Nov. 27, 1951 O. W. PARTAIN 2,576,889

PUNCTURING AND POURING DEVICE FOR SEALED CONTAINER, WITH SPOUT AND VENT

Filed Feb. 17, 1947

Fig. 1.

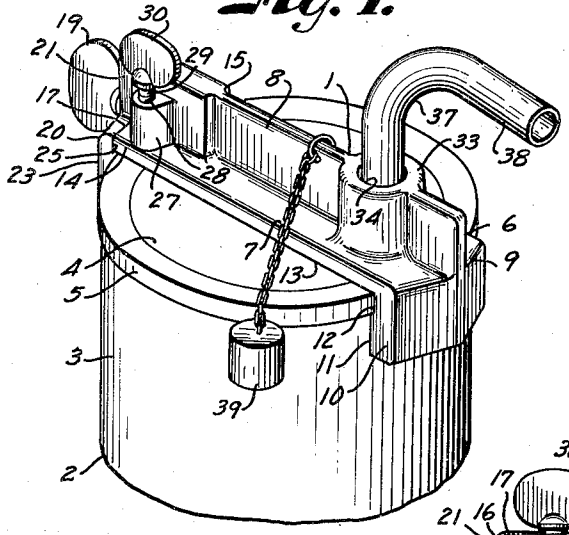


Fig. 2.

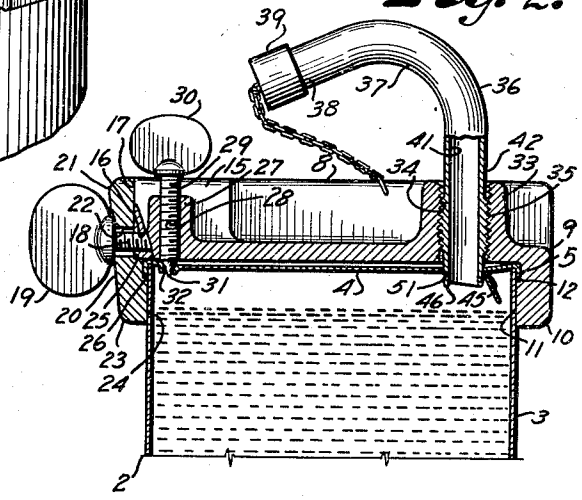


Fig. 4.

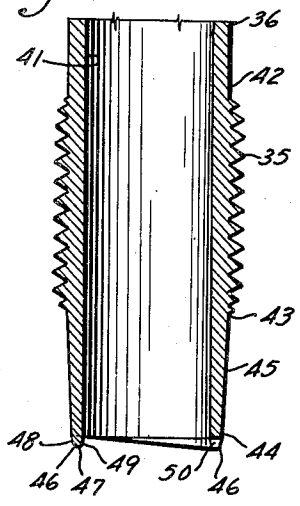


Fig. 3.

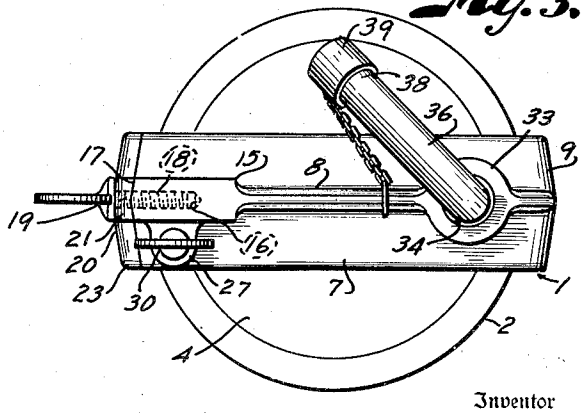
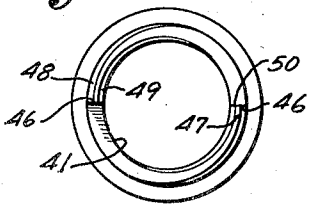


Fig. 5.



Inventor

Oliver W. Partain

By Fishburn & Mullendore

Attorneys

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PUNCTURING AND POURING DEVICE FOR SEALED CONTAINER, WITH SPOUT AND VENT

Oliver W. Partain, Tulsa, Okla.

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1 Claim. (Cl. 222—83.5)

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This invention relates to pouring spouts for sealed containers and more particularly to a pouring spout attachable to the sealed containers of milk or like liquids.

The principal objects of the present invention are to provide a pouring spout which is adapted for attachment to or detachment from a sealed container such as a can containing milk or the like; to provide a pouring spout attachment for spanning the container and adapted to be secured thereto; to provide for selectively moving the pouring spout into the container in sealed relation with the opening formed therein, whereby the contents of the container may be dispensed through the spout; to provide for selectively puncturing the container for venting same to facilitate pouring; to provide for sealing the vent puncture when not dispensing liquids from the container; to provide a sealed liquid container with a pouring spout attachment and vent whereby the container may be opened and closed for dispensing the contents at will; to provide metal to metal seals for the openings formed in the container; and to provide a pouring spout attachment which is simple in construction, sanitary, durable, inexpensive to manufacture and capable of sealing the container at will when desired.

In accomplishing these and other objects of the invention, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a pouring spout attachment embodying the features of the present invention as applied to a sealed container.

Fig. 2 is a longitudinal, sectional view through the pouring spout attachment and container to which it is applied.

Fig. 3 is a plan view of the pouring spout attachment as applied to a container.

Fig. 4 is a detail sectional view through the lower end of the pouring spout.

Fig. 5 is an end view of the pouring spout illustrating the cutting members for forming an opening in a container.

Referring more in detail to the drawings:

1 indicates a pouring spout attachment adapted to be applied to a sealed container 2 such as a container for canned milk or other canned liquid, the container illustrated being of the conventional type having side walls 3, end walls 4 and formed with the usual peripheral bead 5. The pouring spout attachment preferably includes a base 6, preferably of non-corrosive metal such as aluminum formed by casting or other

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suitable manner. The base 6 consists of a horizontally disposed bar 7 of a length to substantially span the diameter of the can 2 and provided with a centrally disposed, upwardly extending flange 8 coextensive with the bar 7 to provide a strong member of relatively light weight. One end of the bar is provided with a depending flange 10 having an inner face 11 adapted to engage the side walls 3 of a container, the inner face 11 of said flange being provided with a groove 12 adjacent the lower face 13 of the bar 7 to receive the peripheral bead 5 of the container. The end 14 of the bar 7 opposite the flange 10 extends over the edge of the container 2 when the face 11 of the flange 10 is in engagement with the side wall of the container, and the rib 8 adjacent the end 14 has additional thickness as at 15 to provide sufficient metal for a threaded bore 16 in the end face 17 of said rib to receive the threaded shank 18 of a thumbscrew 19 for holding a clamping member 20 on the end of the base member.

The clamping member 20 consists of a member 21 of substantially the same width as the thicker portion 15 of the rib 8 whereby said member 21 appears to be an extension of said rib. The member 21 is provided with a bore 22 aligning with the threaded bore 17 for the passage of the shank of the thumbscrew therethrough. Depending from the member 21 is a clamping jaw 23 of the same width as the bar 7 and having a face 24 adapted to engage the side walls 3 of the container 2. The inner surface of the jaw 23 is machined to provide an offset portion 25 to receive the end 14 of the bar 7 and a groove 26 to receive the bead 5 of the container whereby the clamp is substantially in engagement with the end 14 of the bar 7 and face 17 of the rib 8 when the inner face 24 is in clamping engagement with the container wall 3.

It is to be noted that while the width of the bar 7, flange 10 and jaw 23 in the illustrated structure are only approximately one-third the diameter of the can, there is substantial bearing area of the faces 11 and 24 in engagement with the wall 3 of the can whereby relatively light pressure will clamp the pouring attachment to the can without danger of injury or puncture of the side walls of said can.

Extending laterally of the enlarged portion 15 of the flange 8 is a boss 27 having a threaded bore 28 extending vertically through the boss and the bar 7. Threaded into the bore 28 is the shank 29 of a thumbscrew 30, the lower end of said screw having a conical end 31 adapted

to be moved downwardly by turning the screw in the bore 28 to force the conical end through the end wall 4 of the can. The cone shape of the screw provides a seal for the opening forced into the can thereby. When it is desired to vent the can 2, the thumbscrew 30 is turned to move the screw upwardly in the bore 28, unseating the end 31 from the vent opening 32 formed in the top 4 of the can, thereby providing a vent to the interior thereof.

Spaced inwardly from the end 9 of the bar 7 and extending upwardly therefrom is a boss 33 which is preferably centrally located relative to the sides of said bar and is substantially the same height as the flange 8. The boss 33 is provided with a threaded bore 34 extending vertically therethrough and through the bar 7 and adapted to receive the threaded portion 35 of a pouring spout 36. The pouring spout 36 preferably consists of a tubular member curved as at 37 in a lateral direction and terminating in a discharge end 38 preferably provided with a cover 39 slidable over the end of the spout. The cover 39 is preferably sleeved to the flange 8 by a suitable flexible member such as a chain to prevent loss of the cover when removed from the spout.

The lower end of the spout 36 is illustrated in Figs. 4 and 5 and carries the threads 35 in an enlarged portion of said spout whereby the root diameter of the threads is substantially the same as the outer diameter of the tube, as at 42. The lower end 43 of the threaded portion is spaced from the end 44 of the spout, the tube between the threads and the ends thereof being provided with a taper 45 to provide a seat for an opening formed in the can as later described. The lower end 44 of the tube is provided with a plurality of teeth 46 having a flat face 47 on the lower portion thereof of relatively narrow width, the side faces 48 and 49 of said tooth diverging upwardly for the entire depth thereof. The face 50 of the tooth is perpendicular to a transverse plane through the tube and on a radius of said tube, clearance being provided by sloping the lower edge of the tube from the cutting edge on a constant slope back to the cutting face of the next tooth. The particular arrangement of the pouring spout and the teeth and tapers on the lower end thereof serve the important function of cutting an opening in the top 4 of the can and also providing a metal to metal seal between the tubes and the opening. By threading the spout downwardly in the bore 34 the teeth 46 are moved downwardly into engagement with the wall 4 of the can and continued rotation forms a groove in said wall in the path of the teeth, the cut becoming deeper until an opening 51 is formed in the wall 4 of the can of substantially the same diameter as the lower portion of the taper 45 on the pouring spout. Further turning of the spout tightens the seal between the taper 45 and the edges of the opening 51.

In using a pouring spout constructed and assembled as described, the thumbscrew 30 is threaded upwardly in the threaded bore 28 until the point of the conical portion 31 is above the face 13 of the bar member 7. The spout 36 is also threaded in the opening 34 to move said spout upwardly until the teeth 46 are located above the lower face 13 of the bar member 7. The can 2 is then set on end and the thumbscrew 19 turned to loosen the jaw 23 to permit outward movement thereof until the spacing between the face 24 and the face 11 will permit

the apparatus to be moved downwardly over the end of the can, whereby tightening of the thumbscrew 19 will move the jaw 23 into engagement with the side wall 3 and draw the face 11 of the flange 10 into engagement with the side walls 3 to tighten the face member onto the can, it being noted that the bead 5 of said can engages in the grooves 12 and 26 to further hold the base member of the spout attachment on said can.

When it is desired to use part of the contents of the can, the spout member 36 is rotated to move same downwardly in the threaded bore 34 until the teeth 46 engage the top wall 4 of said can. Further rotation of the spout member will cut an opening into said can and further rotation will cause the tapered portion 45 to make sealing engagement with the edges of the opening 51 to prevent any leakage of the contents of said can between the spout and the edges of said opening.

In order to facilitate pouring, the thumbscrew 30 is threaded downwardly in the threaded bore 28 until the conical end 31 punctures the wall 4 and the conical portion 31 will seat on the edges of the puncture to seal said opening. In order to pour the contents from the can the spout 36 is rotated until the end 38 extends outwardly over the edge of said can, and the thumbscrew 30 rotated to back the conical member 31 off of seating engagement with the edges of the opening 32 to provide air passage into the interior of said can for venting same. Tipping of the can will then cause the contents to flow freely from the end 38 of said spout. After the desired contents has been removed from the can, it is then set upright and the thumbscrew 30 rotated to reseat the conical member 31 on the edges of the puncture 32, and if desired the spout 36 may be rotated to turn same so the end 38 is over said can, reducing the space required for storage.

It is to be noted that the vent opening is then sealed, the edges of the opening 51 are sealed, and the cover member 39 closes the end of the pouring spout whereby no air reaches the contents and no dirt or other contamination can enter the container. The thumbscrew 30 and the pouring spout 36, both being made of stainless steel or other non-corrosive material, will not contaminate the contents of the can, therefore it is believed obvious that I have provided a pouring spout attachment which is simple in construction, sanitary, and durable, and easily applied to a can and capable of completely sealing said can whereby the contents may be poured therefrom, or the can may be completely sealed at will.

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

A device attachable to a sealed container for facilitating the pouring of the contents thereof, said device consisting of a base bridging the top of a container and having spaced threaded openings therein, clamping means on the ends of said base engageable with the sides of the container adjacent the top for holding the base thereon, a screw extending through one of the openings in the base and having threaded engagement therewith, a cone-shaped pointed end on said screw whereby threading of the screw into the threaded opening in the base will indent the container and will puncture a vent opening in the indentation, said tapered portion being adapted to seat in sealing engagement with the indentation around the vent opening for controlling the vent of the container by selectively

rotating the screw, a pouring spout extending through the other opening in the base and having a hollow externally threaded shank in threaded engagement therewith, a tapered portion extending from the threads to the lower end of the shank of the pouring spout forming a relatively sharp circular edge at the end of said shank, radially spaced serrations in the circular edge forming cutting elements on the lower end of said spout whereby rotation of the spout will move the serrations into engagement with the top of the container and cut an opening therein to provide communication between the interior of said container and the hollow pouring spout, the tapered portion on the spout being adapted for sealingly engaging the edges of the opening cut in said container in response to further rotation of the spout, and a cover means on the spout for closing the pouring end of said spout.

OLIVER W. PARTAIN.

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