C. T. DRAPER.

REMOVABLE CLOSURE FOR METALLIC CONTAINERS.

APPLICATION FILED MAR. 15, 1920.

1,381,704.

Patented June 14, 1921.

3 SHEETS—SHEET 1.

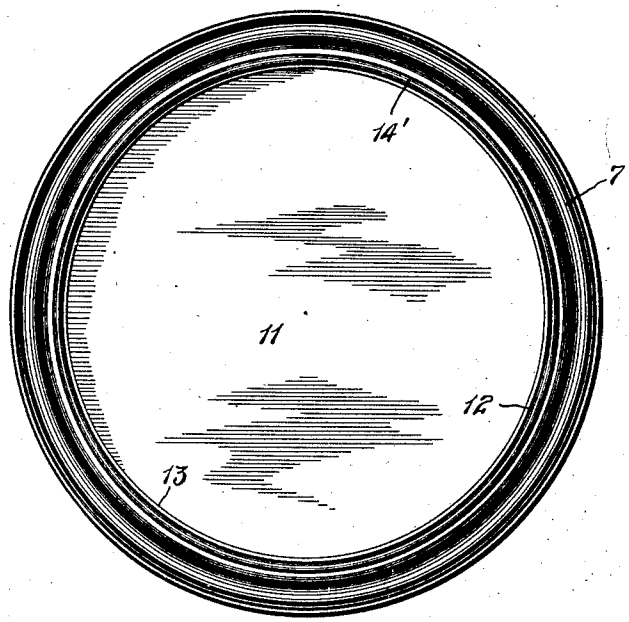

Fig. 1.

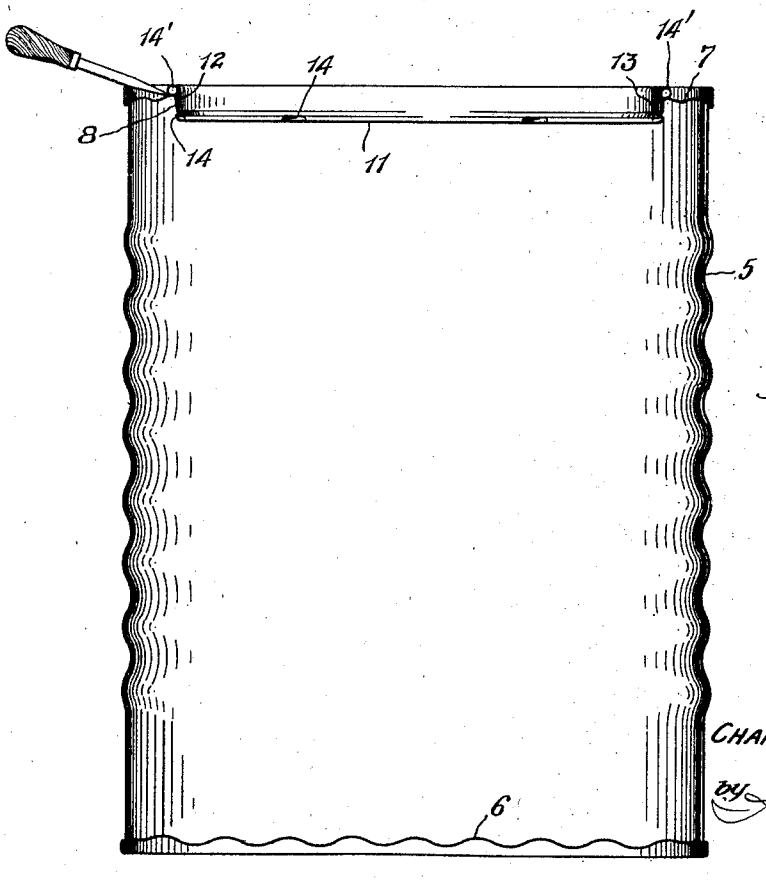

Fig. 2.

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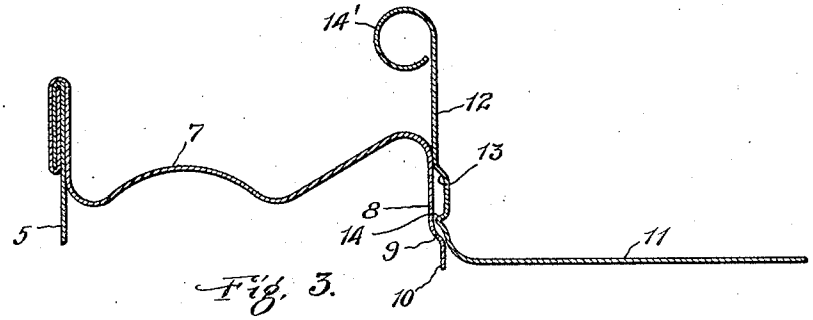

Fig. 3.

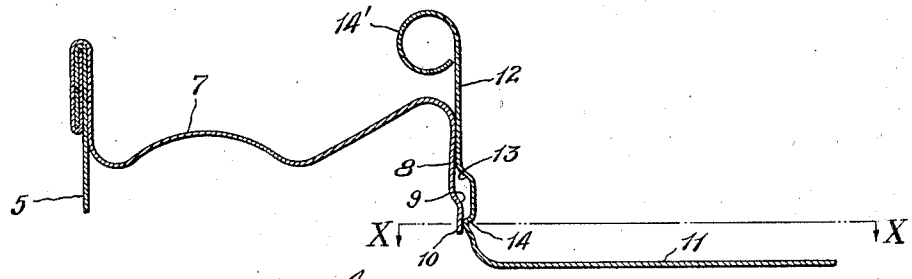

Fig. 4.

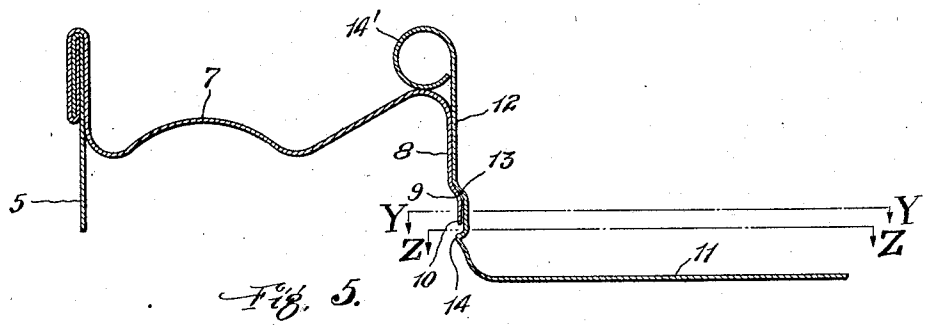

Fig. 5.

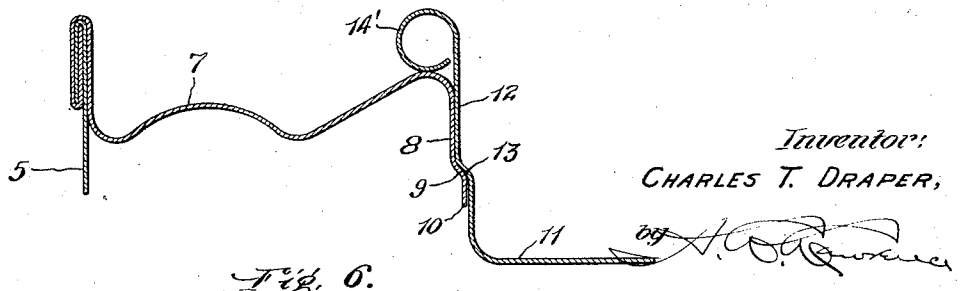

Fig. 6.

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3 SHEETS—SHEET 3.

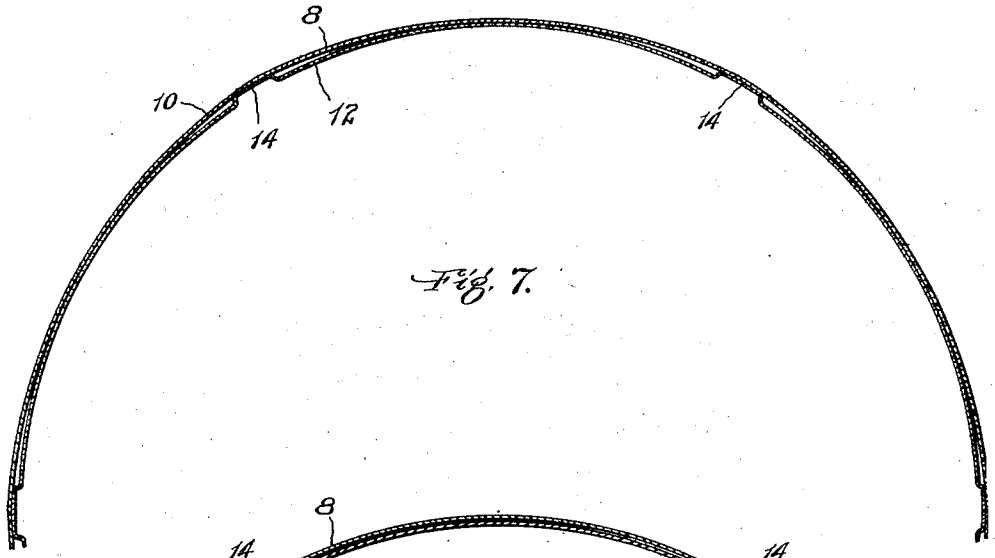

Fig. 7.

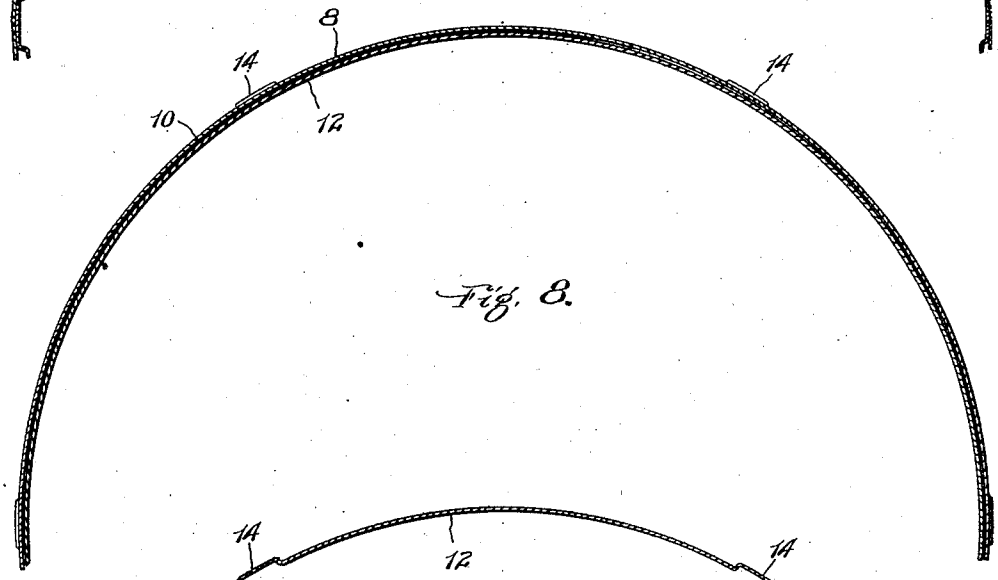

Fig. 8.

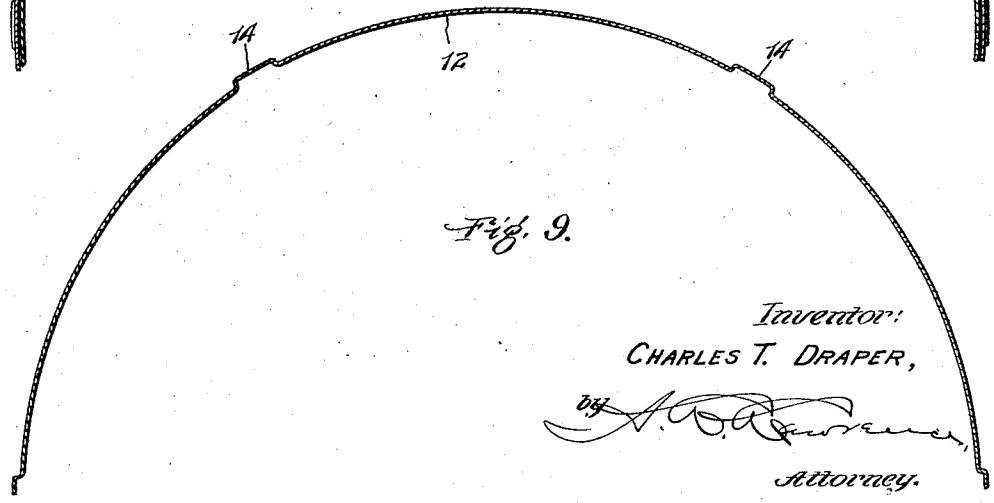

Fig. 9.

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UNITED STATES PATENT OFFICE.

CHARLES T. DRAPER, OF CLEVELAND, OHIO, ASSIGNOR TO THE DRAPER MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

REMOVABLE CLOSURE FOR METALLIC CONTAINERS.

1,381,704. Specification of Letters Patent. Patented June 14, 1921.

Application filed March 15, 1920. Serial No. 365,723.

To all whom it may concern:

Be it known that I, CHARLES T. DRAPER, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Removable Closures for Metallic Containers, of which the following is a specification.

This invention relates to closures for shipping and storing vessels, and has particular reference to a removable closure for metallic containers.

The principal object of this invention is to provide a closure for metallic containers which embodies the advantages of a latch-lock construction but which eliminates the disadvantages incident to such construction, for instance, the marking and distorting of the co-acting elements.

A further object of this invention is to provide a device of the character above specified which will tightly seal the container even though the plug is not accurately in position.

A still further object of this invention is to provide a container and closure therefor which is easy and inexpensive to manufacture and strong and durable in operation.

Other objects and advantages of this invention will be apparent from the following description, taken in connection with the accompanying drawings and the particular features of novelty will be pointed out in the appended claims; it being understood that various changes in the form and proportion of the device may be made such as fall within the scope of the claims, without departing from the spirit of the invention.

In the drawings forming a part of this specification and wherein similar characters of reference denote similar parts in the several views,

Figure 1 is a plan view of the container and closure,

Fig. 2, is a vertical section through the container and closure,

Figs. 3, 4, and 5 are fragmentary sectional views of a portion of the container showing the closure in various positions drawn upon a larger scale,

Fig. 6 is a fragmentary sectional view of the container and closure,

Fig. 7 is a sectional view taken on the line X—X Fig. 4,

Fig. 8 is a sectional view taken on the line Y—Y, Fig. 5, and

Fig. 9 is a sectional view taken on the line Z—Z, Fig. 5.

Referring now, more particularly to Figs. 1 and 2 of the drawings, the numeral 5 designates a container which is formed preferably of metal and is closed at its lower end by a head 6. The upper end of the container is partially closed by means of an annular head 7, seamed or otherwise suitably secured to the container. The head 7 is provided with a relatively large opening and with a depending flange or rim 8 adjacent and extending entirely around the circumference of said opening.

The rim 8 near its lower end is flared inwardly toward the above mentioned opening forming a shoulder 9, which shoulder terminates in a depending resilient lip 10 arranged substantially parallel to flange or rim 8.

Removably positioned within the opening in head 7 is a plug or closure having a base 11 and a side 12 extending around the circumference of said base. It is shown specifically in Fig. 6, as flared outwardly for a short distance forming a peripheral shoulder 13, which shoulder terminates in the remainder of the side 12 which is shaped to tightly bear against the rim 8.

It is not in the least essential to the sealing relation, however, for this shoulder to contact at 9, since the joint is effected between the two vertical walls annularly in adjacent parallel planes.

Intermediate the base 11 and shoulder 13 on the side 12 is provided a peripheral series of outwardly pointing projections 14. These projections 14 are so arranged that the outermost point on said projections will be without the plane of the outer face of the side 12 above the shoulder 13. The upper periphery of the side 12 is curled as shown at 14′. It should be observed that when the lugs 14 pass below the rim 10, sealing is effected by the intimate contact annularly between the walls of 8 and 12 which are in close engagement. Also, the lip 10 is only sectionally distorted, without being stretched by the plug or closure in seating same as above.

Sheet 2 of the drawings illustrates the various positions of the plug or closure as

it is being forced into position in the opening in head 7 of the container. In the position shown in Fig. 3, the plug has just been inserted, and it can be seen from this figure that the projection 14 does not engage the rim 8 because, as above mentioned the outermost point is not within the plane of the outer face of the side 12 above the shoulder 13.

It has been found from constructions of containers such as herein disclosed, that in providing a tight fitting closure therefor, said closure will inevitably mar or distort the frictional surface of its coacting element by being forced past said element, and in a very short time, these distortions permit a leakage of the material from within the container.

As the plug or closure is forced into the opening in the head 7, the outer face 12 continues to engage the outer face of the rim 8 and the projections 14 strike the shoulders 9 of said rim. The projections 14 ride on said shoulders 9 and then force the resilient lip 10 in an outward direction. When the projections 14 pass beyond the edge of lip 10, said lip, being resilient, will spring back to the position shown in Fig. 5, the shoulder 13 resting on shoulder 9 of rim 8.

The curled section 14′ of the plug will rest on the head 7 limiting the downward movement of said plug, and also serving as a means for aiding the removal of the plug by the insertion of a suitable tool thereunder.

From the drawings it can be seen that should the plug be inserted an insufficient distance for the projections 14 to pass beneath the lip 10, the closure will nevertheless be tight and "leak-proof" because of the vertical closure between rim 8 and side 12 above the shoulder 13. This, it is obvious, results from the particular positions of the several parts, especially the projections 14.

From the above description, it is believed the operation of the device will be readily understood by those skilled in the art to which it appertains, and what I claim as new and desire to secure by Letters Patent of the United States is,

1. A closure for containers, comprising an annular head provided with an opening, a depending rim integral with said head and beneath said opening, said rim being provided at its lower end with a shoulder and a cylindrical lip, and a closure plug inserted within the above mentioned opening, said plug being provided with a coacting peripheral shoulder, and a series of projections, positioned to engage the edge of the lip in locking relation.

2. A closure for metallic containers comprising a head secured to said container provided with a central opening and a rim terminating in a resilient annular lip, a closure plug adapted for removable insertion within said opening provided with annularly spaced projections on diameters less than the sealing portion of the plug, and means for limiting the depth of insertion of said plug to bring said projections into locking engagement with the edge of the annular lip.

3. A closure for sheet metal containers comprising an annular head section having a central opening, an annular depending rim integral with the head terminating in a resilient cylindrical lip, and a closure member of sheet metal centrally dished to fit the opening in sealing relation throughout an upper section of the rim and having a series of outer projections on diameters less than the sealing section of the rim, adapted to engage the edge of said lip and retain the closure in position.

In testimony whereof I do now affix my signature in the presence of two witnesses.

CHARLES T. DRAPER.

Witnesses:
G. FORREST,
ALBERT LYNN LAWRENCE.