March 16, 1954 J. B. RUDD 2,671,960

CAN PUNCTURING DEVICE

Filed June 4, 1952

Fig. 1.

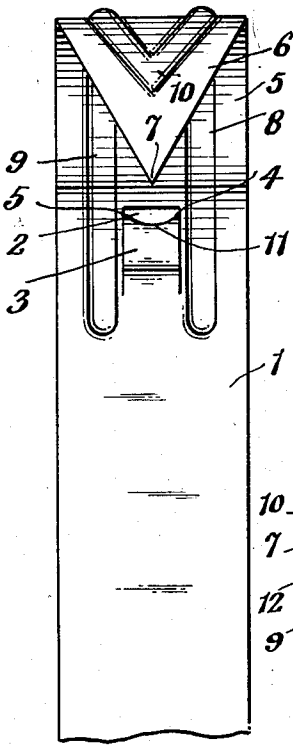


Fig. 2.

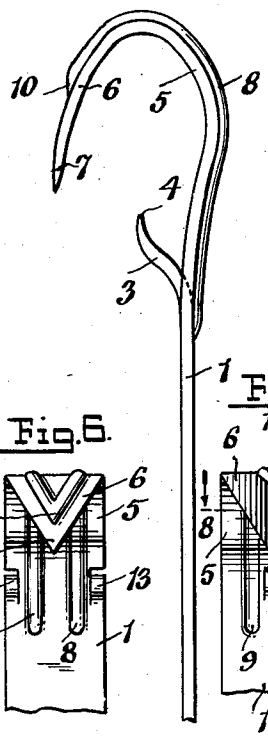


Fig. 3.

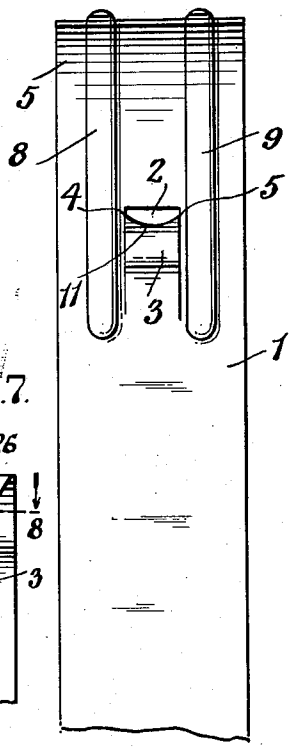


Fig. 6.

Fig. 7.

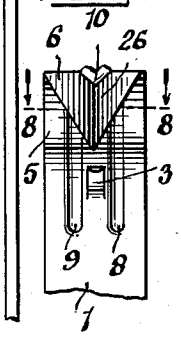


Fig. 4.

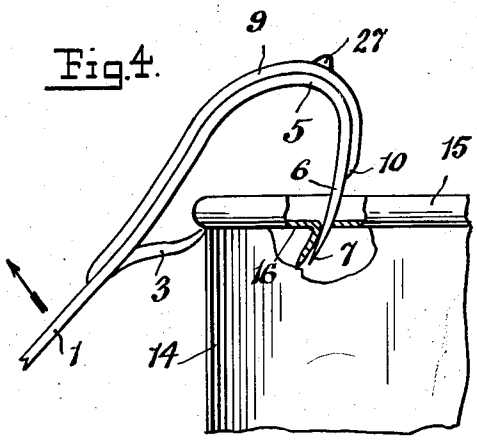


Fig. 5.

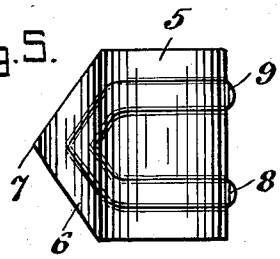
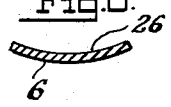


Fig. 8.



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UNITED STATES PATENT OFFICE

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CAN PUNCTURING DEVICE

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3 Claims. (Cl. 30—16)

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This invention relates to devices for puncturing, or producing a pouring opening in the tops of cans, such as are used for containing beer and other liquids. An example of the type of device to which the present improvements relate will be found in U. S. Patent No. 1,996,550.

The device shown in the above mentioned patent consists of a flat bar or strip provided with a pointed end which extends on a relatively slight curvature from the body of the strip. A lug is struck out of the body of the strip, which lug takes under the rim or head of the can and serves as a fulcrum on which the device is rocked to cause the pointed end to puncture the can top and produce a triangulated opening therein.

The operation of the above-described device requires considerable force, due to the fact that the curvature of the pointed end relative to the body or handle portion of the strip is such that in the initial position of the device, and when it is first placed on a can preparatory to arcuately swinging it to plunge the pointed end through the can top, the handle portion is nearly horizontal and the plane of the part of the device near the pointed end is too close to parallelism with the can top to easily enable the end to be forced through the can top without the exercise of considerable manual force. The device has therefore been often found difficult and in some cases impossible to operate, particularly by women not possessing the requisite strength to force the pointed end down through the top of the can.

It is therefore an object of the present invention to provide a can-puncturing device of such design that it will greatly facilitate the puncturing operation, and with which the force or pressure required to plunge the pointed end through the can top greatly reduced. It is another object of the invention to provide, in a device of this character, a puncturing end so arranged that the point therein will be directed downwardly and be positioned very close to the top of the can and inwardly of the marginal edge of the top of the can and will start its puncturing movement almost immediately upon the imposition of relatively slight raising movement upon the handle portion of the device. It is still another object of the invention to provide a can-puncturing device in which the handle portion will be positioned rather close to vertical when the device is fitted to the can preparatory to being swung to cause the production of an opening in the top of the can thus greatly increasing the ease with which the swing of the device can be performed.

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It is a further object of the invention to provide a can puncturing device which can be readily fabricated from a single strip of metal and with a minimum of manufacturing cost.

With these and other objects to be hereinafter set forth, I have devised the arrangement of parts to be disclosed and more particularly pointed out in the claims appended hereto.

In the accompanying drawing, wherein an illustrative embodiment of the invention is disclosed, Fig. 1 is a front elevation of a can-puncturing device made in accordance with the invention, a portion of the handle thereof being broken away;

Fig. 2 is a side elevational view of the same;

Fig. 3 is a rear elevational view of the same;

Fig. 4 shows the device applied to a can and swung upwardly to an extent sufficient to start the puncturing operation;

Fig. 5 is a top plan view of the device; and

Fig. 6 is a front elevational view of a modified construction;

Fig. 7 is a front elevational view of another modification; and

Fig. 8 is a sectional view on the line 8—8 of Fig. 7, looking in the direction of the arrows.

Referring to the embodiment of the invention disclosed in Figs. 1 to 5 inclusive, 1 indicates the body portion of the device. The same is in the form of a flat strip of metal, preferably one made non-corrosive by plating or other treatment. The body portion 1 probably has an overall length of from four to five inches, or may be made as long as required for increased leverage in use and as taught by Patent No. 1,996,550 may, if desired, be provided at one end with a lifting device for so-called "crown" caps, such device being old and well known and therefore being omitted from the drawing.

At one end the strip or body portion 1 is formed with a rounded hook generally indicated at 5, which hook has a downwardly-bent end portion 6 of triangular form, terminating in a sharply pointed, can-piercing end 7. As will be clearly seen in Fig. 2, the hooked end 5 is of such curvature that when the device is held vertically, the tapered, pointed end portion 6, 7 will be directed downwardly.

The hook portion 5 as well as a substantial portion of the part 6, is reinforced and stiffened by means of the ribs 8 and 9, which stiffening ribs meet in an apex 10 in the part 6 of the hook.

Provided in the body portion 1 of the device is a lug 3, formed by a tongue that is struck out of the opening 2, and the lug 3 is shaped as clearly

shown in Figs. 1 and 2, and arranged for insertion under the bead or rim 15 of a can 14, as shown in Fig. 4, to constitute a fulcrum on which the device can be rocked or pivotally swung to cause the pointed end 6, 7 to be plunged down through the top 16 of the can. To stabilize the device when fitted on the can, the upper edge of the lug 3 is notched as shown at 11, resulting in the formation of the two points or spurs 4 and 5 at the top of the lug. These points or spurs 4 and 5 thus engage the rim or bead 15 during the puncturing operation.

When the device is fitted to a can 14, the lug 3 takes under the bead or rim 15 and its two spurs 4 and 5 engage under said bead or rim, and the shape of the hook 5 is such that if the body portion 1, which forms the operating handle of the device, is held nearly vertical and relatively close to parallel to the side wall of the can, the pointed end 7 will be very close to the surface of the top 16 of the can and will be directed downwardly. An arcuate upward swing applied to the handle part 1 of the device, in the direction shown by the arrow in Fig. 4, will almost immediately at the beginning of the upward swinging movement, start the pointed end 7 down through the can top 16 with a direct downward plunger therethrough. As the upward swinging movement of the device is continued, the can and the material displaced by the puncturing operation will be forced toward the side wall and the hole formed in the can top will be increased in until it reaches the more or less triangulated aperture of required size to function as a pouring opening.

Experiments have conclusively shown that the arrangement of a hooked end of the shape and form shown on a puncturing device of this character, with its pointed terminal extending directly downwardly while the handle portion is nearly close to parallelism with the side of the can, enables the pointed end to be plunged through the top of the can with very little effort, to thus start the formation of the aperture in the top of the can. It has been found that women who could not operate other types of puncturing devices, and particularly could not use the widely-used type shown in Patent No. 1,996,550, for lack of strength to force the slightly curved end of that type of device through the top of the can, can readily force the hooked end of the herein described construction through the top of the can and form the required aperture therein with a minimum of effort.

In the embodiment of the invention disclosed in Fig. 6, a modified structure is shown, wherein the lug 3 is dispensed with and a pair of lugs, indicated respectively at 12 and 13 is employed. These lugs are produced by slitting the opposite side edges of the strip 1 and the lugs distorted outwardly from the strip as clearly shown. These lugs engage under the bead of the can at spaced points and insure stability for the device when it is fitted on the can.

To facilitate the puncturing and cutting operation it may be found desirable to produce the pointed end portion 6 of the hook in the hollow formation indicated at 26 in Fig. 7. It will be therein noted that the outer surface of the part 6 is concave as shown at 26, resulting in convexity on the under side of the part 6. It is found that this shaping of the blade materially increases the ease of penetration of the blade through the top of the can.

It might also be found desirable to provide stop means for limiting the extent to which the blade or hook 5 can penetrate the top of the can to thereby prevent the point 7 from being moved to an extent likely to cause it to puncture the side wall of the can. Such stop means is indicated at 27 in Fig. 4 and it may consist of one or more projections or a transverse rib extending across the top of the outer face of the hook. Such a stop will contact with the top of the can at one end of the opening formed therein to serve to limit the extent of entry of the blade into the can top.

Having described an embodiment of the invention, it is obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claims.

What I claim is:

1. In a can puncturing device, a hook-shaped blade having a pointed terminal, spaced parallel ribs formed in the blade, the ribs coming together and terminating in an apex on the blade remote from the pointed end thereof, the portion of the blade situated between the pointed end and the apex being transversely curved.

2. In a can puncturing device, a hook-shaped blade, parallel ribs extending along the hook-shaped blade, the ribs coming together and terminating in an apex located rearwardly of the end of the blade, the blade having a pointed end spaced from the ribbing, the blade having a concave outer surface and a convex inner surface in the area located between the pointed end and the apex, and a projection on the device for engaging under the rim of a can to act as a fulcrum and enable the blade to be rocked to cause the curved portion thereof to be plunged through the top of the can.

3. A can puncturing device comprising a body portion provided at one end with a curved hook terminating in a pointed end, said hook being adapted for fitment over the top of a can with its pointed end directed downwardly toward the can top to be thereby forced through the top of the can by arcuate swinging movement of the device, a lug formed out of the body of the device and adapted for engagement beneath the rim of a can to act as a fulcrum during such swinging movement, the upper edge of the lug being provided with a notch to thereby form said upper edge with spaced projections for engagement under the rim of the can, the body being provided with spaced parallel ribs between which said lug is located, the ribs coming together and terminating in an apex on the blade at a point inwardly of the pointed end thereof.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
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2,019,099	Schwartz	Oct. 29, 1935
2,046,879	Leppke	July 7, 1936
2,055,865	Hopkins	Sept. 29, 1936
2,238,178	McCoy	Apr. 15, 1941
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