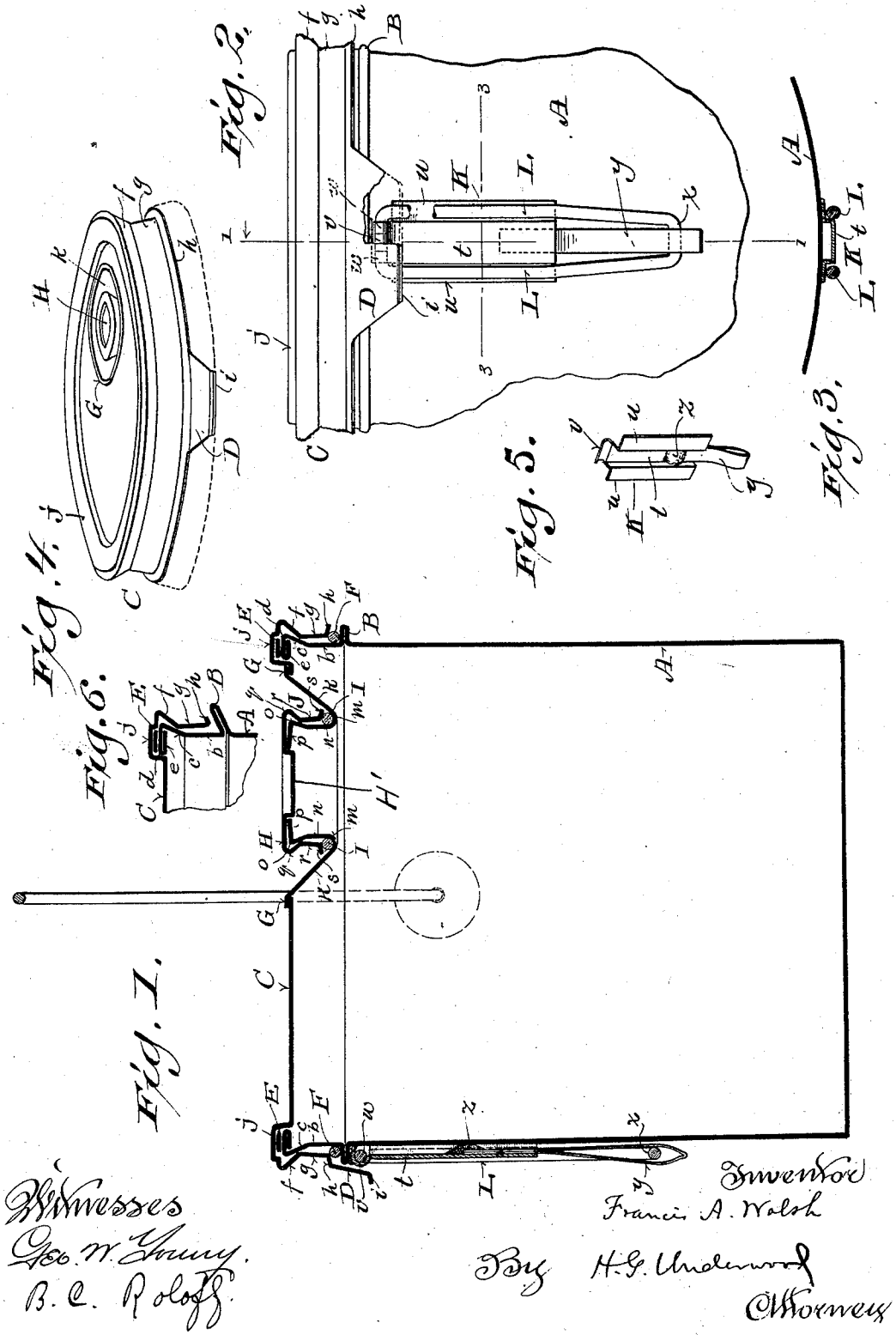
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F. A. WALSH.

SHEET METAL VESSEL.

(Application filed May 25, 1898.)

(No Model.)



Witnesses
Geo. W. Young.
B. C. Roloff.

Inventor
Francis A. Walsh
By H. G. Underwood
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANCIS A. WALSH, OF MILWAUKEE, WISCONSIN.

SHEET-METAL VESSEL.

SPECIFICATION forming part of Letters Patent No. 669,964, dated March 12, 1901.

Application filed May 25, 1898. Serial No. 681,670. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS A. WALSH, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Sheet-Metal Vessels; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to sheet-metal vessels, and has especial reference to the means for the closure and opening of the same, all as will be fully set forth hereinafter and subsequently claimed.

In the drawings, Figure 1 is a vertical central section through one form of a vessel embodying my present invention, taken on the line 1 1 of Fig. 2. Fig. 2 is a front elevation of the upper portion of said vessel, partly broken away to better illustrate certain details of construction. Fig. 3 is a detail sectional view on the line 3 3 of Fig. 2. Fig. 4 is a perspective view of the main cover or closure of the said vessel on a reduced scale. Fig. 5 is a detail perspective view on a reduced scale, showing the inner or rear side of part of the seal of the opening device. Fig. 6 is a detail sectional view illustrating another form of the upper part or main closure of the said vessel.

Referring to the drawings, A represents the body of a sheet-metal vessel, said body being of any ordinary construction, and while in the present illustration said body is shown cylindrical and continuous with the upper part thereof it will be understood that the shape or style of said body is immaterial, and that instead of being all in one piece therewith the said upper part may be formed on a breast or collar and attached by seaming, soldering, or otherwise to said body, or that the said breast or collar in question may be applied to a wooden or glass vessel instead of to a sheet-metal body, as the construction of the body of the vessel has nothing to do, specifically, with my present invention, and in large sizes the said body when of sheet metal is usually made of two or more pieces thereof properly united together.

B represents a strengthening rib or fold made by folding the metal of the upper part of the vessel upon itself outwardly, and the rib or fold B may be either practically horizontal, as best shown in Fig. 1, or have an upward outward inclination, as shown in Fig. 6, the inner edge of the upper portion of said folded part being continued upward in a substantially vertical line, as shown at *b*, and thence expanded outward, as shown at *c*, and thence horizontally inward, as shown at *d*, the extreme edge being thence preferably brought outwardly and folded flat under the bend *d*, as shown at *e*.

C represents the main cover or closure of the vessel and is made, preferably, of sheet metal, either in whole or in part, having a downward-extending flange, which must be of sheet metal, so as to have sufficient spring to properly close the vessel, the said flange at its upper part being of greater diameter than that of the vessel to be closed and extending downward and inward, as shown at *f*, for contact with the outwardly-expanded part *c* of the vessel, and thence continuing downward in an outwardly-flaring direction, as shown at *g*, and free from contact above and below the described contracted part, so that the said cover may be sprung over the top of the vessel and be held in place thereon by a wedging contact, exactly as in my prior patent, No. 571,814, granted to me on the 24th day of November, 1896. With my present cover I preferably incline the lower edge of the flange portion *g* outwardly, as shown at *h*, the said inclination being either downward, as in Fig. 1, or upward, as in Fig. 6, as desired, in any given case, the direction of inclination or even the presence or absence of the inclined edge *h* being immaterial in most cases. From the lower edge of the described cover-flange there projects downwardly and outwardly a flanged projecting portion D, the obliquity of which is sufficient to enable the same to clear the hereinbefore-described strengthening rib or fold B. While as a general rule the projecting flange D need only be of slight width, as shown in Figs. 2 and 4, it may, if preferred, be continuous all around the cover and of uniform depth throughout, as indicated by the dotted lines in Fig. 4, and it preferably terminates in an outwardly-projecting edge, as shown at *i*. Reference has already been made to the fact that the flange of the cover

at its upper end is of greater diameter than that of the vessel to be closed thereby, and in the preferred forms illustrated in the present drawings the cover C is formed with an upward-extending channel or bead *j*, rising above the plane of the top of the described cover-flange, the transverse width of said channel or bead being approximately the same as that of the described folded upper part *d e* of the vessel-body (or breast) and following the same line. The object of this construction is to afford space between the parts *d* and *j* for a suitable gasket or a soft packing of cement, which latter is indicated in place therein by the letter E, while in Fig. 1 the letter F indicates a gasket or packing-ring (preferably of rubber) resting upon the shoulder formed by said rib or fold B and also in contact with the lower end *g* (or *h*) of the said cover-flange, thereby excluding air from the contents of the vessel, even after the cement packing E has been broken, the exclusion of air being of course the primary object of the said packing E when the goods are put up.

The cover C, as thus far described, constitutes the chief closure of the vessel and is applied, as shown in the drawings, when the vessel is new and empty, the contents being preferably applied thereto through a supplementary opening formed in the cover C. This opening is preferably circular in shape and may be either a small opening, as shown in Figs. 1 and 4, or much larger, according to the nature of the goods to be placed within the vessel or as preferred in any given instance. This opening is fitted with a ring G, of sheet metal, (soldered, or otherwise secured to the main cover C,) said ring G having an oblique wall *k* extending downwardly and inwardly and thence upwardly on a rounded line, as shown at *m*, thence upwardly in a substantially vertical line, as shown at *n*, and thence outwardly expanded, as shown at *o*, terminating in an inward-projecting flange, as shown at *p*, this flange being preferably itself inclined upwardly from the top of the part *o* toward the said inner edge of said flange *p*. The upright portions *n o* of this inner wall of the ring G correspond to the portions *b c* of the upper part of the vessel body or breast already described, and the secondary opening (within the said edge of the described flange *p*) is closed by the wedging action of a cap or secondary cover H, the latter having a downward-extending sheet-metal spring-flange of greater diameter at its upper part than that of the wall of the opening to be closed and extending downward and inward, as shown at *q*, for contact with the outwardly-expanded part *o* of the wall of the secondary opening, and thence continuing downward in an outwardly-flaring direction, as shown at *r*, and free from contact above and below the described contracted part, so that this cap or cover H may be sprung over the top of the wall of the secondary opening and be held in place by a wedging contact, just as in the case of the main cover C, and similarly the downward spring-flange of said cap or cover H may terminate in an outwardly-inclined edge *s*, corresponding to the described inclined edge *h* of the main cover C, for contact with a gasket or elastic packing-ring I, resting on the curved lower portion *m* of the wall of the ring G, whereby air is effectually excluded from the described secondary opening, the top of the cap H being formed with a depression H′, entering said opening. Owing to the described shape of the walls of the described ring G a channel or trough J is provided between the outer oblique outer wall *k* and the inner upright collar or wall *n o* of said ring, and, if desired for more effectual closure against air, wax or other suitable sealing material may be poured into said channel or trough J after the said cap or cover H has been sprung to place, and this may be done whether the gasket I is used or not. Similarly, if desired, wax or other sealing material may be applied after the cover C is secured in place on the vessel to seal said cover, particularly with the upwardly-inclined form of shoulder, rib, or fold B shown in Fig. 6, as the said inclination of the said rib or fold B forms an exterior channel or trough all around said vessel, and when this is done the exterior gasket F may be dispensed with or not, just as desired.

The preferred means of opening the main cover C will next be described.

K represents a housing, preferably of sheet metal, having a central vertical outwardly-offset portion *t*, with side extensions *u u*, which latter are designed to be soldered or otherwise secured to the exterior of the vessel-body A. The upper part of the described central offset portion *t* terminates in an extension *v*, rounded, as best shown in Figs. 1 and 5, to receive the upper ends of the cover-releasing lever and preferably secured, as by solder, to the vessel-body. This lever is preferably made from a single strip of wire bent into the shape best shown in Fig. 2, with two arms L L, which at their tops are bent inwardly toward each other, as shown at *w w* in dotted lines in Fig. 2, while the lower portions of the arms L L preferably converge toward each other and are united by the lower central portion *x*. The upper portions of the said arms L L are preferably vertical and parallel and normally rest over and upon the side extensions *u u* of the housing K on each side of the vertical central outwardly-offset portion *t* thereof, while the said portion *t* of the housing K is for the reception of the upper ends of a doubled strip *y*, of very thin or easily-fractured suitable material, (preferably sheet metal,) these upper ends being secured within the described offset portion *t*, as by solder *z*, while the lower central portion *x* of said lever passes through the loop formed by doubling the strip *y*, and then when the lever and housing have been put together, as shown in the drawings, this

device constitutes a means of opening the cover C, which means can only be employed when the strip *y* is fractured. The flange D of the cover (when the latter is snapped to place on the vessel) comes directly over the described housing K and attached lever, as shown in Figs. 1 and 2, and when the lower part *x* of the lever is freed from the strip *y* (as by the fracture of the latter) the said lever is brought upward on its hinged upper end *w w* against the lower edge of the said flange D, thereby springing the cover C from the vessel, while the fracture of the seal-strip *y* would instantly indicate that the vessel had been once opened after sealing, even if the cover C had been carefully replaced. In cases where such opening of the vessel is immaterial the seal-strip *y* may be dispensed with; but the described opening-lever will be found of the greatest convenience, inasmuch as a lever of some description is absolutely necessary and the one described is always permanently in place, and this is exceedingly desirable in the case of goods which are used from the original package at intervals, and which are of such nature as to require that the package be kept tightly closed at all other times.

While I have shown and described the walls of the described top or cover opening as being formed on a ring and the latter soldered or otherwise secured to the main cover C, it will be understood that the said walls of the secondary opening may be stamped directly from the metal of the said main cover. Furthermore, so long as I provide the top or main cover of the vessel with an opening therein, surrounded by a depression or channel, and close said opening by means of a removable cover having a downwardly-depending flange adapted to project within said depression or channel and to exert a wedging contact against the wall of said opening and thereby to close the same the exact shape of the walls of said depression or channel is not material, and I do not wish to be understood as being limited to the precise form thereof shown in the drawings.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a vessel, the combination with the top thereof having an opening therein, the wall of said opening being surrounded by a depression or channel; of a removable cover provided with a depression in its top, and having a downwardly-depending flange adapted to project within said first-named depression or channel, and to exert a wedging contact against the wall of said opening.

2. In a vessel, the combination with the upper part thereof of a removable top having an opening therein, the wall of said opening being surrounded by a depression or channel, and a cap or cover provided with a depression in its top, and having a downwardly-depending flange adapted to project within said first-named depression or channel and to exert a wedging contact against the wall of said opening.

3. The combination with a vessel having an outwardly-expanded upper part terminating in an inwardly-extending bead or fold, of a cover having a downwardly-extending sheet-metal spring-flange provided with an inward bend for wedging contact with the exterior surface of said expanded upper part of the vessel, said cover having an opening therein the wall of which is surrounded by a depression or channel, and said wall extending upward and also having an outwardly-expanded upper part, terminating in an inwardly-extending flange; and a secondary cover having a similar downwardly-extending sheet-metal spring-flange provided with an inward bend for wedging contact with the exterior surface of the said expanded upper part of the cover-opening wall.

4. The combination with a vessel having an outwardly-expanded upper part terminating in an inwardly-extending bead or fold, of a cover-flange adapted to be readily sprung off and of greater diameter than that of the vessel to be closed, and having an upward-extending channel or bead, the transverse width of said channel or bead being approximately that of the bead or fold of the vessel-top and both following the same line; a downwardly-extending sheet-metal spring-flange on said cover, provided with an inward bend for wedging contact with the exterior surface of the said outwardly-expanded upper part of the vessel; and a suitable gasket, or soft packing of cement, confined within the said channel or bead of the cover between the said cover and said inwardly-extending bead or fold of the vessel.

5. The combination with a vessel having an outwardly-projecting fold or bend forming a shoulder, the metal of said fold or bend thence extending upwardly and expanded outwardly and terminating in an inwardly-extending bead or fold; of a cover-flange adapted to be readily sprung off and of greater diameter than that of the vessel to be closed thereby, and having a downwardly-extending sheet-metal spring-flange provided with an inward bend for wedging contact with the exterior surface of said expanded upper part of the vessel, and thence flaring downwardly and outwardly, and a gasket or packing-ring surrounding the exterior of said vessel and resting on said shoulder or outwardly-projecting fold or bend of said vessel, and in contact with the said downwardly-extending cover-flange.

6. The combination with a vessel having an outwardly-expanded upper part, of a cover having a downwardly-extending sheet-metal spring-flange formed with an inward bend for wedging contact with the exterior surface of said expanded upper part of the vessel, and thence flaring downwardly and outwardly, free from contact with said vessel below the line of said inward bend of the cover-flange,

and provided with another downwardly and outwardly flaring projecting portion; and a lever pivotally secured to the upper exterior part of said vessel under and back of said last-named projecting portion of the cover-flange and adapted to release said cover when swung upward on its pivoted upper end into contact with the said lowest projecting portion of the said cover-flange.

7. The combination with a vessel having an outwardly-expanded upper part, of a cover having a downwardly-extending sheet-metal spring-flange formed with an inward bend or contraction for wedging contact with the exterior surface of said upper expanded part of the vessel and thence flaring downwardly and outwardly free from contact with said vessel below the line of said inward bend or contraction and provided with another downwardly and outwardly flaring projecting portion; a housing permanently secured to the upper exterior part of the vessel-body; a folded strip of readily-fracturable material permanently secured to said housing; and a lever passing through the said folded strip and pivotally secured to said vessel under and back of said last-named projecting portion of the cover-flange, whereby said lever cannot be swung upward on its pivoted upper end without fracturing the said folded strip, and being adapted, when so raised, to release said cover by contact with the said lowest projecting portion of the said cover-flange.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

FRANCIS A. WALSH.

Witnesses:

H. G. UNDERWOOD,

B. C. ROLOFF.