

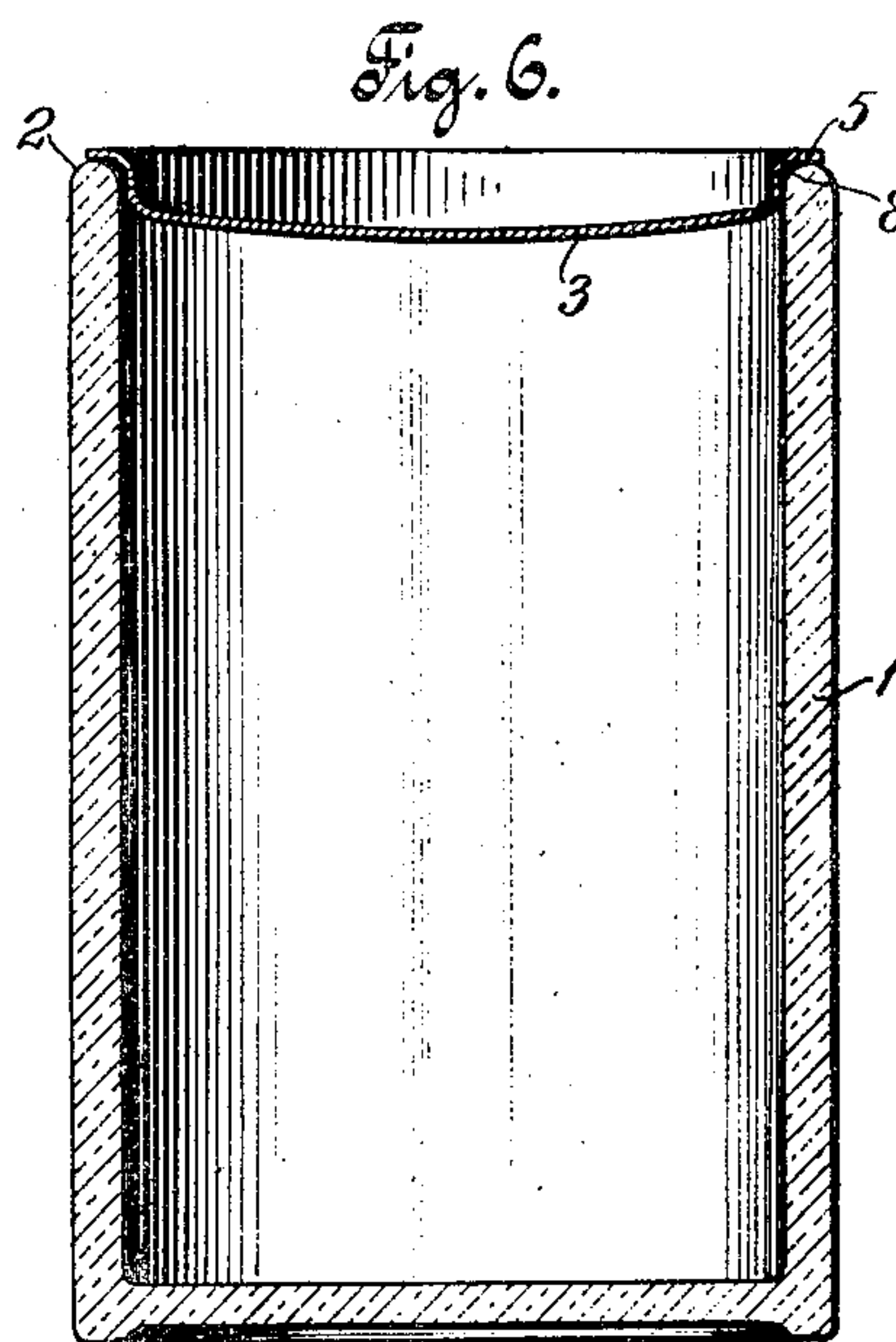
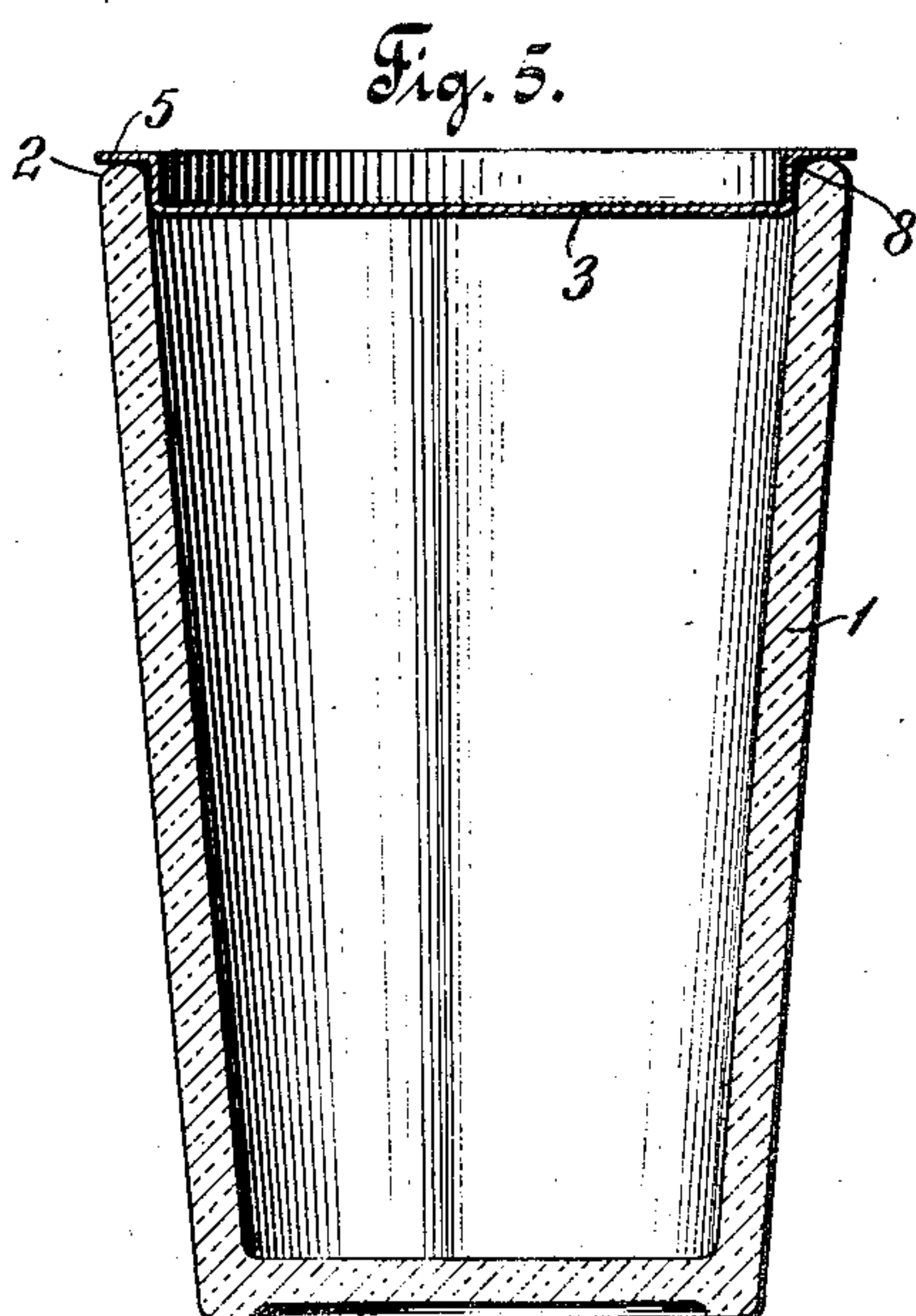
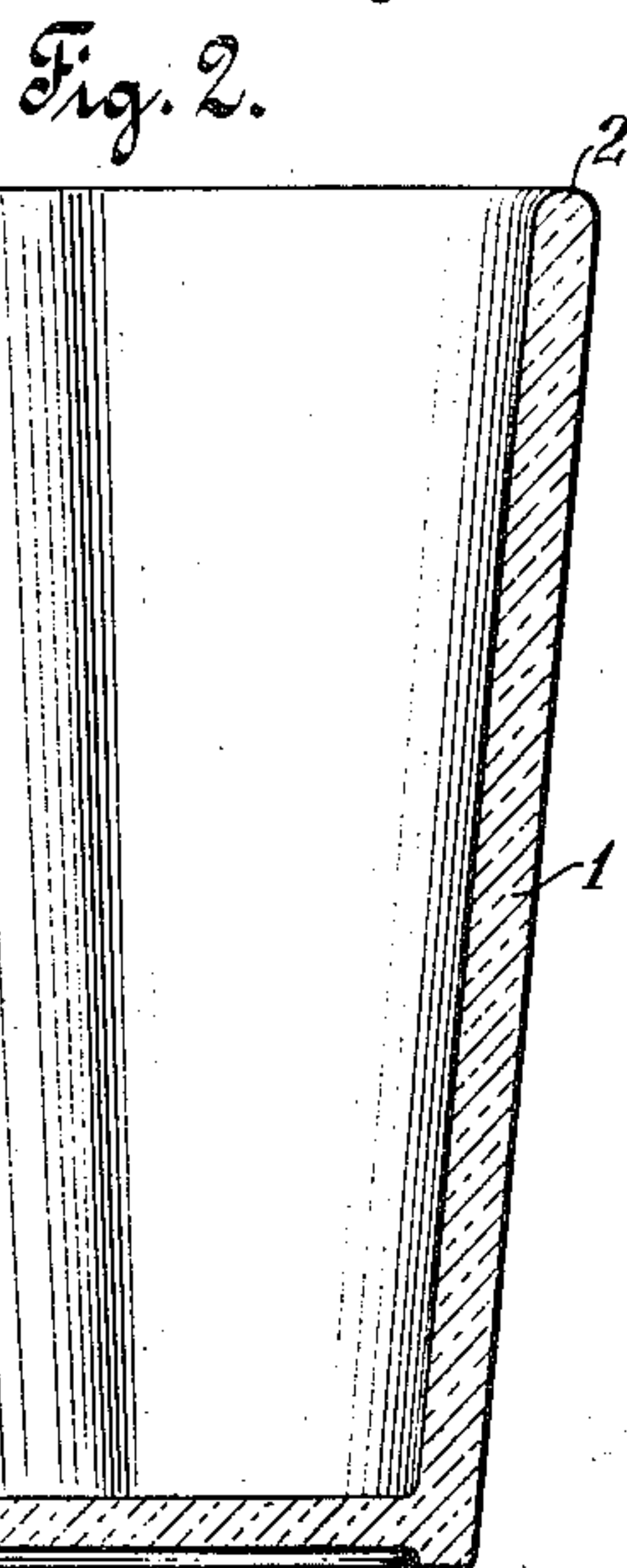
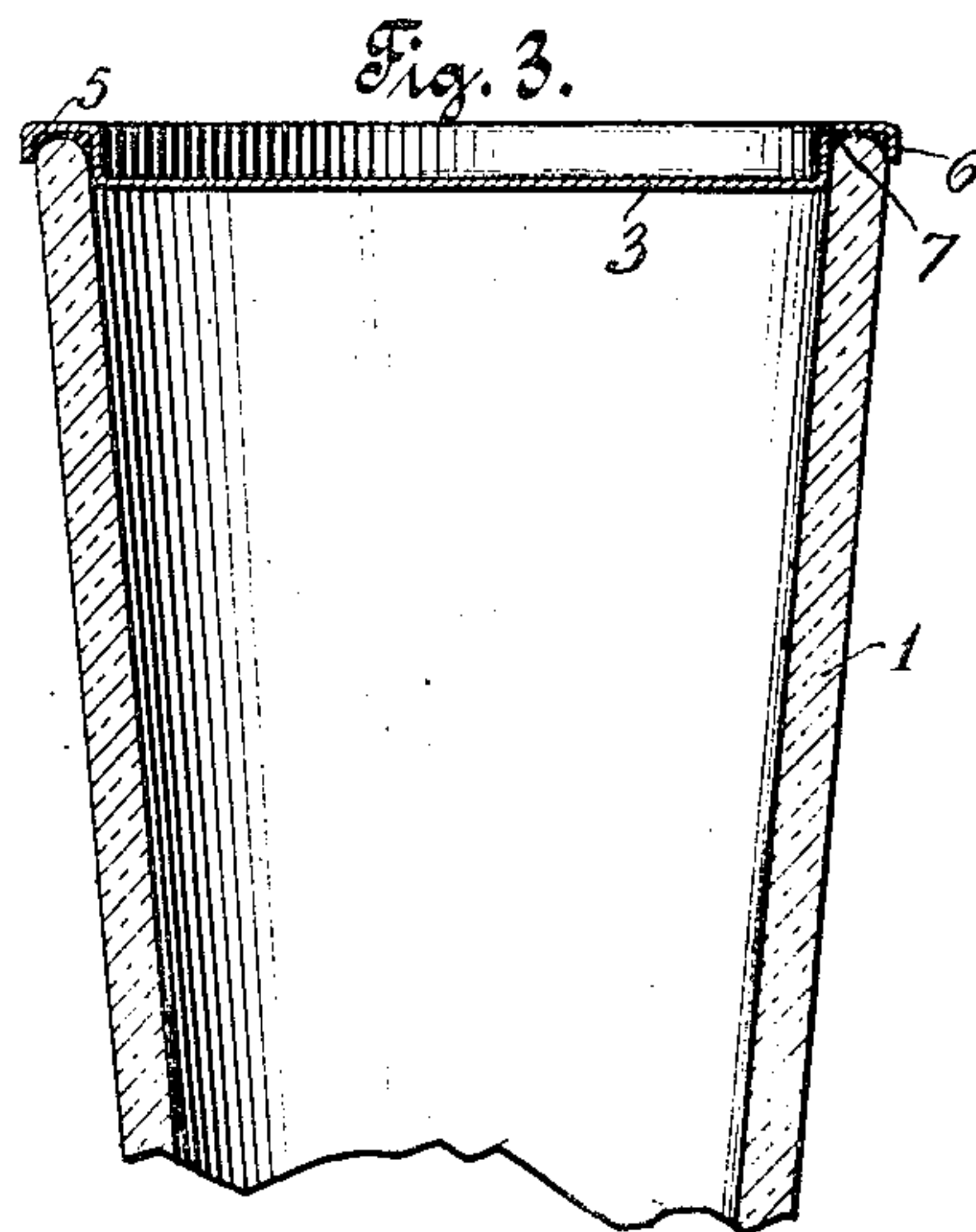
No. 872,160.

PATENTED NOV. 26, 1907.

A. L. WEISSENTHANNER.

RECEPTACLE CLOSURE.

APPLICATION FILED DEC. 6, 1904.



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# UNITED STATES PATENT OFFICE.

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## RECEPTACLE-CLOSURE.

No. 872,160.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed December 6, 1904. Serial No. 235,718.

*To all whom it may concern:*

Be it known that I, ALFRED L. WEISSENTHANNER, a citizen of the Republic of France, and a resident of New York city, State of New York, have invented a certain new and useful Improvement in Receptacle-Closures; of which the following is a specification.

The present invention relates to a closure for packages or receptacles and more particularly to a vacuum closure where atmospheric pressure is relied upon to compress the packing band and hold the cover in place.

In my Patent No. 724,147, dated March 31, 1903, I have fully described means for effecting a perfect and practically permanent hermetic seal by the use of a packing band of very small sectional area, and one which, in practice, will present one or more highly compressed, narrow, film-like layers between the opposing surfaces of the closure and the receptacle at each and every point around the mouth of the receptacle. I have also pointed out in said patent, among other things, that it is important that the portion of the opposing surfaces between which the film-like layer or layers is or are formed should sustain the greater part of the sealing force acting on the cover, so that said force may be concentrated as much as possible upon the film-like layer or layers, and that the main body of the packing may not have the power through change in bulk, due to deterioration or otherwise, to relieve the pressure upon the highly compressed portions thus breaking the seal.

The invention described in the present application is based upon the principles set forth in my said Patent 724,147 as will be understood by reference thereto, and to the accompanying drawings in which

Figures 1 and 2 are vertical sectional views of a cover and receptacle respectively, illustrating one embodiment of the invention; Fig. 3 a similar view of the same parts showing the position of the packing and cover when the latter is held in place by atmospheric pressure; Fig. 4 a vertical sectional view showing another form of cover and packing; Fig. 5 a vertical sectional view showing the cover of Fig. 4 in position on a receptacle, and Fig. 6 a similar view of a modification.

Similar reference numerals indicate similar parts throughout the several views.

Referring to the drawings the numeral 1

designates a receptacle made of any suitable material such as glass or earthenware, and of any suitable form having vertical or tapered sides, the drawings showing an ordinary glass for preserving jellies and the like. The upper surface 2 of the receptacle may be made slightly convex, as shown in the drawings, or flat. The cover is preferably made of thin sheet metal more or less yielding, and comprises a disk 3 having around its outer edge an upwardly extending wall 4, giving a depressed central portion adapted to enter the mouth of the receptacle. The diameter of the disk 3 is slightly less than the internal diameter of the mouth of the receptacle 1, so that the wall 4 will fit snugly, but not tightly, against the inner wall of said receptacle, and so as to afford a space into which the packing ring, as hereafter described, may be pressed to form a thin, film-like edge between the wall 4 and the inner wall of the receptacle. The wall 4 is preferably formed at right angles to the disk 3, and projecting at substantially right angles to the former is a flange 5 bent over, as shown in Figs. 1 and 3, to provide a downwardly projecting rim 6, although the latter is not essential and may be dispensed with as shown in Figs. 4, 5 and 6. In fact I prefer to make the flange 5 without the rim 6. The flange 5 has a plain, flat surface and by making it and the other parts of the cover of resilient metal, I secure all the advantages of automatic adaptation to irregularities in the form of the receptacle or the packing ring, or both, and of such uniform local compression of the film-like part or parts of the packing ring throughout its entire length, as disclosed in my said Patent 724,147.

The outside diameter of the ring constituting the flange 5 is made equal to or less than the outside diameter of the mouth of the receptacle, but not in excess thereof; or, in other words, the bearing surface of the flange 5 is equal to or less than the outside diameter of the receptacle, giving thereby a uniform compression or sealing surface. Other important advantages are secured by so limiting the diameter of the cover in that the appearance of the closed receptacle is improved and an easy means afforded for removal of the cover by any well known form of opener; there is no projecting edge and hence no danger of the cover being pulled off in handling, and moreover it enables the cover to better



conform to the shape of the mouth of the receptacle.

The packing ring may be made of an elastic rubber composition; or of any similar compressible non-porous material; or of a composition which is normally solid or hard when cold but which, when subjected to heat, becomes sufficiently soft and plastic to permit of its being shaped or molded into form to make a perfect seal. When of such hardening composition the packing in the form of a flat ring or band will preferably be permanently secured to the under face of the flange 5 by any suitable adhesive substance, as indicated at 7 in Figs. 1 and 3, said ring extending substantially the width of said face, or it may be of such nature as to adhere to the metal when heated and then cooled, and does not require, therefore, the application of an additional adhesive agent. The packing ring if of an elastic rubber composition may be secured in a similar manner, or by simply stretching it into place about the vertical wall 4, as indicated at 8 in Fig. 4.

The receptacle above described may be hermetically sealed by following any of the usual and well known means employed in carrying out the vacuum process, the atmospheric pressure acting immediately upon the cover maintaining it tightly in place. In Figs. 1 and 3 the packing ring 7 is brought to bear upon the sealing surface 2 and will be squeezed out and locally compressed into thin, film-like or knife edges between the inner wall of the receptacle and the wall 4, and between the outer wall of the receptacle and the depending rim 6, one or both of said edges being present when the parts are properly constructed.

In the construction shown in Figs. 4, 5 and 6 the atmospheric pressure acts upon the cover to tightly compress the packing band so as to form a thin edge, which receives the greater part of the force acting on the cover, either between the wall 4 and the inner wall of the receptacle, or between the flange 5 and the upper surface of the receptacle, or at both of said points. Whatever the form or nature of the packing ring or band employed, it will be of relatively small sectional area, so as to permit of a part of the band being compressed between the opposing surfaces to a greater degree than other parts in order to secure the formation of the desired thin film-like bearing edge or edges for the cover. When using the form of cover illustrated in Fig. 1 the packing lying at substantially the

middle line of the flange 5 will also be more or less compressed as shown in Fig. 3.

While I have specified the angles between the disk 3, wall 4 and flange 5, as substantially right angles, I do not desire to limit myself to that exact construction, as it is obvious that the disk 3 may be slightly concaved and the flange 5 made convex to conform to the shape of the upper surface of the receptacle as shown in Fig. 6. The flange 5 may be rounded in the process of manufacture or after it is in place on the receptacle by forcing it to take the shape of the upper surface of the receptacle by any suitable tool. While, therefore, in the claim I use the word "flat" as definitive of the flange, I desire to include as within such term a flange not only mathematically flat but one that is convex or one having the angle between the flange 5 and the wall 4 rounded or gradually merging into the disk 3. Fig. 6 also shows the flange as of less width than the outside diameter of the receptacle.

By means of the present invention I am enabled to effect the perfect closure of a receptacle having a plain open mouth, that is, one without beads, flanges, offsets, or recesses, by a cover of resilient sheet metal which is extremely simple in design, very easy and cheap to make, saving about ten per cent. in metal over covers heretofore used and yet easily removable.

What I claim and desire to secure by Letters Patent is:—

The combination of a receptacle having a plain open mouth with a rounded edge, a cover for sealing said receptacle by atmospheric pressure, said cover comprising a plain flat flange the outside diameter of which is equal to or less than the outside diameter of the mouth of the receptacle and a depressed central portion fitting within the mouth of the receptacle, said flange being adapted to bear upon the rounded edge of the receptacle, and a packing band adhesively secured to said flange and adapted to be compressed between the same and the mouth of the receptacle in substantially the manner described.

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

ALFRED L. WEISSENTHANNER.

Witnesses:

E. F. PORTER,

GRACE L. HEASLEY.