July 5, 1938. A. C. ACKER 2,122,830

CONTAINER PUNCH

Filed April 18, 1936

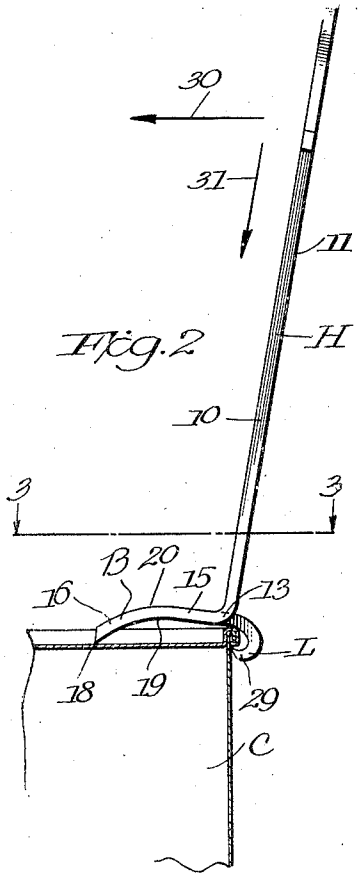


Fig. 2

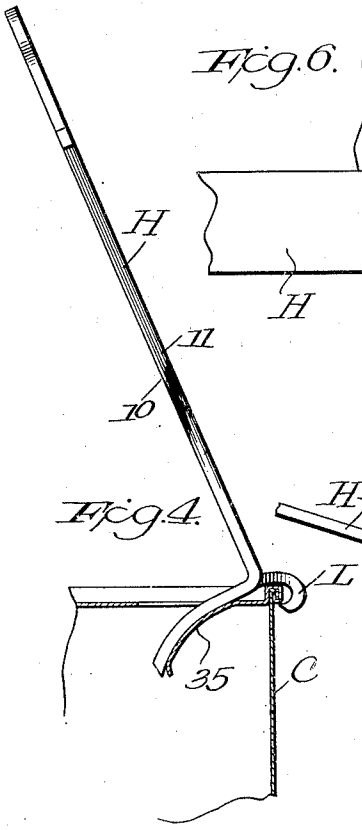


Fig. 4.

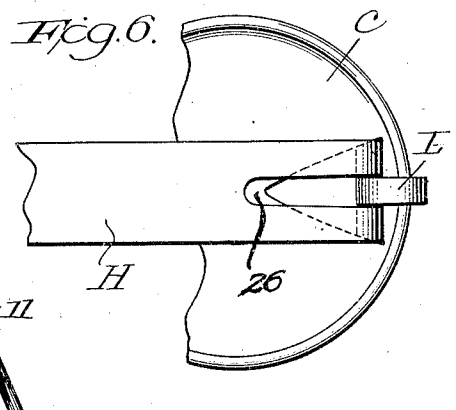


Fig. 6.

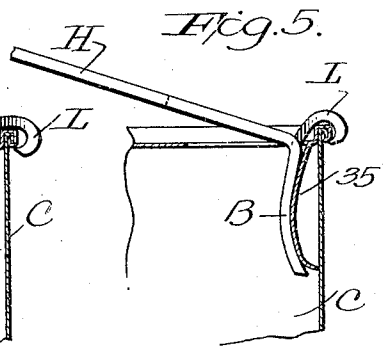


Fig. 5.

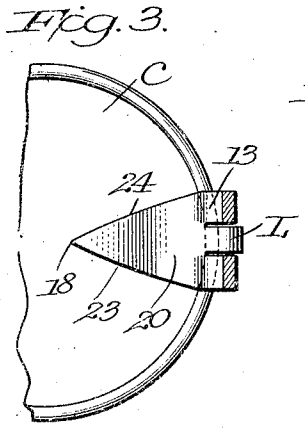


Fig. 3.

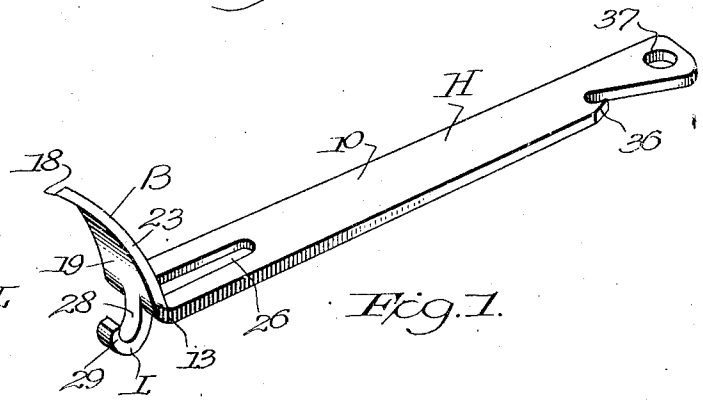


Fig. 1.

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Patented July 5, 1938 2,122,830

UNITED STATES PATENT OFFICE

2,122,830

CONTAINER PUNCH

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Application April 18, 1936, Serial No. 75,215

5 Claims. (Cl. 30—16)

The present invention relates to a punch for producing a pouring opening in a wall of a container, such as a can, which opening will be of substantial dimensions in order that the contents of the container may be poured therethrough.

An object of the invention is to provide such a container punch which is characterized by the ease and rapidity with which it may be manipulated to strike a pouring opening in the wall of a container.

A further object of the invention is to provide a container punch of such construction and manner of manipulation that the possibility of spilling the contents of the container is minimized, even though the latter is filled with such a liquid as beer which is likely to bubble forth when the opening is struck.

In the drawing, which illustrates the construction of and manner in which the tool of the invention is manipulated,

Figure 1 is a perspective view of the punch of the invention;

Figure 2 is a side elevational view of the punch, showing the same in a substantially vertical position with respect to a container as applied to the same before the pouring opening is struck;

Figure 3 is a horizontal sectional view of the punch taken along the line 3—3 of Figure 2;

Figure 4 is a side elevational view of the punch similar to Figure 2, but showing the position of the punch with respect to the container when the pouring opening is partly formed;

Figure 5 is a partial side elevational view of the punch similar to Figures 2 and 4, showing the relative position of the punch and container when the pouring opening is completely formed; and

Figure 6 is a partial top plan view of the punch and container in the position of Figure 5.

The tool of the present invention is adapted to be formed from a single sheet of material and with a minimum number of fabricating operations, with consequent economy of manufacture.

The punch comprises a handle portion H and a blade portion B, said blade portion being bent at substantially right angles from the lower end of the handle portion. By "lower end" of the handle portion, I mean to refer to the position of the punch when the same is applied to the container prior to the punch manipulation as shown in Figure 2.

The handle of the punch is flat and is of substantial width, and has a flat inside face 10 and a flat outside face 11. The handle is of considerable length, being usually of greater length than the width of a person's hand, so that the handle may be firmly grasped when the punch is manipulated to strike the pouring opening. Furthermore, the handle portion is of relatively great length with respect to the length of the blade portion, resulting in a lever advantage, which makes it unnecessary to apply any great pressure to the handle portion in order to penetrate the can with the blade portion.

As shown to advantage in Figure 2, the blade portion B is bent inwardly and upwardly from the handle portion at 13, to such a degree that the blade portion is at substantially right angles to the flat handle portion. The line of the bend 13 between the handle and blade portions extends transversely of the length of the handle portion, at right angles to the edges of the same.

The blade portion comprises a part 15 adjacent to the bend 13 which extends directly inwardly from the face 10 of the handle, and a part 16 which curves downwardly with respect to the part 15, the latter terminating in a sharp piercing point 18 at the inner and lower end of the blade portion. The formation of the blade is such that it may be said to be curved downwardly with respect to the container upon which it operates, the lower face 19 of the blade being concave and the upper face 20 thereof being convex.

Referring particularly to Figure 3, the side cutting edges 23 and 24 of the blade converge from the bend 13 to the piercing point 18, and these edges provide cutting knives which continuously enlarge the opening in the container wall after said opening has been initially formed by the piercing point 18.

Adjacent the bend between the handle and blade portions, a pivot lug L is struck outwardly from the body of the tool, the major portion of said lug being shown as bent from the face 11 of the handle H, leaving an opening or slot 26 in said handle as shown in Figure 1. The pivot lug is preferably struck from the tool along the longitudinal center line thereof, so as to provide a symmetrically disposed pivot point in line with the piercing point 18 to facilitate manipulation of the punch.

The pivot lug is hook shaped in side elevation, as shown in Figures 2 and 4, having a slightly concave lower face 28 of sufficient length and of such curvature as to permit the lug to pass over the bead of the container during the movement of the punch from the position of application of Figure 2 to the position of complete formation of the pouring opening of Figure 5.

The pivot lug is bent back upon itself as at 29 to form an end which is adapted to engage under the bead of the container. The end of the lug may be suitably chamfered to form a sharp line thereon to facilitate the engagement of said end with the undersurface of the container bead. By providing the pivot lug at the outer side of the bend between the handle and blade portions, it is not necessary that the handle or blade be curved or otherwise specially formed to accommodate themselves to the bead of the container, as the main body of the tool is entirely clear of the bead during manipulation.

The tool is manipulated in the manner disclosed in Figures 2, 4 and 5. It is usually convenient to open containers such as the container C while the same are disposed in upright position upon a table, counter or the like. The tool is applied to the container with the end of the pivot lug L engaged under the lower rim of the bead of the container, and with the piercing point 18 contacting with the wall of the container in which the pouring opening is to be struck. When the tool is in this position of application, the handle portion is in substantially vertical position, and the blade portion is in substantially horizontal position, approximately at right angles to the handle portion. With the tool thus applied, the user moves the handle inwardly toward the container in the direction of the arrow 30 shown in Figure 2, it being evident that the bead of the container will serve as a fulcrum during this movement. When force is thus applied, the piercing point 18 will thrust the initial opening in the wall of the container, and subsequent movement of the blade B inwardly of the container will result in a widening of this initial opening by the cutting operation of the diverging edges 23 and 24 of the blade B. During this cutting operation, the cutting points on opposite edges of the blade move outwardly from the piercing point toward the bend 13.

While the pouring opening may be made simply by turning the tool around the fulcrum provided by the bead of the container in the direction of the arrow 30 in Figure 2, the novel construction of the punch which makes possible its application to the container in the manner shown in Figure 2, permits direct downward pressure to be applied along the length of the handle H to strike the opening as shown by the arrow 31. In opening certain types of containers, the top wall of which may be of considerable strength, difficulty is often encountered in making the initial opening in the wall, and oftentimes it requires the application of considerable strength to retain the container on the table while the tool is being manipulated to make the initial opening in the wall. The construction which permits the application of the tool in the manner shown in Figure 2, with the handle portion in substantially vertical position, makes unnecessary the application of any extreme force, by reason of the fact that both pivotal and downward movements of the tool may be utilized in puncturing the opening in the container.

In addition to the advantage discussed above, the construction of the tool which permits its application as shown in Figure 2, minimizes the possibility of the container being overturned and the contents spilled during the striking of the pouring opening. In the usual type of container punch, the blade and handle portions are not disposed at right angles to one another, with the pivot lug at the junction of said portions, and the pouring opening is effected by an upward movement of the handle, resulting in a tendency of the pivot lug to raise the container from the surface upon which it is resting, necessitating the application of considerable strength by the user in order to hold the container on the surface on which it is resting.

As the tool is moved inwardly to complete the opening, the broken-out portion 35 of the container wall will be bent outwardly toward the side wall of the container as shown in Figure 4, and the concave undersurface 19 of the blade provides a guide for said broken-out part of the container wall.

The final position of the tool with respect to the container is shown in Figure 5, in which figure the broken-out part of the container wall is shown bent completely in against the adjacent side wall of the container, in a position where it provides no obstruction in pouring the contents of the container from the opening formed. The pointed end of the broken-out part 35 will be bent in against the side wall of the container, and no ragged edges will project to impede the flow of fluid over the inner face of the broken-out part and through the pouring opening. It will be evident that the widest part of the pouring opening will be adjacent the bead of the container.

After the pouring opening has thus been formed, the tool may be removed from the container by simply reversing the movement described above.

In opening containers which are filled with a liquid which is likely to effervesce, it is necessary to effect a quick opening in the container wall and to immediately pour out the contents in order to prevent the same from spilling. Frequently, the pressure within the container is sufficient to discharge the contents upon the person opening the same when the opening is made.

By reason of the construction of the tool of the present invention, the pivot lug L may be hooked under the edge or bead of the container on the side of the latter opposite to the user, and the opening may be struck by pulling the handle toward the user, so that the broken-out part 35 of the container wall will be directed toward the user of the tool. Referring particularly to Figure 4, it will be apparent that if there is a tendency for the material to bubble forth from the opening when the same is struck, the broken-out part 35 of the container wall will direct the charge of fluid in the direction of the pivot lug L and away from the person manipulating the tool. However, the tool may be operated by the user on the near side of the container with equal convenience when operating upon containers having a content which is not likely to bubble forth when the wall is penetrated.

The tool may be provided at the upper end of the handle with a bottle top engaging projection 36 and a hanging aperture 37.

It will be obvious that I have provided a tool of simple construction which may be manufactured at minimum expense and manipulated with ease and rapidity. It will be further evident that changes may be made in the construction shown herein without departing from the invention.

I claim:—

1. A punch for producing a pouring opening in a container wall, comprising a handle portion, a blade portion of substantial width constituting a prolongation of said handle portion bent at substantially right angles from the lower end of said

handle portion and transversely of the length thereof, said blade portion terminating in a sharp piercing point, and a pivot lug for engaging the bead of the container on said punch at the outer side of the bend between said handle and blade portions, said lug being positioned to dispose said handle in a substantially vertical position when engaged with said bead and when said piercing point contacts the wall of the container, whereby the punching operation may be performed by a substantially downward movement of said handle and blade portions.

2. A punch for producing a pouring opening in a container wall comprising a flat handle portion, a blade portion of substantial width constituting a prolongation of said handle portion bent at substantially right angles in one direction from the lower end of said handle portion and transversely of the length thereof, said blade portion terminating in a sharp piercing point, and a pivot lug for engaging the bead of the container bent from said lower end of said handle portion in the opposite direction, said lug being positioned to dispose said handle in a substantially vertical position when engaged with said bead and when said piercing point contacts the wall of the container, whereby the punching operation may be performed by a substantially downward movement of said handle and blade portions.

3. A punch for producing a pouring opening in a container wall, comprising a handle portion, a downwardly curved blade portion of substantial width constituting a prolongation of said handle portion bent at substantially right angles from the lower end of said handle portion and transversely of the length thereof, said blade portion terminating in a sharp piercing point, and a pivot lug for engaging the bead of the container on said punch at the outer side of the bend between said handle and blade portion, said lug being positioned to dispose said handle in a substantially vertical position when engaged with said bead and when said piercing point contacts the wall of the container, whereby the punching operation may be performed by a substantially downward movement of said handle and blade portions.

4. A punch for producing a pouring opening in a container wall, comprising a flat handle portion terminating at its lower end in a blade portion of substantial width constituting a prolongation of said handle portion bent at substantially right angles from said handle portion and transversely of the length thereof, said blade portion terminating in a sharp piercing point, and a pivot lug for engaging the bead of the container struck from said material at the outer side of the bend thereof between said handle and blade portions, said lug being positioned to dispose said handle in a substantially vertical position when engaged with said bead and when said piercing point contacts the wall of the container whereby the punching operation may be performed by a substantially downward movement of said handle and blade portions.

5. A can opener formed from a straight flat strip of metal, with a handle at one end and a fulcral portion at the other end, said fulcral portion being relatively narrow and formed to engage the underside of the bead formed around the top of the can, with an integral cutting prong adjacent said fulcral portion, for cutting a tongue of can metal downwardly out of the top of the can, the cutting prong and handle being of the same width, which is the full width of said strip, with the edges of the strip of metal presented laterally of the vertical plane in which the device operates upon the fulcral point, all in effect forming a lever of the second order, with the cutting resistance between the fulcrum and the point where the power is applied, and with the said handle erect and in position to be moved downwardly toward the top of the can, when the fulcral portion is in position and the cutting prong is in initial engagement with the top of the can.

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