

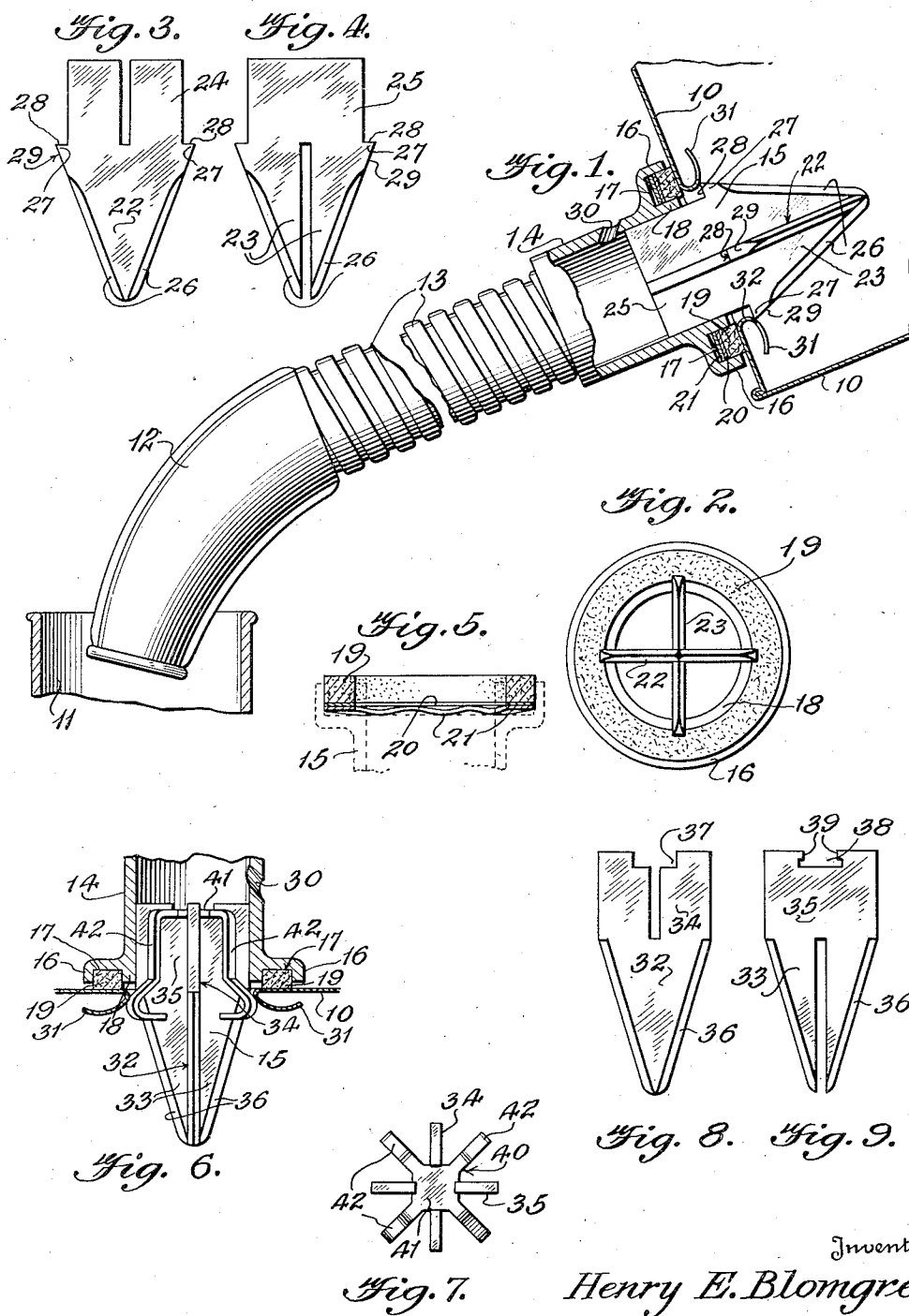
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DISPENSING CAN OPENER

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DISPENSING CAN OPENER

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The invention relates to devices adapted to be applied to hermetically sealed containers to open the same and at the same time serve as a dispensing spout by which the contents of the can may be poured or discharged.

The invention is especially useful for opening cans and for dispensing liquid or fluid contents therefrom. In this respect the invention has importance in the sale of lubricating and other oil, syrups and liquors, as well as granular or pulverulent material. The practice of delivering to the retail purchaser for immediate use lubricating oil sealed in a simple can, the end of which must be cut to permit it to be poured out for introduction into the motor, has grown to large proportions. I am aware of certain prior forms of combined openers and dispenser funnels by which the content of the can may be poured directly into the motor by the use of the opener, and it is a purpose of my invention to effect important improvements making for greater cleanliness, greater simplicity in the opener-dispenser, and its manner of use, as well as effecting economy in manufacture of the opener-dispenser, and providing a far less bulky article.

It is an important aim of my invention to present the opener-dispenser in a form whereby the mere movement of it to operative position on a can will effect opening of the can and also securement and sealing of the appliance safely upon the can, so that it will not become casually detached, and so that none of the contents of the can can escape, except through the discharge nozzle of the device.

It is a purpose to present novel structure for the attainment of these ends, and to additionally insure the proper displacement of the cut material from the openings formed, whereby a maximum freedom of flow of the contents in dispensing will be assured. It is also a purpose to devise a novel assembly relation of the parts having advantages in economy, strength and durability.

It is an important object to present a form of cutter which will additionally perform further functions of importance to the utility of the device, particularly in assuring good clearance of the openings from the can.

A most important object and attainment of the invention is the provision of a device applicable to effective use upon cans of all sizes.

Additional objects, advantages and features of invention reside in the construction, arrangement and combination of parts involved in the embodiment of the invention, as will appear from

the following description and accompanying drawing, wherein

Figure 1 is a side view partly in section of one embodiment of my invention in use.

Figure 2 is an end view of the cutter.

Figure 3 is a detail of one of the blades.

Figure 4 is a detail of the other blade.

Figure 5 is a fragmentary section of the cutter head showing the cushion mounting.

Figure 6 is a sectional view of the cutter head of a modified construction.

Figure 7 is a top view of the modified cutter element detached.

Figure 8 is a detail of one blade of the modification.

Figure 9 is a detail of the other blade of the modification.

As an example of embodiment and use of the invention, there is illustrated a part of a can 10, to which my combined opener and dispenser is applied for the purpose of decanting the content of the can into the neck 11 of the oil reservoir of an internal combustion motor.

The appliance comprises a spout or nozzle piece 12 from which a flexible metal pipe 13 is extended a suitable distance, and on the extremity of the pipe opposite the spout 12 there is a mouth piece 14 with cutter and securing means 15, all of which is here briefly termed the cutter head 14.

The nozzle may be produced after any approved practice applicable thereto, but in the present instance consists of a two-piece stamping joined with a common form of seam to provide a slightly curved spout with a rolled rim at the discharge end, its opposite end being tightly fitted around the pipe 13 with suitable sealing of the joint. The pipe 13 may be of any good liquid-tight flexible metal pipe or hose, of which there are several forms commercially available.

The cutter head comprises the mouth fitting 14 which in the main is a simple cylindrical tube one end of which is fitted snugly and permanently to the end of the pipe 13 opposite the spout 12. At its opposite end the tube is formed with an external enlargement 16 grooved as at 17 on its outer or end face, concentrically with the axis of the tube, the inner wall 18 of the groove being also the end of the wall of the tube. The inner parallel faces of the walls of the groove are preferably smoothly finished to accommodate slidably a cushion ring or gasket ring 19 which is adapted to project from the groove to effect a seal against the outer face of an engaged can, as will appear. This ring 19 may be sufficiently resilient to itself properly act against a can surface, or, as

illustrated, may have behind it in the groove 17 a follower washer 20 and an undulated spring washer 21, by which the ring 19 is pressed yieldingly outward, but not out of the groove.

5 In the end of the tube 14 the cutter 15 proper is fixed consisting of two blades 22 and 23 each of arrow-head shape, their shanks 24 and 25 being rectilinear and adapted to fit snugly and diametrically in the tube 14. The two blades are
10 mortised together at right angles so that the cutter is X-shaped in cross section. The shank 24 is longitudinally slotted on its axis to receive the other shank therein, while the blade 23 is similarly slit to receive the other blade snugly
15 therein. The blades are bevelled as at 26 on each side throughout the outer parts of their cutting edges, and the arrow-head portion of each is extended to a base or barb 27 on each side which projects slightly beyond the longitudinal edge of
20 the shank there adjacent, and also is spaced outwardly of the plane of the mouth of the tube 14 including the outer wall of the groove. The barb forms a shoulder 28 at right angles to the joining longitudinal edge of the shank, although this particular angular relation may be varied without
25 departing from the spirit of the invention. It is also apparent that the barb portions and part of the cutting edge of the blades also project radially beyond a longitudinal geometrical projection of the tube 14.

It should also be noted that the cutting edges of the blade in this form stop short of the extremities of the barbs, so that short flat sloping
30 outer faces 29 are formed on the extreme inner parts of the blades, for a purpose to be explained.

35 In the side of the tube 14 in a plane with the spout axis and opposite the side to which the spout is curved, there is formed an air inlet or vent 30 which is preferably inclined so that its outer end is located longitudinally nearer the
40 cutter than is the inner end of the vent.

In the use of this device, a can of any size or shape may be opened and its content dispensed and discharged into a motor by merely pressing
45 the cutter through the head or top of the can until the washer 19 rests against the outer face of the can, then introducing the spout 12 into whatever receptacle is to receive the content, and tilting the can so that the content runs by gravity
50 into the final receptacle. Part of the content may be dispensed and the can and appliance set upright without escape of any of the content.

By this pressure of the cutter through the can top, the material of the top is cut radially from
55 the point of entry of the cutter in four directions. The blades force inwardly the pointed portions 31 thus formed, and when the flat faces 29 engage at the ends of the cuts formed, the points 31 are forced further back, and the end of the cuts in
60 the can top engaged and sprung downwardly and away from the axis of the cutter, so that after the barb points have passed the inturned and uncut parts at the ends of cuts made by the cutting edges of the blade these sprung parts of the can
65 spring inwardly again, behind the barbs, and bear thereagainst, to prevent casual withdrawal or loosening of the appliance from the can, the washer 19 being held snugly against the face of the can as a seal completely preventing leakage
70 of the content of the can so that the appliance and the can remain perfectly dry and unsoiled exteriorly beyond the actual opening 32 formed by the cutter. As is well understood in decanting devices and especially as to lubricating oils, air
75 will readily feed through the spout 12 and pipe

13 into the can 10 as the oil drains out, but in order to further facilitate the flow of oil in the pipe 13 in a novel way, I have provided the supplementary vent 30 as described, the direction of
5 this vent preventing casual escape of oil there-through while the decanting operation is in process, and when the decanting is finished, owing to there being no oil in the vent, none will run therefrom to the exterior of the appliance when it is set with the spout directed upwardly. 10

In Figures 6 to 9 inclusive there is illustrated a modification of this invention, wherein the spout 12, pipe 13 and mouth piece 14 are the same as before described, but the cutter assembly is
15 somewhat different. The blades 32 and 33 are formed without the barb elements of the first described blades, and the bevelled cutting edges 36 extend flush to the longitudinal edges of the shanks 34 and 35 close to the plane of the mouth
20 of the appliance. The blades and shanks are longitudinally slotted and the blades mortised together in the same way as before described. The butt ends of the shanks are respectively recessed as at 37 and 38 medially of the end edge, the first being a simple straight-walled recess, while
25 the one 38 is formed with an inwardly projecting tongue 39 at each side extending a short distance over the recess. The modified cutter is provided with a fender and retainer 40 stamped integrally from resilient sheet metal the center of this be-
30 ing a simple square plate 41 of the metal of a size to set snugly in the recesses of the ends of the shanks with the tongues 39 engaging snugly thereover. From the corners of this plate 41
35 there are extended long integral radial arms 42 which are bent sharply at right angles to the plate 41 so as to extend in parallel relation between the blades and located at a distance from
40 the axis of the tube 14 about one-half the radius of the respective sides of the shanks. The extremities of the arms 42 are bent obliquely outward from lines a short distance inwardly of the
45 plane of the end edges of the mouth fitting 14, and each extended to a point slightly beyond a line across the bases of the cutting edges of the blades, as indicated in Figures 6 and 7. Here they are recurved on a comparatively short radius and their extremities directed inward in a
50 common plane at right angles to the axis of the tube 14. The curve at this bend should be sufficiently gradual for the ends of the fender to press inward and then divergently the tongues cut in the can 10 by the entry of the blades, and
55 when the metal of these tongues resists further deflection at the lines between the extremities of the cuts made by the blades, the curved parts of the arms 42 should lie partly beyond these lines, so that the arms 42 will ride upon the metal of the can at the bends of the points 31 which will
60 have been formed at said lines, and the arms 42 be deflected inward, springing partly outward again within the can as the outer parts of the curves of the arms pass inward of said lines, and
65 by the relative radial outward spring of the arms separation of the appliance from the can will be yieldingly opposed with sufficient strength to retain the appliance in position while the contents of the can are decanted and during other usual handling of such can.

When desired, the appliance of Figures 6 to 9 70 may be detached from a can by manual force directly applied, the arms 42 yielding inwardly when the device is withdrawn and then springing outward as soon as withdrawn. By working the fitting 14 as a lever, causing one side to act as a 75

fulcrum against the wall of the can, the opposite arm 42 of the retainer may be readily pried out of the can.

5 The use of the last described form of the device is similar to that of the first described form. It will be appreciated that the outward springing action of the arm 42 will cause the can top 10 to be drawn inward around the cutter until the outer face of the can presses snugly against the cushion and gasket washer 19 as before described.

10 In Fig. 6, also, the gasket 19 is used alone in the groove of the mouthpiece, and its inherent resilience and the action of the arms 42 depended on to effect a seal.

15 The resilience of the metal of the can will also contribute aid in closing the space between can and gasket in both forms described. Thus, in Fig. 1 the metal at 32 is opposing the bending effected by the blades and in so doing is pressing against the barbs, tending to push the blades longitudinally inward in addition to opposing withdrawal of the cutters. Withdrawal can of course be effected manually as described with the form of Fig. 6.

25 I claim:—

1. In a device of the character described, a mouth piece of rigid material, having an opening therethrough for alinement with the opening of a can, and a can piercing member projecting outwardly from the opening at the can-engaging side consisting of two planiform blade members having rectilinear shanks set in the said opening of the mouth piece, the blade of one being longitudinally slotted to snugly receive the other blade therein and the shank of said other being longitudinally slotted to receive the shank of the first named blade, and means included positioned

laterally of the lines of the cutting edges of the blades to engage the projecting tongue-like edge portions of the opening formed in a can by the blades.

2. In a device of the character described, a 5 mouth piece having a mouth opening adapted to fit against a can and the like, a can piercing member fixed thereon in line with the mouth opening comprising a plurality of radial blades arranged and shaped to cut respective slits in a 10 can wall when pressed thereinto, said blades including inclined cutting edges divergent toward the mouth piece and terminating short of the latter with an intervening non-cutting portion adapted to subject the can material to stress, 15 and means coactive therewith to engage adjacent stressed edge portions of the opening formed by the piercing member by longitudinal penetrating movement of the device whereby to draw the mouthpiece against the face of the can by the 20 inherent resilience of the can material.

3. In a device of the character described, a mouth piece having a mouth opening adapted to fit against a can and the like, a can piercing member fixed thereon comprising a plurality of 25 coaxial arrow-shaped blades projected from the can engaging side of the mouth piece and having shanks next the mouth piece, said blades including barb portions projecting outward from the shanks, the barbs being spaced from the mouth- 30 piece so as to lie a distance within an engaged can, the cutting edges of the blades stopping short of the barbs a distance, and the blades having non-cutting edge portions thereon extending from said cutting edges to the points of the barbs 35 for the purposes described.

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