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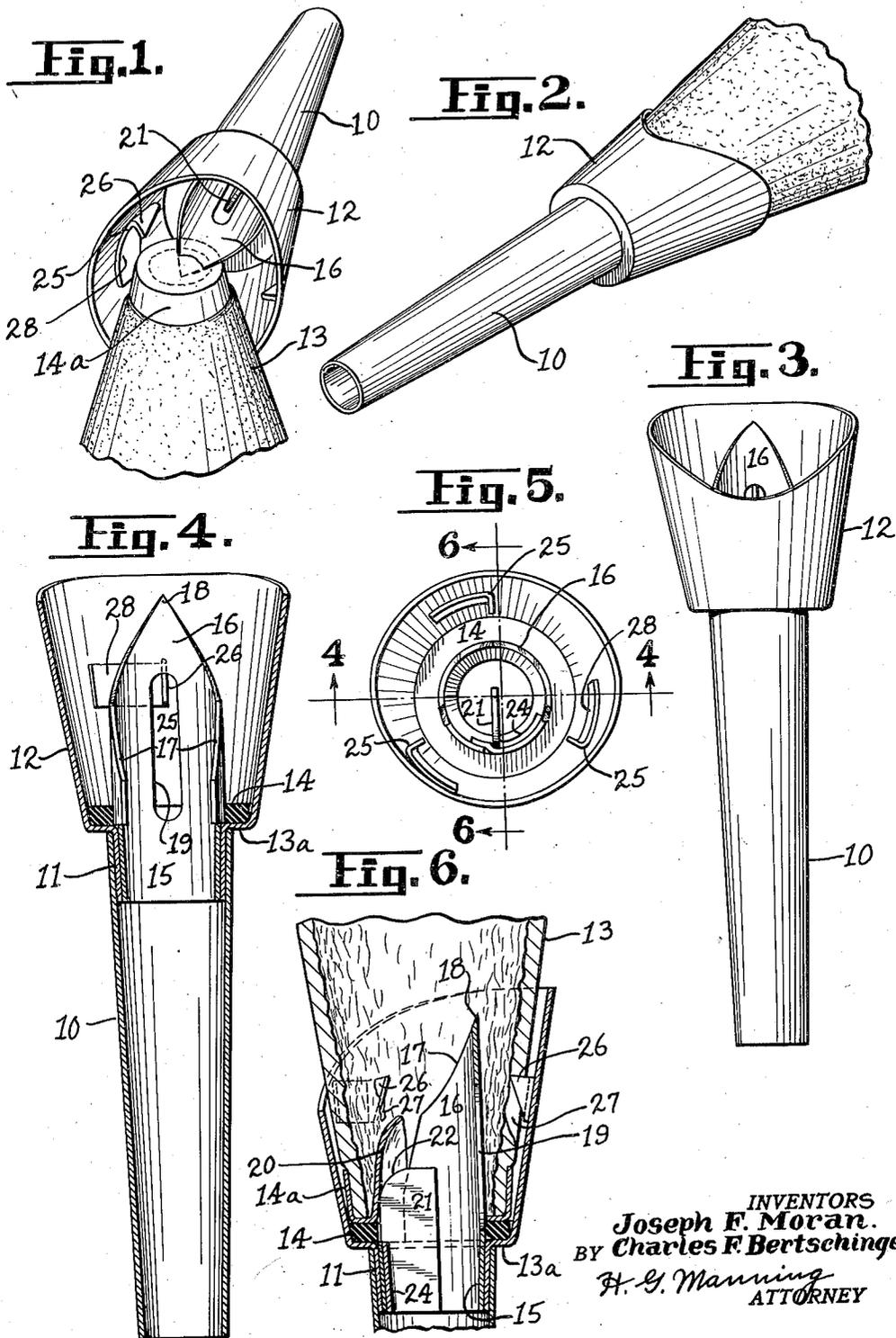
J. F. MORAN ET AL

2,058,905

COMBINED OPENER AND SPOUT FOR PAPER BOTTLES

Filed July 28, 1934

2 Sheets-Sheet 1



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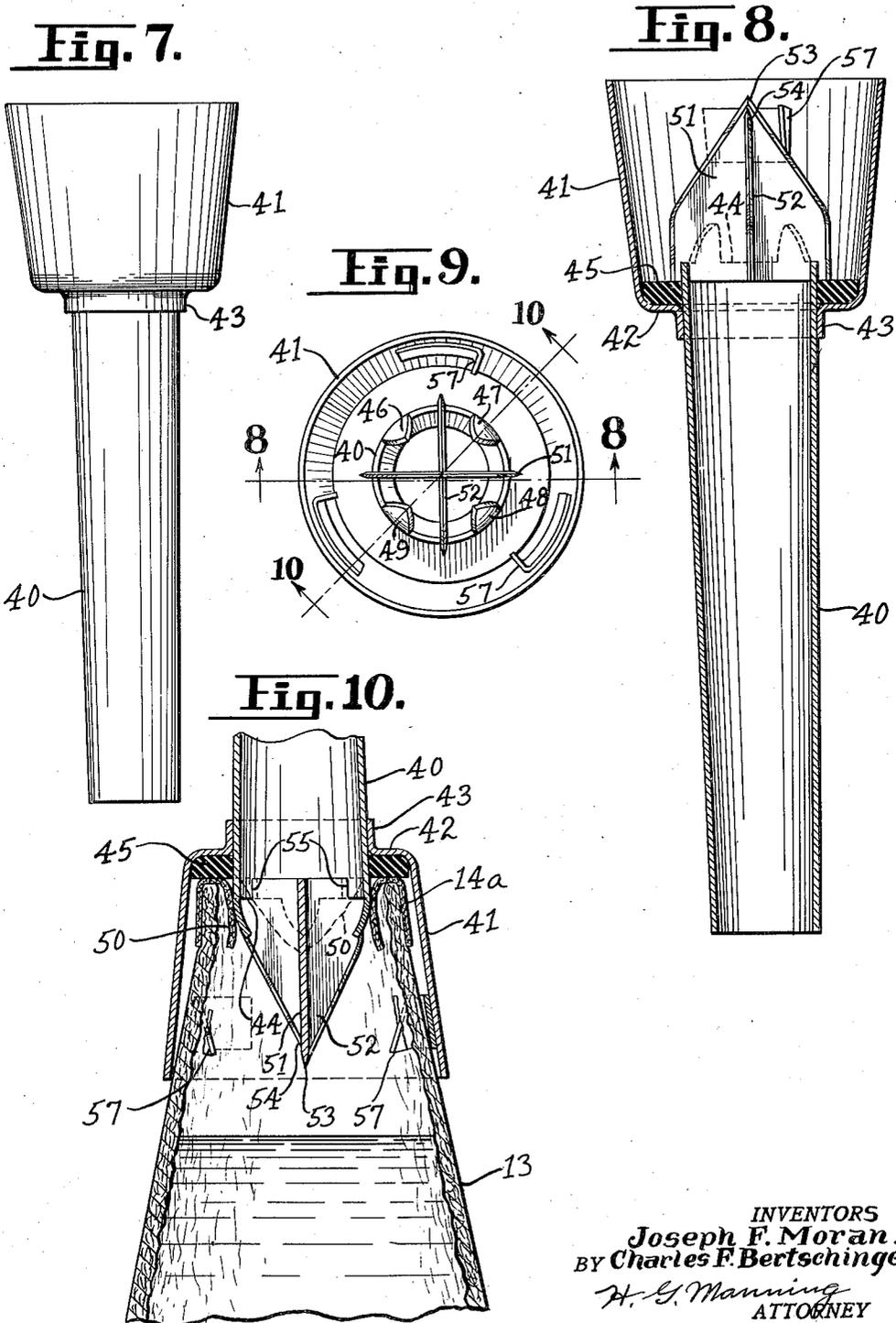
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UNITED STATES PATENT OFFICE

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COMBINED OPENER AND SPOUT FOR PAPER BOTTLES

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3 Claims. (Cl. 221—23)

This invention relates to cutting devices adapted to pierce the soft sealing cap of a liquid containing bottle made of paper or other material which is easy to puncture, and more particularly to a bottle cap opener in combination with a funnel or spout for conveying the liquid to a receptacle after said cap has been punctured.

One object of this invention is to provide a combined opener and spout of the above nature having a cam-shaped spreader member associated with a V-shaped cutter in order to force the flap pierced from the cap by said cutter out of the way so as not to obstruct the flow of liquid from the bottle when the latter is inverted.

A further object is to provide a combined opener and spout of the above nature in which a plurality of supplemental "slashing" knives are provided on the inside of the funnel for mutilating the soft neck of the bottle during the cap piercing operation, thus making it impossible to re-use the bottle.

A further object is to provide a device of the above nature which will be simple in construction, inexpensive to manufacture, easy to install and manipulate, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view there have been illustrated on the accompanying drawings two forms in which the invention may be conveniently embodied in practice.

In the drawings:

Fig. 1 represents a perspective view of the combined opener and spout as it appears just after the point of the cutter has pierced the cap of the bottle.

Fig. 2 is a perspective view of the same after the bottle cap has been completely pierced, and the bottle has been inverted into pouring position.

Fig. 3 is a side elevation of the combined opener and spout.

Fig. 4 is a longitudinal sectional view of the same on an enlarged scale, taken along the line 4—4 of Fig. 5, looking in the direction of the arrows.

Fig. 5 is a top plan view of the combined opener and spout.

Fig. 6 is a fragmentary longitudinal sectional view of the same, taken along the line 6—6 of Fig. 5, as it appears after the piercing operation, and with the bottle in inverted pouring position.

Fig. 7 is a side elevation of a modified form of combined opener and spout also embodying the invention.

Fig. 8 is a longitudinal sectional view of the same, taken along the line 8—8 of Fig. 9.

Fig. 9 is a top plan view of the modified opener and spout.

Fig. 10 is a fragmentary longitudinal sectional view, taken along the line 10—10 of Fig. 9, showing the modified opener and spout as it appears in position upon the top of the bottle just after the piercing operation.

Referring now to the drawings in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a tubular spout preferably slightly tapered, and having its upper large end fitted about and soldered to a depending reduced neck 11 of a funnel member 12 shaped to fit about the tapered neck 13 of a bottle constructed of a soft easily punctured material, such as compressed fibre, papier-mâché, metal foil, "tin-plated" iron, soft brass, etc.

A shoulder 13a is formed between the outer apron section of the funnel 12 and the reduced inner neck 11 to form a seat for a washer 14, preferably of cork, said washer being adapted to engage the bottle cap 14a at the conclusion of the piercing operation. The cap 14a is also constructed of easily punctured material.

Fitting within the neck 11 of the funnel member 12, and secured thereto as by solder, is an annular band 15 forming an integral part of an upstanding V-shaped cutting knife 16. The latter is formed from a section of a cylinder and includes a pair of inclined cutting knife edges 17, 17, terminating in a sharp top point 18. The vertical cylindrical surface of the cutting knife 16 is provided below the point 18 with a substantially rectangular elongated drain aperture 19 to facilitate the flow of oil or other liquid from the bottle into a receptacle, not shown.

In order to force to one side the V-shaped flap 20 which is cut out of the bottle cap by the cutting knife 16 during the piercing operation, provision is made of a substantially rectangular vertical radially arranged spreader member 21 having a top curved outer cam edge 22 for engaging said flap 20. The spreader 21 is provided at its bottom with an integral laterally curved bottom wing 24 adapted to be soldered to the interior surface of the band 15 of the cutting knife.

Located on the inner surface of the funnel 12 substantially above the shoulder 13a are a plurality (three in this instance) of mutilating knives 25 having triangular points 26 adapted to slash vertical slits 27 in the conical soft bottle neck during the cap-piercing operation. The mutilating knives 25 are arranged radially and are provided with integral lateral curved wing sections 28,

which are adapted to be soldered to the outer section of the funnel member 12.

The top edge of the funnel 12 is preferably cut away on the side opposite from the point of the cutting knife to facilitate the location of the sharp point thereof and the insertion into the cap of the bottle.

It will be understood that the mutilating knives not only serve to prevent further use of the bottle for oil dispensing purposes, but also hold the combined opener and spout frictionally in position upon the bottle without spilling while it is being inverted, and during the subsequent pouring operation.

Modification

In the modified form of the invention which is shown in Figs. 7 to 10, the invention is similar to that shown in Figs. 1 to 6, but instead of employing a single V-shaped cutting knife for piercing the opening in the bottle cap 14a, a pair of intersecting crossed V-shaped cutting knives is employed. In this form of the invention a spout 40 is employed, the upper end of which extends a substantial distance into the body of the funnel member 41. The latter is provided, as in the first form, with an inturned horizontal shoulder section 42 from which depends a neck 43 fitting over the spout 40 at a point below the top edge 44 of said spout. A washer 45 is seated upon the shoulder 42 and serves a like purpose.

The top edge 44 of the spout 40 is provided with four upstanding spreader members 46, 47, 48, and 49, preferably formed integral with said spout 40, and having at their top edges curved cam points which serve to force outwardly the four V-shaped flaps 50 pierced by the four cutting edges of the two V-shaped knives 51 and 52. The cutting knives 51 and 52 are preferably interfitted in the form of a cross and are soldered together in such a manner that the point 53 of the knife 51 is located at a higher point than the point 54 of the other knife 52, whereby entrance of said knife points into the bottle cap will be facilitated.

The bottom edges of the cutting knives are provided with four symmetrically positioned slots 55 adapted to fit over the top edge 44 of the spout at points between the location of the spreaders 46, 47, 48 and 49. A plurality of radial vertical mutilating cutters 57, three in this instance, are also provided on the inner surface of the funnel 41, said cutters 57 being similar in all respects in construction and operation to the mutilating knives 26 of the first form of the invention described above.

In the operation of the modified form of the invention, the cutting knives are adapted to cut four slits at the center of the cap 14a in the form of a cross, producing the four pointed flaps 50, which are forced outwardly by the cam spreaders 46, 47, 48 and 49, so as to leave an unobstructed hole through the center of the cap so that when the bottle has been inverted, the oil or other liquid will flow rapidly into the receptacle, not shown. The friction of the mutilating cutters 57 in the slits of the bottle neck will assist in holding

the combined cutter and spout upon the neck of the bottle during the inverting and pouring operations. The device may then be removed from the neck of the mutilated bottle, leaving the latter unfit for re-use.

While there have been disclosed in this specification two forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

1. In a combined opener and spout for a sealed liquid container, a spout having a top enlarged funnel section connected thereto, a plurality of intersecting V-shaped cutter knives extending upwardly from the upper end of said spout into said funnel section to form a plurality of inwardly pointed flaps in the top of the container when said knives are pressed into said container, and means in the interior of said funnel for mutilating the side of said container during the top piercing operation to render the container unfit for re-use.

2. In a combined opener and spout for a sealed liquid container, a spout having a top enlarged funnel section connected thereto, a plurality of intersecting V-shaped cutter knives extending upwardly from the upper end of said spout into said funnel section to form a plurality of inwardly pointed flaps in the top of the container when said knives are pressed into said container, means in the interior of said funnel for mutilating the side of said container during the top piercing operation to render the container unfit for re-use, and radial spreader members located on said funnel between each two adjacent intersecting cutter knives to force the pierced flaps laterally to permit the liquid to flow rapidly from said spout when the container is inverted.

3. In a combined opener and spout for a sealed liquid container, a spout having a top enlarged funnel section connected thereto, a plurality of intersecting V-shaped cutter knives extending upwardly from the upper end of said spout into said funnel section to form a plurality of inwardly pointed flaps in the top of the container when said knives are pressed into said container, means in the interior of said funnel for mutilating the side of said container during the top piercing operation to render the container unfit for re-use, and spreader members located on said funnel between each two adjacent intersecting cutter knives to force the pierced flaps laterally to permit the liquid to flow rapidly from said spout when the container is inverted.

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