July 25, 1933. E. SCHMIDT 1,919,574

CLOSURE MEANS FOR TINS

Filed Oct. 2, 1930

Fig. 1

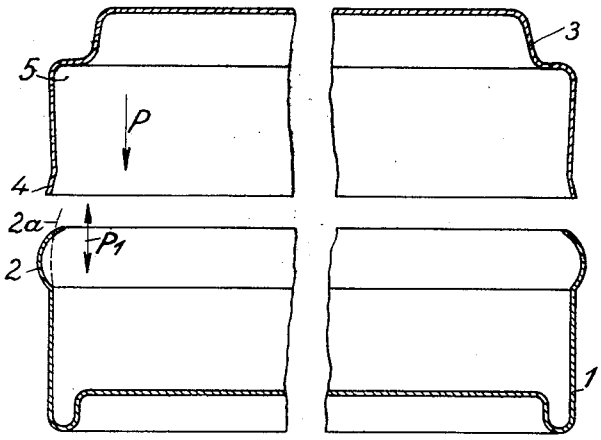


Fig. 2

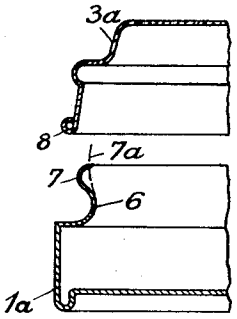


Fig. 3

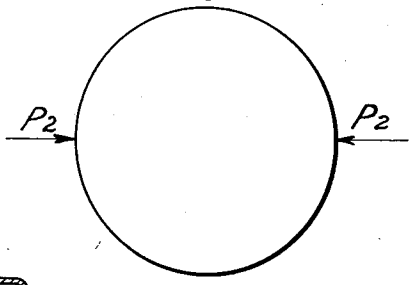


Fig. 4

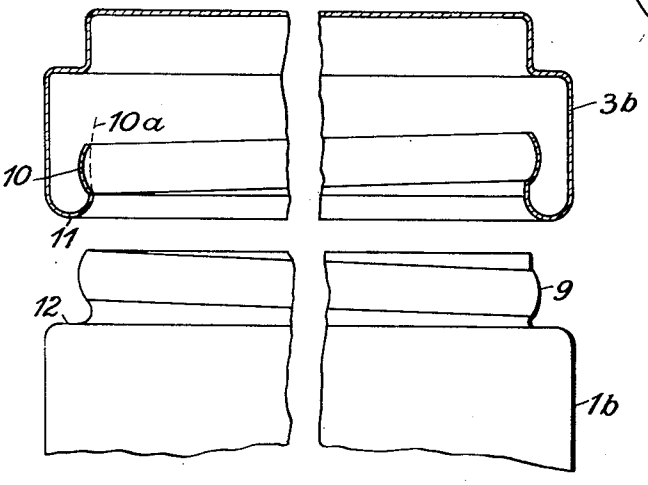
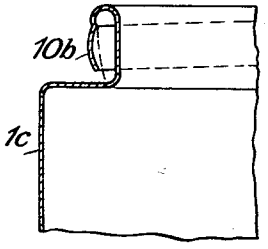


Fig. 5



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UNITED STATES PATENT OFFICE

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CLOSURE MEANS FOR TINS

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This invention relates to cans and other sheet metal containers, which for the sake of brevity will hereafter be referred to as "tins", and deals more particularly with the lids or covers of such containers.

It is the primary object of the present invention to provide a novel closure means for these tins, wherein the lid, after its application to the tin, is locked in position in such manner that an automatic opening by reason of blows, jolts, etc. brought to bear on the exterior is impossible, whereas on the other hand the tin may be readily opened at any time by mutual pressure applied to the edge of the lid.

Alternatively, the closure may also be of the screw kind, in which case, by reason of the particular construction of the interengaging parts, the thread is caused to be locked, and in addition what may be termed light application of the lid to the tin is rendered possible, in such manner that the tin is capable of being firmly and tightly closed, but the lid nevertheless removed with the greatest ease.

Other objects and advantages of the invention will become apparent as the description proceeds.

The essence of the invention consists in the fact that by means of a groove or elevated portion on the free edge of the tin or the lid, or both, the edge or edges are caused to extend resiliently in the direction of the longitudinal axis of the tin. As the raised portion is extended, the outer diameter thereof is diminished, so that the lid may be readily placed over the tin. The lid at a point of its periphery where the raised portion of the tin is located in the final position, i. e., when the lid has been applied, is bulged out to a certain extent, into which bulge the resiliently extensible raised portion of the tin is caused to snap and thus firmly hold the lid in relation to the tin. It is an essential point both as regards the locking action as well as the opening of the tin that the raised portion is situated directly on the free edge, as it is this measure which renders possible the resilient extension of the raised portion in the direction of the longitudinal axis.

The closure means as above described has in its association the peculiarity that the same may be readily opened upon the application of pressure to two diametrically opposite points of the edge of the tin. Under the action of such a pressure the tin is caused to spring open. To avoid the occurrence of this action in the case of already packed tins by reason of accidental exertion, the arrangement in one particular form of embodiment is such that the upper edge of the tin by the impression of two grooves possesses an S-shaped sectional form, and when the tin is closed the edge of the lid is disposed in guarded position in the lower groove within the contour of the tin.

The invention will now be described more fully with reference to the accompanying drawing, in which

Fig. 1 shows in diagrammatical form a sectional view of the open tin with the lid situated thereover.

Fig. 2 is a modified form of the embodiment according to Fig. 1.

Fig. 3 shows in diagrammatical form the tin viewed from above.

Fig. 4 shows a tin fitted with screw closure means, the tin being shown in elevation and the lid in section, while

Fig. 5 shows in diagrammatical form the sectional view of part of the tin capable of being closed by the lid depicted in Fig. 4.

Referring now to Fig. 1 of the drawing, 1 is the tin, which is made of sheet metal and terminates at its upper edge in the raised portion 2. As shown by the drawing, the free edge of the tin simultaneously constitutes the free bounding edge of the raised section. The appertaining lid is designated by "3". The same is bent slightly outwards at the lower edge 4, and towards the upper edge is furnished with an annular bulge 5. When the lid 3 is placed on the tin 1 in the direction of the arrow P, at first the lower edge 4 moves against the raised portion 2, and upon the further movement of the lid 3 the raised portion is caused to extend in the direction of the double arrow p^1, assuming, in exaggerated form, the position indicated in dotted lines (2a) in Fig. 1. In this con-

dition the lid may be placed completely over the tin until finally the raised portion 2 or 2*a* moves into the annular bulge 5 of the lid and, springing back to a certain extent, assumes a position therein. The lid is in this manner locked with the tin, and cannot be released therefrom merely by drawing on the same. It is, as shown by Fig. 3, necessary to apply to the edge of the tin at two diametrically opposite points a pressure in the direction of the arrow p^2 in such manner that the lid is caused to be lifted.

Fig. 2 shows a form of embodiment in which release of the lid by reason of forces applied accidentally to the edge is rendered impossible. In this form of embodiment there are provided at the edge of the tin two grooves or raised portions 6 and 7, the one in opposition to the other, i. e., the one 6 being raised from the normal plane in a direction towards the inside and the other towards the outside, the two together being in approximately S-form. As in the case of the first embodiment, the portion 7 assumes the extended form indicated in dotted line 7*a* when the lid 3*a* is placed on the tin 1*a*. The lid in this case possesses an edge portion 8, which is rolled over outwardly and, when the lid 3*a* has been placed on the tin 1*a*, is situated together with the adjacent parts in completely protected fashion within the space bounded by the portion 6. With this embodiment it is impossible, for example, in the case of tins packed in rows for an adjacent row of tins to press against the edge in such manner as to cause automatic opening.

With regard to Fig. 4, 1*b* is the upper part of the tin, whereby the raised portion 9 is constructed to constitute a thread. The appertaining lid 3*b* possesses at the lower edge a groove 10 which is also constructed to represent a thread. The groove 10 is the inner or female thread and the raised portion 9 the outer or male thread. When the lid 3*b* is screwed on to the tin 1*b*, the lower edge 11 of the lid 3*b* moves into engagement with the edge 12 of the tin 1*b*. Since the groove 10, as in the examples described above, is capable of extending to a certain extent in the longitudinal direction, it is possible to screw the lid on to the tin to a slight additional extent, obtaining in this manner a perfectly tight closure and, at the same time, due to the longitudinal extension of the thread, as indicated by the dotted line 10*a*, causing a locking of the screw connection. The lid 3*b* may also be screwed on to a tin 1*c* of the kind depicted in Fig. 5, wherein the thread, due to the shaping of the raised portion 10*b*, is also capable of being extended to a certain degree in the longitudinal direction of the tin, the same advantages then being obtained as described above.

It will be understood that no restriction is made to the specific forms of embodiment shown, which are merely illustrated by way of example, and that various modifications are quite possible within the meaning of the above and the appended claim without departing from the spirit of the invention.

What I claim as new and desire to secure by Letters Patent is:—

In combination in a tin having a body portion and a lid, the upper edge of the wall of the body portion being bulged outwardly to form a peripheral outwardly disposed rib terminating in a free upper edge, said lid having a flat top portion of relatively small diameter and a skirt portion of substantially greater diameter than the flat top portion, the skirt portion of the lid being bulged outwardly to form a peripheral outwardly disposed rib substantially below the juncture of the skirt with the flat top of the lid, said skirt portion extending below the rib therein and terminating in a flared or enlarged periphery, said peripheral ribs being completely circular and cooperating with each other and with the confined or reduced flat top and the flared skirt of the lid to provide a readily formed completely tight closure readily opened by applying pressure to the conically widened edge of the lid at two oppositely disposed points in order to permit the lid to be lifted.

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