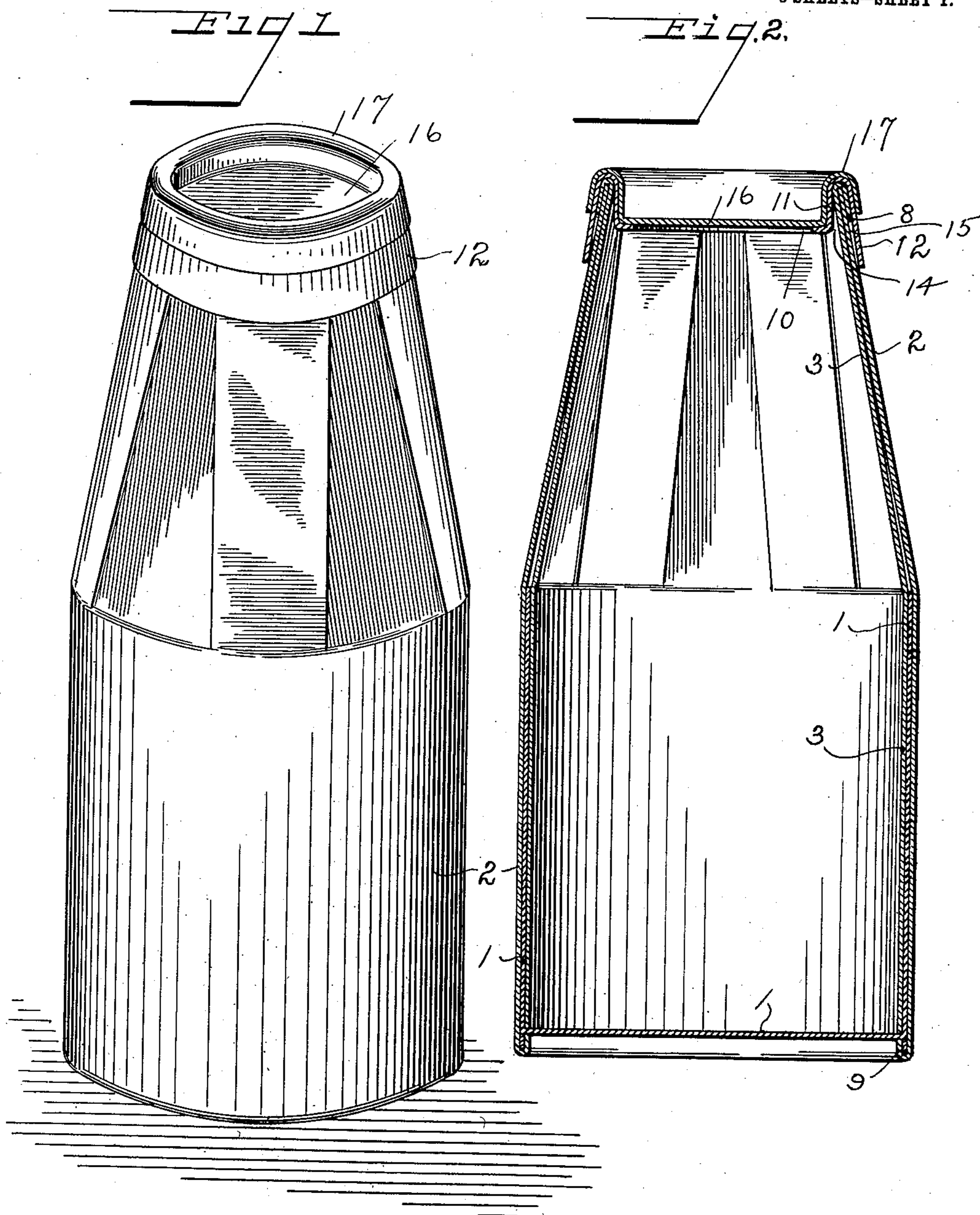


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J. N. DAVIS.  
PAPER RECEPTACLE.  
APPLICATION FILED SEPT. 19, 1908.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 1.



Witnesses  
*Alfred C. Allison*  
*Allison*

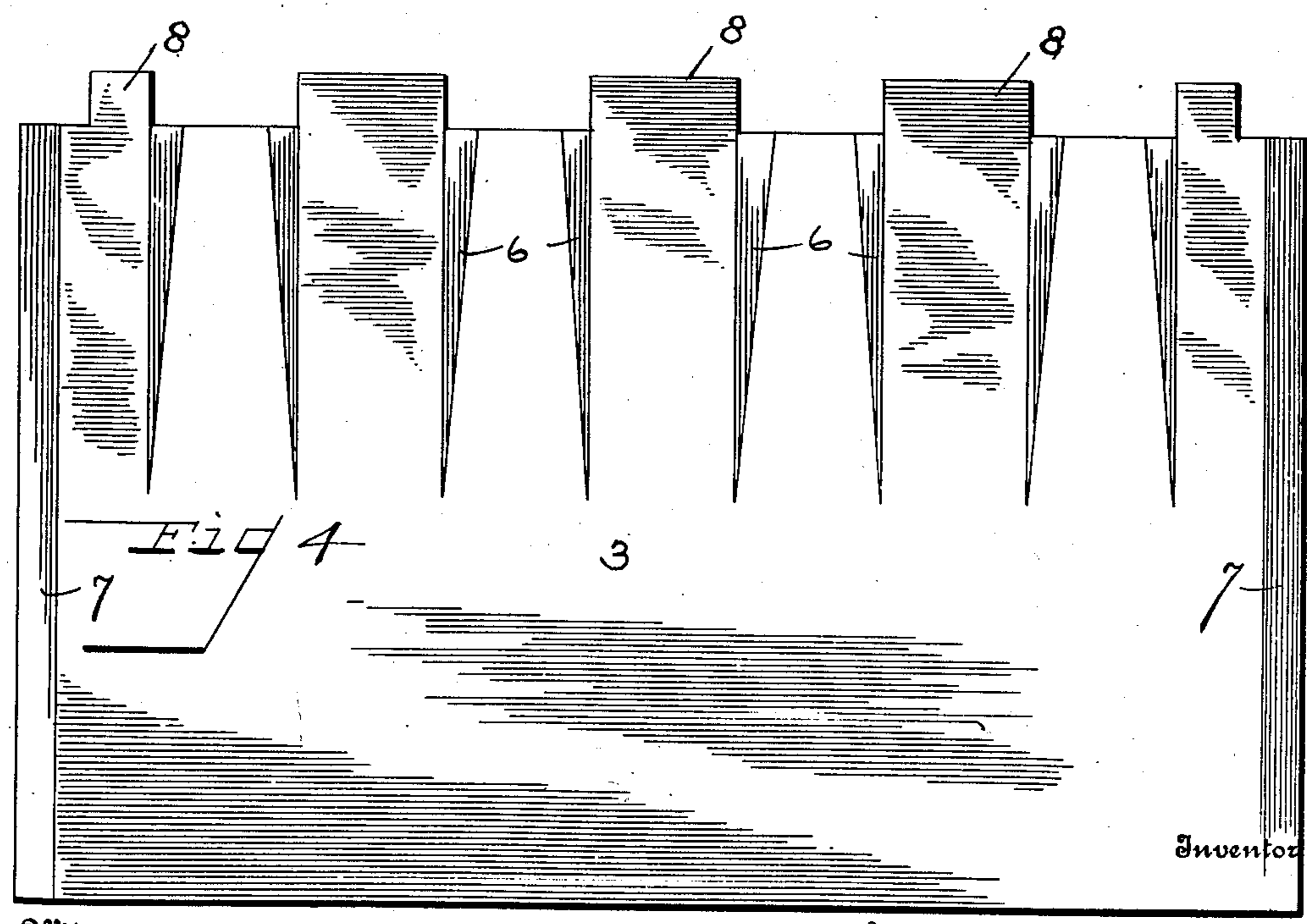
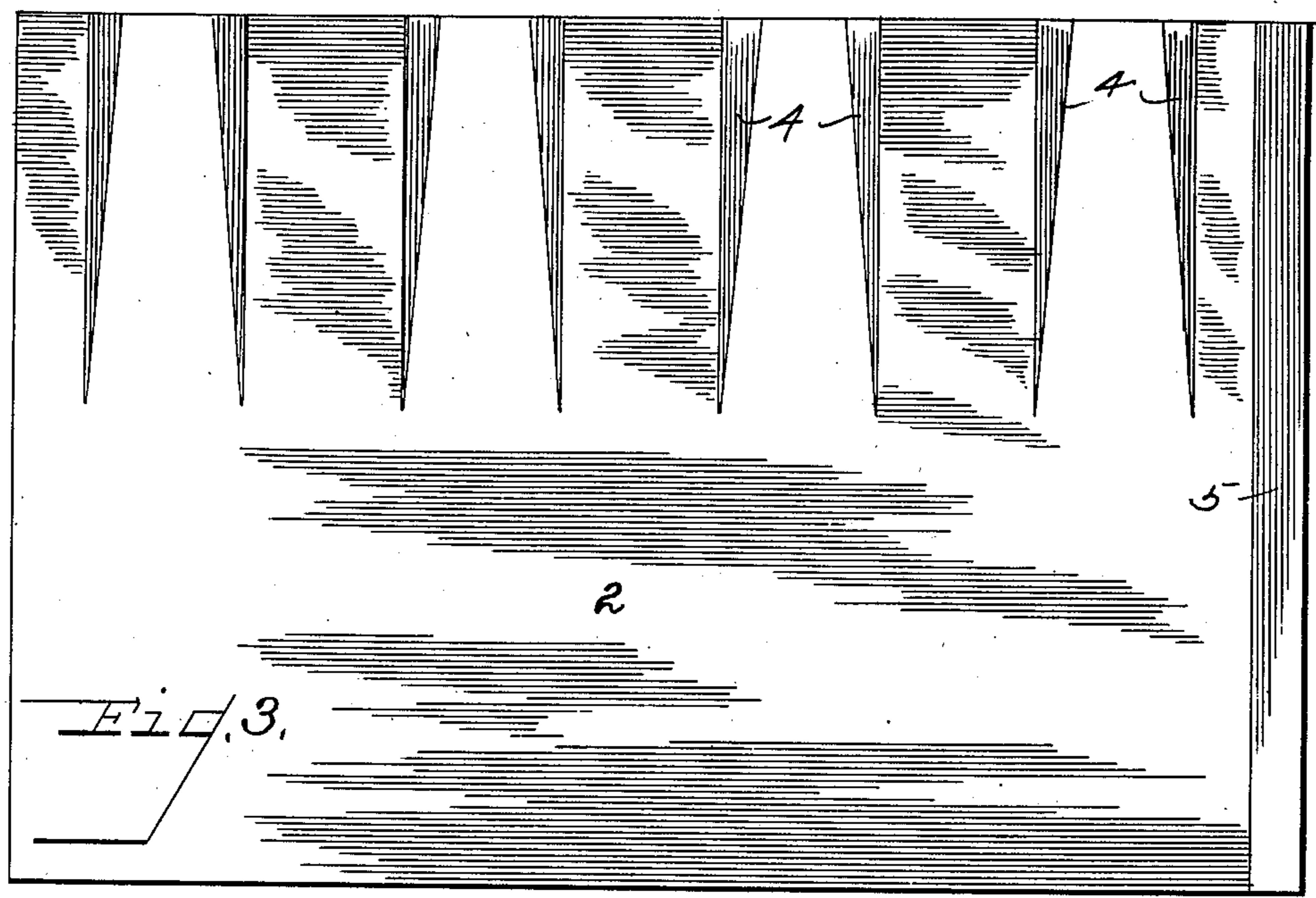
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3 SHEETS—SHEET 2.



Witnesses  
*Alfred Allison*

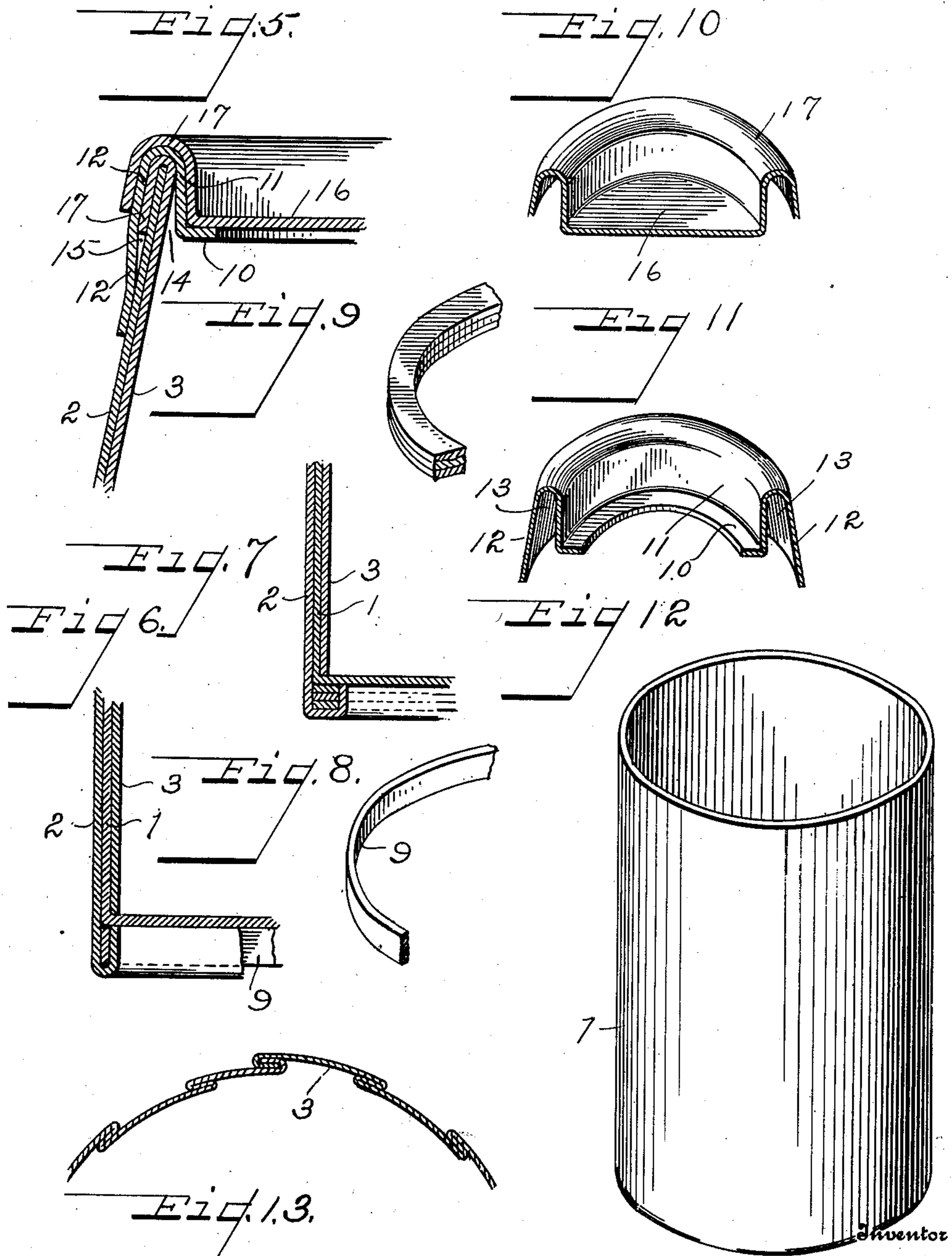
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3 SHEETS—SHEET 3.



Witnesses

*A. J. Purfield*  
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By

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# UNITED STATES PATENT OFFICE.

JOHN N. DAVIS, OF DAYTON, OHIO, ASSIGNOR OF ONE-HALF TO ISRAEL N. HARRIS,  
OF DAYTON, OHIO.

## PAPER RECEPTACLE.

956,305.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed September 19, 1908. Serial No. 453,894.

*To all whom it may concern:*

Be it known that I, JOHN N. DAVIS, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Paper Receptacles, of which the following is a specification.

My invention relates to receptacles of paper or similar material and more particularly to bottles of such material.

The object of the invention is to provide a bottle constructed of paper or similar material which will be sanitary, simple in structure strong and durable to enable it to withstand the action of liquids, and which may be manufactured by unskilled labor at such low cost as will permit it to be discarded when once used.

A further object is to provide a vessel of such character, which will be symmetrical, pleasing in appearance, and substantially conforming in contour to the usual shape of bottles heretofore used.

A further object is to provide an improved form of closure device for such receptacles, which will be more effective in protecting the contents of the receptacle from the entrance of foreign matter.

With the above primary and other incidental objects in view, the invention consists of certain features of construction, devices, parts and combinations thereof, or their equivalents, as hereinafter described and set forth in the claims.

In the drawings Figure 1 is a perspective view of the complete receptacle with the closure device in place. Fig. 2 is a vertical sectional view of the complete receptacle. Figs. 3 and 4 are plan views of the outside and inside wall members respectively. Fig. 5 is an enlarged detail sectional view of the upper portion of the receptacle. Fig. 6 is a similar view of the lower portion of the receptacle. Fig. 7 is a view similar to Fig. 6 illustrating an alternative construction. The thickness of the paper as shown in Figs. 5, 6 and 7 is greatly exaggerated, showing recesses between sundry layers of paper which in reality would not exist, or would be so small as to be unnoticeable in the device when constructed from stock of usual thickness. Figs. 8 and 9 are detail views of annular reinforcing members for the bottom of the receptacle. Fig. 10 is a sectional perspective view of the closure cap. Fig. 11 is

a sectional perspective view of the collar located about the mouth of the vessel. Fig. 12 is a perspective view of the cup shaped body forming the bottom and a portion of the sides of the receptacle. Fig. 13 is a detail transverse sectional view through the upper part of the bottle, showing the four fold seam of the inner wall.

Like parts are indicated by similar characters of reference throughout the several views.

The bottle as illustrated comprises a vessel cylindrical throughout a portion of its height, and inclined or conical throughout the remaining portion. The vertical walls or the cylindrical portion are of three thicknesses, while the upper portion which is in the form of a truncated cone attached to said cylindrical portion is of double thickness, the double walls being scored and folded to cause the walls to contract to the reduced mouth.

In constructing the receptacle there is employed a cup shaped member 1 which may be formed by gluing and folding a paper blank in the well known manner, but is preferably formed from a paper blank by stamping, or by the use of suitable forming dies, whereby the paper cup will be a seamless body. There are provided inner side walls 3, which extend down within the cup 1 substantially to the bottom thereof, and outside walls 2 which inclose the cup 1 and the inner walls. The outside walls 2 are formed from a single blank of rectangular form shaped and scored as shown in Fig. 3, in which 4 are triangular, reëntering gores formed by scoring the blank, which gores, when the blank is folded on the score lines cause the upper part of the bottle to assume the conical form. At 5 is provided a portion to form an overlapping glue joint, by which the two sides of the blank are united. The inner wall blank is shaped and scored similar to the outside wall blank, the gores 6 of the inner wall corresponding with those 4 of the outside wall. Glue laps 7 are provided at each end of the blank, by which the blank is formed into a cylindrical body. The glue sections 7 are first joined, then the blank is folded on the score lines at each side of the glue joint to form a four fold seam, formed by the interlocking of the reversed edges of the blank, which incloses the glue joint and protects the contents of the

receptacle from affecting the glue, or being affected thereby. The side walls are attached to the cup 1 by gluing about the upper portion of the wall of the cup.

5 When the walls are in place, the inner wall projecting within the cup 1 and the outside wall inclosing the cup and inner wall and projecting somewhat below the bottom of the cup, the upper part of the receptacle is contracted by plaiting the walls, 10 or folding inward the gores 4 and 6 of the respective walls 2 and 3, which forms vertical plaits in the bottle wall as shown in Figs. 1 and 2. The inclination of the upper part 15 of the bottle may be varied more or less by varying the proportions of the gores 4 and 6, making them wider and shorter for a more abrupt top, and long and narrow for a slight tapered bottle. When the upper part has 20 been contracted by the folding of the gores on the score lines, the tongues 8 projecting from the upper edge of the inner wall are bent outward over the edge of the outside wall and attached thereto by glue or otherwise. This will serve to unite the double 25 wall, and form a smooth finished edge. Annular reinforcing members which may be in the form of a band 9, as in Figs. 6 and 8, or one or more flat rings, as in Figs. 7 and 9 30 are inserted within the extended outer wall 2 below the bottom of the cup 1, over which reinforcement, the lower edge of the outer wall is turned inward, as in Figs. 6 and 7, forming an annular flange or rim about the 35 bottom of the receptacle on which the cup 1 will rest, and which will materially strengthen the bottom of the receptacle to enable it to withstand the weight of the contents.

40 Fitted over the top of the receptacle is a collar comprising an internal flange 10 adjacent to the mouth of the bottle, having a peripheral flange substantially inverted U shaped, extending upward on the interior 45 of the receptacle at 11 and over the upper edge of the walls and down the exterior thereof as at 12, the portion 12 being secured to the walls by gluing. The collar is preferably formed by stamping from a single piece 50 of material. The upper edge of the wall projecting within the recess 13 between the portions 11 and 12 of the peripheral flange of the collar forms a close tight fitting joint.

In Fig. 5 there appears to be a recess between the collar and the interior wall at 14 55 and another at 15. It is to be understood that the thickness of material is greatly exaggerated in this view, and that such recesses do not in fact exist in the device constructed from material of proper thickness, 60 but such recesses are due to the exaggeration of the view. A closure disk as is in common use for closing milk bottles may be used with the receptacle, such disk being pressed with- 65 in the mouth of the receptacle until it rests

on the flange 10 of the collar. However such disks have been found undesirable for the purpose of closing milk and other bottles, because dirt and foreign matter collect on top of the disk within the orifice of the receptacle. To remove such disk closures it is 70 usual to pry the disk up, the tilting of which in the removal operation results in spilling the dirt from the closure disk into the contents of the receptacle. To obviate this difficulty, there is provided a closure device 75 formed from a single piece of material by stamping or otherwise, which rests on the flange 10 and overhangs the upper edge of the receptacle walls. 80

The closure comprises a cup shaped member 16, the peripheral flange 17 of which is recessed, or substantially inverted U-shaped, within the recess of which the edge of the receptacle wall extends. The closure device 85 is somewhat similar in shape and in application to the receptacle, to the collar before described, except that the horizontal portion of the collar is provided with a central opening, whereas that of the closure is continu- 90 ous or solid. By the use of the closure as described, any dirt or foreign matter which might be on the closure will be removed therewith, and can not accidentally fall into the receptacle. The flange of the closure 95 engaging closely both the inside and outside of the edge of the wall forms a stop proof joint, which not only prevents the entrance of foreign matter but also prevents the escape of the contents of the receptacle. 100

It is obvious that instead of the gores 4 and 6 in the walls of the receptacle, such walls might be corrugated without scoring the material such corrugations being compressed at the top, somewhat fan shaped to 105 form the tapered portion of the receptacle.

From the above description it will be apparent that there has been thus produced a receptacle of the character described, in which the glue joints will be protected from 110 contact with the contents thereof, and which possesses the sundry other features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportion, detail construction, and arrangement of parts without departing from the principle involved or sacrificing any of its advantages. 115

Having thus described my invention, I claim: 120

1. In a paper bottle as described, a cylindrical cup shaped member formed from a single paper blank, inner and outer walls each formed from a single paper blank said walls projecting within and around the cup 125 shaped member respectively, said walls projecting above the cup shaped member and having in their upper portion a series of alternate rectangular sections and triangular gores, formed by score lines whereby the 130

upper portion of said sides may be folded to a truncated cone form, and means for maintaining the walls in their folded form, substantially as specified.

5 2. In a paper bottle as described, a bottom section, side walls of double thickness attached thereto and between which the sides of said bottom section extend, said side walls being folded throughout a portion of  
10 their height to form a series of gores whereby the upper portion of the side walls may be reduced to a truncated cone form, and means to retain the side walls in their folded form, substantially as specified.

15 3. As a new article of manufacture, a paper receptacle cylindrical in form throughout a portion of its height, the upper portions of the side walls having formed therein a plurality of rectangular sections  
20 and inturned triangular gores whereby the upper portion of the walls may be folded to conical form, substantially as specified.

4. As a new article of manufacture, a paper bottle the walls of which are formed  
25 from a flat paper blank, said blank being divided by score lines throughout a portion of its extent into a plurality of rectangular sections and triangular gore sections located on opposite sides of the rectangular sections,  
30 said blank being adapted to be folded on said score lines whereby the walls of the bottle will be parallel throughout a portion of their height and convergent throughout the remainder, substantially as specified.

35 5. In a paper bottle as described, a cylindrical cup shaped member formed from a single blank, side walls inclosing said member and having reëntering triangular gores formed in that portion of the side walls projecting above the cup shaped member, said  
40 gores being adapted to be folded inward whereby the side walls above the cup shaped member will be caused to converge, substantially as specified.

45 6. In a paper bottle as described, a cup shaped member formed from a single paper blank, and having perpendicular sides, double side walls, one of said side walls extending within the cup shaped member, the other  
50 side wall member inclosing the cup shaped member, the said side walls having corresponding score lines defining registering taper gores said double walls being adapted to be folded on said score lines whereby the  
55 portion of said walls projecting above the cup shaped member will be reduced to a truncated cone form, substantially as specified.

60 7. In a paper bottle as described, a cup shaped section comprising the bottom of the receptacle, double side walls therefor, one of said side walls extending within and the

other outside said cup shaped section, the upper portion of said side walls being divided by score lines into a predetermined  
65 arrangement of rectangular sections and triangular gores whereby said side walls may be folded on the prelocated score lines to reduce the upper portion of the receptacle to conical form, substantially as specified. 70

8. In a paper bottle as described, a bottom section, double side walls secured to said bottom section, the inner wall being of greater height than the outer wall, said side walls being divided by score lines into a  
75 predetermined arrangement of triangular gores and intervening sections, whereby the said side walls may be folded to conical form, the portion of the inner wall projecting beyond the outer wall being adapted to  
80 be folded to parallelism over the edge of the outer wall and secured thereto to maintain the said side walls in their folded condition, substantially as specified.

9. In a paper bottle as described, a bottom section, double side walls secured to  
85 said bottom section, independent separated tongues projecting at regular intervals from the edge of the inner wall and extending beyond the outer wall, said side walls being  
90 divided by score lines into a predetermined arrangement of triangular gores and intervening sections whereby said side walls may be folded to conical form and when so folded adapted to bring the adjacent edges  
95 of the separated tongues of the inner wall together, said tongues being bent outward over the outer wall section and secured thereto to maintain the wall sections in their folded form, and whereby the separated  
100 tongues will form a substantially continuous band about the neck of the receptacle, substantially as specified.

10. In a paper bottle as described, a bottom section, side walls secured thereto, said  
105 side walls being divided by score lines into a predetermined arrangement of triangular gores and intervening sections, whereby the side walls may be folded to conical form, an annular cup shaped collar located in the  
110 neck of said bottle upon which the closure is adapted to rest, the peripheral flange of said cup shaped collar being double and extending upward toward the mouth of the bottle, the said double flange inclosing the  
115 upper edge of the side walls, substantially as specified.

In testimony whereof, I have hereunto set my hand this 12th day of September A. D. 1908.

JOHN N. DAVIS.

Witnesses:

HARRY F. NOLAN,  
F. L. WALKER.