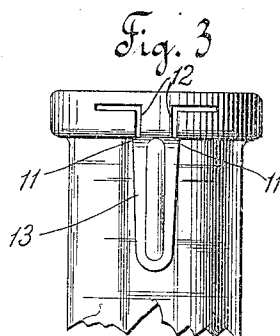
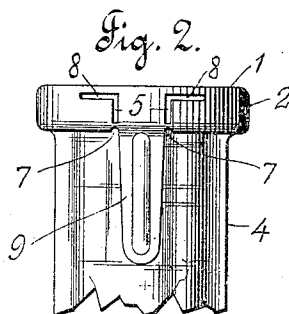
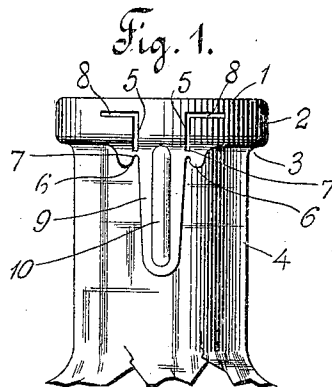


No. 801,281.

PATENTED OCT. 10, 1905.

A. L. WEISSENTHANNER.
SHEET METAL CLOSURE FOR BOTTLES, JARS, &c.
APPLICATION FILED AUG. 13, 1904.



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UNITED STATES PATENT OFFICE.

ALFRED L. WEISSENTHANNER, OF NEW YORK, N. Y.

SHEET-METAL CLOSURE FOR BOTTLES, JARS, &c.

No. 801,281.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Original application filed April 8, 1903, Serial No. 151,573. Divided and this application filed August 13, 1904. Serial No. 220,586.

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 the city, county, and State of New York, have invented certain new and useful Improvements in Sheet-Metal Closures for Bottles, Jars, &c., of which the following is a specification.

This invention relates to sheet-metal stoppers for bottles, jars, &c., and particularly to stoppers such as shown in my pending application, Serial No. 151,573, filed April 8, 1903, of which application this is a division.

Ashetofore constructed sheet-metal stoppers have been provided with continuous flanges having detachable connections, the intention being to form the stoppers of sufficiently-thin material to enable them to be readily removed when the connecting portions of the flange are separated and to so dispose a detaching-tongue that a force applied to the tongue will release the flange and permit the stopper to be removed. These stoppers, however, have failed for two principal reasons. In the first place in none of the prior devices is the construction such that the flange may be readily released by a pull on the tongue and the detachable connections thereof at the same time strong enough to effectively hold the contents of the vessel under pressure. In the second place in none of the prior devices is the construction such that the stopper may be readily detached from the bottle, even when the connected portions of the flange are separated.

My invention has for an object to provide a construction whereby the stopper may be readily removed from the vessel by the ordinary user without special care or skill. More particularly, the objects of the invention are to provide in a tongued and flanged stopper a construction whereby a comparatively slight force applied to the tongue may release a portion of the flange from the shoulder of the bottle, so that the stopper may be readily removed from the vessel. Other objects of the invention will more fully appear from the following description.

I have found that by weakening the flange of the stopper in a vertical direction, so that the flange may be easily ruptured, and weakening the flange also in a circumferential direction adjacent to the point where it is weakened vertically the stopper may not only be easily released from its locking relation, but

it may also be readily removed from the receptacle.

In accordance with one feature of my invention therefore the flange of the stopper is provided with a circumferentially-weakened portion, whereby when the flange is released from locking relation with a suitable shoulder on the receptacle it may be readily removed from the receptacle.

In accordance with one embodiment of the invention the flange of the stopper is made circumferentially integral and is provided with a vertically-weakened portion which is adjacent to the circumferentially-weakened portion, whereby the flange may be readily released from its locking relation and then easily removed from the receptacle.

In accordance with another feature of the invention the flange of the stopper is provided with a tongue whereby the flange may be readily ruptured without the use of an implement or the exercise of special care or skill. In accordance with the best embodiment of this feature of the invention the tongue is stiffened in the direction of its length, so that it may act as a lever to more readily rupture the flange and release the same from the locking-shoulder. In accordance with the best construction also the flange is weakened both in the vertical and circumferential directions by means of cuts, and in the best construction also two vertical cuts are provided, one adjacent to each side of the tongue, thereby making the tongue practically an integral portion of the flange, but detachably connected thereto, the integral detachable connections preferably being located near the lower edge of the flange and that portion of the tongue which is located below the flange being stiffened to facilitate the detachment of said connections. In accordance with the best construction also circumferential cuts of the flange are located between the top of the stopper and the line of locking contact between the flange and the shoulder of the receptacle, and the vertical cuts are extended below the said line of locking contact.

The invention further consists in the novel parts, improvements, and constructions herein described and shown.

In order that my invention may be more readily understood, I have in the accompanying drawings, which are referred to herein and form a part hereof, illustrated several forms of stoppers constructed in accordance

with my invention and serving, in connection with the description herein, to explain the principles hereof.

Of the drawings, Figure 1 is a side elevation of a stopper constructed in accordance with my invention, the same being shown as applied to the neck of a bottle. Figs. 2 and 3 are similar views illustrating modified forms of the embodiment of the invention illustrated in Fig. 1.

Referring to the drawings in detail, and more particularly at first to Fig. 1, the stopper illustrated consists of a top or crown portion 1, having an integral depending flange portion 2, said flange portion, as indicated, being continuous or integral in a circumferential direction, although provided with weakened portions whereby it may be ruptured or rendered circumferentially discontinuous when it is desired to remove the stopper. The flange of the stopper is adapted to be bent at its lower edge into locking relation with a suitable shoulder, as 3, on the mouth of the receptacle 4. In accordance with the particular construction shown the flange is vertically weakened at two points by means of vertical cuts 5 and preferably also by notches 6 in the lower edge of the flange, said notches being arranged in substantial alignment with the cuts 5, so as to leave slight necks of metal 7, adapted to be ruptured by slight force in such manner as to release the flange from its locking relation with the receptacle.

In order that the stopper may be readily removed from the receptacle when it has been thus released, the flange of the stopper is weakened in a circumferential direction adjacent to the point or points where it is weakened vertically. As shown, the flange of the stopper is weakened at points between its top and the line of locking contact between the flange and the receptacle by means of the circumferential cuts 8, the same, as shown, being adjacent to and extending in opposite directions from the vertical cuts 5. These cuts should be so extended circumferentially that at least one-third of the circumference of the stopper will be released and allowed to freely disengage itself from the locking-shoulder of the receptacle. In stoppers adapted for larger sizes of receptacles the circumferentially-weakened portions of the stopper should be greater than one-third of the circumference, or the circumferentially-weakened portion may be located at different points or intervals around the circumference.

To facilitate the rupture of the flange and the removal of the stopper, the flange in accordance with one feature of my invention is provided with a tongue, and in the best construction the tongue projects below the flange. As shown, the tongue 9 is arranged between the vertical cuts 5, the portion of the flange located between said cuts constituting practi-

cally a part of the flange, and the tongue is detachably connected to the flange by means of the neck 7. In accordance with another feature of my invention also the portion of the tongue which projects below the flange is longitudinally stiffened. This may be accomplished in any suitable manner. As shown, this portion of the tongue is provided with a longitudinal rib 10, extending from the lower end of the tongue to a point near the neck 7. By reason of this construction the tongue is enabled to act as a lever to multiply the force exerted at its free end and to apply that force to the parts to be ruptured. In order that this may be accomplished most effectively, the detachable connections 7 are in accordance with one feature of my invention located below the line of locking contact between the flange and the receptacle, as illustrated in Fig. 1, so that said connections are located below the effective fulcrum-point of the lever-like tongue. When in the position shown, moreover, the detachable connections are not so apt to be injured or ruptured during the operation of applying the stopper to the receptacle. If preferred, however, the detachable connections between the tongue and the flange may be located at other points than those shown in Fig. 1. As shown in Fig. 2, the necks 7 are located substantially at the upper margin of the line of locking contact between the flange and the receptacle. In Fig. 3 the detachable connections 11 are located substantially at the lower edge of the flange and are of a different character than the connections shown in Figs. 1 and 2, said connections being formed by locating the vertical cuts 12 slightly within the opposite edges of the tongue 13 and extending them down substantially to the plane of the lower edge of the stopper. In Figs. 1 and 2 the flange is ruptured by a tearing of the metal forming the necks 7 in a vertical direction. In the construction shown in Fig. 3 the flange is ruptured by breaking the metal forming the necks 11 in a substantially horizontal direction.

My invention in its broader aspects is not limited to the particular constructions herein shown and described nor to any particular construction by which it has been or may be carried into effect, as many changes may be made in the construction without departing from the main principles of the invention and without sacrificing its chief advantages.

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

1. A sheet-metal stopper having a circumferentially-integral depending securing-flange, said flange having a plurality of cuts extending circumferentially thereof said cuts being separated by portions adapted to be readily ruptured, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

2. A sheet-metal stopper having a circumferentially-integral flange adapted to secure the stopper to a receptacle, said flange being weakened by a plurality of adjacent cuts extending circumferentially thereof, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

3. A sheet-metal stopper having a circumferentially-integral flange adapted to secure the stopper to a receptacle, said flange being weakened by a plurality of adjacent cuts extending circumferentially thereof, said cuts covering not less than one-third of the circumference of the flange, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

4. A sheet-metal stopper having a circumferentially-integral flange adapted to secure the stopper to a receptacle, said flange being weakened in a vertical direction and also weakened in a direction extending circumferentially thereof, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

5. A sheet-metal stopper having a circumferentially-integral flange adapted to secure the stopper to a receptacle, said flange being weakened by a plurality of circumferentially-extending cuts together covering at least one-third of the circumference and by one or more vertically-extending cuts adjacent to said circumferentially-extending cuts to permit easy removal of the stopper.

6. A sheet-metal stopper having a circumferentially-integral flange adapted to secure the stopper to a receptacle, said flange being weakened by a plurality of circumferentially-extending cuts together covering at least one-third of the circumference and a plurality of vertically-extending cuts, each of said vertically-extending cuts being located adjacent to one end of a circumferentially-extending cut, whereby the stopper may be readily removed from the receptacle.

7. A sheet-metal stopper having a circumferentially - integral depending securing-flange, said flange having a plurality of cuts extending circumferentially thereof said cuts being separated by portions adapted to be easily ruptured, and said flange being weakened vertically within the limits of one of said cuts, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

8. A sheet-metal stopper having a circumferentially-integral depending securing-flange adapted to be bent into locking relation with a suitable shoulder on a receptacle, said flange having a plurality of circumferential cuts separated by portions adapted to be easily ruptured, said cuts extending through at least one-third of the circumference of the stopper, and said flange being partly severed vertically within the limits of said cuts, whereby the

stopper may be readily released from the receptacle.

9. A sheet-metal stopper having a circumferentially-continuous flange said flange comprising a section having within it a vertical and horizontal cuts and portions adapted to be ruptured, whereby when said portions are ruptured the stopper may be readily removed from the receptacle.

10. A sheet-metal stopper having a circumferentially-continuous flange, said flange comprising a section having within it a vertical cut and a plurality of horizontal cuts and portions adapted to be ruptured, said vertical cut lying between the horizontal cuts and the edge of the flange, whereby when said portions are ruptured the stopper may be readily removed from the receptacle.

11. A sheet-metal stopper having a circumferentially-continuous flange, said flange comprising a section having within it a vertical cut and a plurality of horizontal cuts and portions adapted to be ruptured, said vertical cut connecting with one of said horizontal cuts and extending downward in proximity to the edge of the flange, whereby when said portions are ruptured the stopper may be readily removed from the receptacle.

12. A sheet-metal stopper having a circumferentially - integral depending flange, said flange having a plurality of cuts extending circumferentially thereof said cuts being separated by portions adapted to be readily ruptured, and means for rupturing said portions, whereby when said portions are ruptured the stopper may be readily removed from the receptacle.

13. A sheet-metal stopper having a circumferentially - depending securing - flange, said flange having a plurality of circumferential cuts separated by portions adapted to be readily ruptured, and a stiffened tongue adapted to facilitate the rupture of one of said portions.

14. A sheet-metal stopper having a circumferentially-integral securing-flange adapted to be bent into locking relation with a suitable shoulder on a receptacle, said flange being provided with a tongue and being weakened in a vertical direction adjacent to said tongue, whereby the flange may be ruptured and released from the locking-shoulder by means of the tongue, and said flange being weakened in a direction extending circumferentially thereof adjacent to said tongue, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

15. A sheet-metal stopper having a circumferentially-integral securing-flange adapted to be bent into locking relation with a suitable shoulder on a receptacle, said flange being provided with a tongue and being weakened in a vertical direction adjacent to said tongue, whereby the flange may be ruptured and re-

leased from the locking-shoulder by means of the tongue, and said flange being weakened in a direction extending circumferentially thereof on opposite sides of the tongue, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

16. A sheet-metal stopper having a circumferentially-integral securing-flange adapted to be bent into locking relation with a suitable shoulder on a receptacle, said flange being provided with a tongue and having a vertical cut adjacent to said tongue and a cut extending circumferentially thereof adjacent to said vertical cut and between the top of the stopper and the line of locking contact between the flange and the stopper, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

17. A sheet-metal stopper having a circumferentially-integral securing-flange adapted to be bent into locking relation with a suitable shoulder on a receptacle, said flange being provided with a tongue and having a vertical cut adjacent to said tongue and one or more cuts extending circumferentially thereof adjacent to said vertical cut, said vertical cut extending below the line of locking contact between the flange and the shoulder, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

18. A sheet-metal stopper having a circumferentially-integral securing-flange adapted to be bent into locking relation with a suitable shoulder on a receptacle, said flange being provided with a stiffened tongue, and having a vertical cut adjacent to said tongue, whereby said tongue may act as a lever to rupture the flange and said flange having one or more circumferential cuts adjacent to the tongue, whereby when the flange is ruptured the stopper may be readily removed from the receptacle.

19. A sheet-metal stopper having a circumferentially-integral securing-flange adapted to be bent into locking relation with a suitable shoulder on a receptacle, said flange being

provided with a stiffened tongue and having one or more vertical cuts adjacent to said tongue and one or more circumferential cuts adjacent to said vertical cuts, and between the top of the stopper and the line of locking contact between the flange and the shoulder, whereby the flange may be easily ruptured by the tongue and the stopper readily removed from the receptacle.

20. A sheet-metal stopper having a circumferentially-integral securing-flange adapted to be bent into locking relation with a suitable shoulder on a receptacle, said flange being provided with a stiffened tongue and having a vertical cut adjacent to said tongue, said cut extending below the line of locking contact between the flange and the shoulder on the receptacle.

21. A sheet-metal stopper having a circumferentially-integral securing-flange and a detaching-tongue integral therewith and forming a part thereof, said tongue being detachably connected with the adjacent parts of said flange, said flange having a weakened line extending circumferentially thereof adjacent to said tongue, whereby the flange may be easily ruptured by the tongue and the stopper readily removed from the receptacle.

22. A sheet-metal stopper having a circumferentially-integral securing-flange and a detaching-tongue integral therewith and forming a part thereof, the portion of said tongue projecting below the lower edge of said flange being suitably stiffened in the direction of its length, the integral connections between the tongue and the flange being located adjacent to the upper end of the stiffened portion of the tongue.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED L. WEISSENTHANNER.

Witnesses:

EDWIN SEGER,

JOSEPH H. FREEMAN.