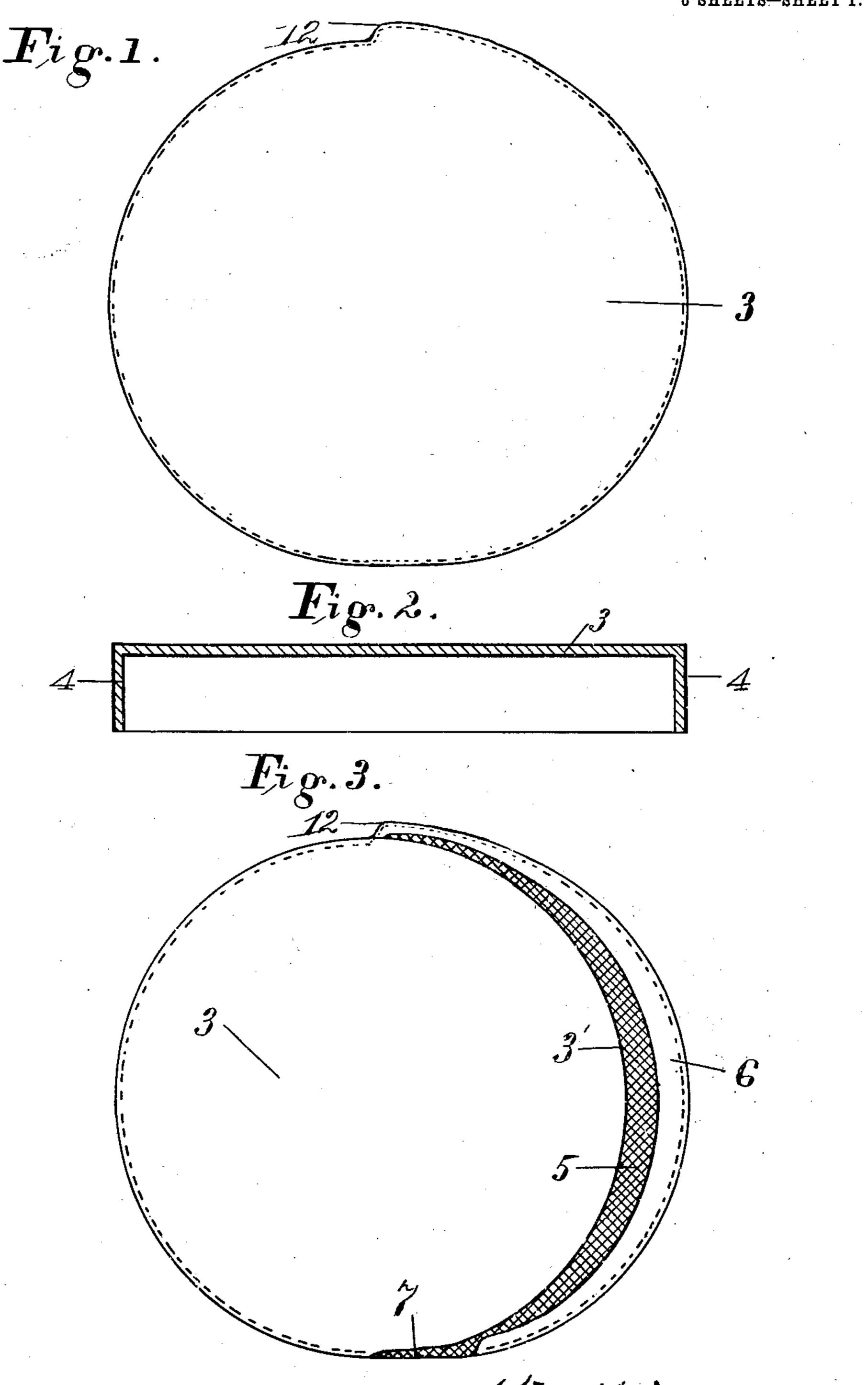
CAP OR CLOSURE FOR BOTTLES, JARS, CANS, &c.

APPLICATION FILED OCT. 31, 1905.

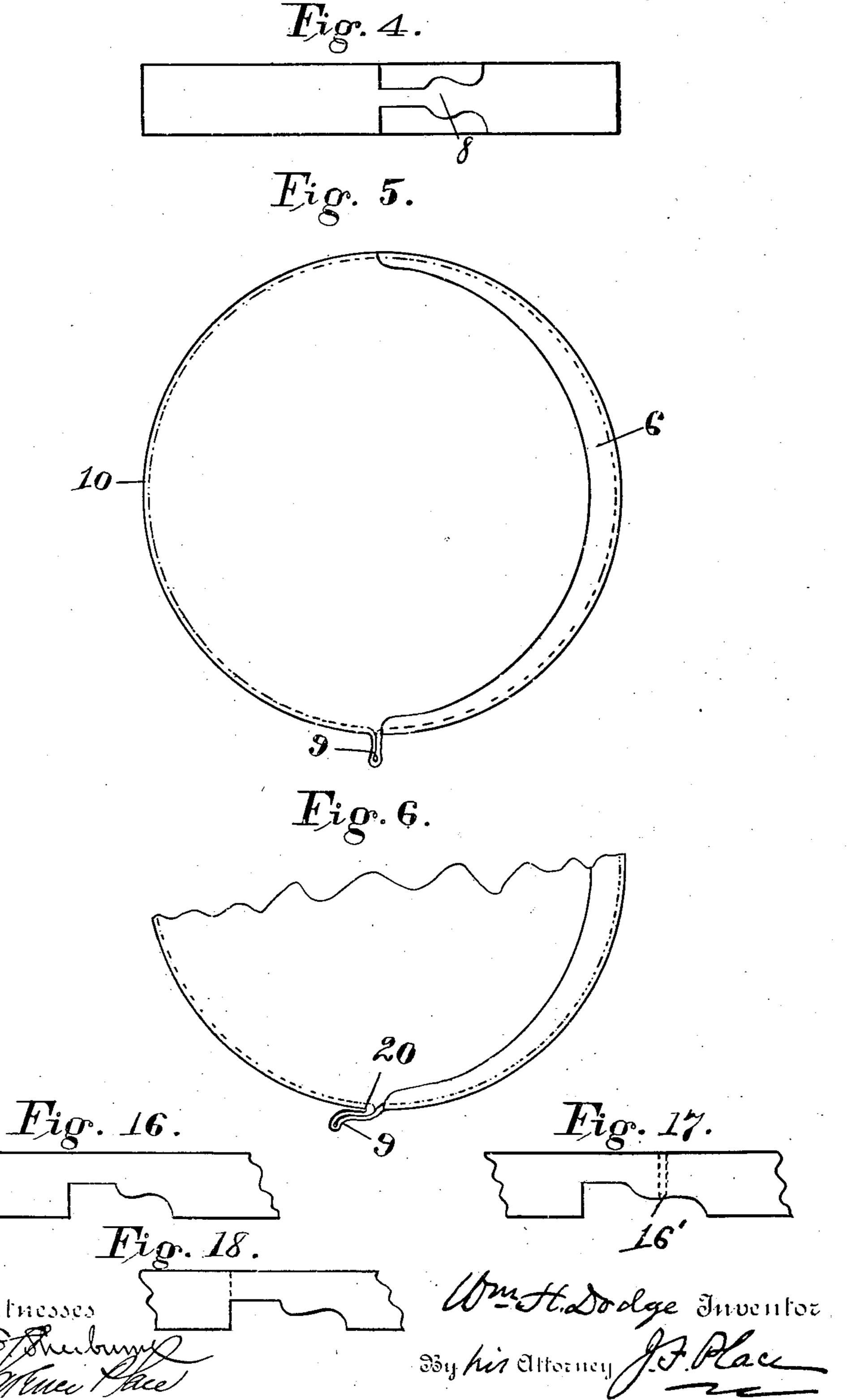


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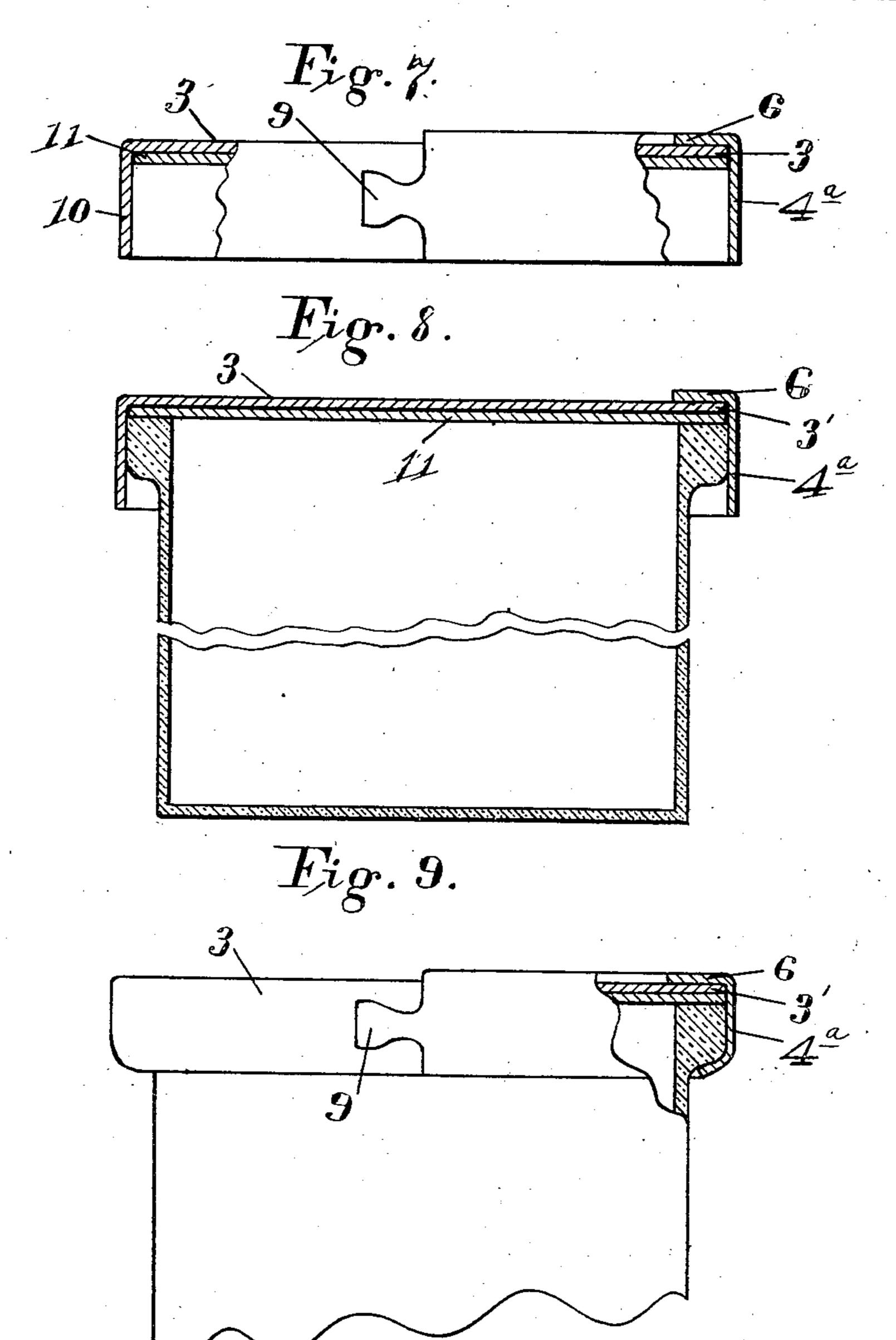
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6 SHEETS-SHEET 3.



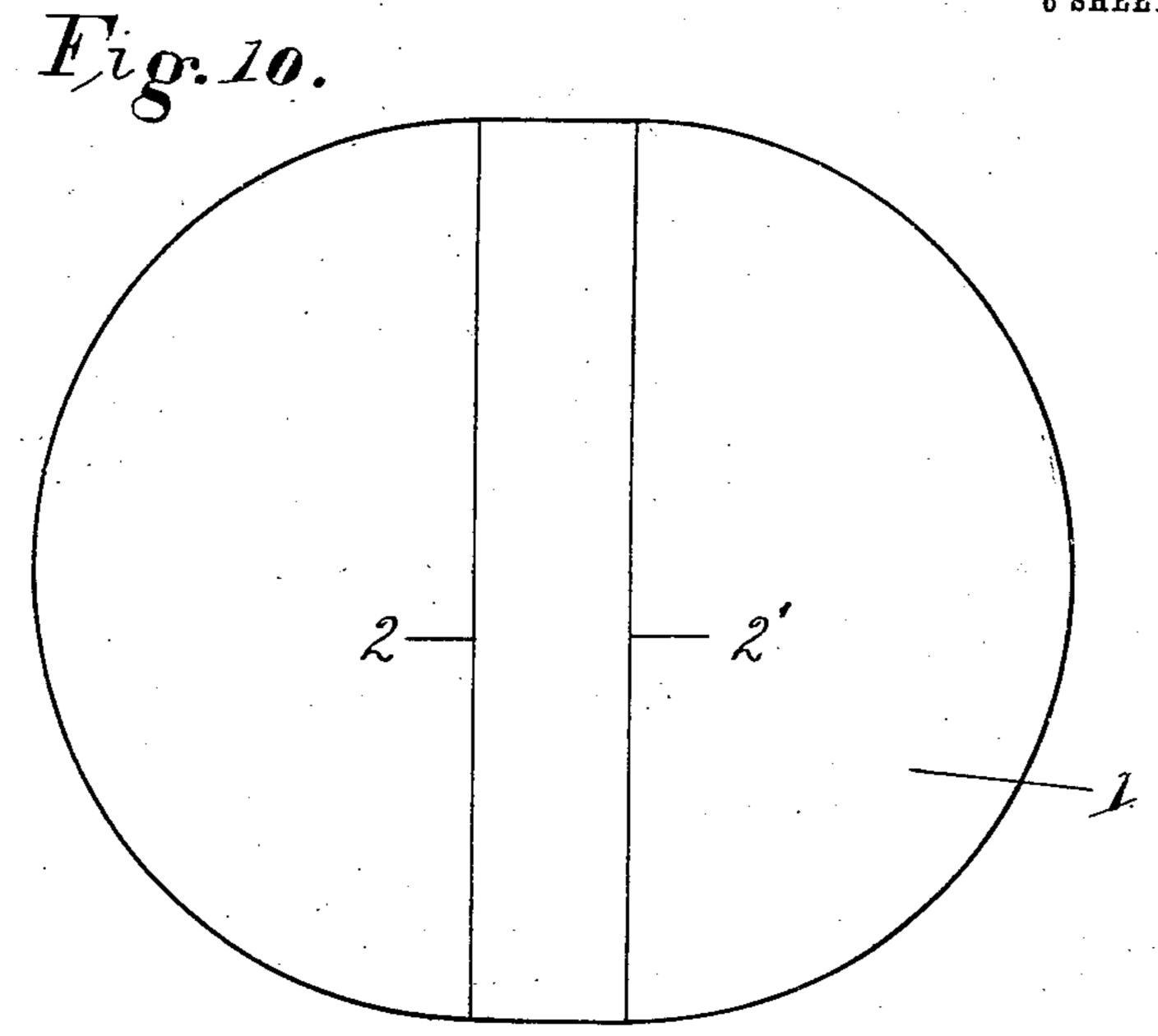
Southis Attorney J. F. Place

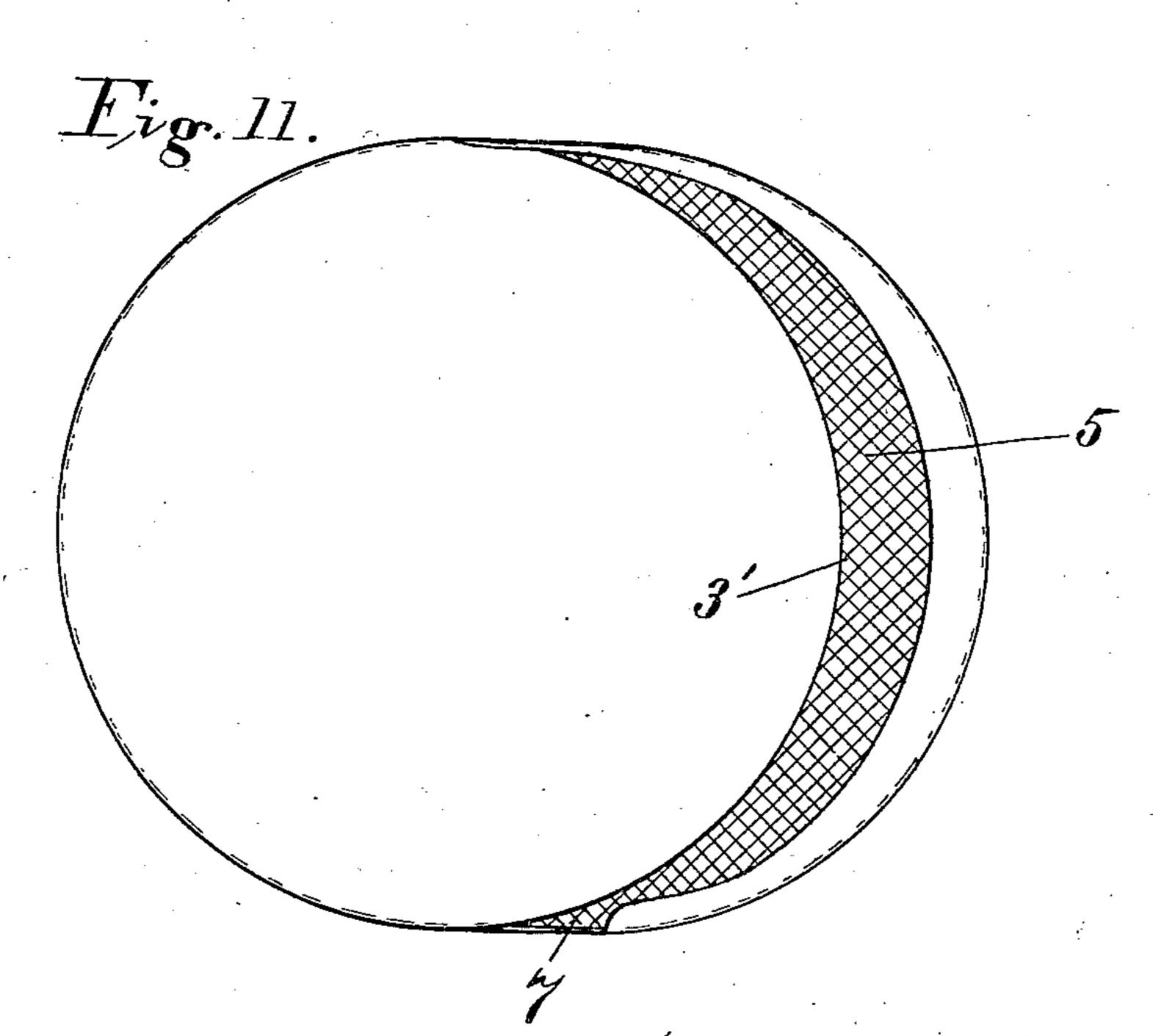
PATENTED AUG. 28, 1906.

W. H. DODGE.

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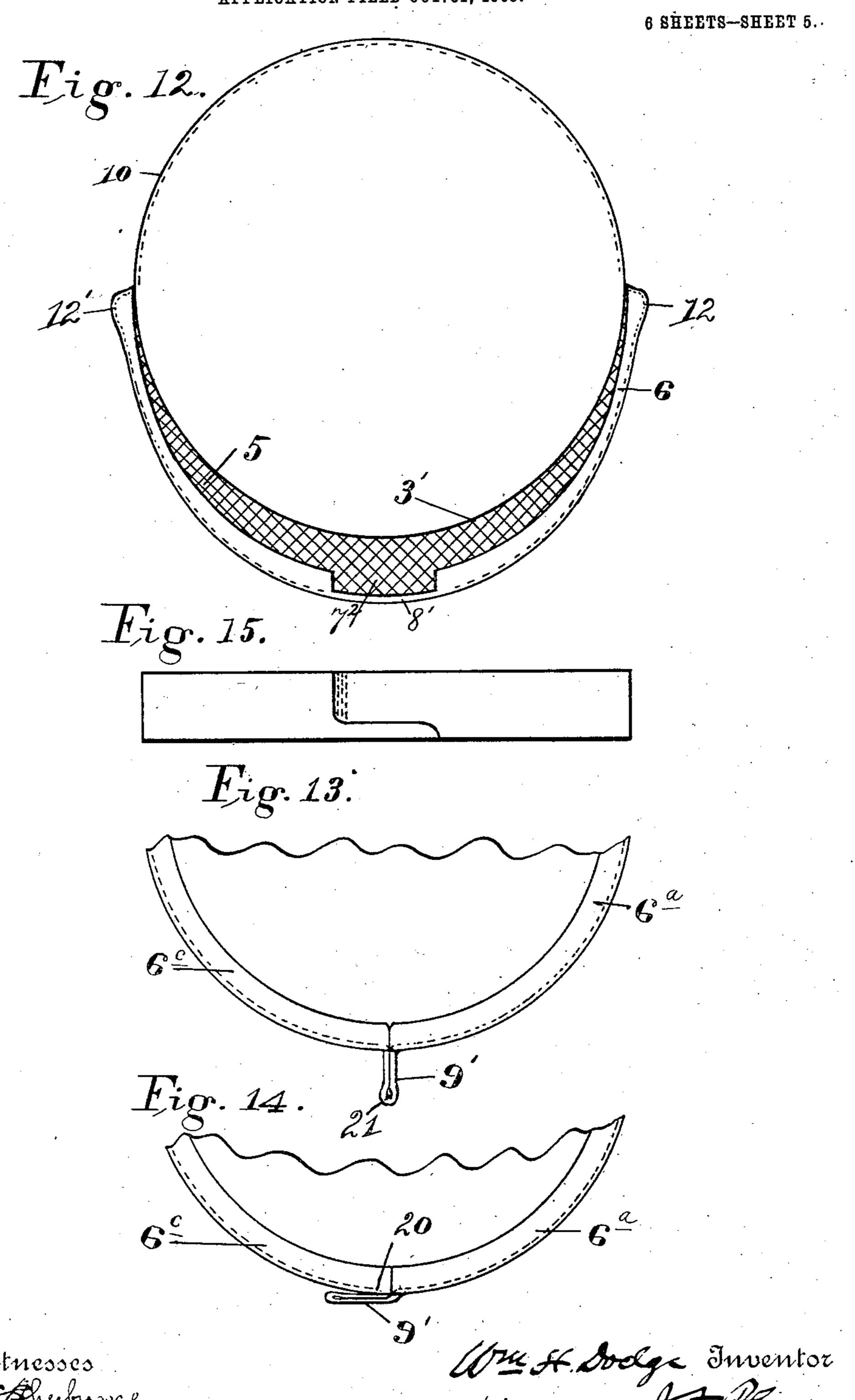
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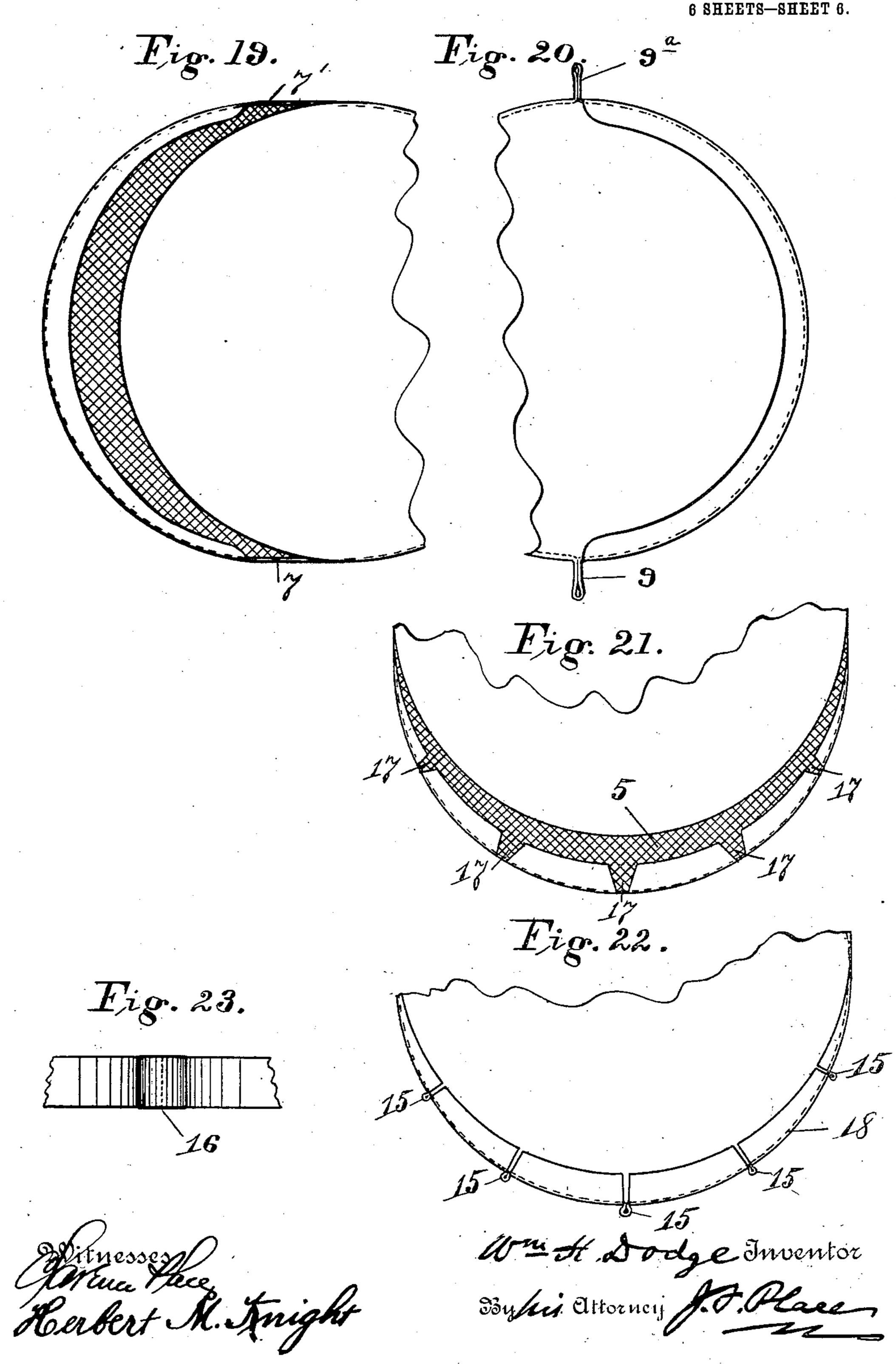
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CAP OR CLOSURE FOR BOTTLES, JARS, CANS, &o. APPLICATION FILED OCT. 31, 1905.



By his Ottorney J.J. Race

CAP OR CLOSURE FOR BOTTLES, JARS, CANS, &c. APPLICATION FILED OCT. 31, 1905.



UNITED STATES PATENT OFFICE.

WILLIAM H. DODGE, OF MONTCLAIR, NEW JERSEY.

CAP OR CLOSURE FOR BOTTLES, JARS, CANS, &c.

No. 829,856.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed October 31, 1905. Serial No. 285,255.

To all whom it may concern:

Be it known that I, William H. Dodge, a citizen of the United States, and a resident of Montclair, in the county of Essex and 5 State of New Jersey, have invented certain new and useful Improvements in Caps or Closures for Bottles, Jars, Cans, &c., of which the following is a specification.

This invention relates to caps or closures

10 for bottles, jars, cans, and the like.

The object of the invention is to provide a cap or closure for bottles, jars, cans, and the like which is simple in construction and economical in manufacture.

A further object is to provide a cap or closure of the character referred to from a

single piece or sheet of metal.

A further object is to provide a cap or closure wherein various parts thereof are in 20 one piece or integrally connected together, thereby avoiding the necessity for assembling such parts by hand.

A further object is to provide an efficient hermetically-sealing cap or closure which can 25 be quickly and readily applied to or removed

from a bottle, can, jar, or the like.

Other objects of the invention will appear

more fully hereinafter.

The invention consists, substantially, in the 30 construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, Figure 1 is a view in plan of a blank for a cap or closure embodying the principle of my invention in one of the initial stages of production of such cap or closure. Fig. 2 is a trans-40 verse central section of the same: Fig. 3 is a

view similar to Fig. 1, showing the blank at another stage of production of the cap or closure. Fig. 4 is a view in front elevation, showing one form of flange-connecting web to

45 form the loop or fold in accordance with the principles of my invention. Fig. 5 is a top plan view of one form of completed cap or closure embodying the principles of my invention and showing the parts thereof in the

50 positions occupied thereby when the cap or closure is applied to a bottle, can, jar, or the like. Fig. 6 is a view similar to Fig. 5, part broken off, showing the flange-connecting loop or fold flattened down against the side | the several views.

of the flange. Fig. 7 is a view in side eleva- 55 tion, parts in vertical section, of a form of completed cap or closure embodying the principles of my invention. Fig. 8 is a view in longitudinal section of a bottle, can, jar, or the like, showing the application thereto of a 60 cap or closure embodying the principles of my invention. Fig. 9 is a broken view in side elevation of a bottle, jar, can, or the like, showing the application thereto of a cap or closure constructed in accordance with the 65 principles of my invention, parts being in section to show the crimping or bending of the flange under the rim or shoulder surrounding the mouth of the can, jar, or the like. Fig. 10 is a view in plan, illustrating 7c. the form of sheet from which the cap-blank is made. Fig. 11 is a view similar to Fig. 3, showing the manner of forming or producing the partially severed or separated contractible portion of the flange. Fig. 12 is a view. 75 similar to Fig. 3, showing a slightly-different construction embraced within the spirit and scope of my invention. Fig. 13 is a broken view in plan of the form of cap or closure shown in Fig. 12 when the flange portions 80 are contracted. Fig. 14 is a similar view showing the fold or loop flattened or bent down against the side of the flange. Fig. 15 is a view in side elevation of the construction shown in Fig. 14. Figs. 16, 17, and 18 are 85 broken detail views showing various shapes and arrangements of the integral connectingweb to form the loop or fold. Fig. 19 is a broken view similar to Figs. 3 and 12, showing a modified form of construction em- 90 braced within the spirit and scope of my invention and wherein two flange-connecting webs to form loops or folds are employed. Fig. 20 is a broken view in plan of the construction shown in Fig. 19 and showing the 95 flange portion in contracted position. Fig. 21 is a broken view similar to Fig. 19, showing a plurality of flange-connecting webs and embraced within the spirit and scope of my invention. Fig. 22 is a broken view in plan 100 of the construction shown in Fig. 20 and showing the flange portions in contracted position. Fig. 23 is a broken view in side elevation, showing a fold or loop of the form and design shown in Fig. 22.

The same part is designated by the same reference-sign wherever it occurs throughout

In the manufacture of caps or closures for bottles, jars, cans, or the like it is exceedingly desirable to produce a device which is not only simple in construction and econom-5 ical in manufacture, but also which is capable of being readily, easily, and quickly applied to or removed from the mouth of a bottle, can, jar, or the like, while at the same time efficient in hermetically sealing the botro tle, jar, can, or the like when applied thereto. In attaining simplicity of structure it is desirable to avoid employing a plurality of parts, in attaining economy in manufacture it is desirable to avoid the necessity for as-15 sembling the parts by hand, and in attaining efficiency, rapidity, and ease in the application of the cap or closure to or its removal from a bottle, jar, can, or the like it is desirable to provide means whereby, the effective 20 inclosing or surrounding diameter of the cap

or closure may be contractible. It is among the special objects of my present invention to accomplish these various purposes and to attain the results stated, and 25 in carrying out my invention I propose to form the cap or closure from a single piece of material, preferably sheet metal, as tin, although I do not desire to be limited or restricted in this regard. In practice I propose 30 to produce from a sheet or plate of the selected metal or material a portion of sufficient size and of the desired contour to form a blank from which the cap or closure by suitable and proper manipulation is formed. From this 35 piece of material a blank for the cap or closure is produced by suitably stamping, molding, drawing, or otherwise forming the same into substantially cup shape. It is obvious that the plate may be cut from the sheet of mate-

tion, though it is obvious that my invention is in no wise to be limited or restricted in this respect.

In order to attain the desired objects had 15 in view, I propose to provide the cap or closure with a continuous integral flange, which, however, is contractible in diameter, and in the accomplishment of this result the blank for the cap or closure, either before or after 50 drawing the same into proper shape or at the same time therewith, is punched or otherwise suitably cut or severed at the desired points to produce one or more parts or portions of the flange partially severed from the base of 55 the cover of the cap or closure at one or more points, but which partially-severed portion or portions of the cap or closure flange is or are provided with a portion or member corresponding to the base or cover of the cap or 60 closure and adapted when the partially-severed portions of the flange are contracted for application to a bottle, jar, can, or the like to overlap or lap past the adjacent edge or portion of the base or top of the cap or clo-

55 sure to effect the proper and efficient hermetic 1

sealing action. I propose that the flange of the cap or closure, even though severed or partially detached at one or more points from the base or top of the cap or closure, be integrally continuous throughout, and to this 7c end, while permitting of the contraction of the diameter of the flange in the application of the cap or closure to a bottle, jar, can, or the like or its ready removal therefrom when desired I propose to connect the portion or 75 portions of the flange of the cap or closure, which is or have been partially severed or separated from the base or top of the cap or closure, either together or to adjacent parts or portions of the flange with integral web por- 80 tions, preferably of reduced width or strength, so as to be formed into loops or folds in order to contract the diameter of the flange of the cap or closure in the application of the same to a bottle, jar, can, or the like, and which at 85 the same time may afford means for readily releasing the cap or closure from the bottle, jar, can, or the like to remove the same.

In the foregoing I have outlined generally the objects and purposes of my invention, 90 and in a general way the manner of attaining and accomplishing my objects and purposes; but it is to be understood that my invention in its broad and generic scope is not to be limited or restricted in respect to details of con- 95 struction and operation. While, therefore, I have shown and will now specifically describe various forms and embodiments of my invention, I do not desire to be limited or restricted thereto, as variations therefrom and changes 100 in the details of construction thereof would readily occur to persons skilled in the art and still fall within the spirit and scope of my invention.

Referring to the accompanying drawings, I 105 have shown at 1 in Fig. 10 a form of plate and of suitable shape or contour adapted for use in the manufacture of a cap or closure embodying the principles of my invention. This plate may be severed from a sheet of suit- 110 able material—such as tin, for instance—by punching or otherwise. The plate 1 is shown as oblong in shape, with the ends thereof of circular contour and of equal radius, but not concentric. For a portion of the distance or 115 length of the sides of the plate said sides are preferably parallel with each other, or substantially so. The lines 2 2' are merely for the purpose of indicating diameters of the circular end portions of the plate and the dis- 120 tances apart of the centers thereof and the extent of the parallel side portions of the plate. The plate is then formed into a blank or shell for a cap or closure of the form shown in Figs. 1 and 2 by drawing or otherwise. It 125 will be observed that the blank is substantially cup shape, with a base or top portion 3 and a flange portion 4. If desired, the forming of the blank shown in Figs. 1 and 2 may be effected at the same time the plate 1 is pro- 130

duced from a sheet of the material or at the

same operation therewith.

In Figs. 3 and 11 I have shown the next step in the operation, which consists in par-5 tially severing or separating a portion of the flange 4 from the base or top 3. This may be effected by removing with a punch or otherwise a strip or section from the base or top 3 and along and adjacent to the periph-10 ery of such top or base, (indicated by the shaded lines in Figs. 3 and 11.) In practice I prefer that the strip or portion removed from the top or cover 3 should be of somewhat crescent shape, as clearly shown, but leaving a portion 6 of the top cover attached to the severed portion of the flange. It will be observed that by thus severing or removing a portion of the top or cover portion 3 the flange 4 is left continuous circumferentially, 20 but partially severed or detached from the top or cover 3. In practice the lines of cut made in the top or cover portion 3 to produce the partially-severed portion above referred. to is produced in the blank along or adjacent 25 the end portion of the oblong blank, or the portion thereof which is of greatest diameter. and, as indicated at 7, the cut made in the top or cover portion 3 to produce the partially-severed section is continued for a por-30 tion of the length thereof, and near the point or end of the cut said cut extends to the edge or flange 4, so as to enable a portion of the flange to be removed to produce a narrow or suitably shaped or weakened integral con-35 necting-web for connecting the end of the partially-severed portion of the flange to the adjacent unsevered or unseparated portion of the flange, as clearly indicated at 8, Fig. 4. This integral connecting-web portion may be 40 of any suitable or convenient shape, and in Figs. 16, 17, and 18 I have shown various forms and arrangements of the integral connecting-web portion as illustrative of the various embodiments of the principles of my 45 invention.

A cap or closure formed as above described has the flange 4 thereof of larger diameter than the mouth of the bottle, jar, can, or the like to which the cap or the closure is to be 50 applied, and therefore in order to contract the diameter of the inclosing flange of the cap or cover the integral connecting-web portion 8 of the flange is formed into a fold or loop, as clearly indicated at 9, thus and thereby con-55 tracting the flange into substantially circular contour and of the desired diameter to fit closely the mouth of the bottle, jar, or can with the portion 6, overlapping the adjacent edge 3' of the top or cover portion 3 and with 60 the flange portions 4a and 10 encircling or surrounding the neck of the bottle, can, jar, or the like.

In Fig. 7 I have shown a cap or closure constructed in accordance with my invention and with the flange thereof contracted, and

in Fig. 8 I have shown the cap or closure applied to the neck or mouth of a bottle, jar, can, or the like, and in Fig. 9 I have shown the edge of the flange crimped or bent under the shoulder which surrounds the mouth of 70 the bottle, can, jar, or the like. The fold or loop 9 of the integral connecting-web may, if desired, be bent or folded or flattened down against the side of the flange, as indicated at 9, thereby affording means adapted to be 75 grasped by the fingers for the easy removal of the cap or closure from the bottle, can, or jar when desired, by merely unbending the fold. If desired and in order to increase the efficiency of the cap or closure in effecting a 80. hermetic sealing of the bottle, can, jar, or the like I may employ a suitable disk or washer, (indicated at 11, Fig. 7,) preferably of compressible material and designed to be placed over the mouth of the bottle, jar, can, or the 85 like before the cap or closure is placed thereon or else placed within the cap or closure.

Instead of the integral connecting-web being formed at only one end of the cut, which produces the partially-severed portion 90 of the flange, such integral connecting-web portion may be formed at each end of such cut, as shown at 7 and 7', Fig. 19, thereby enabling the folds or loops 9 9a to be formed as indicated in Fig. 20.

Instead of the integral connecting-web portion being formed at one or the other, or both, ends of the cut said connecting-web portion may be formed intermediate the ends of the cut by suitably cutting out the overlapping portion 6, as indicated at 7² in Fig. 12, thereby leaving the overlapping portions 6² and 6² on opposite sides of a connecting-web portion 8', formed in the flange, and which connecting-web portion is integral with the flange and may be formed into a loop, as indicated at 9' in Figs. 13 and 14.

It is obvious that a number of sections of flange may be severed from the base or top 3 of the cap or closure and similarly connected 110 together by integral connecting-web portions, thereby enabling the flange to be properly contracted by forming loops or folds in such connecting-web portions. In Figs. 21 and 22 I have shown a plurality of the partially- 115 severed portions of the flange produced by the cuts 17 and connected to form a continuous flange by the integral connecting-web portions, which when the various portions of the flange are contracted for application to a 120 bottle, jar, can, or the like are formed into the loops 15. If desired and in order to enable a cap or closure to be removed with facility from a bottle, jar, can, or the like when desired the integral connecting-web portions 125 may be suitably weakened—as, for instance, by scoring or grooving the same, as indicated at 16 in Fig. 23 and also as indicated by the dotted lines in Figs. 17 and 18, whereby such connecting-web portions may be readily 130

broken to permit the flange of the cap or ! cover to expand or to be expanded, whereby the cap or closure may be readily removed.

In order to economise the material as 5 much as possible, I may, if desired, reduce the width of the cut formed in or the detached portion removed from the base or cap 3 to produce the partially-severed contractible section or portion of the flange. To this 10 end I may form a round projection or extension or shoulder in the flange 4 when the blank is formed, as indicated at 12 12', Figs. 1, 3, and 12, and from the rounded projection or shoulder the cuts commence. The provi-15 sion of these projections, extensions, or shoulders serves to increase the circumference of the flange and to maintain the portion 6, which overlaps the severed edge of the top or cover 3, as wide as possible at the ends, there-20 by insuring the cover of the cut 5 when the cap is completely formed.

From the foregoing description it will be seen that I provide an exceedingly simple and efficient cap or closure formed from a 25 single piece and having all the parts thereof integral with each other, wherein the flange which encircles the mouth of the bottle, jar, can, or the like, to which the cap or cover is to be applied, is continuous and is contractible in 30 diameter, so as to be applied most efficiently, and which can be readily removed by simply loosening or, as in the construction shown in Figs. 17 and 18, by breaking the integral con-

necting-web, which connects adjacent por-35 tions of the flange.

As above indicated, it is obvious that many variations and changes in the details of construction and arrangement would readily occur to persons skilled in the art and still fall 40 within the spirit and scope of my invention. While, therefore, I have shown and described various forms and embodiments of the principles of my invention, I do not desire to be limited or restricted in the broad 45 and generic sense of my invention to the specific details shown and described; but

What I claim as new and useful and of my own invention, and desire to secure by Let-

. ters Patent, is—

1. A cap or closure for bottles, jars, cans or the like, formed from a single piece of material and having a continuous partially-separated flange provided with a contractible portion.

2. A cap or closure for bottles, jars, cans or the like, formed from a single piece of material and having a continuous flange, with a slot in the top of the cap to separate the flange for a part of its circumferential length, 60 such separated part of the flange including a foldable web.

3. A cap or closure for bottles, jars, cans or the like, having a base or top and a continuous flange formed integrally therewith, said 65 flange being separated from the base or top

for a portion of the circumferential length thereof and including a foldable web.

4. A cap or closure for bottles, jars, cans or the like, having a base or top provided with a flange formed integrally therewith, said 7c flange being separated throughout a portion of its circumferential length from the base or top, the separated portion of the flange being integrally connected by a foldable web with the adjacent portion of the flange.

5. A cap or closure for bottles, jars, cans or the like, having a base or top provided with a flange formed integrally therewith, said flange being separated for a portion of its circumferential length from the top or base, the 80 separated portion of the flange including a foldable integral connecting-web portion.

6. A cap or closure for bottles, jars, cans or the like, having a top or base and a flange formed integrally therewith, said flange be- 85 ing separated from the top or base for a portion of the circumferential length thereof, the separated portion of the flange including a

contractible connecting-web.

7. A cap or closure for bottles, jars, cans or 90 the like, having a base or top provided with a flange and connected integrally therewith for a portion of its circumferential length, but separated therefrom for the remaining portion of such length, the separated portion in- 95 cluding a reduced foldable connecting-web.

8. A cap or closure for bottles, jars, cans or the like, having a base or top provided with a flange formed integrally therewith, said flange being separated from the base or top 100 for a portion of its circumferential length, the separated portion of the flange including an integral connecting-web of less width than the width of the flange.

9. A cap or closure for bottles, jars, cans or 105 the like, having a top or cover and a flange formed intergally therewith, said flange being separated from the top or cover for a portion of its circumferential length by a slit through the top or cover, the separated portion of the 110 flange including a foldable integral connecting-web.

10. A cap or closure for bottles, jars, cans or the like, having a top or base provided with a continuous flange formed integrally there- 115 with, said flange being separated from the top or base for a portion of its circumferential length, and means whereby the separated portion of the flange may be contracted.

11. A cap or closure for bottles, jars, cans 120 or the like, having a top or base provided with a continuous, flange formed integrally therewith, said flange being separated from the top or base for a portion of its peripheral length, and means whereby the diameter of 125 said continuous flange may be varied to facilitate the application or removal of the cap or closure.

12. A cap or closure for bottles, jars, cans or the like, having a top or base provided 130

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with a continuous flange, said flange being formed integrally with said top or base, but having a portion thereof separated from said top or base, the flange being of greater cir-5 cumference than the top or base.

13. A cap or closure for bottles, jars, cans or the like, having a top or base and a continuous flange formed integrally therewith, but having a portion thereof separated from 10 said top or base, said flange being of greater circumference than the top or base, and means whereby the flange may be contracted circumferentially.

14. A cap or closure for bottles, jars, cans 15 or the like, having a top or base provided with a flange, formed integrally therewith, said flange having a portion thereof separated from the base or top, the separated portion including an integrally connecting-20 web adapted to be formed into a fold or loop, to circumferentially contract the flange.

15. A cap or clòsure for bottles, jars, cans or the like, having à top or base provided with a continuous flange of greater circum-25 ference than said top or base, and integrally connected to said top or base for a portion of its circumferential length, said flange having an integral connecting-web portion adapted to be formed into a loop or fold to circum-

30 ferentially contract said flange.

16. A cap or closure for bottles, jars, cans or the like, having a top or base and a continuous flange formed integrally therewith, said flange being separated from the top or 35 base for a portion of its circumferential length, the separated portion of the flange having a projecting rim adapted to overlap the adjacent edge of the top or base and means whereby the diameter of said flange 4° may be contracted.

17. A cap or closure for bottles, jars, cans or the like, having a top or base and a continuous flange formed integrally therewith, for a portion of its peripheral length, but 45 separated therefrom for another portion of such length, said flange being of greater circumference than the top or base, the separated portion of the flange having a lip or rim adapted to overlap or engage over the 50 adjacent edge of the top or base, and means whereby the flange may be contracted circumferentially.

18. A cap or closure for bottles, jars, cans or the like, having a top or base provided 55 with a flange, said flange being continuous throughout its length, and having a portion | the flange. thereof separated from the top or base, said separated portion having a projecting rim or lip to lap upon the adjacent edge of the top

60 or cover.

19. A cap or closure for bottles, jars, cans or the like, having a top or base and a continuous flange formed integrally therewith, said flange being separated for a portion of 65 its circumferential length from the top or l

cover, the separated portion having a projecting lip or rim to lap upon the adjacent edge of the top or base, said separated portion of the flange including an integral reduced portion forming a connecting-web 70 adapted to be folded or looped to circumferentially contract said flange.

20. A cap or closure for bottles, jars, cans or the like, having a top or base and a continuous flange formed integrally therewith, a 75 portion of said flange being separated therefrom, said separated portion having a projecting lip or rim to engage over the adjacent peripheral edge of the base or top, said separated portion of the flange also including an 80 integral foldable portion whereby the diame-

ter of the flange may be contracted.

21. A cap or closure for bottles, jars, cans or the like, having a base or top provided with a flange, said flange being integrally 85 connected to the top or base for a portion of its circumferential length, and separated from the top or base by a slit through said top or base for the remaining portion of its circumferential length, the portions of said 90 flange being integrally connected together by a reduced web.

22. A cap or closure for bottles, jars, cans or the like, having a base or top provided with a flange, said flange being formed inte- 95 grally with the top or base for a portion of its circumferential length, the remaining portion of the flange being separated from the top or base by a slit through said top or base, and means integrally connecting the portions of 100 the flange.

23. A cap or closure for bottles, jars, cans or the like, having a top or base provided with a flange, said flange having a portion thereof formed with the top or base, and hav- 105 ing another portion separated from the top or base, the portions of said flange being connected by a contractible integral connecting means.

24. A cap or closure for bottles, jars, cans 110 or the like, having a base or top provided with a flange, said flange being integrally connected with the top or base for a portion of its circumferential length, but separated from said top or base for the remaining por- 115 tion of such length, the separated portion of the flange having a projecting lip or rim to engage over the adjacent peripheral edge of the top or cover, and an integral foldable connecting-web intermediate said portions of 120

25. A cap or closure for bottles, jars, cans or the like, including a sealing-disk, a top or base to receive the same, said top or base having a continuous flange integrally con- 125 nected therewith for a portion of its circumferential length, and separated therefrom for the remaining portion of such length, said flange being of greater circumference than that of the top or cover and disk, and means 130

whereby said flange may be contracted cir-

cumferentially.

26. A cap or closure for bottles, jars, cans or the like, including a sealing-disk, a top or 5 base to receive the same, said top or base having a continuous flange of greater circumference than said top or base, and integrally connected therewith for a portion of its circumferential length, and means whereby said to flange may be contracted circumferentially.

27. A cap or closure for bottles, jars, cans or the like, including a sealing-disk, and a top or base to receive the same, said top or base having a continuous flange integrally con-15 nected therewith for a portion of its circumferential length, but separated therefrom for the remaining portion of such length, the separated portion having a projecting lip or rim to lap upon the adjacent peripheral edge 20 of the top or cover, and means whereby the flange may be contracted circumferentially.

28. A cap or closure for bottles, jars, cans or the like, having a top or base provided with a flange formed integrally therewith, 25 said top or base having a slit or opening formed therethrough to separate said flange

from the top or base for a portion of its circumferential length, the separated portion of the flange having a foldable integral connecting-web adapted to be formed into a loop or 30 fold to contract the flange circumferentially.

29. A cap or closure for bottles, jars, cans or the like, having a top or base provided with a flange formed integrally therewith, said top or base having a slit or opening 35 formed therethrough and extending along and adjacent to the peripheral edge thereof, but somewhat removed therefrom, to separate said flange from the top or base for a portion of its circumferential length and to 40 form a lip therein, the separated portion of the flange having an integral foldable connecting-web adapted to be formed into a loop or fold to contract the circumferential length of the flange.

Signed at New York, in the county of New York and State of New York, this 20th day

of October, A. D. 1905.

WILLIAM H. DODGE.

Witnesses:

CLARENCE PLACE, J. S. SHERBURNE.