March 11, 1941. J. M. HOTHERSALL 2,234,168

NOZZLE AND CLOSURE THEREFOR

Filed April 11, 1939

Fig. 1

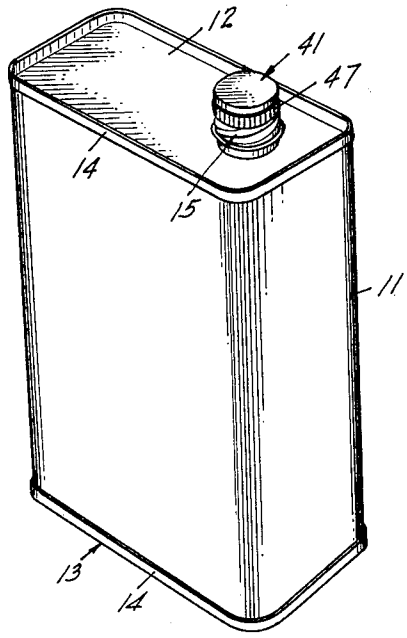


Fig. 2

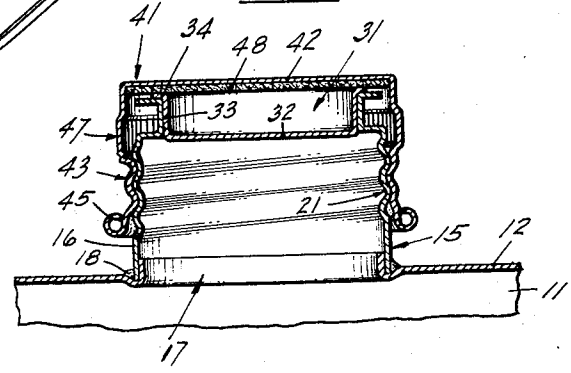
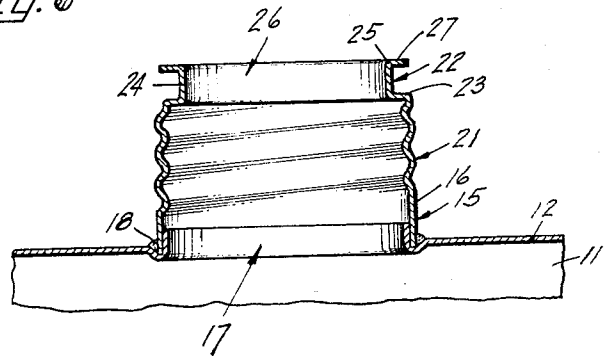


Fig. 3



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NOZZLE AND CLOSURE THEREFOR

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3 Claims. (Cl. 221—11)

The present invention relates to nozzles and closures therefor for sheet metal cans and containers of various kinds and has particular reference to a screw thread nozzle having a non-drip feature. This is an improvement over my United States Patent 1,611,443, issued December 21, 1926, on Nozzle.

An object of the invention is the provision of a sheet metal container nozzle which may be readily closed with a screw thread cap and which is provided above the screw threads with a pouring lip of improved construction which prevents dripping of liquids poured from the container by a sharp cutting off of the liquid stream when the container is turned from a pouring position into an upright position.

Another object is the provision of such a nozzle wherein the pouring lip of the nozzle is of a construction that will permit sealing of the pouring opening with a tamper-proof seal so that the contents of the container may be protected during shipment and storage.

Numerous 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 drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a perspective view of a sealed container having a nozzle and closure therefor embodying the instant invention;

Fig. 2 is an enlarged sectional view of a portion of the upper end of the container and of the closed and sealed nozzle attached thereto; and

Fig. 3 is a view similar to Fig. 2 showing the nozzle uncovered and opened ready for pouring the contents of the container therefrom.

As a preferred embodiment of the invention the drawing illustrates a preferably rectangular shaped can for liquids having a sheet metal tubular body 11 closed at its ends with sheet metal top and bottom closures 12, 13 secured to the body in suitable seams 14. The can is provided with a liquid dispensing nozzle 15 preferably made of sheet metal and having a cylindrical body wall 16 the lower edge of which is secured to the top member 12 around a dispensing opening 17 in a suitable seam 18.

The greater portion of the nozzle body wall 16 is provided with screw threads 21. Above these threads the nozzle is reduced in diameter to form a pouring neck 22. For this purpose the nozzle side wall 16 is bent inwardly forming a shoulder 23 and thence upwardly in a straight neck side wall 24.

At its upper edge the neck side wall is bent outwardly in a sharply curved annular section 25 which sets off a mouth 26 for the nozzle. This curved section merges into a short right angle flange or pouring lip 27. The outer edge of the pouring lip is sharp and preferably without hem or bend, i. e., of the thickness of the sheet metal from which the nozzle is made. This lip terminates inwardly of the inside or root diameter of the screw threads in the body wall.

The mouth 26 of the nozzle is preferably sealed with a one piece dish or cup shaped friction closure 31 (Fig. 2) having a bottom wall section 32 and a straight annular side wall section 33 which terminates in a short flange 34. This friction closure or seal fits tightly within the mouth of the nozzle and its side wall engages the straight wall 24 of the nozzle neck 22, with its flange 34 seated against the pouring lip 27 of the nozzle. In this position in the nozzle, the seal 31 effectively seals the container against tampering with its contents, the seal being wedged so tightly into the nozzle that it cannot be removed without detection.

A screw reclosure cap 41 is also provided with the nozzle for closing it after the seal 31 is broken. This cap has a flat top wall section 42 and a depending side wall which extends down adjacent the outside surface of the nozzle body wall 16 when the cap is on the nozzle. Screw threads 43 are provided in the cap side wall for cooperation with the nozzle screw threads in securing the cap in place on the nozzle.

At its lower edge the cap side wall terminates in an outwardly projecting smooth curled edge 45. Above the screw threads the cap side wall is provided with knurling 47 to facilitate rotating of the cap into and off of its position on the nozzle. A disc gasket 48 is preferably seated in the cap to provide a tight joint between cap and nozzle pouring lip when the cap is used as a reclosure.

To open the can the reclosure cap 41 is removed and the seal 31 is pried out in any suitable manner, such as by the use of a sharp pointed instrument pushed through the bottom wall 32 of the seal. The can may then be turned into pouring position for dispensing the can contents by way of the nozzle mouth 26 and pouring lip 27. It will be noted in this connection that the straight neck wall 24, the sharp curved section 25 and the short pouring lip 27 greatly facilitate the pouring

of the liquid in a stream which may be readily controlled.

The shapes of these nozzle parts have been particularly proportioned, after thorough experimentation, to provide a nozzle which will quickly cut off the stream so that there is no drip from the pouring lip when the can is turned back into an upright position, as at the end of a pouring operation. Such a nozzle construction is also particularly useful in pouring out the liquid a drop at a time, the sharp curved section 25 of the nozzle serving as a quick acting dam which is more effective than sloping or long curved wall sections usually provided on bottles and the like for obtaining similar results.

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. A sheet metal nozzle for containers, comprising a body wall having screw threads formed therein, said body wall above its screw threads being formed with an inwardly bent shoulder merging into a straight cylindrical upright wall section of reduced diameter which at its upper edge defines a mouth for said nozzle and merges into a sharply curved outwardly bent annular curved wall section terminating in a sharp edged substantially flat pouring lip disposed at right angles to said nozzle, said sharp curved wall section and said sharp edged pouring lip being adapted to quickly cut off the flow of a liquid stream from said nozzle when the latter is righted from a tilted pouring position into an upright position so that dripping of the liquid from the lip will be prevented.

2. A sheet metal nozzle for containers, comprising a body wall having screw threads formed therein, said body wall above its screw threads being formed with an inwardly bent shoulder merging into a straight cylindrical upright wall section of reduced diameter which at its upper edge defines a mouth for said nozzle and merges into a sharply curved outwardly bent annular wall section terminating in a substantially flat pouring lip flange disposed at right angles to said nozzle for preventing drip of liquids dispensed from said nozzle, and a reclosure cap for said nozzle having a top wall section and a depending wall section provided with screw threads and terminating in an outwardly curled edge, said screw threads being adapted to cooperate with said nozzle screw threads in securing the cap on said nozzle, said cap having a gasket enclosed therein for seating against said pouring lip to provide a tight joint therewith when the cap is on the nozzle.

3. A sheet metal nozzle for containers, comprising a body wall having screw threads formed therein, said body wall above its screw threads being formed with an inwardly bent shoulder merging into a straight and upright wall section of reduced diameter which at its upper edge defines a mouth for said nozzle and merges into a sharply and outwardly curved wall section terminating in a flange pouring lip disposed at right angles to said nozzle for preventing drip of liquids dispensed from said nozzle, a disc shaped seal adapted to fit tightly within said nozzle mouth, this seal having a bottom wall section with an annular side wall for tightly engaging the inner surface of the nozzle wall and with a flange on the side wall which is adapted to overlap said nozzle pouring lip, and a reclosure cap for said nozzle having a top wall section and a depending wall section provided with screw threads and terminating in an outwardly curled edge, these screw threads being adapted to cooperate with said nozzle screw threads in securing the cap on the nozzle, said cap having a disc gasket enclosed therein for seating against the pouring lip of the nozzle to provide a tight joint therewith when the cap is on the nozzle.

JOHN M. HOTHERSALL.