

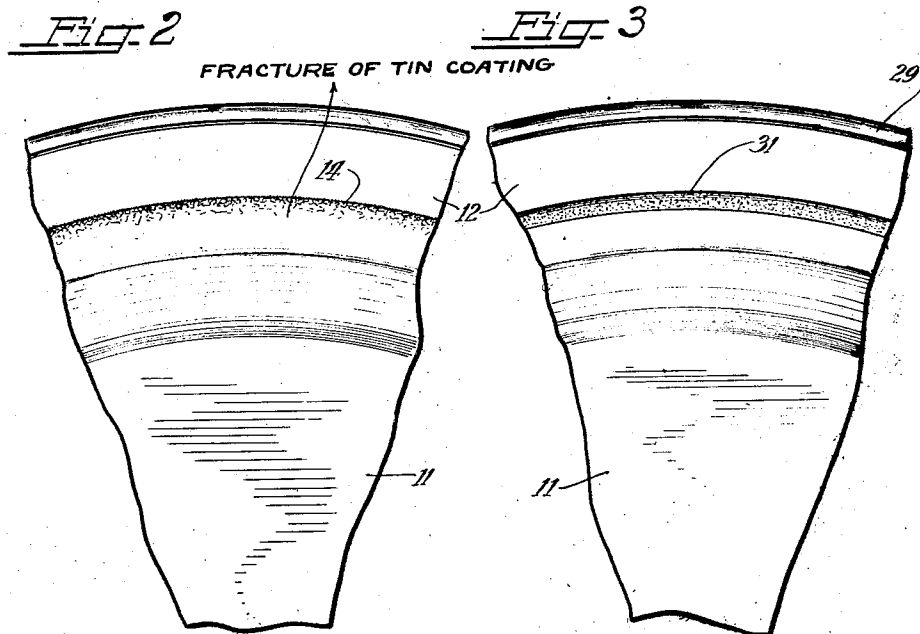
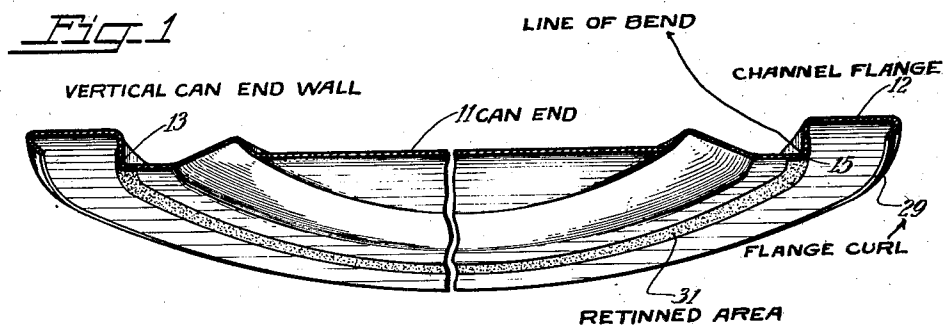
March 8, 1932.

J. M. YOUNG

1,848,290

PROCESS OF TREATING CAN COVERS

Filed Aug. 25, 1925 2 Sheets-Sheet 1



INVENTOR
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BY: *Munday, Clarke & Carpenter*
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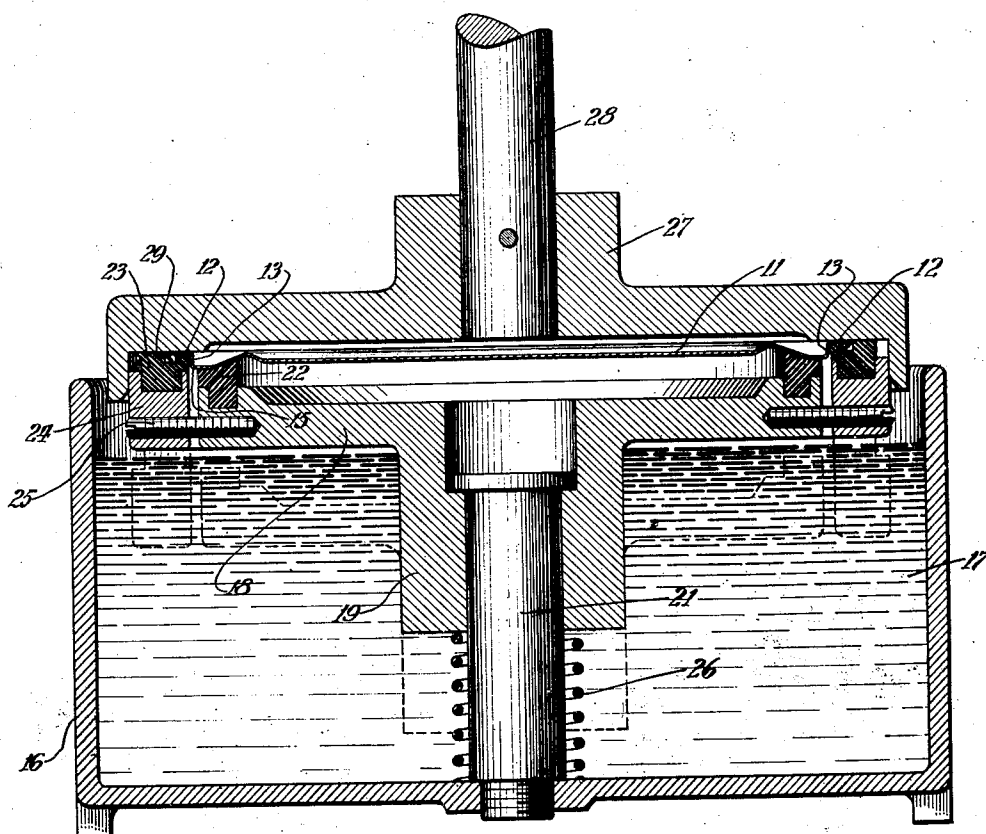
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Fig. 4.



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PROCESS OF TREATING CAN COVERS.

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My invention relates to a process of preparing can covers and ends to enable the same to withstand the attacks of acid contents of containers to which they are applied.

In drawing can ends, bottoms and covers, in accordance with current practice, to provide an attaching flange and to render the covers rigid, abrasions and fractures of the tin coating are frequently caused, particularly at the line of bend at the base of a deep drawn wall, such as is usually provided in the body of the cover, inwardly from the attaching flange. This exposes the iron base of the cover, which is then rapidly attacked by the chemical action of food acids and the like, resulting in minute perforations, this action being known as "pin holing". Ordinarily, recoating this particular area of the cover is sufficient to prevent this result, and the object of my invention is to provide a process for locally retinning only the particular portion of the cover which has been abraded or fractured to such an extent as to require a new coating.

Other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a perspective view of a can cover or end treated according to the process of my invention;

Figs. 2 and 3 are fragments thereof, showing, respectively, the condition before and after the recoating operation; and

Fig. 4 is a sectional view of a die mechanism suitable for the practice of the invention.

On said drawings, I have shown, for illustrative purposes only, a can end 11, of the usual form, having an outer, inverted channel flange 12, formed by the well known drawing operation. A relatively deep wall 13 is formed at the inner side of the channel 12 and, inasmuch as the drawing of said wall subjects the metal to a very severe strain, the tin coating may be fractured in this operation, as shown at 14 in Fig. 2, thereby

exposing the black metal which, when attacked by the acid contents of the container, may have pin holes formed therein, resulting in deterioration of the contents. I, therefore, provide for recoating the portion of the cover on both sides of the line of bend 15 at the base of said wall 13. It will be obvious that this may be accomplished by apparatus of various types and I have shown only for illustration a simple electro-plating apparatus, which will now be described. Said apparatus comprises a receptacle 16 for an electrolytic bath 17, a can end support and plunger being provided to bring only the portion of the can end which is to be plated into contact with said bath, it being understood that the can end is connected with one side of an electric circuit and the liquid with the opposite side of said circuit, in any preferred manner. The can end support comprises a disk 18, having a hub portion 19 slidably mounted upon a fixed stud 21 secured in the bottom of the receptacle, or tank 16. A ring 22, of rubber or the like, is carried upon the top of said disk and a similar ring 23 is carried by an annulus 24, secured by screws 25 to the disk 18, said ring 23 and annulus 24 being suitably spaced from the disk 18 and ring 22 to expose merely that portion of the can cover to which it is desired to apply the tin coating. Said support is normally held in raised position by means of a spring 26, surrounding the stud 21. A plunger 27, secured to a vertical rod 28, is adapted to be moved downwardly to clamp the can end against the rings 22 and 23, the latter of which is cut out at 29 to receive the outer flange of the can cover, further downward movement of said plunger moving the support and can cover downwardly, immersing the same in the liquid 17 and causing a coating, indicated by the reference character 31 in Figs. 1 and 3 of the drawings, to be applied to the area immediately adjacent and at the line of bend 15 at the base of the vertical wall 13 of said can cover. I use the words "cover" and "end" herein without intending any distinction, the bottom end being often identical in construction with the top end or cover.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts, without departing from the spirit and scope of the invention, or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. The process of preparing drawn can ends, made of tin plate, to enable the same to withstand the chemical action of acid contents of the cans of which said can ends are parts, which consists in excluding the electrolyte from the main portions of the can end and locally retinning that portion only of the end which has been subject to greatest strain in the drawing operation.

2. The process of preparing drawn can ends, made of tin plate, to enable the same to withstand the chemical action of acid contents of the cans of which said can ends are parts, which consists in excluding the electrolyte from the main portions of the can end and locally retinning a restricted area at the line of bend of a deep drawn wall provided in the body of the end.

3. The process of preparing drawn can ends, made of tin plate, to enable the same to withstand the chemical action of acid contents of the cans to which they are applied, which consists in supporting an end with only a drawn portion thereof exposed and the other portions covered so as to exclude the electrolyte, and immersing the drawn portion in an electrolytic bath to retin the drawn portion, and then leaving said retinning permanently on said drawn portion of the can ends.

4. The process of preparing drawn can ends, made of tin plate, to enable the same to withstand the chemical action of acid contents of the cans to which they are applied, which consists in supporting a can end, covered and with a restricted area about the line of bend at the base of a deep drawn wall in the body of said end exposed to the electrolyte, and immersing the restricted area in an electrolytic bath to retin the exposed portion only.

5. The process of preparing drawn can ends, made of tin plate, to enable the same to withstand the chemical action of acid contents of the cans to which they are applied, which consists in supporting a can end with a restricted area about the line of bend at the base of a deep drawn wall in the body of said end exposed to the electrolyte, and applying a tin coating to the exposed portion only.

6. In an apparatus for retinning limited parts of drawn can ends, the combination of an electrolytic bath receptacle, and a can end holder movable up and down in said receptacle, said holder covering both sides of the can

end when the latter is in place, and having a limited annular space through which electrolyte may contact with the can end surface at its shoulder.

7. The method of making can-ends, drawn from tin plate, resistant to pin-holding by oxygen and the can-contents, which consists in applying additional tin on the parts of the can ends where the original tin-coating has been removed or thinned by the drawing operation.

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