No. 617,967. Patented Jan. 17, 1899.

W. R. MACINTOSH.

STOPPLE FOR VESSELS.

(Application filed Oct. 31, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 3.

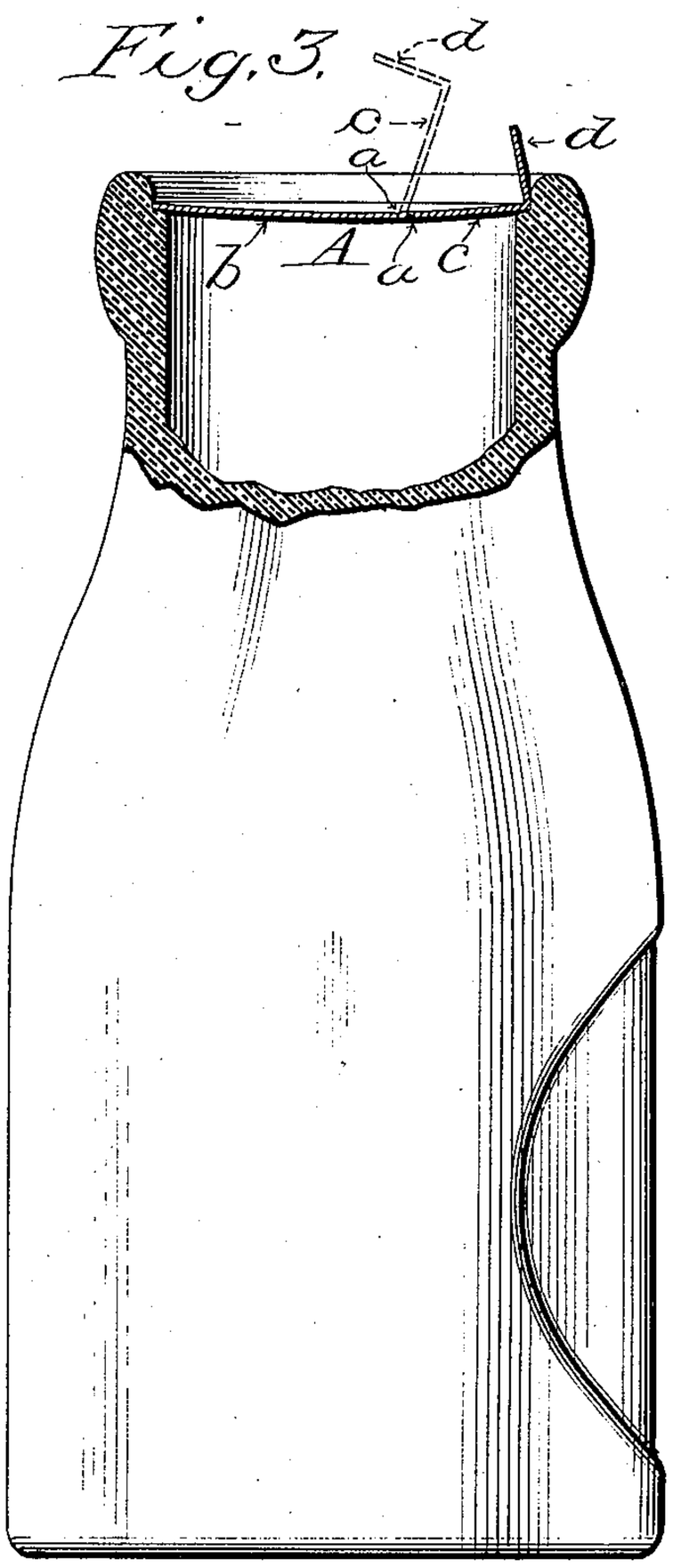


Fig. 1.

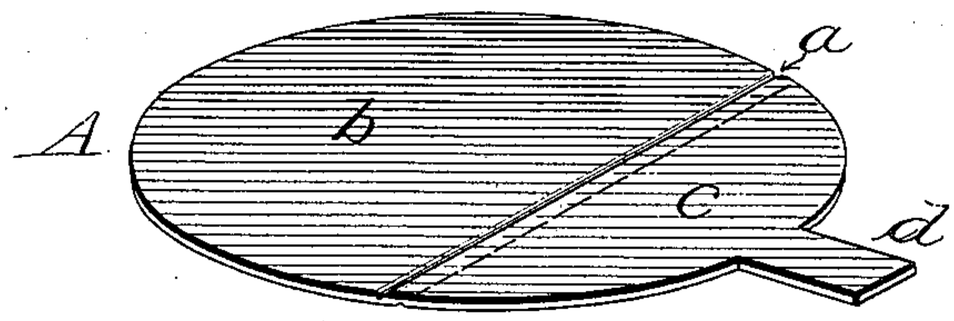


Fig. 2.

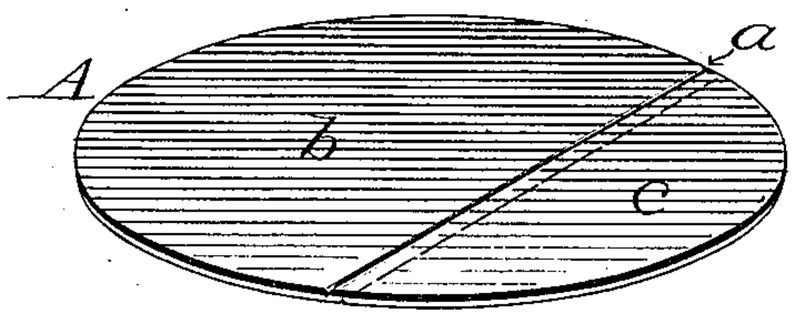
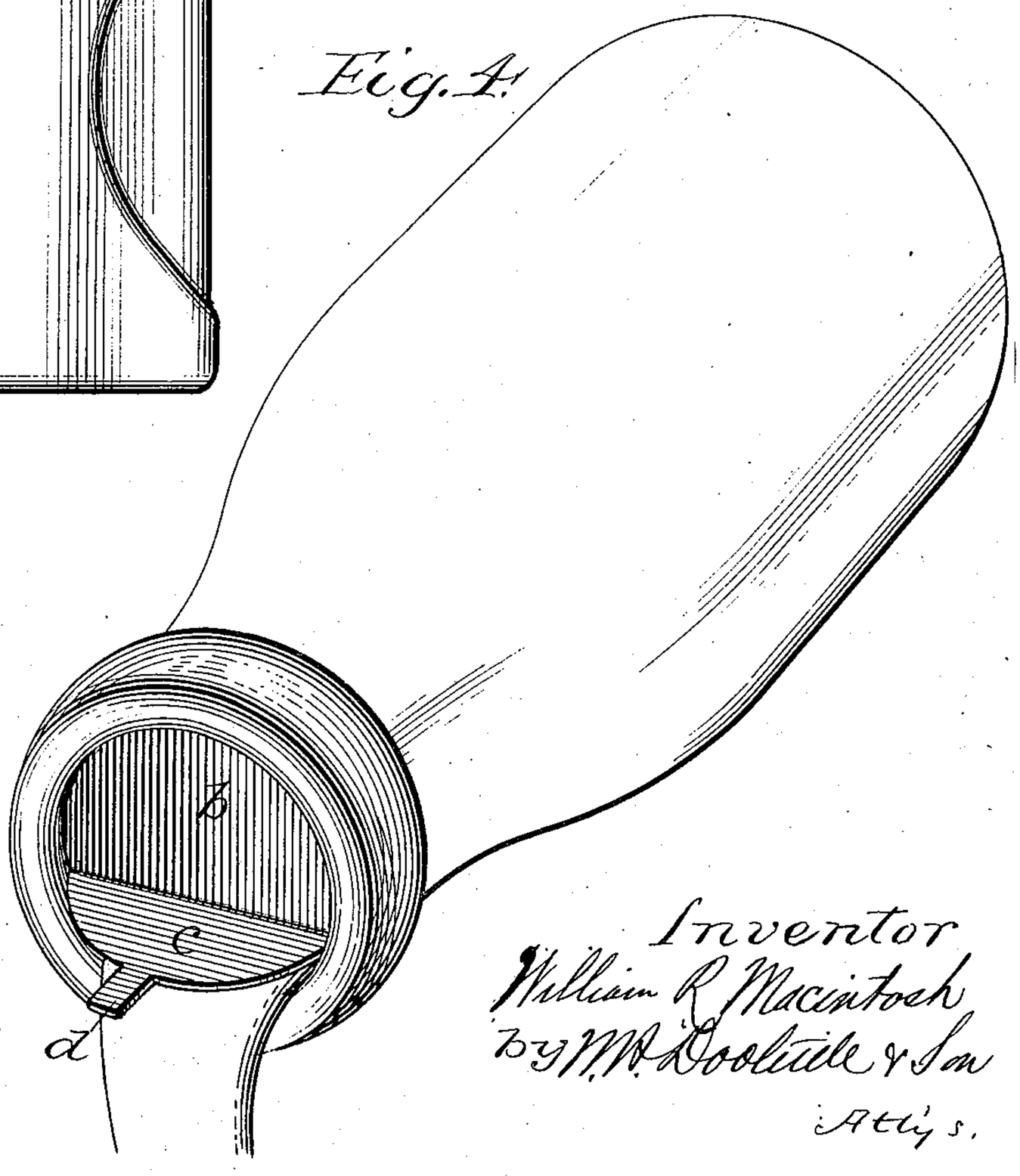


Fig. 4.



Attest;
C. C. Burdine.
H. P. Doolittle

Inventor
William R. Macintosh
by W. W. Doolittle & Son
Atty's.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

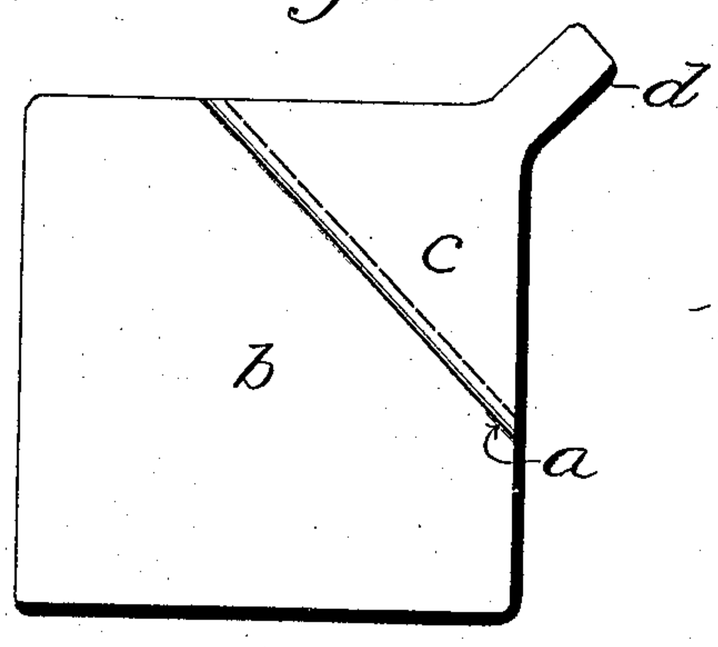


Fig. 6.

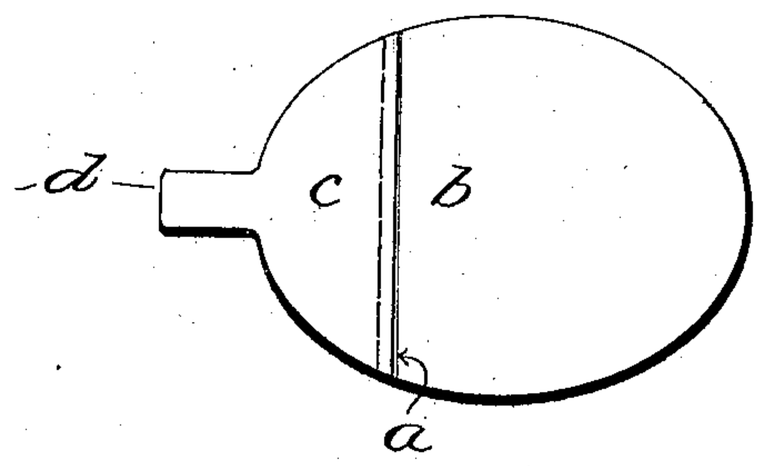


Fig. 7.

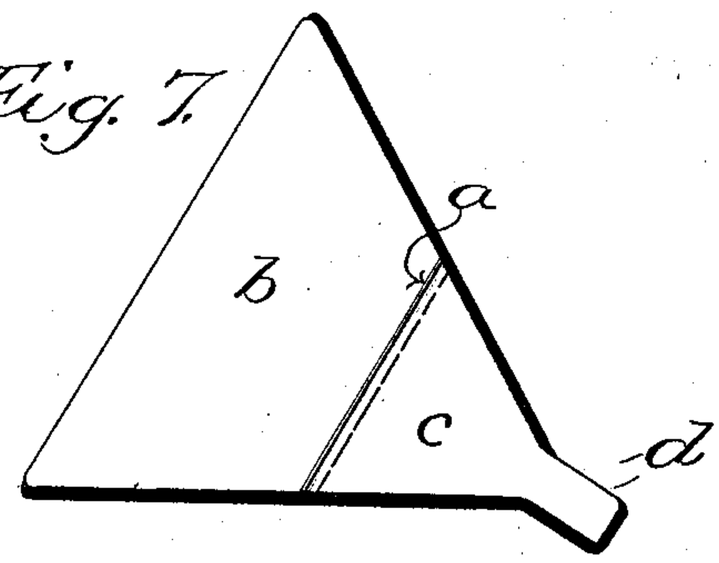


Fig. 8.

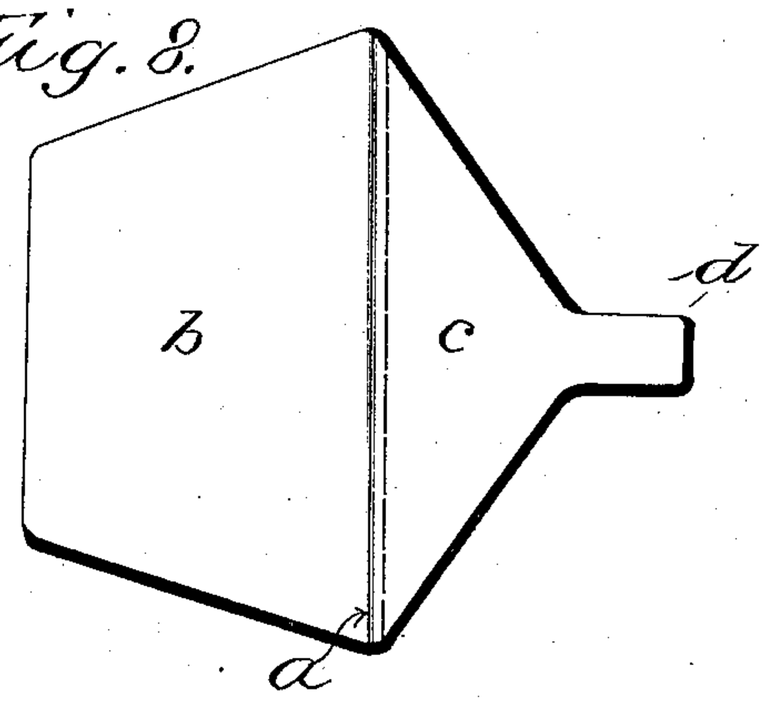


Fig. 10.

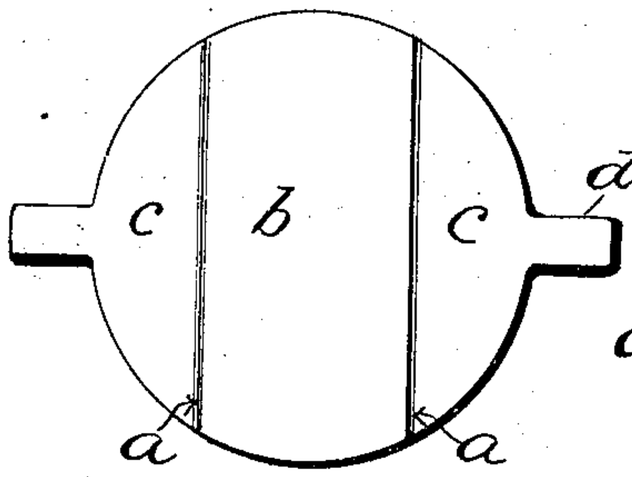


Fig. 9.

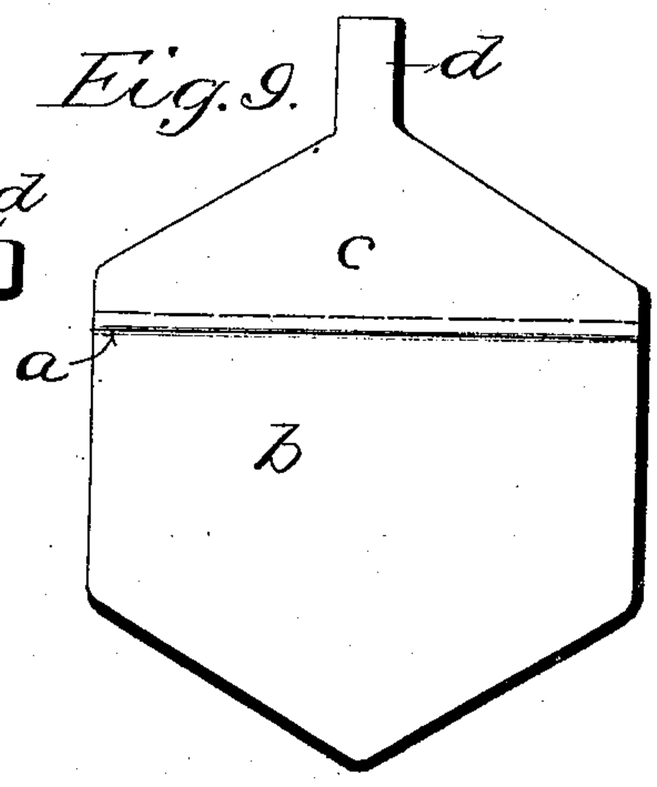


Fig. 11.

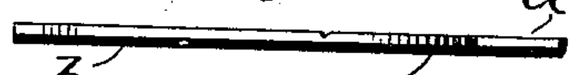


Fig. 12.

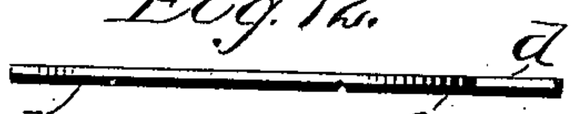
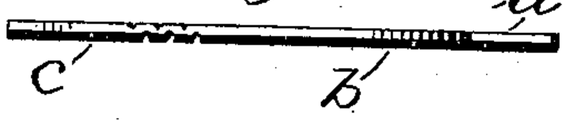


Fig. 13.

Fig. 14.



Attest;
Jas. A. Blackwood
H. P. Doolittle

Inventor;
William R. Macintosh
by M. P. Doolittle & Son
Atty's.

UNITED STATES PATENT OFFICE.

WILLIAM R. MACINTOSH, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO CHARLES A. LEE, OF CANASTOTA, NEW YORK.

STOPPLE FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 617,967, dated January 17, 1899.

Application filed October 31, 1898. Serial No. 695,082. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. MACINTOSH, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Stopples for Vessels, of which I do hereby declare the following to be a full, clear, and exact specification, such as will enable others skilled in the art to which the invention appertains to make and use the same.

My invention pertains to closures, covers, or stopples for jars, bottles, and other vessels, and more particularly to that class of removable closures designed for temporary use.

In the use of many receptacles, notably in the case of milk-jars or vessels of like character, it is desirable that the stopple, cover, or sealing device be not only readily removable, but that it be also of such character that it may be discarded and thrown away after being once used without material loss.

Before describing in detail the peculiarities of the present invention it is proper to point out the objects specially sought to be attained and the occasion therefor.

For many years the desirability of some simple, cheap, and efficient closure for vessels, and particularly for milk jars or bottles, has been appreciated. With various fluids and especially in the case of milk and cream it has been deemed of great importance to provide a seal or closure which should offer a minimum of danger or liability to become foul or capable of contaminating the contents of the vessel or affecting the taste or odor thereof. Various devices have been tried from time to time and for the most part discarded for one reason or another. At the present time the most popular and, as is believed, the most satisfactory sealing device or closure in use consists simply of a disk formed of wood-pulp or the like coated or impregnated with paraffin and introduced under a moderate amount of pressure into the orifice or mouth of the vessel to be closed. In the practical use of these devices, however, it has been found that more or less difficulty is encountered in introducing the disks where the mouth or opening of the vessel is from any cause irregular or of less than the proper measurement in any direction. It is likewise found that in order to remove the common type of disk in opening the jar or vessel it is convenient and is therefore the general practice to puncture the same with some sharp instrument and then to force or pry the disk from the mouth of the vessel. In doing this a quick movement is imparted to the disk as it passes the bearing-points or the restricted portion of the mouth or orifice in which it is held, and any liquid adhering to its under face is thrown violently therefrom, often resulting in injury to or disfigurement of the clothing of the person opening the jar or of a carpet, hangings, or other fittings in the vicinity of the bottle or vessel. In prying the disk or closure from the vessel the top or mouth of the jar is used as a fulcrum and is in consequence frequently chipped or disfigured, so as to be incapable of being properly sealed, or, as often occurs, it becomes dangerous to handle. It frequently happens that only a portion of the contents of a vessel are required to be removed at one time. In such cases if the closure be punctured its further usefulness is destroyed or in great measure impaired, since it no longer excludes the atmosphere, nor will it prevent entrance of insects, dirt, &c. As vessels of this character are commonly used in and about kitchens, pantries, and the like, it frequently happens that the cover, disk, or closure is carelessly laid upon a table, refrigerator, or other surface not wholly free from dirt or impure matters, and as a consequence if the closure be reapplied to the vessel the contents thereof are liable to be brought into contact with impurities or to absorb odors or flavors which will impair their quality.

The purposes of my invention therefore are to facilitate the application and the removal of the closure, to enable an opening thereof to be made without displacing the closure as a whole, to avoid the necessity or the liability of puncturing, mutilating, or marring the closure when either opening or removing the same, to render unnecessary the use of any tool or implement for opening or for removing the closure, and thereby to avoid injury to the vessel, and by the improved construction and mode of use to im-

prove greatly the sanitary conditions attendant thereon.

Figure 1 is a perspective view of my improved closure, seal, or stopple provided with a projecting tab, lug, or handle by which to open or remove the same; Fig. 2, a similar view of a disk without such tab or handle; Fig. 3, a side elevation of a bottle or jar, partly in section, showing the improved closure, seal, or stopple in position and indicating by dotted lines the mode of opening the same; Fig. 4, a perspective view showing the manner of using the closure when only a portion of the contents of the vessel is to be withdrawn; Figs. 5 to 9, inclusive, plan views illustrating various of the many different forms or configurations that may be given the stopple, seal, or closure; Fig. 10, a plan view illustrating a modification of the construction shown in the other figures; Fig. 11, an edge elevation of a closure, seal, or stopple having a single score, groove, or weakening-line in its upper face; Fig. 12, a similar view showing a single score, groove, or weakening-line in the lower face; Fig. 13, a like view showing a single score, groove, or line of weakening in both the upper and the lower faces; Fig. 14, an edge view showing a plurality of weakening-lines, scores, or grooves in the faces of a closure, seal, or stopple.

In carrying my invention into practice I shall preferably employ a relatively thin flexible plate-like body, which may be made of any suitable material, wood-pulp, strawboard, or the like being, however, preferred. This may be of any outline or contour and will advisably be soaked in, impregnated, or coated with paraffin to render it non-absorbent and to protect it against the action of substances which may be contained in the vessels to which the closures are applied. The essential characteristics of such a closure are that it shall be comparatively thin, that it be flexible, and in general terms plate-like in form, or what would in the case of a circular closure be accurately described as a "disk;" but in using the term "disk" herein it is to be understood that it has reference to any thin plate-like body regardless of the form or figure described by its outline. A circular form is highly satisfactory, particularly in that with a properly-formed mouth or orifice to receive it, it may be applied regardless of its position—that is, without turning it to coincide with some special point or points of the mouth. Except for this other forms will answer quite as well, and in some respects perhaps better.

The mode or manner of securing the closures in the vessels may vary, though I contemplate ordinarily introducing them by moderate pressure into the mouths of vessels having a slight groove or depression to receive the periphery or edge of the disk.

Referring again to the drawings, A indicates a closure, seal, or stopple embodying my invention. This stopple is represented in Figs. 1, 2, 3, and 4 as of circular form or as in the shape of a thin flat disk. Across either face or both faces, as may be found expedient in any given case, I form one or more scores, grooves, indentations, or weakening-lines *a*, thus dividing the closure into two parts, *b* and *c*. The weakening, scoring, or indenting will preferably, though not necessarily, be to one side of the center in the case of a circular disk, seal, or closure, and with other forms it should be in such position as to leave the major portion of the closure on one side and the minor portion on the other side of such line in order that the greatest diameter of the closure may be availed of to give proper bearing and holding effect in the mouth or orifice of the vessel to be sealed. This will be better understood upon referring to Fig. 4, where the seal or closure is represented as opened to permit withdrawal of the contents of the vessel by lifting or drawing away from its seat the part *c* of the seal or closure. By reason of the weakening-line, score, or indentation the section *c* swings, bends, or turns relatively to the portion *b*, which, having a firm peripheral bearing in the orifice of the vessel, maintains its position therein and affords sufficient resistance or holding force to permit the section *c* to be lifted without danger of removing the seal or closure from the orifice. The section *c* thus constitutes a valve, lid, or cover capable of being moved from and returned to the plane of the portion *b*, as indicated by the full and dotted lines in Fig. 3. The number, character, and arrangement of the scores, indentations, grooves, or weakening-lines may vary—that is to say, there may be merely an indentation effected by a V-edge blade or plate, or there may be an incision produced by a sharp knife or cutter drawn across or impressed into the material of the closure, or there may be a series of short incisions, indentations, or the like arranged in line with each other.

Ordinarily it is deemed advisable to make two scores or weakening-lines of one or another form, one in the upper and the other in the lower face of the seal, closure, or stopple, as indicated in Figs. 1, 2, and 3, and to arrange these slightly out of line, but parallel with each other. This, however, is a matter of option and will be determined in great measure by the character of the material of which the seal, stopple, or closure is formed. With wood-pulp board of good quality it is deemed preferable to provide a score or weakening-line in each face, as in Figs. 1, 2, and 3; but it is feasible to make and use the device with a single score, groove, or weakening-line in the upper face and none in the lower, as in Fig. 11, with but one in the lower and none in the upper face, as in Fig. 12, with one in each face, as in Figs. 1, 2, 3, and 13, or with a plurality in both faces, as in Fig. 14.

Among various forms that may be given the seal, closure, or stopple those illustrated in Figs. 5 to 9, inclusive, are perhaps the

most feasible. It will be observed that in each of these forms the weakening-line *a* is to one side of the major axis of the seal or closure, so that whatever form be adopted there shall be a retaining portion *b* of such dimensions as to afford a firm hold in the mouth or orifice of the vessel sufficient to retain the closure in position while the smaller section *c* thereof is being lifted from its seat and bent or folded back upon the portion *b*.

In Fig. 10 I have shown the seal, closure, or stopple as having a middle retaining portion *b* and two valve-like or movable members *c*, formed or produced by scoring, indenting, or weakening the closure on opposite sides of its center. This construction, though not deemed desirable ordinarily, will be found to facilitate the introduction of the seal, stopple, or closure in the mouths or orifices of vessels which are slightly smaller than the regular size or which are at any point irregular in form, the score or weakening-line in such cases permitting the main body to be pressed down to its seat in advance of the smaller sections *c*, which may subsequently be pressed home.

To enable the cover, seal, or closure to be opened or removed from the vessel at will, I provide the smaller section or sections *c* with a tab, ear, or handle *d*, as shown in the various figures, with the exception of Fig. 2. When the closure, seal, or stopple is introduced into the mouth of a bottle or other vessel, the tab or handle *d*, coming into contact with the wall of the orifice or mouth, is curled or bent upward or backward, and its outer face is brought to the same arc as the remaining portion of the peripheral edge of the closure, so that a tight joint and efficient seal are effected at all points in the circumference of the closure. If desired, the tab or handle may be scored to mark or to determine the point at which it shall bend; but in practice it is found preferable to leave it unscored and depend upon the gradual and easy turning backward thereof by reason of its contact with the smooth surface of the wall against which it is pressed, this action having little or no tendency to break or rupture the material of the tab.

The form which the disk, seal, closure, or stopple assumes when in position in an orifice of proper relative size is indicated in Fig. 3, the tab or handle *d* being of such length as to protrude somewhat above the top of the bottle, where it may be readily grasped between the thumb and finger preparatory to lifting or turning back the lid or valve section *c*. When moved about the weakening-line *a* as a center, hinge, or joint, the lid-section *c* takes the position indicated in Figs. 3 and 4, permitting the contents of the vessel to be poured therefrom, as indicated in the latter figure. Should it be desired to again seal the vessel, it is only necessary to press back the valve or lid section *c* to its seat in the neck or mouth of the vessel, when the contents will be as perfectly protected from the atmosphere and from the entrance of insects, dust, or foreign matters as they were originally. It is particularly to be noted that under this construction and mode of use the seal or closure remains or may remain in position until the contents of the vessel are completely withdrawn, whether this be done at one operation or at different times. It will further be seen that when desired the cover or closure may be completely removed by applying further force, either as an upward pull upon the tab or by inserting the finger or some convenient implement beneath the portion *b* of the cover or closure after the lid-section *c* is raised to give convenient access to the under side. Being thus capable of retention in position until the vessel is completely emptied the seal, cover, or closure is freed from liability of coming into contact with dirt or filth or with any foreign substance which might impart a taste or odor to the contents of the vessel. The introduction of impurities or deleterious matters through the use of an unclean implement, such as is occasionally employed to puncture or to pry out the seal or closure, is likewise avoided, and the atmosphere, insects, dust, and the like are excluded until the closure is finally removed and thrown away, which of course is not the case where the seal, closure, or stopple is either punctured or mutilated through the use of an extracting implement.

As above indicated, the form or character of the vessel is immaterial. The precise mode of applying or of securing the closure or stopple in position may vary, and the material or composition of which the seal, closure, or stopple is formed is a matter of election, depending in greater or less degree on the nature of the vessel and its contents. The terms "seal," "closure," or "stopple" are meant to comprehend any and all thin and plate-like closures of flexible material embodying the peculiarities set forth in the specification; and the terms "score," "groove," "indentation," and "weakening-line" are all employed to indicate any formation or treatment of the seal, stopple, or closure whereby it is weakened and an initial line of bending, folding, or swinging of one part relatively to the other is produced. The term "orifice" is used in a comprehensive sense to mean an opening, mouth, aperture, neck, or entrance in any vessel to be closed by a seal, stopple, or closure of the general character herein set forth.

While it is preferred for reasons above set forth to locate the score, crease, or weakening-line to one side of the middle of the seal, disk, or closure, it is to be understood that the invention is in no sense restricted thereto, since good results may be attained where the weakening-line divides the closure into two equal parts. In such case one section of the closure will with many forms be retained in place by its contact with the walls of the

opening, while the other section is freely raised and lowered, and with other forms a slight pressure of the finger or thumb or of some suitable implement upon one member of the closure will hold it to its seat while the other portion is raised and lowered.

Having thus described my invention, what I claim is—

1. A removable, flexible, plate-like stopple for vessels, adapted to be inserted and held in the orifice thereof, and scored so that a portion thereof may be turned up and down to open and close said orifice without displacing the stopple.

2. As a new article of manufacture, a seal, stopple or closure for vessels, consisting of a thin flexible plate of suitable material of a form to fit the orifice to be sealed or closed, and having a weakening-line therein to facilitate and to locate the bending, folding, or movement of one portion relatively to the other, the movable portion contacting with the wall of the orifice.

3. A removable, flexible, plate-like stopple for vessels adapted to be inserted into and held in the orifice thereof, and scored so that a portion thereof may be forced up and down to open and close said orifice without displacing the stopple, one section of the stopple being provided with a tab or handle by which to move it.

4. A removable, flexible, plate-like stopple for vessels, adapted to be inserted into and held in the orifice thereof, and having its outer face scored, so that a portion of the stopple may be turned up and down to open and close said orifice without displacing the stopple.

5. A removable, flexible, plate-like stopple for vessels, adapted to be inserted into and held in the orifice thereof, and having one face scored to enable one portion to be turned up and down relatively to the other.

6. A removable, flexible, plate-like stopple for vessels adapted to be inserted into and held in the orifice thereof, and having both its faces scored, so that one portion may be turned up and down relatively to the other to open and close said orifice without displacing the stopple.

7. In combination with a vessel, a removable, flexible, plate-like stopple inserted and held in the orifice thereof, and scored or weakened to permit one portion to be raised from its seat while the other portion remains in position.

8. In combination with a vessel, a removable, flexible, plate-like stopple inserted and held in the orifice thereof, and scored or weakened to permit one section to be withdrawn from its seat in said orifice without disturbing the other section, the movable section being provided with a tab or handle by which to withdraw it.

9. A removable, flexible, plate-like stopple for vessels adapted to be inserted into and held in the orifice thereof, and scored or weakened so as to part the same into two unequal portions, the larger of which serves to hold or retain the stopple, while the smaller section may be moved to open and close the vessel, a movable section contacting with the wall of the orifice.

10. In combination with a vessel, a removable, flexible, plate-like stopple, inserted and held in the orifice thereof and scored or weakened at one side of its center to produce a retaining-section *b* and a lid or cover section *c*, substantially as described and shown.

11. The herein-described stopple, seal, or closure for vessels, comprising a middle section *b* and two outer sections *c* provided with tabs or ears *d*, and having weakening-lines or scores along their lines of connection with the middle portion *b*, substantially as set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

WM. R. MACINTOSH.

Witnesses:
CHAS. A. LEE,
CHARLES K. ROBINSON.