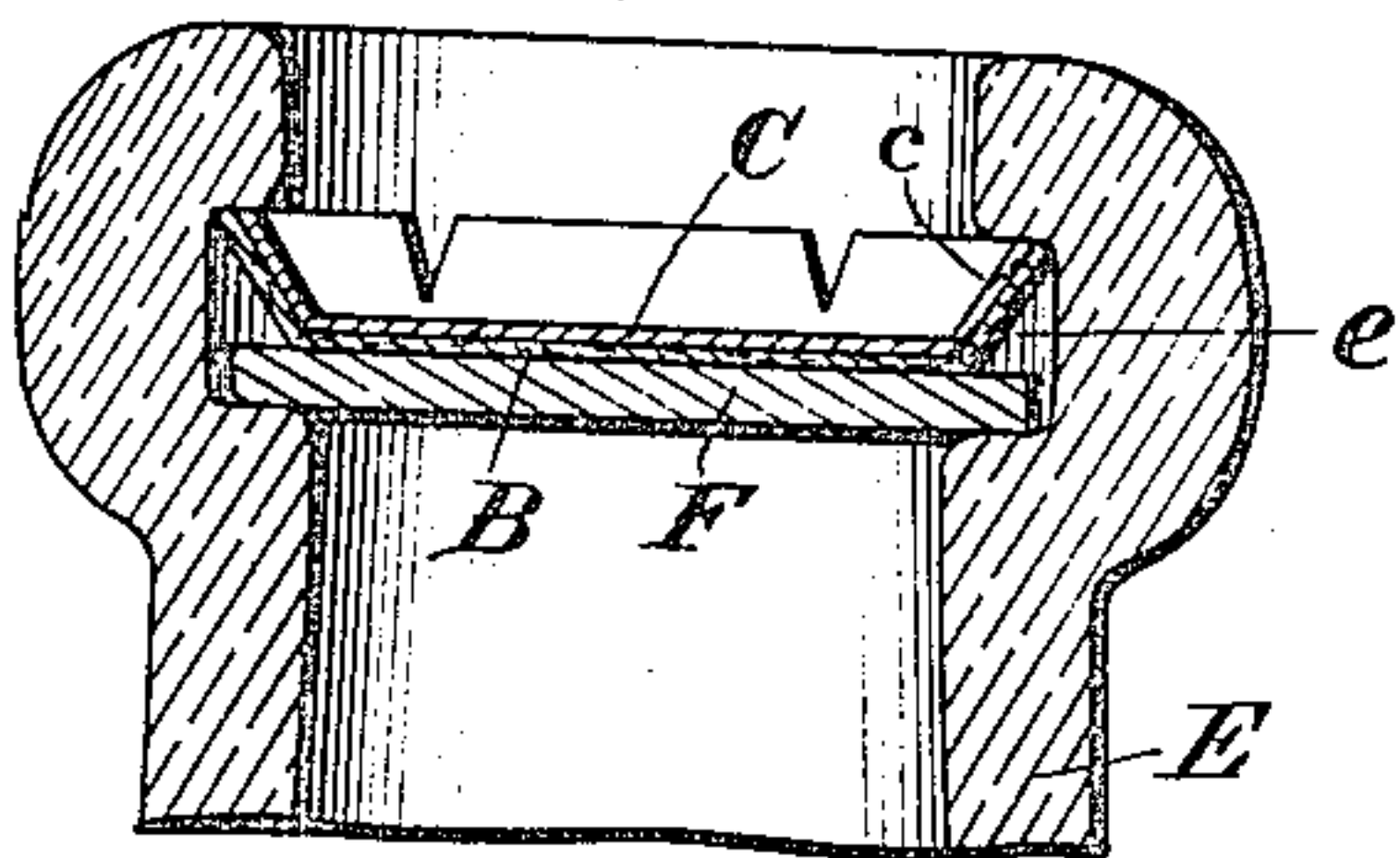


Fig. 5.

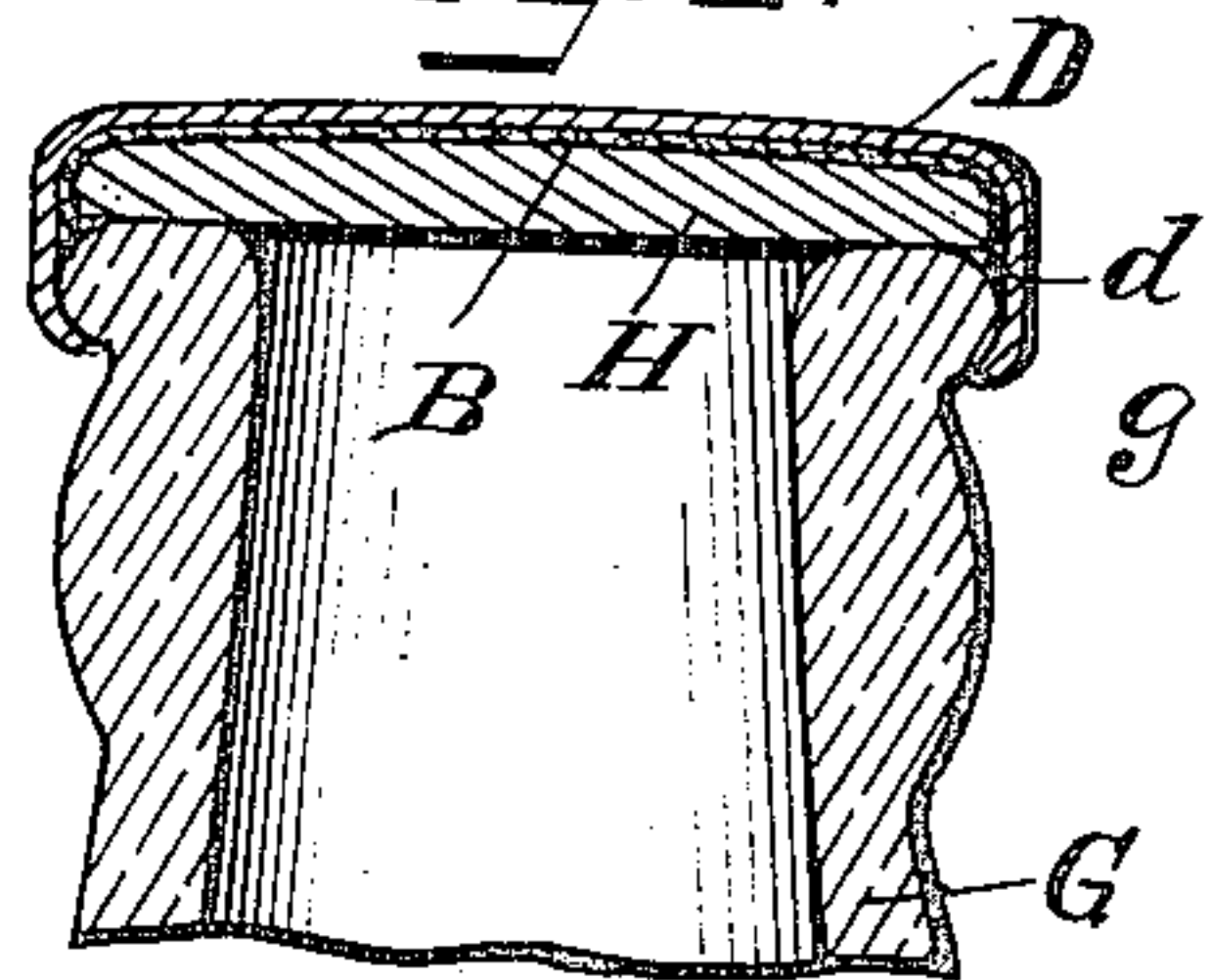


Fig. 6.

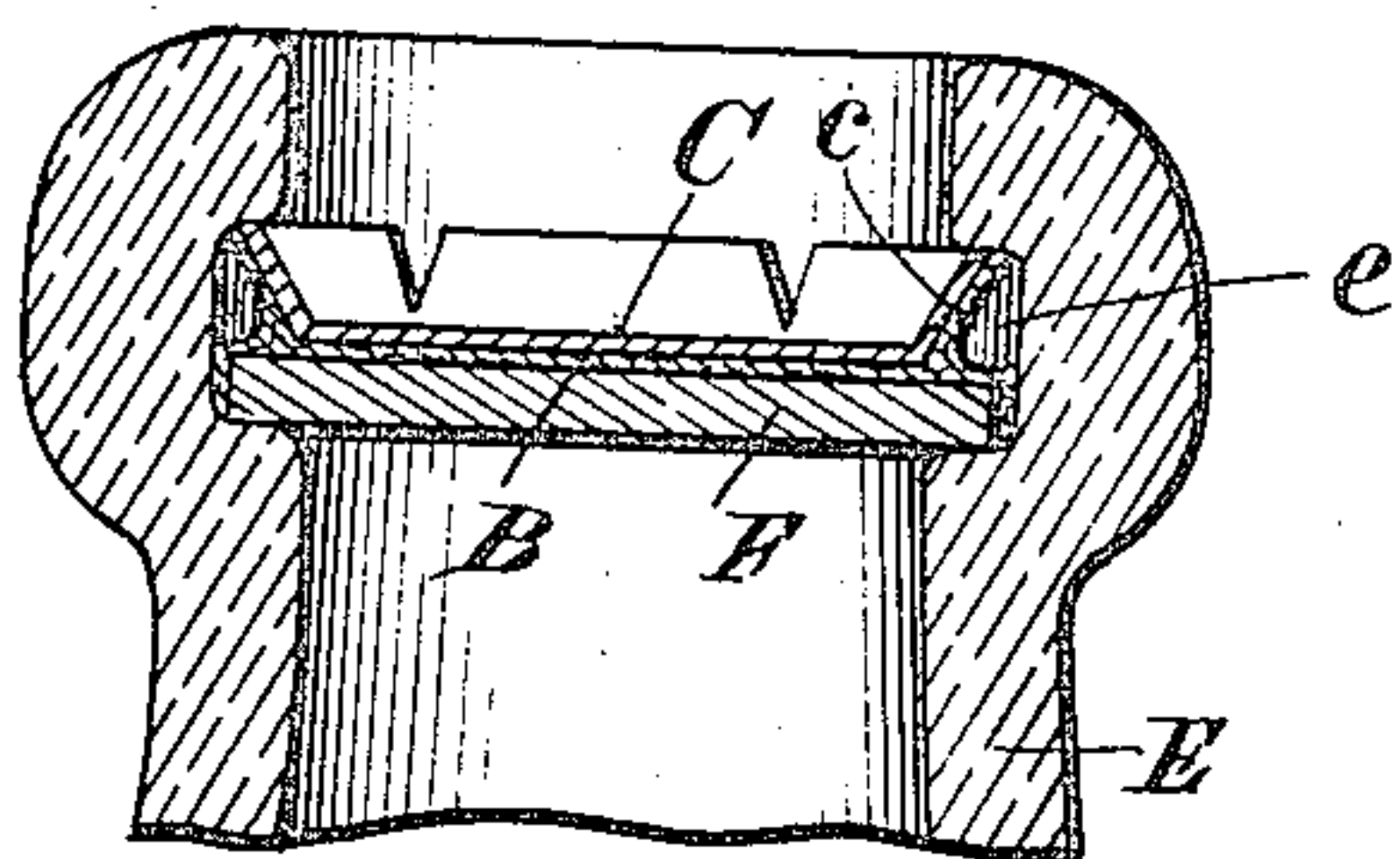
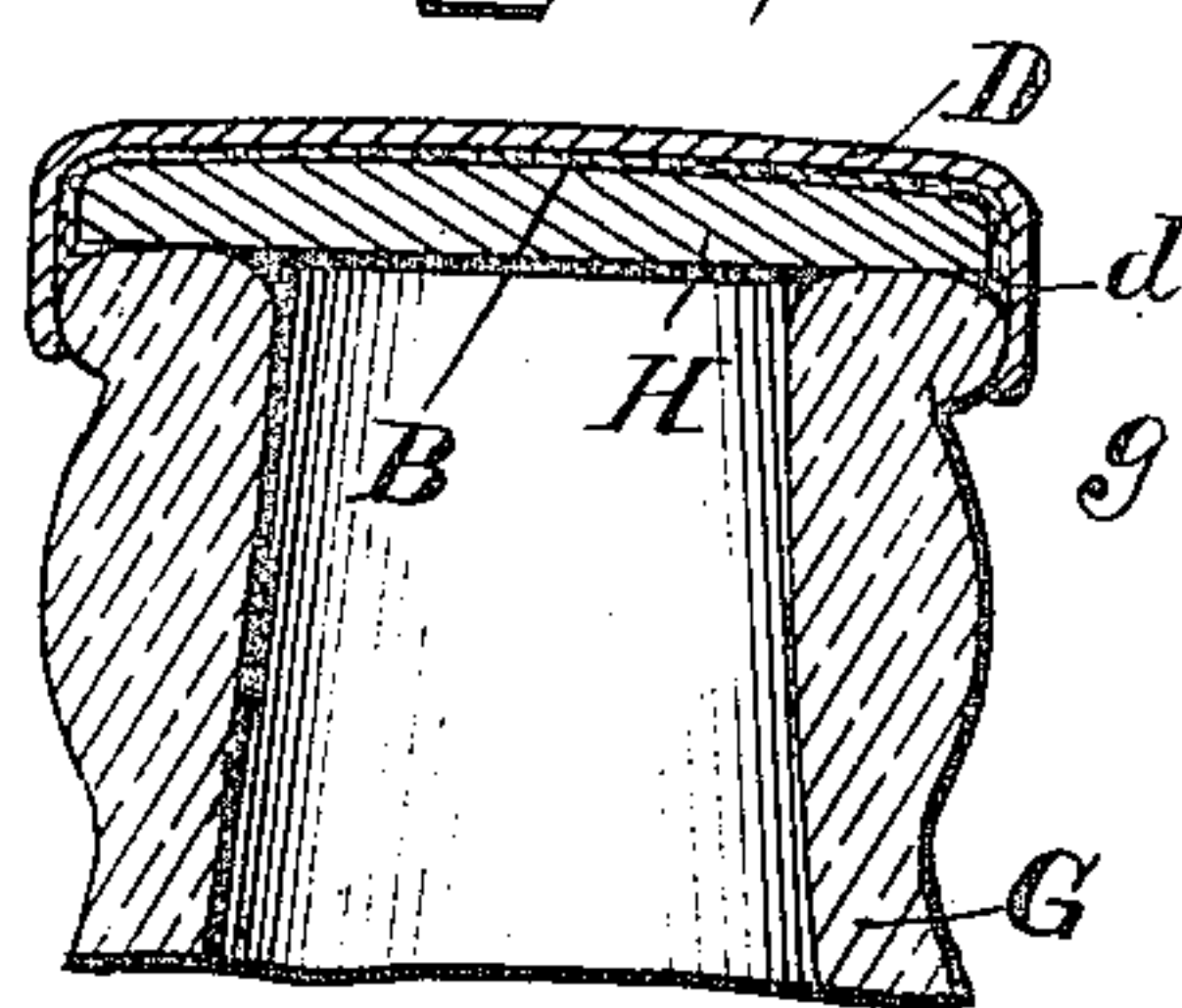


Fig. 7.



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METHOD OF EFFECTING THE CLOSURE OF BOTTLES.

No. 859,121.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed January 8, 1907. Serial No. 351,331.

To all whom it may concern:

Be it known that I, CHARLES R. SCHMIDT, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Methods of Effecting the Closure of Bottles, of which the following is a specification.

This invention has relation to methods of effecting the closure of bottles and has for its object the provision of a novel method of applying to bottles that class of closures in which a metallic closure, either of the outer or inner type, is used in connection with a sealing disk or washer of elastic material such as cork or the like.

While cork has been generally employed as the material for the disks or washers for closures of the character above referred to, it has been found defective in several particulars, the principal defect being that almost invariably the cork disks or washers have small holes extending through from side to side either in the body or at the edges, and these holes permit of the escape of gas and liquid through the disk or washer, the gas and liquid either escaping entirely from the bottle, or coming into contact with the metallic portion of the closure and causing the same to corrode or rust. It has also been proposed to use disks or washers of paper or woven fabric, but it has been found that when these disks are made sufficiently elastic they are too porous to prevent the escape of gas and liquid from the bottle.

In carrying my improved method into effect, I coat the metallic portion of the closure on the side adjacent the elastic disk or washer with a material of waxy character, preferably paraffin or a mixture of paraffin and other materials, which will melt or soften at a comparatively low temperature, *i. e.*, somewhat below the boiling point of water, and after the metallic portion of the closure and the cork disk or washer have been placed in position in the bottle, I subject them to a heat sufficient to cause the paraffin or like material to soften and spread so as to entirely cover and close all holes, cracks, seams, pores and spaces in the disk and also tightly close and seal the joint formed at the meeting surfaces of the bottle neck and cork or the metallic portion of the closure.

The coating which I apply to the metallic portion of the closure may be applied before or after the metallic portions have been shaped to their ultimate form, but I prefer to apply the coating to the sheet of metal from which the metallic portions are formed before the latter have been stamped or cut from the sheet.

In the accompanying drawing which is illustrative of my method: Figure 1 is a sectional view of a sheet of metal coated with a waxy material and from which the metallic portions of the closure are to be cut. Figs. 2 and 3 are vertical sectional views of the metallic portions of bottle closures of several forms cut from a

sheet, such as the sheet shown in Fig. 1 and shaped to their ultimate form. Figs. 4 and 5 are vertical sectional views of portions of bottle necks having the metallic portions shown in Figs. 2 and 3 respectively applied in position in connection with sealing disks before being heated, and Figs. 6 and 7 are views similar to Figs. 4 and 5, after the heating operation has been performed.

In Fig. 1 A designates a sheet of metal coated on one side by a layer of waxy material B. The latter may be merely paraffin, or it may be a mixture of paraffin and a suitable filler and I prefer to mix with the waxy material with which I coat the plate, a portion of fibrous material, such as raw cotton, so that the coating will be rendered more adherent and less liable to spread or disintegrate than if composed of paraffin alone.

A number of sections, such as the section C with an upturned and elastic edge *c* shown in Fig. 2, or the section D with a crimped and downturned edge *d* shown in Fig. 3, are cut from the sheet A, and each of these sections is shaped, either while being cut from the sheet, or at a subsequent operation, to the proper and desired form to adapt it to be applied to a bottle, the section C being what is known as an "inner" closure and the section D, what is known as an "outer" closure. After the metallic portion of the closure has been formed it is inserted in the neck of a bottle as shown in Fig. 4, in the case of its being an inner closure, or on top of the neck in the case of its being an outer closure as shown in Fig. 5.

The bottle E shown in Fig. 4 is formed with an internal groove *e* and the section C fits in the groove *e*, the elastic edge *c*, thereof bearing against the upper shoulder of the groove as shown. A disk F of suitable elastic material such as cork or the like, is fitted in the groove *e* under the section C, the edges of this disk bearing on the lower shoulder of the groove and the upper surface of the disk bearing against the lower surface of section C, or rather against the waxy material B carried by the lower surface of section C. After the parts have been placed in position as shown in Fig. 4, the bottle is heated in any convenient manner and to such a degree that the waxy material B will be softened sufficiently to spread and entirely close all joints, cracks, seams, holes, pores or other openings in or around the metallic portion of the closure, and the elastic disk, or between these parts and the bottle, thus producing a perfect liquid and gas tight joint.

The closure shown in Fig. 3 is applied to a bottle G which has an external groove *g*, in the manner shown in Fig. 5, and the bottle is heated in the manner before mentioned in describing Fig. 4, so as to cause the waxy material to close all the holes or joints in or adjacent the metallic portion of the closure and in or adjacent the elastic disk or washer H, which in this form

of closure, is arranged on the upper edge of the bottle neck and within the metallic portion D.

I claim:

1. The method of effecting the closure of bottles, consisting in applying a closure portion coated with waxy material and an elastic closure portion to a bottle and then heating the same so as to soften the waxy material.

2. The method of effecting the closure of bottles, con-

sisting in applying a metallic closure portion coated with waxy material and an elastic closure to a bottle and then heating the same so as to soften the waxy material. 10

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

CHARLES R. SCHMIDT.

Witnesses:

JOS. B. CONNOLLY,
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