No. 751,404. PATENTED FEB. 2, 1904.

F. C. B. PAGE.

CLOSURE FOR VESSELS.

APPLICATION FILED OCT. 30, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

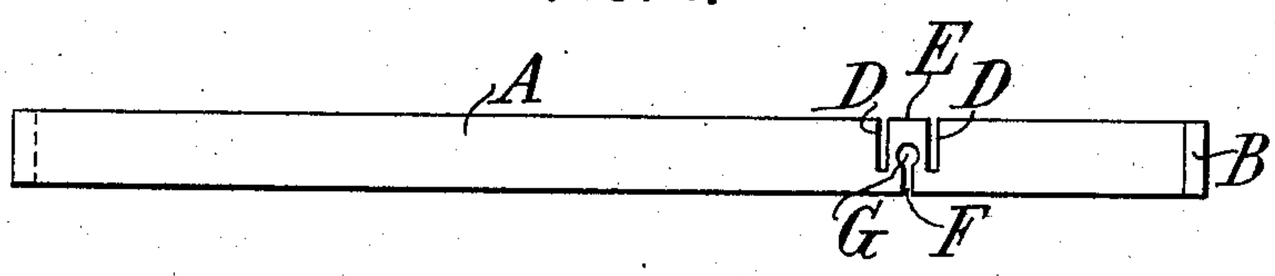


FIG. 2.

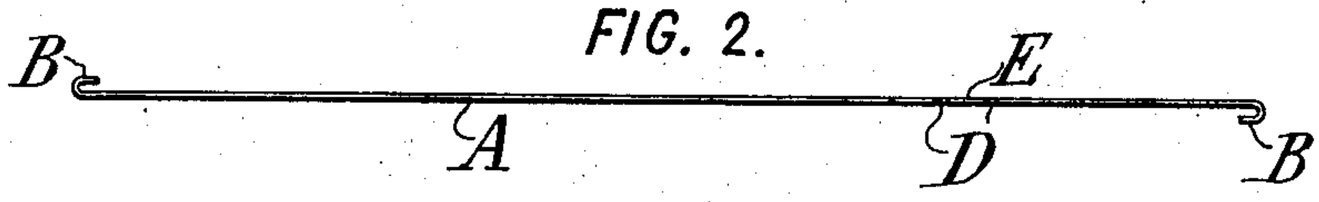


FIG. 3.

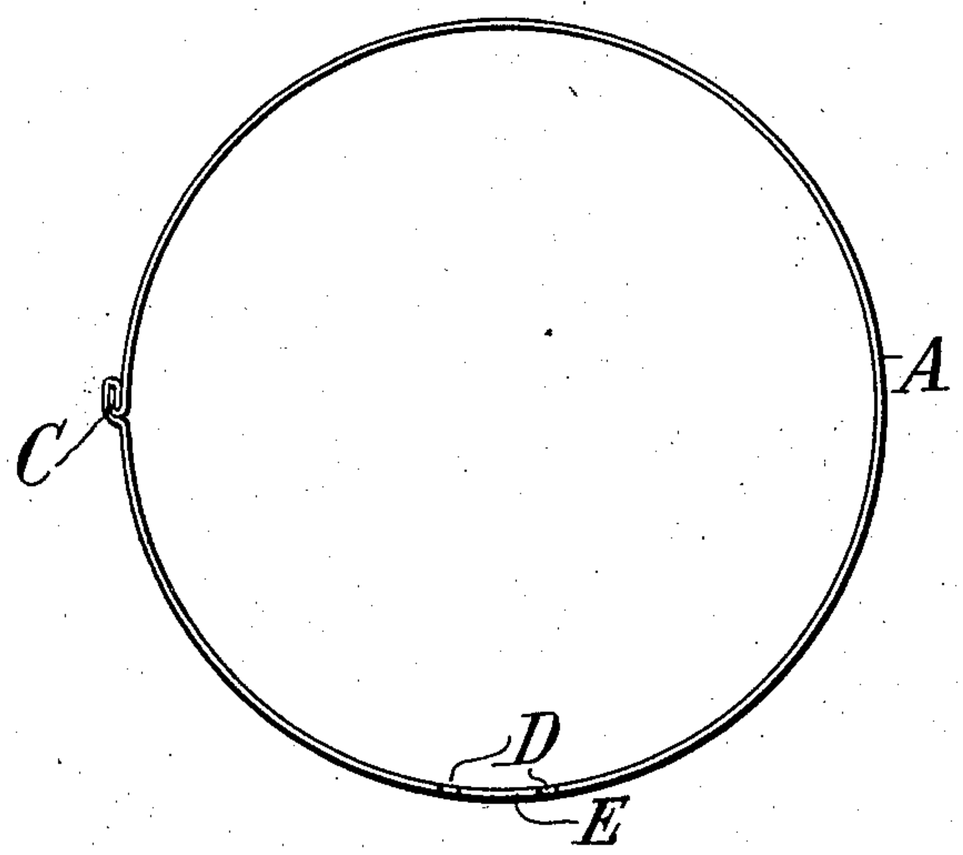
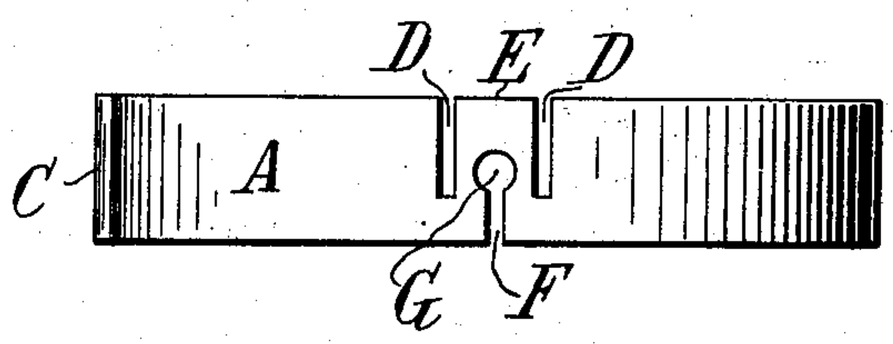


FIG. 4.



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CLOSURE FOR VESSELS.

APPLICATION FILED OCT. 30, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

FIG. 5.

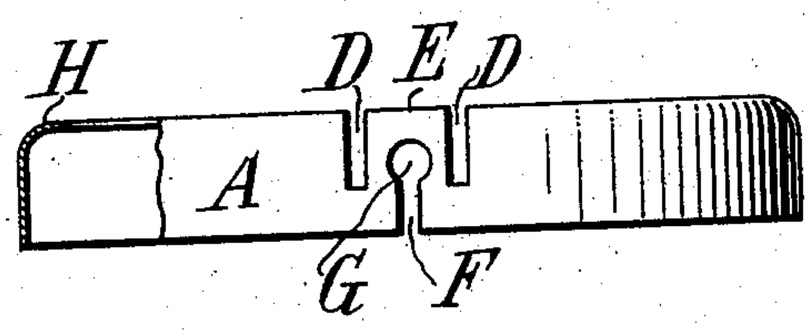


FIG. 6.

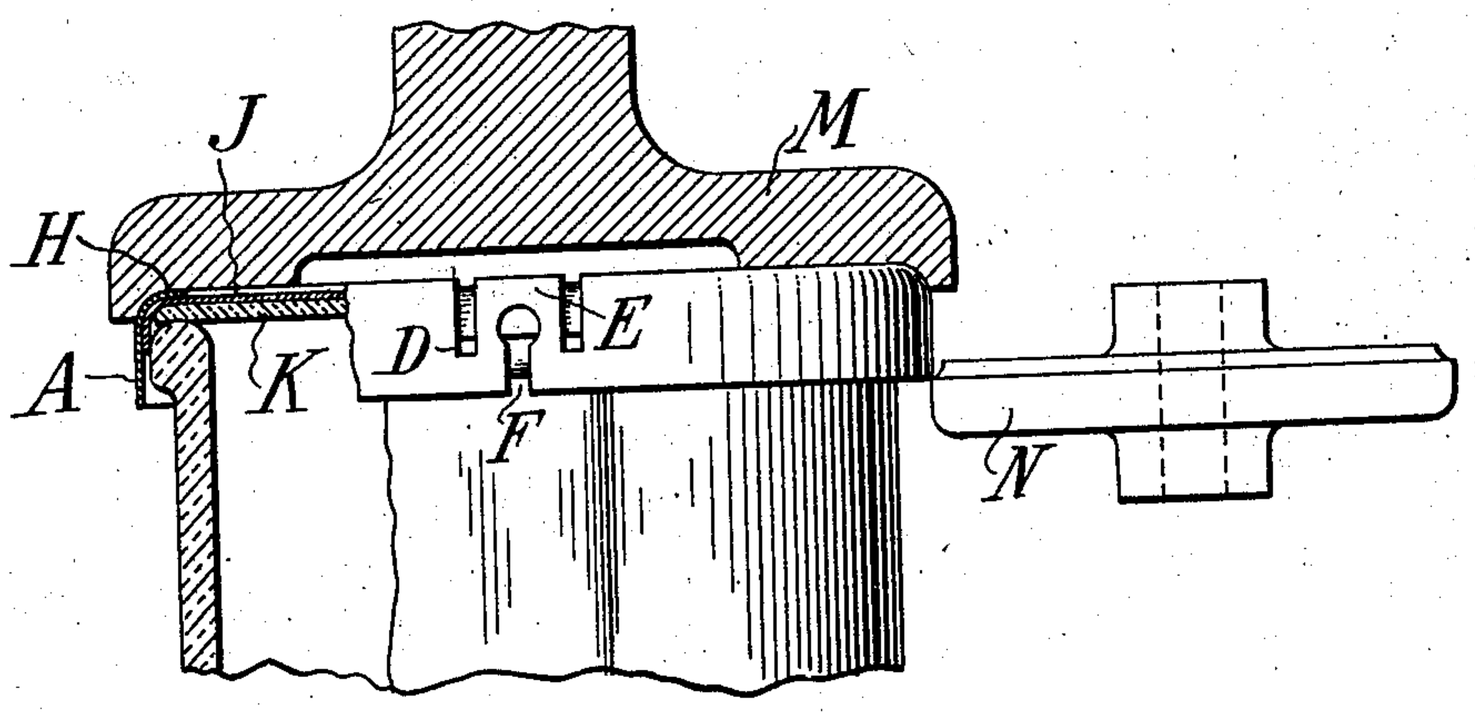
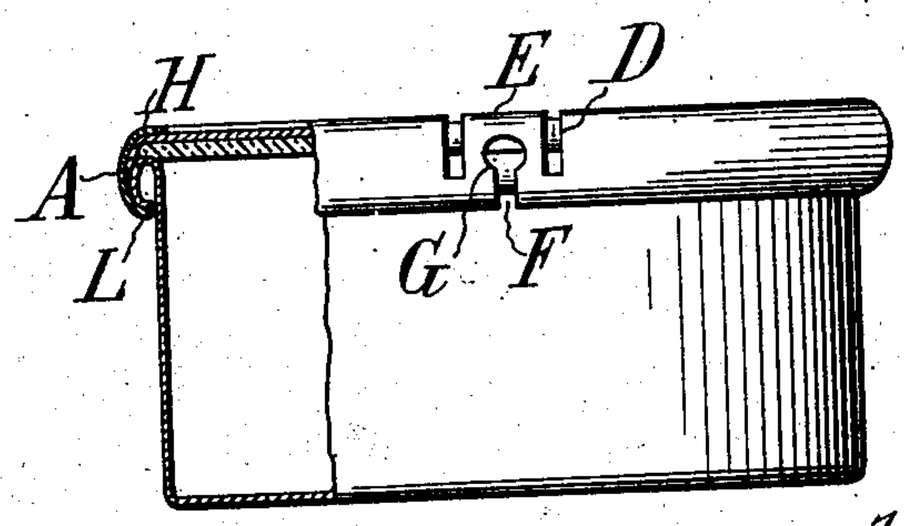


FIG. 7.



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No. 751,404. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

FRANK C. B. PAGE, OF NEW YORK, N. Y., ASSIGNOR TO AIR TIGHT CLOSURE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CLOSURE FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 751,404, dated February 2, 1904.

Original application filed March 21, 1903, Serial No. 148,820. Divided and this application filed October 30, 1903. Serial No. 179,159.

(No model.)

To all whom it may concern:

Be it known that I, FRANK C. B. PAGE, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Closures for Vessels, of which the following is a specification.

This invention aims to provide an improved closure for vessels—such as cans, bottles, jars, or the like—which may be cheaply made and readily and cheaply applied, which affords a secure closure, which is easily opened, and which when once opened cannot be resealed.

In my application for patent, Serial No. 148,820, filed March 21, 1903, I have described a band circumferentially encircling the top or mouth of the vessel and which when applied is bent or crimped inward at its upper edge to overlie the cap or cover and at its lower edge to underlie a shoulder or flange at the top or mouth of the vessel, means being provided by which said band may be readily broken to release the cap or cover. The present application is a division of the aforesaid application and is based on a form of the invention having certain peculiar advantages in addition to those due to the broad invention.

An important feature of improvement in the present invention is the band, having ends joined or seamed together so that it may be formed of a long flat strip with its ends brought together and united as distinguished from a seamless drawn band.

Other points of improvement are referred to in detail hereinafter.

The accompanying drawings illustrate an embodiment of the invention.

Figures 1 and 2 are respectively an elevation and edge plan of a strip from which the band may be formed, the scale being one-half that of the remaining figures. Fig. 3 is a plan of the band. Fig. 4 is a side elevation of the same. Fig. 5 is a side elevation, partly in section, of the band with its upper edge crimped inward to form a flange. Fig. 6 is a similar view showing the cap and band in place on the mouth of a bottle or jar and illustrating the means for and method of applying the closure. Fig. 7 is an elevation, partly in section, showing the band applied to a tin can.

Referring to the drawings, the band is formed of a long flat strip A, preferably of uniform width throughout. The ends are brought together and united in any suitable manner. For example, they may be hooked at their ends, as indicated at B, and united in a lock-seam C, (Fig. 3,) which may be soldered or not, as desired, and which is substantially identical with the side seams of ordinary cans and may be formed in the same way. Either before or after uniting the ends the strip A is weakened in any suitable manner—as, for example, by forming transverse cuts D D through a part of its height and approximately parallel to each other to form an ear E. The portion of sheet metal below the ends of the cuts B constituting the base of the ear is much weaker than the remainder of the band. I preferably weaken it still further by providing a third cut F, extending transversely across the base of the ear. The cut F is preferably formed with a hole or eye G at its upper end.

The band as marketed may be of the form shown in Figs. 3 and 4 of substantially uniform diameter throughout its height, or the upper edge may be crimped inward to form a flange H, Fig. 5.

In applying the closure a cap J, of sheet-metal, with a circumferential flange, as shown, is placed over the mouth of the bottle with an interposed disk K, of packing material, such as paper, rubber, or the like. The band A is placed around the cap, Fig. 6. Pressure is then brought to bear upon the chuck or follower M to force the cap and band tightly down upon the mouth of the vessel. While this pressure is maintained the lower end of the band is crimped or spun in by means of a roll N to tightly embrace the shoulder on the vessel and hold the cap and vessel firmly together. When the closing operation is com-

plete and the external pressure is removed, the band by reason of its upper flange H overlying the cover and its lower flange L, Fig. 7, underlying the shoulder on the outside of the mouth of the vessel serves to hold the cap so tightly pressed upon the vessel as to maintain the requisite degree of compression of the packing to prevent leakage. This result is attained by turning in the lower flange of the band under considerable pressure. The specific form of the cap and the packing and also the nature of the vessel are not essential parts of the broad invention. However, there is a particular advantage in the use of the flanged cap shown in connection with the band. The band preferably fits close over the cap, so that the two will be held frictionally together and can be handled as one piece in the operation illustrated in Fig. 6. Furthermore, the flanged cap shown is useful as a temporary loose cover for the vessel, even after it has been once opened and the band has been destroyed.

To open the vessel, it is only necessary to force a suitable opening-tool, such as a knife-blade, under the end of the ear E and pry it up, whereby the metal weakened between the cuts D D and even more so where the third cut F is formed may be easily broken or stretched, so as to liberate the band, or an opening-tool may be applied by thrusting its end into the eye G and bending the tongue until the metal breaks.

The closure provided by my invention is very cheaply made and very easily and expeditiously applied to a filled vessel. It affords a perfectly secure and leak-tight joint capable of withstanding all the strains of transportation and storage. It is easily and instantaneously opened and when once opened has the advantage that it cannot be again sealed, whereby an important security is afforded against the fraudulent refilling of vessels or packages.

My invention is to be distinguished from those closures in which a strip is bent into circular form with its opposite edges turned in to form flanges, being then applied around the top of a vessel and its ends drawn together and soldered. With such a fastening-strip it is difficult or impossible to apply it so as to hold the cover pressed forcibly down upon the mouth of the vessel, and it is difficult to apply such strip, and the necessity for soldering its ends is a serious practical disadvantage. My invention is also to be distinguished from those closures in which a sheet-metal ring is passed down over the cover and can-top and has its lower edge, which is notched at intervals, turned in to form ears underlying a shoulder on the can and which ears have to be bent in order to open the can, the bending out of such ears being a tedious and difficult process and leaving the ring intact, so that the can can be fraudulently refilled and reclosed by again bending in the ears. My invention is also distinguished from caps or bands which are drawn up from a flat plate, so that the horizontal flange is part of the original plate, while the vertical band is, in fact, a flange formed on the original plate, the whole being seamless. A band formed in this way wastes all the metal within the annular plate from which it is formed as well as all of the corners of the polygonal figure from which the annulus must be cut. The result of first weakening the metal and then drawing it under a necessarily strong tension will be uncertain and the product frequently broken or distorted, and to make the desired cuts after the metal is reduced to a band with a horizontal inward flange is very difficult. As compared with such constructions the improved band herein described marks a decided advance in practicability and cheapness. The band shown in Figs. 3 and 4 may, for example, be cut either before or after the uniting of its ends and offers no difficulties whatever in manufacture or application.

Though I have described with great particularity of detail an embodiment of the invention, yet it is to be understood that the invention is not limited to the specific form disclosed. Various modifications thereof may be made by those skilled in the art without departure from the invention.

What I claim is—

1. A continuous circumferential band of sheet metal for holding the cover on a vessel and having ends joined together, whereby it may be made of a long flat strip, said band being weakened at a point in its circumference and adapted to be readily broken at such point to release the cover.

2. A continuous circumferential band of sheet metal for holding the cover on a vessel and having ends joined together, whereby it may be made of a long flat strip, said band being cut partly through by a pair of cuts to form an ear whereby it is weakly united across the base of said ear and whereby it may be readily broken at such point to release the cover.

3. A continuous circumferential band of sheet metal for holding the cover on a vessel and having ends joined together, whereby it may be made of a long flat strip, said band being cut partly through by a pair of cuts to form an ear and having also a cut across the base of said ear so that said base weakly unites the band, whereby it may be readily broken to release the cover.

4. A vessel having an external shoulder, a loose temporary cover therefor having a downwardly-turned circumferential flange, and a continuous circumferential band of sheet metal having ends joined together, whereby it may be made of a long flat strip, said band having

its edges bent inward to form flanges overlying the cover and underlying said shoulder to hold the cover pressed tightly on the vessel and being weakened at a point in its circumference and adapted to be readily broken at such point to release the cover.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRANK C. B. PAGE.

Witnesses:
FRED WHITE,
DOMINGO A. USINA.