

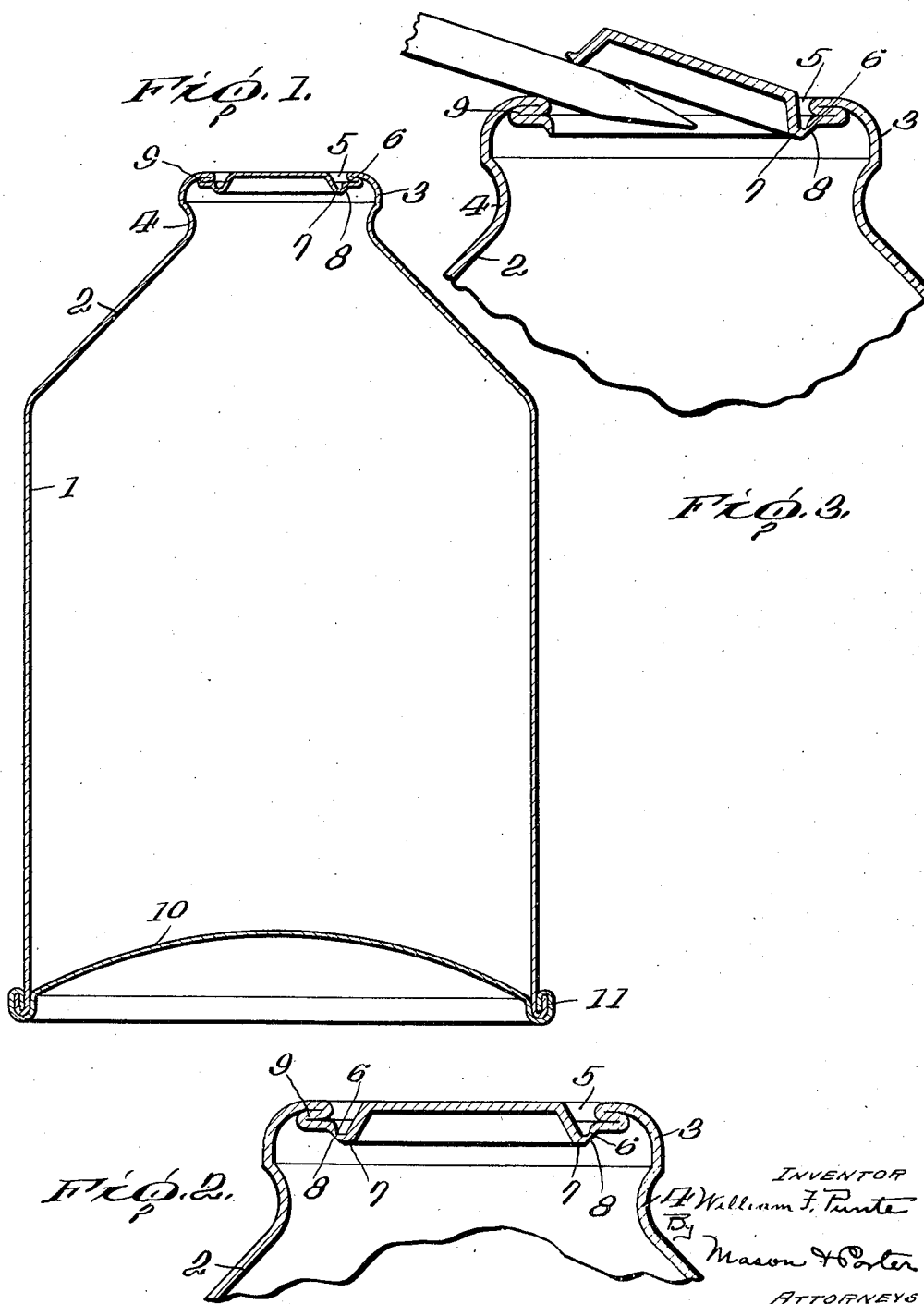
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METAL CONTAINER FOR BEVERAGES

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2,312,358

METAL CONTAINER FOR BEVERAGES

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1 Claim. (Cl. 220—27)

The invention relates to new and useful improvements in a metal container for beverages.

An object of the invention is to provide a container which is as free from seams as possible, and which can be readily opened by rupturing the metal so that the contents can be poured therefrom.

A further object of the invention is to provide a metal container of the above type with a pouring nozzle having the end thereof closed and the metal in the closed end so shaped as to provide a thinned portion which may be readily ruptured for opening the container, and wherein the wall adjacent the thinned portion is so formed as to provide a rigid support for the thinned portion so as to facilitate the rupturing of the same.

In the drawing which shows by way of illustration one embodiment of the invention—

Figure 1 is a vertical sectional view through the container embodying the improvements;

Fig. 2 is an enlarged sectional view through the nozzle, and

Fig. 3 is a view showing the metal ruptured and lifted for prying out the central portion of the nozzle.

The improved metal container for beverages includes a body portion and a top portion formed of a single integral piece of metal by drawing. Said body and top portion are, therefore, seamless. The top is preferably cone-shaped and terminates in a nozzle having the end thereof closed. The closed end of the nozzle is provided with an annular depression surrounded by a wall disposed substantially at right angles to the bottom wall of the depression, and the metal where the surrounding wall joins the bottom wall is thinned so as to facilitate rupturing. The metal in the surrounding wall above the thinned portion is also folded back upon itself so as to provide a rigid support for the thinned portion which permits pressure to be applied to the central portion of the nozzle for the rupturing of the thinned portion without distorting the portions of the nozzle which surround said annular depression. The body portion is filled and closed by a bottom end which is attached thereto by double-seaming.

Referring more in particular to the illustrated embodiment of the invention, the improved metal container includes a body 1 and a top 2. The body and top are formed from a single integral piece of metal by drawing. The body is cylindrical and the top portion 2 is cone-shaped, terminating in a nozzle 3 having the end thereof

closed. The closing metal for the end of the nozzle is integral with the nozzle, so that the body portion, the top, the nozzle, and the end portion closing the same are all one integral structure formed from a single piece of metal by drawing. Furthermore, it is noted that the body portion, the cone-shaped top, nozzle and closure end are all free from any seams or joints which adapts the container for beverages which are highly carbonated, as there are no seams to open during the building up of internal pressure when the container with the carbonated beverage sealed therein is pasteurized.

The nozzle 3 is preferably provided with a neck portion 4. The end of the nozzle is flat and is provided with an annular depression 5. The wall 6 surrounding the annular depression where it joins the bottom wall 7 of the depression is flattened on the inside as indicated as 8. This provides a pinch score such as shown and described in the patent to William F. Punte #2,120,186, granted June 7, 1938.

This wall which surrounds the depression is folded back on itself and the folds brought into contact with each other as indicated at 9. This folding of the wall surrounding the depression is located immediately above the thinned portion 8. The purpose of folding this wall back upon itself is to provide a rigid support for the thinned portion so as to support the metal surrounding the thinned portion when pressure is applied against the bottom of the annular depression 5 for the rupturing of the metal. Inasmuch as this thinning of the metal is right at the line where the surrounding wall joins the bottom of the depression, internal pressure against the closed nozzle will place upon the thinned portions a compression stress, while external pressure applied to the bottom wall of the depression will place upon the thinned portion a tension stress. Inasmuch as the metal may be more readily ruptured by the tension stress than the compression stress, the container is easily opened and at the same time it will stand very high internal pressure incident to the pasteurizing of the beverage sealed in the container. When the pressure is applied to the bottom wall of the depression, the metal will be ruptured along the line of pressure, and an opening tool may be inserted through the opening thus formed and the central portion of the nozzle raised and pried out. This folding back of the wall as indicated at 9 forms a rigid support so that when pressure is applied for the rupturing of the metal, it will sustain the pressure without de-

forming and thus greatly facilitate in the rupturing of the metal. Furthermore, when the tool is forced down through the opening initially formed and the central portion of the nozzle raised by using the tool as a lever, this rigid folded back upper portion of the wall serves as a fulcrum for the continued rupturing of the metal and the complete opening of the container.

During this lifting movement for rupturing the container, a shearing stress is applied to the metal which tears it along the thinned portion, and during this tearing operation, the raw edge of metal which is left on the nozzle remains at the lower part of the folded back portion and is thus well concealed so that the operator's hands during the opening of the container or the handling of the same cannot contact with the torn edge of the metal.

This specific shaping of the metal in the wall which is directly above the thinned portion *per se* is not claimed herein, but is the subject-matter of a separate application Serial No. 387,763, filed April 9, 1941.

As noted above, the container is particularly adapted for beverages and is intended after use to be thrown away. Such a container must be simple in construction so as to reduce the cost of the same, and yet it must be strong in order to prevent rupturing when the beverage is carbonated and subjected to a pasteurizing temperature after it is sealed in the container. This creates an internal pressure, which together with the heat of pasteurization is difficult to hold in a solder-bonded side seam such as usually employed in metal beverage containers. The heat of pasteurization is sufficiently high to weaken the solder bond, and the internal pressure created, particularly when the beverage is carbonated, puts a very severe strain on the side seam. In applicant's container, where there is no side seam, but on the contrary, the body, the top, the nozzle and the closure end therefor, are all integral and drawn from a single piece of metal, all such difficulties as mentioned above in connection with seams is avoided.

Furthermore, for most beverages, it is essential that the container shall be coated with a non-metallic material so as to keep the beverage from contacting with the container. Applicant's container can be readily sprayed on the interior thereof after it is formed and prior to the filling of the same, and inasmuch as there are no seams, the entire inner surface may be

uniformly coated without any weakened spots in the coating which are likely to be ruptured and broken through during pasteurization of the contents of the container after sealing.

The container described above is, of course, inverted and filled, and is then closed by attaching the bottom end *10* thereto by a double seam *11* of the usual character. The container described above is a two-piece container, and is a seamless container, except for the one seam *11* which secures the bottom end or closure end to the body wall of the container after it is filled. It will be noted that the closed end of the nozzle is not only shaped so as to provide an annular depression but this annular depression is so disposed as to be surrounded by the pouring lip of the container. Furthermore the thinned portion which is ruptured is directly beneath the inner edge of the pouring lip so that when the ruptured part is removed the beverage may be poured over the lip and in contact therewith. Also the inner edge of this lip curves downwardly to form the depression and the ruptured metal is so far below the lip that there is no danger of ones being cut by the ruptured metal.

It is obvious that minor changes in the details of construction and the shaping of the parts may be made without departing from the spirit of the invention as set forth in the appended claim.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

A metal container for beverages comprising a seamless body and top formed from a single integral piece of metal, said top being cone-shaped and terminating in a nozzle having the end thereof closed, said closed end of the nozzle being shaped to provide an annular depression surrounded by a pouring lip, the metal in the bottom of the depression being thinned directly beneath the inner edge of the lip to facilitate rupturing and the pouring of the beverage over said lip when the ruptured part is removed, the wall surrounding the annular depression above the thinned portion being folded back upon itself beneath the top and into contact therewith to provide a rigid support to facilitate the rupturing of the metal at the thinned portion, and a bottom end seamed to the body portion for closing the same after filling.

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