Dec. 24, 1929. P. E. PEARSON ET AL 1,740,872

METHOD OF APPLYING CAN CLOSURES

Filed Nov. 28, 1927

Fig. 1

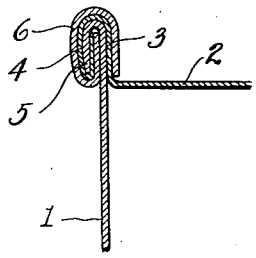



Fig. 2

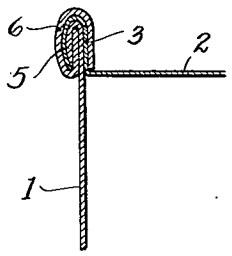
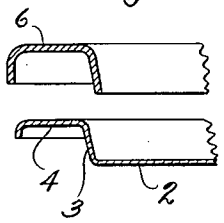



Fig. 3



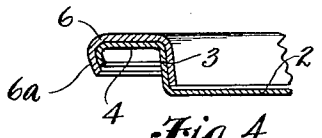




Fig. 4

Fig. 5

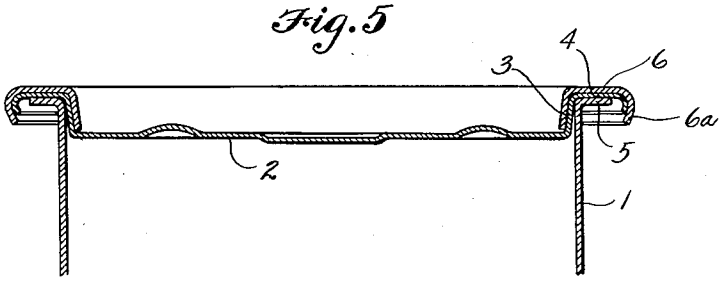



Fig. 6

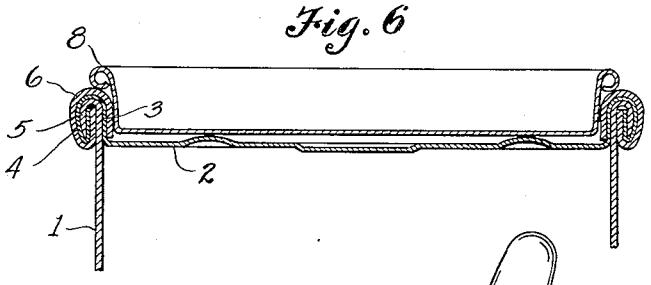
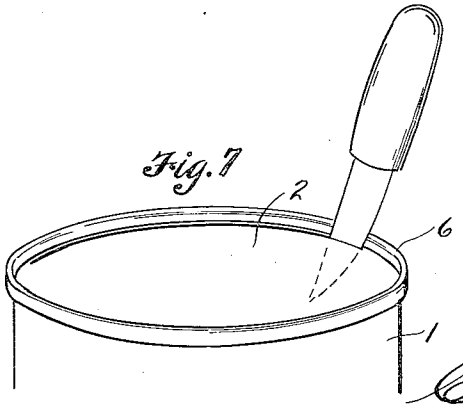



Fig. 7




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# UNITED STATES PATENT OFFICE

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## METHOD OF APPLYING CAN CLOSURES

Application filed November 28, 1927. Serial No. 236,222.

This invention relates to improvements in can construction and more particularly to sheet metal cans of that type having their ends seamed onto the body in a permanent, air-tight connection; and wherein one end is formed from a material which will meet all of the requirements of the ordinarily used tin end, in so far as sealing the can is concerned, but which is distinguished therefrom in that it can be easily cut out and removed by use of an ordinary knife or other sharp instrument and does not require use of a can opener or other mechanical device for this purpose.

Heretofore, the use of a thin soft metal, such as taggers tin for can closures has been attempted but without desirable results principally by reason of the fact that such non-conformative material cannot be seamed onto a can body by use of modern, double seaming machinery. The reason for this is that lack of stiffness of the material permits it to buckle and wrinkle up under pressure of the seaming rolls so that a defective seam invariably results; a seam that is not air-tight or smooth.

In the present instance the heretofore experienced difficulties resulting from buckling, wrinkling or deforming by the double seamer of ends of a non-conformative material have been overcome, by the application of a reinforcing ring of a comformative material over the peripheral portion of the closure which is seamed to the can body by the action of the seamer rolls; this ring being of such character and is so assembled with the closure that they may be fed into and passed through the double seamer, as in the ordinary manner, and the closure seamed onto the body without buckling or any other defects, thus insuring a seam that is satisfactory in all respects; this reinforcing ring being of such proportions that it embraces only the seam and will permit severing the closure from the can body in a smooth cut, flush with the inner surface of the body and without leaving any ragged edge that might cause injury to one in removing the contents of the can.

The principal objects of the invention reside in the details of construction of the closure and re-inforcing ring and in the method of assembling them for application to the can body by a double seamer.

In accomplishing these objects, we have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Figure 1 is an enlarged, cross sectional view illustrating the seamed connection with the can body of a can closure construction embodied by the present invention.

Figure 2 is a similar view of a modified construction.

Figure 3 is a sectional detail through the reinforcing ring and rim of the cover; the parts being disassembled.

Figure 4 is a cross sectional detail of the same as assembled for application to the can body.

Figure 5 is a sectional detail illustrating the assembled relation of the cover and reinforcing ring as applied to the can body preparatory to seaming together.

Figure 6 is a sectional view showing the application of a friction top to the can after the closure has been seamed.

Figure 7 is a perspective view illustrating the manner of cutting out the closure.

Referring more in detail to the drawings—

1 designates what may be a tin can or container of the ordinary type of construction to which an end closure 2 is applied in accordance with details of the present invention which deals particularly with the construction, method of application and the subsequent cutting out of the end for removal of contents of the can. It will be stated here that, while both ends of a can could be applied in this manner if such should be desired, it is intended in the present instance that only one be so applied and that this end be suitably designated so as to cause no confusion in selecting the proper end to be opened.

In the present construction, the removable end, designated by reference numeral 2, is stamped in the usual manner from a sheet of thin, flexible and easily cut material, such as taggers tin, cardboard, celluphane, oiled

paper, or the like, which, in a suitable manner, is provided near its periphery with an annularly formed, upstanding shoulder 3, adapted to fit down within the end of the can body, and which at the top of the shoulder thus formed, has a continuing, peripheral flange 4. At the upper end of the can body, is an out-turned peripheral flange 5 beneath which the flange 4 of the end is clinched and seamed by action of the double seamer in closing the can.

As was previously stated, heretofore the difficulty encountered was that in seaming the ends onto the bodies, the lack of stiffness of the end pieces permitted them to buckle in the seams and thus produce defective connections, but in the present construction this undesirable result is avoided by the application of an annular reinforcing ring 6 of relatively stiff metal, such as the tin ordinarily used in can ends or bodies, over the peripheral flange 4 of the end piece as shown in Figure 4, and after being so assembled therewith and the closure applied to the end of the can body; as in Figure 5, the can is passed through the double seamer so that the ring is seamed onto the body simultaneously with the seaming on of the closure.

A very important feature of the present invention resides in the method of assembling the reinforcing rings with the closure members so that the closures may be stacked and then fed from the stack into the double seamer for seaming onto the can bodies. Each ring and closure is stamped out in the cross sectional form as shown in Figure 3, after which the ring is applied to the closure and passed through a machine whereby the outer rim of the ring is curled inwardly as at $6^a$ in Figure 4, so as to secure the ring to the closure. When so assembled there is no possibility of the parts becoming disassociated in the seamer and, in addition, the curling of the flanges also permits an easy entrance between stacked closures of a separator device used in connection with a feed slide whereby the closures are delivered into the seamer. Closures so constructed are handled, in the application of a sealing compound thereto and also in the seaming operation, in exactly the same manner as is the ordinary tin end.

In Figure 5 is shown the placing of the reinforcing ring 6 on the closure 2 preparatory to seaming and, in Figure 6, the parts are shown as they appear in cross section after the seam is formed. This figure shows the flange 5 of the can body 1 to be bent outwardly and downwardly and the outer edge portions of the flange 4 of the closure and of the ring 6 to be curled downwardly over this flange 5 and then turned up beneath it and the parts clinched or pressed tightly together. The inner edge of the reinforcing ring 6 is flattened tightly along the corking shoulder 3 of the closure and it terminates flush against the depressed central portion of the closure.

In Figure 2, we have illustrated a modification, wherein the flange 4 of the closure terminates at the outside of the flange 5 and is not tucked upwardly beneath it as in Figure 1. For some purposes this construction is desirable.

It is not thought necessary to describe the seaming operation in detail, it being thought sufficient to say that, after the reinforcing ring is applied to the closure, they are seamed onto the body by the double seamer in the same manner as if the ring was an integral part of the end piece.

In this construction, a seam that is air-tight and satisfactory in all respects is produced since the reinforcing ring 6 embraces the flange of the end in the seam and positively prevents any buckling or warping that, without the ring, would cause a defective connection.

When it is desired to open the can, it is only necessary to cut out the closure by passing a knife through the closure and then cutting it loose about the seam as shown in Figure 7. An ordinary table knife, or similar instrument, may be used for this purpose.

This method of sealing makes possible the use of various non-conformative materials for can end closures. It makes possible the use of celluphane, which because of its transparency is desired especially by candy manufacturers as it permits visible inspection of the contents of the container. Ordinarily, celluphane cannot be so used because of the impossibility of seaming it in an air-tight connection onto the can end. It permits the use also of desirable closures of other non-conformative materials, such as cardboard, waxed paper, fabric, etc., which by reason of their flexibility, or lack of stiffness and ability to be formed by the double seamer action, cannot ordinarily be seamed onto a can body but which, by use of the present reinforcing ring, are made applicable since an air-tight and permanent seam is possible. Also, such closures may be easily cut out by use of an ordinary knife applied so as to sever the same adjacent the ring, as shown in Figure 7, and this will provide a full end opening of the can.

Cans of this construction may also be equipped with friction tops as designated at 8, and which are adapted to fit down within the rings 6. Such a top, when so applied, will serve as a reinforcement for the rather delicate closure 2, and after the closure has been removed, will serve as a cover for the can. An important feature is that the removal or cutting out of the closure from the body does not alter the fit of the cover 8, since the inner diameter of the ring 6, wherein the cover is received, remains constant.

Having thus described our invention, what

we claim as new therein and desire to secure by Letters Patent, is:

1. The method of assembling the reinforcing ring and closure and of applying them to a can of the character described, which consists of applying the reinforcing ring to the closure, securing the two together in this assembled relation, placing the closure and ring thus assembled over the end of the can body and then seaming it to the body.

2. The method of assembling the parts of the closure and of securing the closure to the can which consists of forming the closure, forming the ring and applying it to the closure, curling the edge of the ring beneath the periphery of the closure to retain them in assembled relation, placing the closure over the end of the can body and seaming it to the body.

3. A method of making cans of the character described, which consists of separately preparing the bodies, closures and re-inforcing rings, assembling the rings with the closures, then feeding assembled closures and reinforcing rings to a double seaming machine, then feeding bodies to the double seaming machine for assembling and seaming of the closures to the bodies.

Signed at Seattle, Washington, this 12th day of November, 1927.

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