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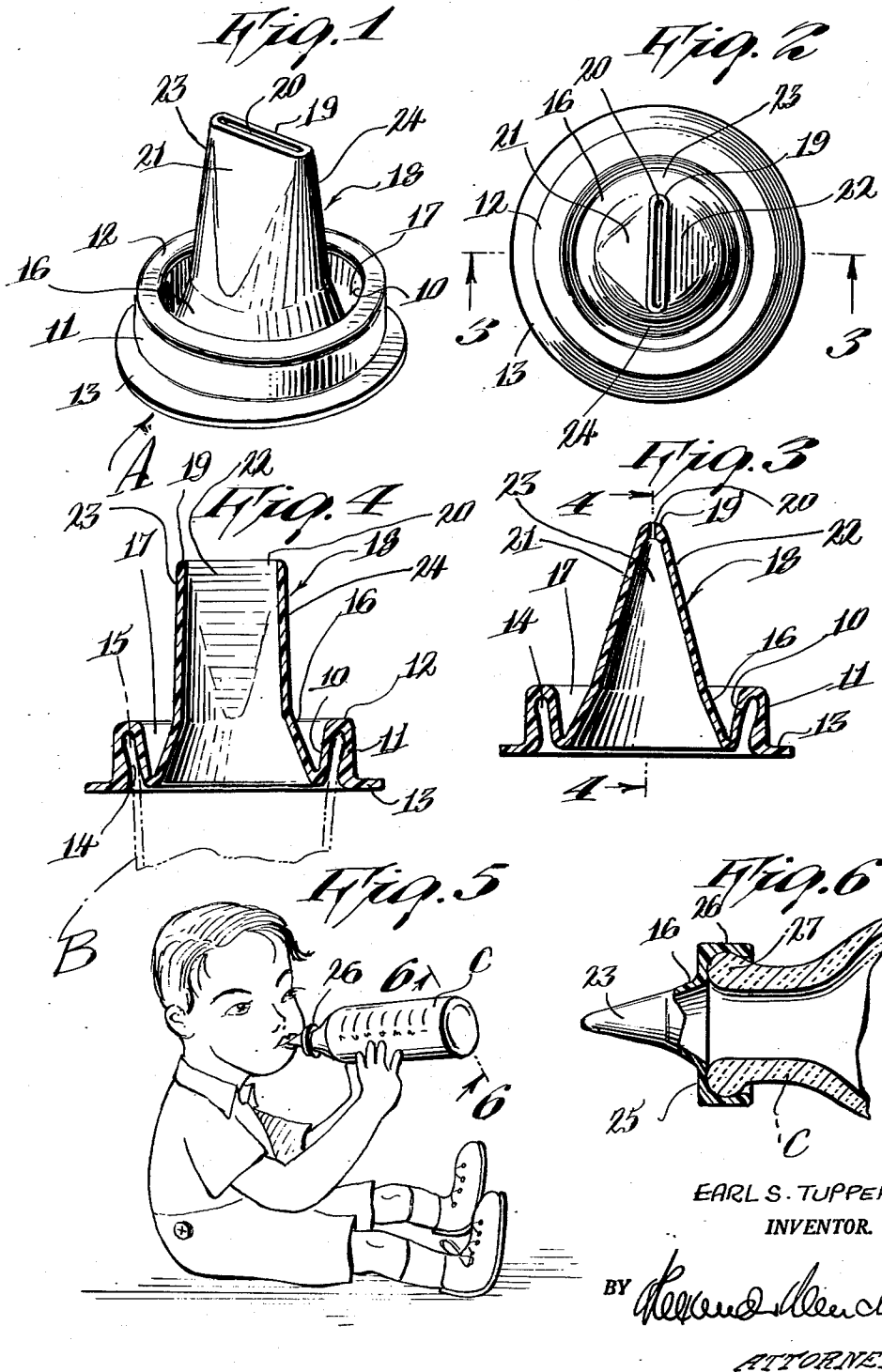
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SIPPER SEAL FOR FLUID-FILLED VESSELS

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2 Sheets-Sheet 1



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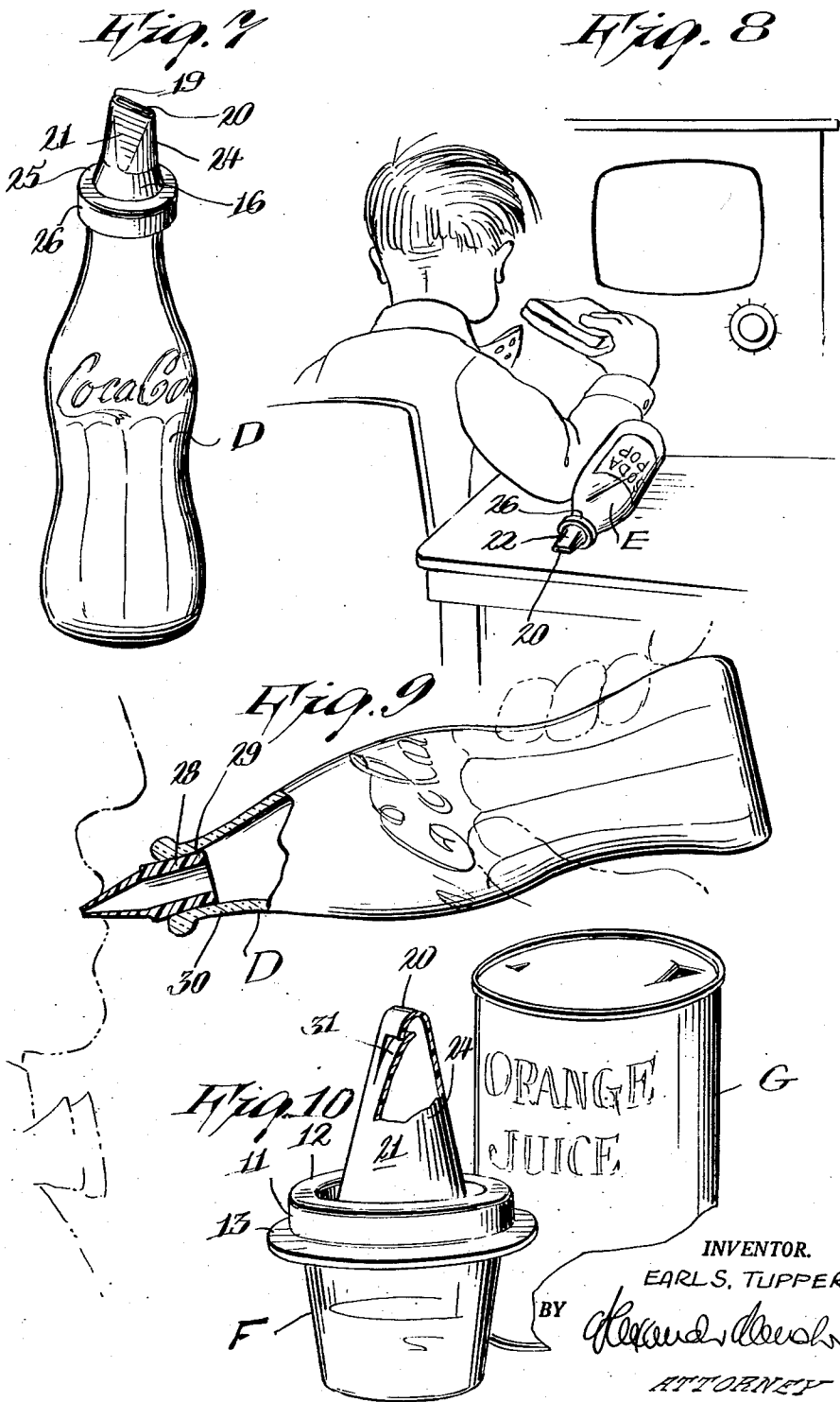
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SIPPER SEAL FOR FLUID-FILLED VESSELS

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7 Claims. (Cl. 128—252)

This invention relates generally to a removable sipper-type of seal for consuming fluid contents from vessels or containers, but more specifically to a combined seal and sipper for use during fluid consumption whereby flow of fluid contents is prevented when the vessel accidentally assumes horizontal or inverted position during the period of consumption.

A main feature of the invention resides in the provision of a removable sipper-type of seal formed of a sterile, odorless, durable and locally deformable plastic material adapted to serve multiple functions during fluid consumption periods. The device serves to sealably engage the vessel neck at the neck of the bottle or the container inner peripheral portion thereof, to act simultaneously as a sipper for withdrawal of fluid contents, and to act as a check for fluid flow when the vessel accidentally assumes horizontal or inverted position.

A further feature of the invention resides in the structure of a sipper-type of seal provided with central and projecting tubular structure terminating on top in a narrow longitudinal slot communicating with the interior of the vessel and adapted to be filled to check gravity flow when and if there is sufficient of the fluid contents of the vessel to spill over under the action of gravity by reason of accidental horizontal or inverted position of the vessel.

Another feature of the invention resides in the provision of a seal of this type wherein the sipping or drawing operation is capable of functioning by tilting the vessel upwardly with the narrow longitudinal slot within the mouth as when drawing a fluid from the neck of a bottle or by alternate lip or teeth compression of the tubular structure to force fluid contents therethrough based on the principle of nipple feeding.

A further feature of the invention resides in the provision of a sipping seal of the above type which is sanitary, reusable, capable of serving as a souvenir and which is spill-proof.

A further feature of the invention resides in the provision of a sipper-type of seal which is capable of being used by and is especially attractive to children for withdrawal of liquid contents from vessels in the home, in the den and on common carriers and tending to serve the double function of a sipping seal and check to spillage during the consumption period.

These objects and other incidental ends and advantages of the invention will hereinafter appear in the progress of the disclosure and as pointed out in the appended claims.

Accompanying this specification are drawings showing preferred forms of the invention wherein:

Figure 1 is a view in perspective showing one form of sipper seal per se.

Figure 2 is a top plan view of Figure 1.

Figure 3 is a sectional view of Figure 2 across the plane 3—3 thereof.

Figure 4 is a sectional view of Figure 3 across the

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plane 4—4 thereof showing the neck of a container in phantom.

Figure 5 is a view in perspective showing a child withdrawing fluid from a baby bottle equipped with a modified form of seal.

Figure 6 is an enlarged sectional view of Figure 5 across the plane 6—6 thereof.

Figure 7 shows the seal of Figures 5 and 6 as applied to a soda bottle.

Figure 8 shows the seal device of Figure 7 applied to a vessel in horizontal position while a child is viewing a television program and eating simultaneously, the bottle having been accidentally thrown down.

Figure 9 is a view in perspective partly in section showing another modified form of seal in the form of an insert and being engaged for sipping or fluid withdrawal purposes.

Figure 10 is another modified view of a sipper seal as applied to a vessel containing orange juice.

In accordance with the invention and the preferred forms shown, letter A indicates generally a sipper-type of seal having an engaging groove for the neck of a container or vessel generally indicated by letter B, said engaging groove being of the inverted type and having an inner wall 10, an outer wall 11, a top connecting wall 12, and an outer wall offset shown as outwardly extending flange 13. Said groove walls form a groove 14 for engagement of the neck portion 15 of a vessel shown in phantom lines in Figure 4. Inner groove wall 10 extends inwardly to form a frusto-conical and hollow section 16, the outer face thereof forming with the outer face of groove inner wall 10 a trough 17 of V-shape in cross section.

Formed with and extending upwardly and vertically from the frusto-conical hollow section 16 is an inwardly tapering and tubular section generally indicated by numeral 18. A pair of opposite walls of tubular section 18 are flattened from the top of said tubular section 18 to form a narrow and elongated rim 19 for a slot 20, front and rear walls 21 and 22 being substantially in the form of inverted isosceles triangles, and tapering end walls 23 and 24.

The engaging groove 14 represented by walls 10—12 is capable of being applied to rim 15 of vessel B by spreading the groove at any position over the rim 15 by means of offset or flange 13 and then applying sliding thumb pressure on top wall 12 for complete hermetical engagement. It is preferable that the inner lateral dimension of wall 11 be less than the outer lateral dimension of rim 15 for this purpose so that there will be live engagement at least between the inner face of wall 11 and the vessel neck.

In Figures 5, 6, 7 and 8 are shown a modification of a vessel-engaging structure for the neck of the vessel differing over the groove engaging structure of Figures 1—4 in that the frusto-conical hollow section 16 at the base has a concentric horizontal extension 25 terminating in a downwardly extending peripheral engaging flange 26 for removable and sealing engagement with the outer periphery of the neck 27 of a feeding vessel C (Figure 5), with the outer periphery of the neck of a beverage bottle D (Figure 7), and with the outer periphery of the neck of a pop bottle E (Figure 8). It is to be observed that in Figure 8 the pop bottle E is shown in accidentally displaced horizontal position by a child who is casually eating and following a television program.

In Figure 9 is a modified form of sipper-type of seal and is of the stopper type wherein the frusto-conical section 16 is substituted by a downwardly extending substantially cylindrical section 28 of thicker gauge than the rest of the seal, the said cylindrical section being adapted

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to frictionally engage the inner surface 29 of neck 30 of bottle D in the form of a stopper.

In Figure 10 is shown a sipper-type of seal, similar to that shown in Figures 1-4, engageable with a tumbler F for purposes of sipping a fluid such as fruit juice. A can of orange juice indicated by letter G is shown in Figure 10 for purposes of replenishing tumbler F. The sipper seal of Figure 10 is modified over that shown in Figures 1-4 in having provided therewith a slitted portion 31 for ingress of atmospheric pressure so that the fluid may be drawn out of slot 20 in a continuous operation.

The sipper-type of seal described is capable of formation by known procedures, such as compression, vacuum, injection, and blow molding or otherwise. Moreover, the material from which the seal is formed should be inert, odorless, washable, capable of sterilization, and further should be yieldable and not subject to breakage or comminution by the teeth or mouth of the user as is the case with glass. A plastic of the locally deformable type such as polyethylene or vinyl is preferable for use since said material is compatible with mouth introduction.

The sipper seal and spill-proof features thereof as described is suitable for infants after they have been weaned from a nipple; for children at parties and even for grown-ups. The draw of fluid contents from the longitudinal and narrow opening 20 is smoother and more controlled compared to drawn flow from a bottle neck, and as mentioned there is no danger of introducing shatterable and dangerous glass into the mouth. Moreover, when the elongated slot 20 of the sipper seal is held in any non-drinking position capable of creating a gravity flow toward slot 20, the fluid tends to completely fill the entire area of the slot to check spillage by reason of fluid capillarity and surface tension.

I wish it understood that minor changes and variations in the material, gauge, shape, formation and location of parts may all be resorted to without departing from the spirit of the invention and the scope of the appended claims. It is further understood that the sipper seal described may be formed of various sizes, and the dispensing end is capable of being squeezed or deformed by the mouth or teeth of the user whereby slot 20 is capable of being increased in width to vary drawing capacity.

I claim:

1. A removable sipper seal of resilient plastic material for the pouring rim of a fluid-containing vessel, comprising a hollow body member removably and sealably engageable with said rim, a hollow frusto-conical section communicating with and projecting upwardly from said body member, a hollow dispensing member formed and communicating with the top edge of said frusto-conical section and terminating at the top in an elongated narrow rim enclosing a slot whereby fluid contents of the vessel may be expeditiously withdrawn into the mouth of the user and whereby said slot acts as a check valve against flow when the vessel is accidentally thrown off its base.

2. A removable sipper seal as set forth in claim 1 and

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wherein the said seal is formed of a substance from the group consisting of polyethylene and the vinyl plastic compounds.

3. A removable sipper seal as set forth in claim 1 wherein said seal is formed of a locally deformable plastic material.

4. A removable sipper seal of resilient plastic material for sealing the pouring rim of a fluid-containing vessel, comprising a body member having a peripheral rim-engaging groove formed of inner, top and outer walls, the said inner wall having formed therewith a frusto-conical section projecting upwardly from the bottom thereof, a hollow dispensing member formed and communicating with the top edge of said frusto-conical section and terminating at the top in an elongated and narrow rim enclosing a slot, said slot serving either as a withdrawing outlet for fluid contents or to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position.

5. A removable sipper seal as set forth in claim 4 wherein said outer wall is provided with an offset portion for application and removal of said engaging groove with respect to the pouring rim.

6. A removable sipper seal of resilient plastic material for sealing the pouring rim of a fluid-containing vessel, comprising a hollow body member having a top wall portion and peripheral downwardly extending skirt for telescopic engagement with said rim, a hollow frusto-conical section communicating with and projecting upwardly from said body member, a hollow dispensing member formed and communicating with the top edge of said frusto-conical section and terminating at the top in an elongated narrow rim enclosing a slot, said slot serving either as a withdrawing outlet for the flow of fluid contents or to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position.

7. A removable sipper seal of resilient plastic material for sealing the pouring rim of a fluid-containing vessel, comprising a hollow body member sealably engageable with and internally of said rim, a hollow frusto-conical section communicating with and projecting upwardly from said body member, a hollow dispensing member formed and communicating with the top edge of said frusto-conical section and terminating at the top in an elongated narrow rim enclosing a slot, the said slot serving either as a withdrawing outlet for the flow of fluid contents or to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position.

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