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O. HELBERG

1,743,544

METHOD OF MANUFACTURING TIN CLOSURES

Filed Dec. 20, 1928

Fig.1

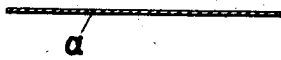


Fig.2

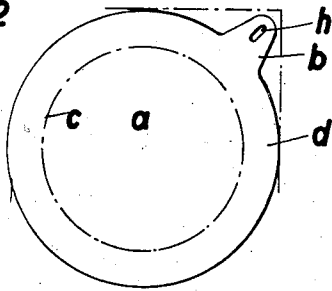


Fig.3

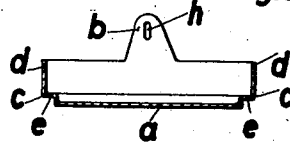


Fig.4

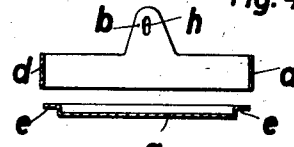


Fig.5

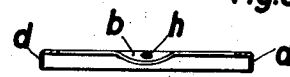


Fig.6

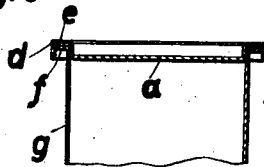


Fig.7

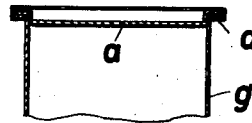


Fig.8

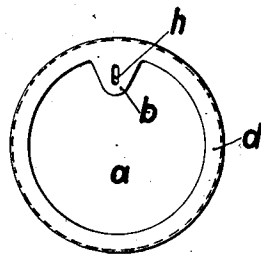


Fig.9

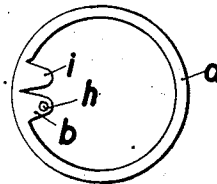


Fig.10

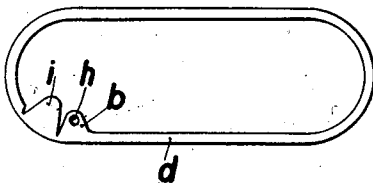
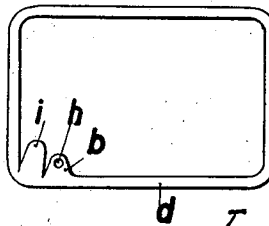


Fig.11



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METHOD OF MANUFACTURING TIN CLOSURES

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Most tins are closed with covers which can be removed from the tins so as to open them only with the aid of a suitable particularly designed implement. If, instead of such an implement, any of the known tools is used, the tin is generally more or less damaged, in many cases completely destroyed, and often times also the contents of the tin is impaired. Military and sporting persons must practically as a rule, abstain from carrying a separate tin opening implement with them, together with the tin, and in view of this drawback many endeavors have already been to so design the tins and their covers that they can be opened without the application of a separate implement. The known solutions of this problem are not satisfactory. In some cases they are too expensive, in others they are not practical.

My invention presents an unobjectionable solution of the problem stated in the preceding paragraph. This improved tin closure comprises, in combination with the tin body and the cover therefor, a folding ring laid around said body, and a tearing-up tongue projecting forth from said ring. This latter and the cover are, preferably, stamped together out of the respective sheet-metal piece in a common, i. e. one working phase. I am aware of the fact that also similar methods have already been proposed, but my present improved method differs materially also from them. The advantages obtainable by my improved closure appear especially during the manufacture of it, as well as when the respective tins are to be opened which can be effected in a very simple manner merely by tearing said folding ring by means of said tongue.

The tearing-up tongue is arranged above the cover, and this presents the advantage that the cylindrical circumferential surface remains perfectly free for applying a paper strip thereon or for providing it with imprints etc., the mechanical working procedure being not in the least disturbed thereby.

A characteristic feature of the invention relates also therein that the stamped sheet-metal piece being, however, not larger than otherwise required for the cover and its fold

alone; that is to say, although now a separate closing ring is provided, the amount of material necessitated for the manufacture of the cover and said ring is not larger than hitherto without that ring. For this purpose the stamped sheet-metal piece delivering the cover is subjected to a drawing procedure by which a rim-flange is formed. This latter is then separated from the cover piece and serves as basis member for the separate closing ring with its tearing-up tongue.

The cover is provided with a rim flange and is separated from the closing ring in one working phase, that flange being apt to be placed upon the body of the tin. The closing ring is cylindrical and is then pressed into angular shape, preferably in such a manner that the tearing-up tongue remains at the upper edge of the said ring. There is in this tongue an aperture into which a nail or similar member can be put in order to be used as a sort of tool for effecting the tearing-up and drawing the closing ring off the two rim-flanges, viz, that of the tin body and that of the cover.

It is also possible to provide two tongues, one solely for rending the closing ring and the other solely for drawing said ring off the tin body and the cover.

The invention is illustrated diagrammatically and by way of example on the accompanying drawing on which

Figure 1 is a transverse section through a piece of sheet-metal intended for the manufacture of a cover;

Figure 2 is a plan of this piece of sheet-metal;

Figure 3 shows the same piece after the first pressing phase, again in transverse section, the cover and the closing ring being still integrally connected with one another;

Figure 4 is a similar view, showing the cover and the ring after the second pressing phase in which they have been separated from one another;

Figure 5 shows the closing ring after the third pressing stage in which it has received angular shape in section;

Figure 6 shows the upper part of a tin

body (in axial section) with the cover and the closing ring put thereon;

Figure 7 is a similar view, showing the three parts firmly united with each other;

Figure 8 is a plan of the parts shown in Figure 7;

Figure 9 is a view similar to Figure 8, but shows a modification, in that two tongues are provided;

Figure 10 is a plan of an oblong tin with semicircular frontal faces, and

Figure 11 is a plan of a rectangular tin with rounded-off corners.

On the drawings d (Figs. 1 and 2) denotes the stamped piece of sheet-metal which is intended to form (later on) the cover; it is provided with a projection c which is intended to be used as tearing-up tongue; in this tongue is a slot h for the insertion of a nail or the like, as already mentioned. As the metal piece has been square, as indicated by dotted lines in the upper righthand corner of Fig. 2, no extra material is required for the tongue. The central portion a of the metal piece d is intended to form, later on, the cover. The dotted line c indicates the size or diameter of the portion a .

The metal piece a/d is then pressed into the shape shown in Figure 3, there being now a flange e between the closing ring d and the cover portion a , and the tongue b extending upwardly, as shown. The flange e pertains to the cover portion a . The parts a and e together are then separated from the part d whereby two distinct tin members are obtained, viz, the cover a/e and the closing ring d/b . c (Figs. 1 and 3) denotes the separating line between said members.

The next working stage consists in bending the upper half of the ring d inwardly, as in Fig. 5, so as to give it angular shape in transverse section. The tongue b is now directed inwardly, as also shown in Fig. 5.

The cover and the closing ring are now ready for use.

The manner of closing a tin is illustrated in Figs. 6—8. The tin body g has an upper flange f upon which is placed the flange e of the cover e . Then the closing ring d is put upon the flange e so that its tubular or vertical portion extends downwardly over the flanges e and f , as in Fig. 6. Now the downwardly projecting portion of d is bent inwardly below the flange e , as in Fig. 7, whereby all members are firmly and tightly connected with each other. The tin is now closed, the closure is finished.

To open the tin, a nail or similar member is put into the slot h of the tongue b and this latter is now subjected to a certain strong pull, sufficient to tear-up the ring d . This having been accomplished, the now open ring is simply withdrawn from the tin, whereby the cover a is freed from the closure and can be taken off the tin body in the easiest manner

imaginable. The cover and the tin body are not in the least damaged, solely the ring d has been torn and become waste.

In the modifications shown in Figs. 9, 10 and 11 there is provided, besides the perforated tongue b a non-perforated tongue z , intended especially for tearing-up the ring d , whereas the tongue b is to serve merely for drawing the torn ring d off the cover. In order to facilitate the tearing up of the ring d , the free spaces at its root are formed as acute angles, as shown in all three figures.

I claim:

1. A method of manufacturing tin closures, consisting in stamping out of sheet-metal a circular piece, pressing this piece into a shape in which it appears as two superposed basins, of which the upper has a larger diameter than the lower, both basin-like parts being connected with one another by an annular intermediate portion; separating the lower basin-like member together with said annular portion from the upper member so as to convert this member into a cover having an outwardly directed flange and to convert simultaneously therewith the upper member into a ring with upright wall, pressing this ring into a shape in which its upper portion forms an inwardly directed flange; placing the cover with its flange upon a previously provided flange at the top of the tin body, placing then the flange of said ring upon the cover flange, and bending the downwardly projecting portion of the said ring inwardly below said body flange.

2. A method of manufacturing tin closures, consisting in stamping out of sheet-metal a circular plate having a laterally extending tongue, pressing this piece into a shape in which it appears as two superposed basins, of which the upper has a larger diameter than the lower and its tongue extends upwardly both basin-like parts being connected with one another by an annular intermediate portion; separating the lower basin-like member together with said annular portion from the upper member so as to convert this member into a cover having an outwardly directed flange and to convert simultaneously therewith the upper member into a ring with upright wall, pressing this ring into a shape in which its upper portion forms an inwardly directed flange from which said tongue extends inwardly; placing the cover with its flange upon a previously provided flange at the top of the tin body, placing then the flange of said ring upon the cover flange, and bending the downwardly projecting portion of the said ring inwardly below said body flange.

3. A method of manufacturing tin closures consisting in stamping out of sheet-metal a circular plate having a laterally extending tongue with an opening in it, pressing this piece into a shape in which it appears as two superposed basins, of which the upper has a

larger diameter than the lower and its tongue extends upwardly both basin-like parts being connected with one another by an annular intermediate portion; separating the lower basin-like member together with said annular portion from the upper member so as to convert this member into a cover having an outwardly directed flange and to convert simultaneously therewith the upper member into a ring with upright wall, pressing this ring into a shape in which its upper portion forms an inwardly directed flange from which said tongue extends inwardly; placing the cover with its flange upon a previously provided flange at the top of the tin body, placing then the flange of said ring upon the cover flange, and bending the downwardly projecting portion of the said ring inwardly below said body flange.

4. A method of manufacturing tin closures consisting in stamping out of sheet-metal a circular plate having two laterally extending tongues, pressing this piece into a shape in which it appears as two superposed basins, of which the upper has a larger diameter than the lower and its tongues extends upwardly both basin-like parts being connected with one another by an annular intermediate portion; separating the lower basin-like member together with said annular portion from the upper member so as to convert this member into a cover having an outwardly directed flange and to convert simultaneously therewith the upper member into a ring with upright wall, pressing this ring into a shape in which its upper portion forms an inwardly directed flange from which said tongues extends inwardly; placing the cover with its flange upon a previously provided flange at the top of the tin body, placing then the flange of said ring upon the cover flange, and bending the downwardly projecting portion of the said ring inwardly below said body flange, substantially and for the purpose set forth.

In testimony whereof I affix my signature.

OSCAR HELBERG.