May 16, 1939. J. K. M. HARRISON 2,158,502

RECEPTACLE OPENER AND SPOUT

Filed June 7, 1938 2 Sheets-Sheet 1

FIG. I.

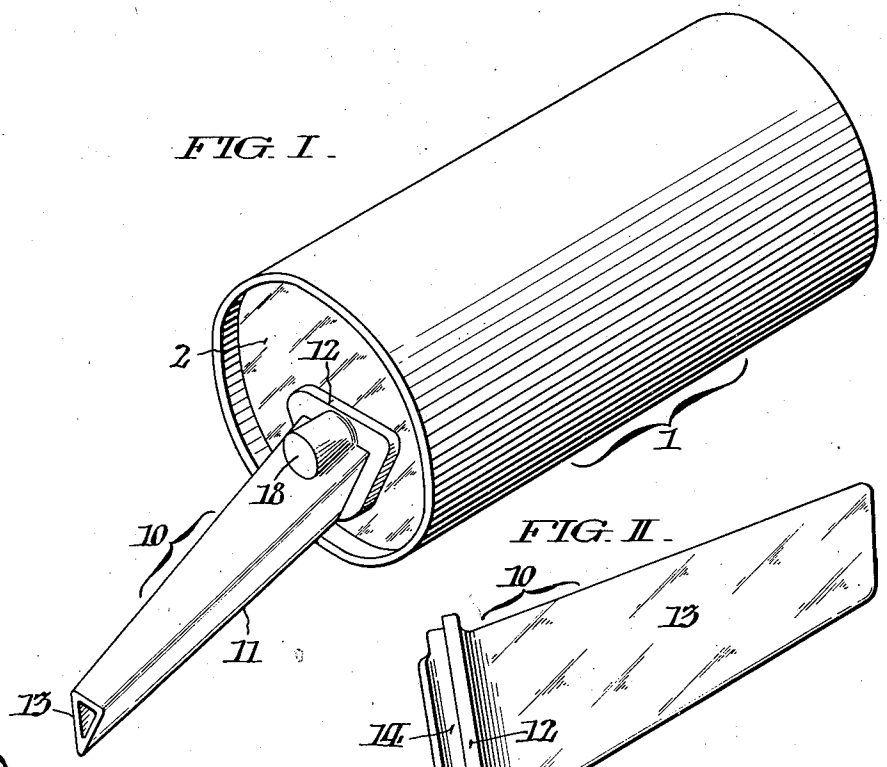


FIG. II.

FIG. IV.

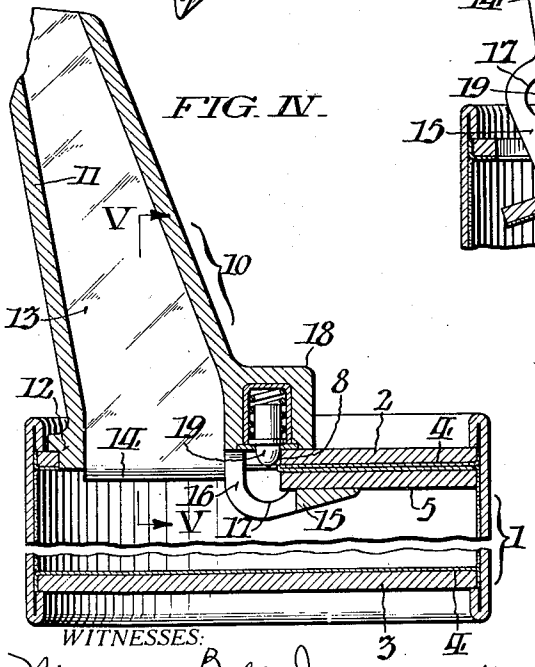
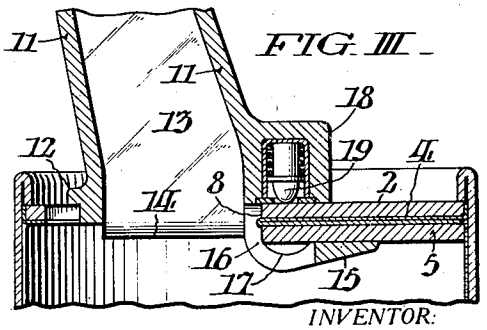


FIG. III.



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FIG. VI.

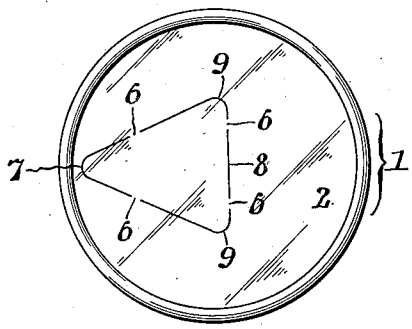


FIG. V.

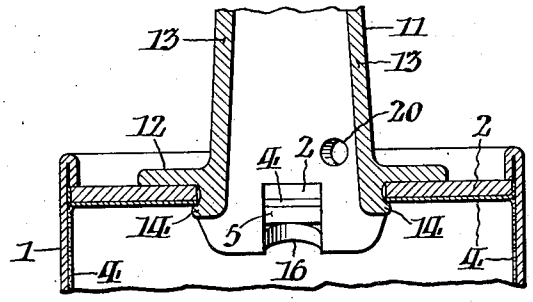


FIG. XI.

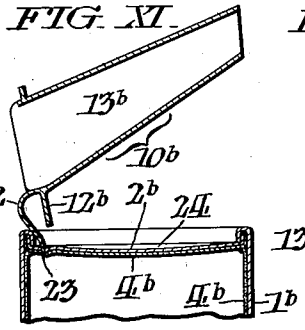


FIG. VIII.

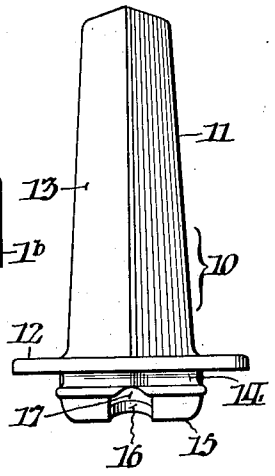


FIG. VII.

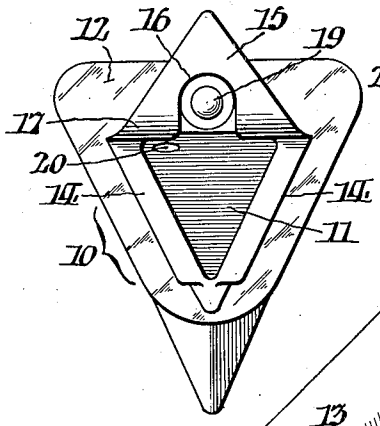


FIG. IX.

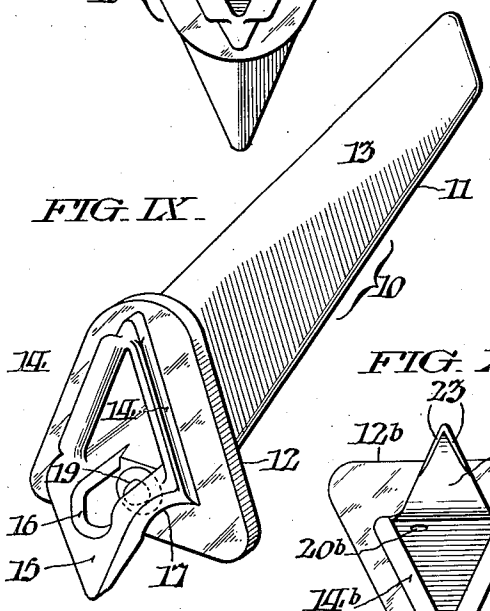


FIG. XII.

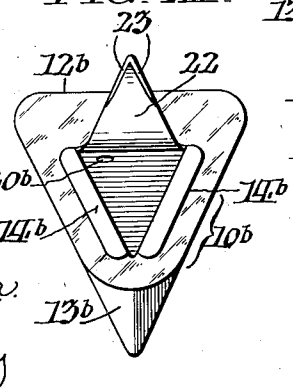
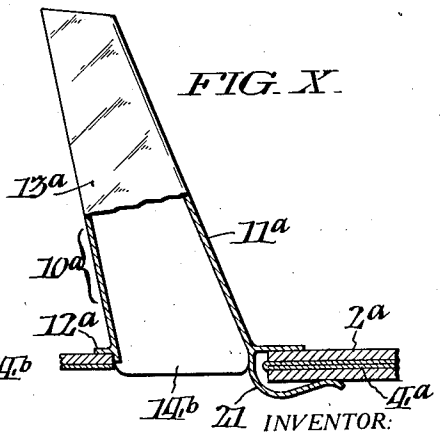


FIG. X.



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UNITED STATES PATENT OFFICE

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RECEPTACLE OPENER AND SPOUT

John K. M. Harrison, Ogontz, Pa.

Application June 7, 1938, Serial No. 212,295

11 Claims. (Cl. 221—23)

This invention relates to means for opening sealed receptacles and also serviceable as a spout for pouring out the contents of such receptacles.

More particularly, the present improvements aim to provide a novel form of pouring or spout device which includes a cutter for forming an opening in the receptacle end, and associated means whereby the device is firmly clamped to said end in position for complete pouring out of the receptacle content.

Another object is the provision of a device of the specified character which is simple in construction, cheap to manufacture, and highly efficient in use.

With the above recited general objects in view, and others of a tributory nature, this invention consists in certain peculiar features of construction and organization as hereinafter fully disclosed and claimed; and, in order that the same may be clearly understood, reference is to be had to the accompanying drawings which illustrate practical embodiments thereof.

In the drawings:

Fig. I is a perspective view of a container with one form of the improved opener and spout device in pouring position.

Fig. II is a broken sectional-elevation of a container with the opener and spout device, in what may be termed its primary active position or, after puncturing the container end closure or top.

Fig. III is a similar broken sectional view longitudinally of the container and device, with said device in a second position to show how the portion of broken out end closure is folded-up so as not to interfere with subsequent pouring out of the container content.

Fig. IV is a corresponding sectional illustration but showing the opener and spout device in the third or final position ready for pouring, and, also, rigidly clamped against accidental displacement.

Fig. V is a sectional view on the plane V—V of Fig. IV.

Fig. VI is an end view of a container as preferably scored for opening by the device of Figs. I—V.

Fig. VII is a view of the attaching end of the opener and spout device.

Fig. VIII is an elevation of the device in vertical position.

Fig. IX is a perspective view of the device.

Fig. X is a part sectional and part elevational view of a modified form of the invention.

Fig. XI is a sectional view corresponding substantially with Fig. II, but illustrating a further modified form of the invention which is more particularly designed for opening containers having thin or laminated parchment end closures; and,

Fig. XII is a larger scale end view of the opener and spout device included in the preceding illustration.

In all the views, corresponding parts are identified by like reference characters, with differentiating exponents, or other characters in the modified forms of the invention, where necessary to avoid confusion and unnecessary repetitive description.

Referring more in detail to the drawings, and, firstly to Figs. I—IX, inclusive, the numeral 1 designates a container of suitable character, having push-in ends or top and bottom closures 2, 3, respectively; said containers being conveniently of the spirally-wound strip paper, fiber or analogous material varieties with cardboard or other suitable and substantial sheet material ends, and having the interior surfaces wholly covered by a thermoplastic, or other suitable material, liquid-resistant filmy sealing sheet or facing 4. Containers 1 of the indicated character, in some instances, are provided in one or both of the end closures 2, 3 with a readily movable or retrovertible portion 5, Fig. V, which is normally connected thereto at unsevered points 6; while said portion is wholly protected by the non-severed internal facing 4. Preferably, although not essentially, the movable or retrovertible portions 5 are contoured to isosceles formation, with the apex 7 disposed in close proximity to the containery body wall, and the base 8 at right-angles to a radial line passing through said apex, with each of the angular corners 9 slightly rounded.

The novel opener and spout device 10 of this invention comprises a tapering tubular portion 11 of similar cross-section to the removable portion 5, with a surrounding flange 12, at its larger end for snug engagement on the outer face of the container end 2, for example, when the device 10 is in use. Outwardly of the flange 12 there are provided in alignment with the wider side walls 13, grooved convergent lips 14 for snug engagement below the end closure facing 4, as best seen in Fig. V, when the device 10 is secured to the end closure 2. The basal ends of the lips 14 are bridged by an angular claw 15 of reversely directed somewhat similar contour to the cross-section of the tubular portion 11, and said claw is cut out at 16 for a purpose here-

after noted. The claw 15 is also rounded out at 17 so as to give adequate clearance for retroversion of the end movable portion 5 and its facing 4, when bent back and upwardly into contact below the end closure 2, as readily understandable on an inspection of Figs. III and IV, more particularly.

Centrally of the narrower wall of the device 10 and also of the adjoining portion of the flange 12 is a socketed embossment 18 into which is firmly secured a spring-influenced catch 19, which, when the device is moved from the position of Fig. III to that of Fig. IV, snaps beyond the base 8 and locks the device 10 to the end closure 2 of the container 1, ready for pouring out of the content of the latter by gradual tilting of said container 1 from a vertical position to the inclination of Fig. I, for instance. It is to be here remarked that the tubular portion 11 of the device 10 is inclined over somewhat from the vertical when its basal or supporting flange 12 is horizontal, so that initial pouring and complete emptying of the container content is ensured; while an air inlet orifice 20 is provided in the device 10, at a convenient location, to prevent formation of a vacuum in the container 1 during pouring.

In the modified form of the invention shown in Fig. X, the device 10*a* is, preferably, made of thin sheet metal and simply provided with a springy grip tongue 21 in place of the claw 15 and catch 19 previously described. In all other respects, this type of the device 10 substantially conforms with the structure previously described.

Figs. XI and XII show a further modified type of the invention in all respects substantially like Fig. X, but with the grip tongue 22 suitably beveled at 23 to provide a cutting portion, more particularly designed for severing the end closure 2*b* when fabricated from parchment 24 or thin sheet material faced on the inner surface with a suitable coating 4*b*. In this instance it is to be observed that the cutter portion 23 is of limited extent so that when initially inserted, as indicated in Fig. XI, the cut will progress towards the center of the container end 2*b* with concurrent retroversion of the severed part in a like direction until it engages the inner face of said end, as readily understandable on an inspection of Fig. X.

From the foregoing disclosure, the merits and advantages of the invention, as well as the use thereof, is deemed fully disclosed, and it is to be understood that while the cross-section of the spout 10 has been shown as triangular, other suitable cross-sections thereof may be employed, and also changes in the details of construction, to adapt the invention for differing usage, are contemplated as within the scope of the following claims.

Having thus described my invention, I claim:

1. A receptacle opener and pouring device comprising a tubular member having a surrounding flange at one end, spaced attaching lips in continuation of predetermined parts of the member inner wall and outwardly of said flange, and aperture forming means between the attaching lips at one end, said means also serving to retrovert the partially removed material incident to formation of the aperture and to fix the device to the receptacle.

2. A receptacle opener and pouring device comprising a tubular member having a surrounding flange at one end, spaced attaching lips in continuation of predetermined parts of the member inner wall and outwardly of said flange, aperture forming means between the attaching lips at one end serving to retrovert the partially removed material concurrent with the formation of the aperture, and means for preventing formation of a vacuum in the receptacle during pouring out of its content.

3. A receptacle opener and pouring device comprising a tapering tubular member having a surrounding flange at the wider end, spaced attaching lips in continuation of predetermined parts of the tubular member bore and outwardly of said flange, and an aperture forming claw between the attaching lips at one end, said claw also serving to retrovert the partially removed material concurrent with formation of the aperture and to hold the device to the receptacle.

4. A receptacle opener and pouring device comprising a tapering tubular member having a surrounding flange at the wider end, spaced attaching lips in continuation of predetermined parts of the tubular member bore and outwardly of said flange, an aperture forming claw between the attaching lips at one end, said claw also serving to retrovert the partially removed material concurrent with formation of the aperture and to hold the device to the receptacle, and means for preventing formation of a vacuum in the receptacle during pouring out of its content.

5. A receptacle opener and pouring device comprising a tapering tubular member of triangular cross-section having a surrounding flange at the wider end, grooved attaching lips in continuation of two side walls of said member and outwardly of the flange, and an aperture forming angular claw between the attaching lips across the other side wall of the tubular member, said claw also serving to upwardly fold the partially removed material concurrent with formation of triangular apertures in the receptacle end and to hold the device in pouring position.

6. A receptacle opener and pouring device comprising a tapering tubular member of triangular cross-section having a surrounding flange at the wider end, grooved attaching lips in continuation of two side walls of said member and outwardly of the flange, an aperture forming angular claw between the attaching lips across the other side wall of the tubular member serving to retrovert the partially removed material concurrent with the formation of a triangular aperture in the receptacle end, and a spring catch whereby the device is firmly secured to the receptacle end by outward movement of the latter.

7. A receptacle opener and pouring device comprising a tapering tubular member of triangular cross-section having a surrounding flange at the wider end, grooved attaching lips in continuation of two side walls of said member and outwardly of the flange, an aperture forming angular claw between the attaching lips across the other side wall of the tubular member serving to retrovert the partially removed material concurrent with the formation of a triangular aperture in the receptacle end, a spring catch serviceable to lock the device to the receptacle end by snap engagement in advance of the receptacle aperture base and registering retrovert edge by outward movement of said device, and means preventing formation of a vacuum in the receptacle during discharge of its content.

8. A receptacle opener and pouring device as defined in claim 5, wherein the tubular member is of isosceles cross-section, the attaching lips coincide with the wider walls of said member, and

the aperture forming angular claw is disposed across the narrower wall of the tubular member.

9. A receptacle opener and pouring device as defined in claim 5, wherein the tubular member is of isosceles cross-section with the apex portion inclined outwardly relative to the vertical, the attaching lips coincide with the wider walls of said member beyond the surrounding flange, the aperture forming angular claw is disposed between attaching lips across the narrower wall of the tubular member, and said claw has the angular portion in part beveled to provide merging cutter edges.

10. A receptacle opener and pouring device as defined in claim 7, wherein the tubular member is of isosceles cross-section with the apex outwards and the base inwards, said member being inclined over away from the vertical relative to the surrounding flange, the grooved attaching lips merge from said base towards the apex outwards of the surrounding flange, and the aperture forming angular claw bridges the attaching lips across the tubular member base fall, said angular claw being medially cut-out and rounded outwards.

11. A receptacle opener and pouring device as defined in claim 7, wherein the tubular member is of isosceles cross-section with the apex outwards and the base inwards, said member being inclined over away from the vertical relative to the surrounding flange, the grooved attaching lips merge from said base towards the apex outwards of the surrounding flange, the aperture forming angular claw bridges the attaching lips across the tubular member base wall, said angular claw being medially cut-out and rounded-out, a socketed embossment at the back of the surrounding flange for reception of the spring catch, and an air hole is provided to one side of said embossment through the device wall to prevent formation of a vacuum in the receptacle when pouring out its content.

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