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COMBINED CAN PUNCH AND CAP REMOVER

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INVENTORS

JOHN NAGY
WILBERT JAMES
BY JAMES M. MARTIN

ATTORNEY
This invention relates to can and bottle openers and, more particularly, to manually operated can and bottle openers of the type that are adapted to pierce the top of the can, pry off the top of the can or bottle and prepare the top of the can or bottle for removal of the top. Openers of this type are commonly used for opening beer cans, juice cans, jars of jam, and beverage bottles and the like.

A principal object of the present invention is to provide an improved can and bottle opener of this type wherein a dispensing opening and an air vent opening are formed substantially simultaneously in a cap top responsive to a single rocking of the opener on the top periphery of the can.

Another object of the invention is to provide a tool of this type with means for cutting the seal at the top of the can or bottle to facilitate removal of the top of the can or cap on the bottle.

Another object of the invention is to provide a tool of this type with means for insertion between the body and cap of the container for prying off the cap, using the top of the body as a fulcrum.

A further object is to provide a tool of this type with means for insertion under the cap for prying off the cap by a lifting movement.

Another object of importance is to provide a tool of this type which will be novelty designed in such a manner as to result in increased leverage during the operation of forming dispensing and vent openings in the container.

It is also an object to provide a tool of this kind which can be fashioned from relatively thin sheet metal material, thus holding the cost down to the maximum extent. This is particularly important in view of the fact that opening tools of this type are generally distributed complementarily to purchasers of the beer or other beverages sold in the can.

Another further object of the present invention proposes constructing the opener with an upwardly inclined lever end portion at one end of the tool for pressing or driving the vent-forming prong through the top of a can.

It is also proposed to provide a can and bottle opener of this type that is simple and rugged in construction and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a top plan view of an opening tool embodying the present invention.

Fig. 2 is an edge view thereof.

Fig. 3 is an enlarged cross-sectional view taken on the plane of the line 3—3 of Fig. 8.

Fig. 4 is a fragmentary top perspective view of the opening tool, on an enlarged scale.

Fig. 5 is a similar view showing the tool tilted slightly.

Fig. 6 is a perspective view showing the opening tool in position on the top of a can preparatory to punching openings in the top of the can.

Fig. 7 is a side elevational view of a fragment of a jar showing the opening tool in position at the top of the jar preparatory to prying off the cap on the jar.

Fig. 8 is a top perspective view of a fragment of a differently shaped jar showing the opening tool in position at the top of the jar preparatory to prying off the cap on the jar.

Fig. 9 is a top perspective view of a fragment of a vacuum type bottle showing the opening tool in position at the top of the bottle preparatory to prying off the cap on the bottle.

Fig. 10 is a view similar to Fig. 9 showing a modified form of opening tool.

Fig. 11 is a similar view of a further modification of the invention.

Referring in detail to the drawings, in Fig. 1 the opening tool embodying the present invention is shown and designated generally by the reference numeral 10. This tool is formed from a single piece of sheet metal material and has an elongated flat body portion 14, with straight sides tapering toward both ends where it is slightly flattened. The flat body portion 14 serves as a handle. At one end, the body is formed with a circular opening 16 for hanging the tool on a nail or the like protruding from a supporting surface.

Intermediate its end and to one side of its midlength, the body of the tool is abruptly bent at an angle, for a short distance, as indicated at 18, and then continues flatwise toward the adjacent end, in a plane offset from the plane of the remainder of the body as indicated at 20, said flatwise portion 20 being wider than the remainder of the body. The offset flat portion 20 merges gracefully into an upwardly bent portion 22, at said adjacent end of the body, the extremity of said bent portion being disposed above the plane of the remainder of the body as shown in Fig. 2. The bent portion 22 serves as an end lever for prying off the cap 24 of a vacuum bottle 26 as shown in Fig. 9. The offsetting arrangement and the dimensions of the body are such that increased leverage is afforded when the tool is in use.

In the offset portion 20, a V-shaped slit 28 is formed, the sides of which are substantially parallel to the side edges of the offset portion as best shown in Fig. 1. The slit 28 defines a main or dispensing-opening-forming prong 30, which is struck downwardly out of the plane of the offset portion, the prong 30 being disposed in angular relation to said plane as shown in Fig. 2, whereby to form a triangular dispensing opening in the can top when the tool is rocked about the head of the can.

Midway the ends of the prong 30, medially between the opposite sides thereof, a U-shaped slit is formed and the material surrounded by said slit is struck outwardly to provide a hook element 32 having a bent tip that engages under the bend of a cap 34 of a jar 36 as shown in Fig. 7 for prying said cap off of the jar.

Adjacent the base portion of the prong 30, medially between the opposite sides thereof, a U-shaped slit is formed and the material surrounded by said slit is struck downwardly to provide a hook element 38 having a bent tip that engages under the head of a cap 40 of a can 42, as shown in Fig. 6, preparatory to forming a dispensing opening and a vent opening in the cap.

At the base of the bent end lever 22, medially between the opposite sides thereof, a V-shaped slit 44 is formed and the material surrounded by said slit is struck downwardly to provide a V-shaped air-vent-forming prong 46.
The prong 46 is smaller than the main prong 30 and is bent out of the plane of the bent end lever 22 at an angle acutely related to the main prong 46 as best shown in Fig. 2. This arrangement is for the purpose of facilitating the formation of an air vent opening of substantial size in the cover of a container.

Along one side edge of the body of the tool across the junction between the bent end lever 22 and the offset portion 20 thereof, the edge is formed with a curved indentation 48 and the edge of the body defining the indentation is raised slightly to form a protuberance 50 on the top surface of the body. This indentation conforms to the curvature of the top of a jar such as the jar 52 shown in Fig. 8 and permits the tool to embrace the rim of the jar at such point with the protuberance 50 positioned underneath the cap 54 thereof for the purpose of prying off the cap.

The bent end lever 22, along one side edge thereof, is formed with serrations 56. These serrations provide a roughened surface for the purpose of cutting through paper or the like sealing the top onto the container.

Adjacent the perforated end of the body, the material of the flat body portion 14, along one side edge thereof, is cut away as indicated at 58, to provide a clearance at said point and to form a hook element 60 along said side edge. The clearance permits the end of the tool to be fitted edgewise over the top of the container such as a bottle or the like with the hook element 60 positioned underneath the cap on the top of the container for prying off the cap as will be understood.

An important advantage of the tool resides in the fact that despite its being provided with longitudinally spaced prongs, the tool can still be manufactured at relatively low cost, from comparatively thin sheet material.

The upwardly inclined end lever 22 provides means by which the vent-forming prong 46 can be pressed or driven through the top of a can. The lever 22 can either be pressed by the thumb of a hand grasping the body portion or can be driven by hitting the lever with the butt of one's hand.

The invention is characterized in that a blank of inexpensive sheet metal material is so formed as to provide, in a single tool, means to simultaneously form, at properly spaced locations, product-dispensing and air vent openings in the top of the can, responsive to a single rocker movement of the tool. Beyond the vent-forming prong, there is an end lever member which is so located as to be engaged by the thumb of a user's hand, when said hand is grasping the body portion of the tool in a natural manner for rocking the tool. This permits, when the air-vent-forming prong initially moves into contact with the surface of the can top, added leverage to be exerted at the location of the vent-forming prong, in a downward direction, tending to drive the vent-forming prong through the material of the can top.

It is of further importance that the connecting portion 18 is disposed at such an angle that as the tool is rocked during the puncturing operation, the connecting portion is disposed counter to lines of force tending to bend the same. This is particularly true as the prongs begin to enter the can top. At this time, at the location of the lower end of the connection portion 18, a considerable strain is set up, which would ordinarily tend to bend the tool at this point. However, the connecting portion being disposed at an obtuse angle to each of the offset portion 20 and body portion 14 effectively resists this bending moment. At the same time, the connecting portion 18 offsets the handle body portion 14 outwardly from the can, in the initial position of the tool in order to facilitate the insertion of the user's fingers through the space between the body portion of the tool and the side wall of the can.

The modified form of opening tool 10' shown in Fig. 10 differs from the form of Figs. 1-9, in that both side edges of the body of the tool across the junction between the bent end portion 22' and the offset portion 20' thereof are smooth and symmetrical, the indentation 48 and protuberance 50 being omitted.

Referring now to the modification of the invention shown in Fig. 11, in place of the central air-vent forming prong 46 and the side indentation 48 and protuberance 50 of the form of Figs. 1-9, the opening tool 10" shown herein is formed with opposed downwardly and forwardly projecting prongs 60. The prongs serve to punch a pair of air vents in the top of the can or the like.

In all other respects, the form of invention shown in Fig. 11 is similar to the form of invention of Fig. 1 and similar reference numerals are used to indicate similar parts.

While we have illustrated and described the preferred embodiment of our invention, it is to be understood that we do not limit ourselves to the precise construction hereinafter disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claim.

Having thus described our invention, what we claim as new, and desire to secure by United States Letters Patent is:

In a piercing tool for forming dispensing and air vent openings in a can top, comprising a body formed from a single sheet of metal and including a flat body portion serving as a handle, a flat offset portion from the plane of said body portion, a lever portion at one end of the body having an air-vent-puncturing prong therefrom, a main prong struck out of the material of the offset flat portion for puncturing a product-dispensing opening in the can top, and a hook from the body between the handle and the main prong, the improvement comprising a hook element carried by the main prong coacting with the air-vent-puncturing prong for prying a cap off of a container.

References Cited in the file of this patent

UNITED STATES PATENTS

895,574 Gotchall Sept. 15, 1908
926,156 Rydquist July 13, 1909
941,865 Forsyth et al. Nov. 30, 1909
1,569,059 Wood et al. Jan. 12, 1926
1,767,489 Sweeney June 24, 1930
2,227,421 Bjork Jan. 7, 1941
2,276,268 Donlon Mar. 17, 1942
2,571,401 Williams Oct. 16, 1951
2,581,875 Palmer June 17, 1952
2,600,866 Gasbeck Sept. 9, 1952
2,609,601 Husted Dec. 22, 1953
2,661,076 Robinson Aug. 16, 1955
2,715,264 Atwater et al. Apr. 17, 1956
2,741,835 Nagy et al. Dec. 11, 1956
2,773,272 Harrah