

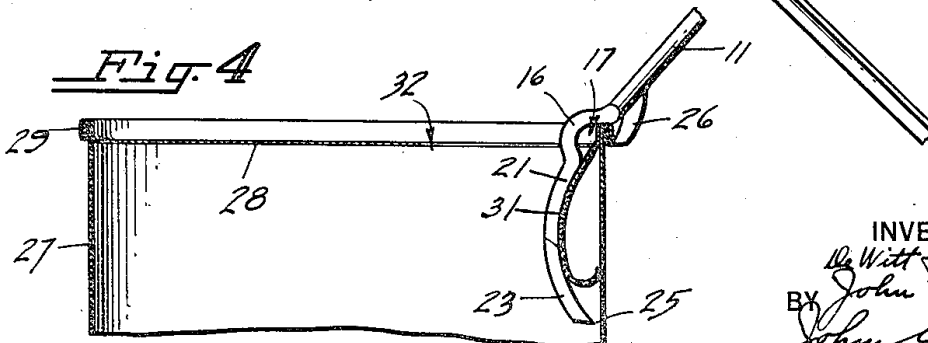
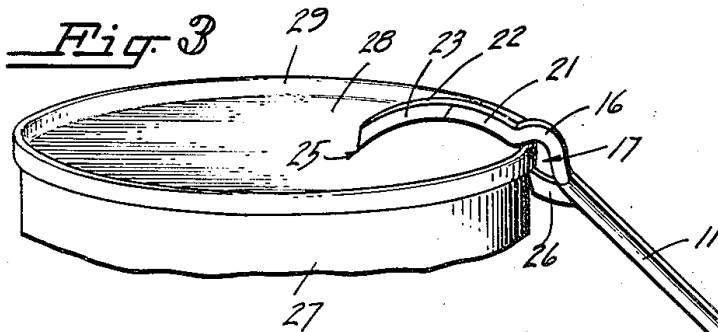
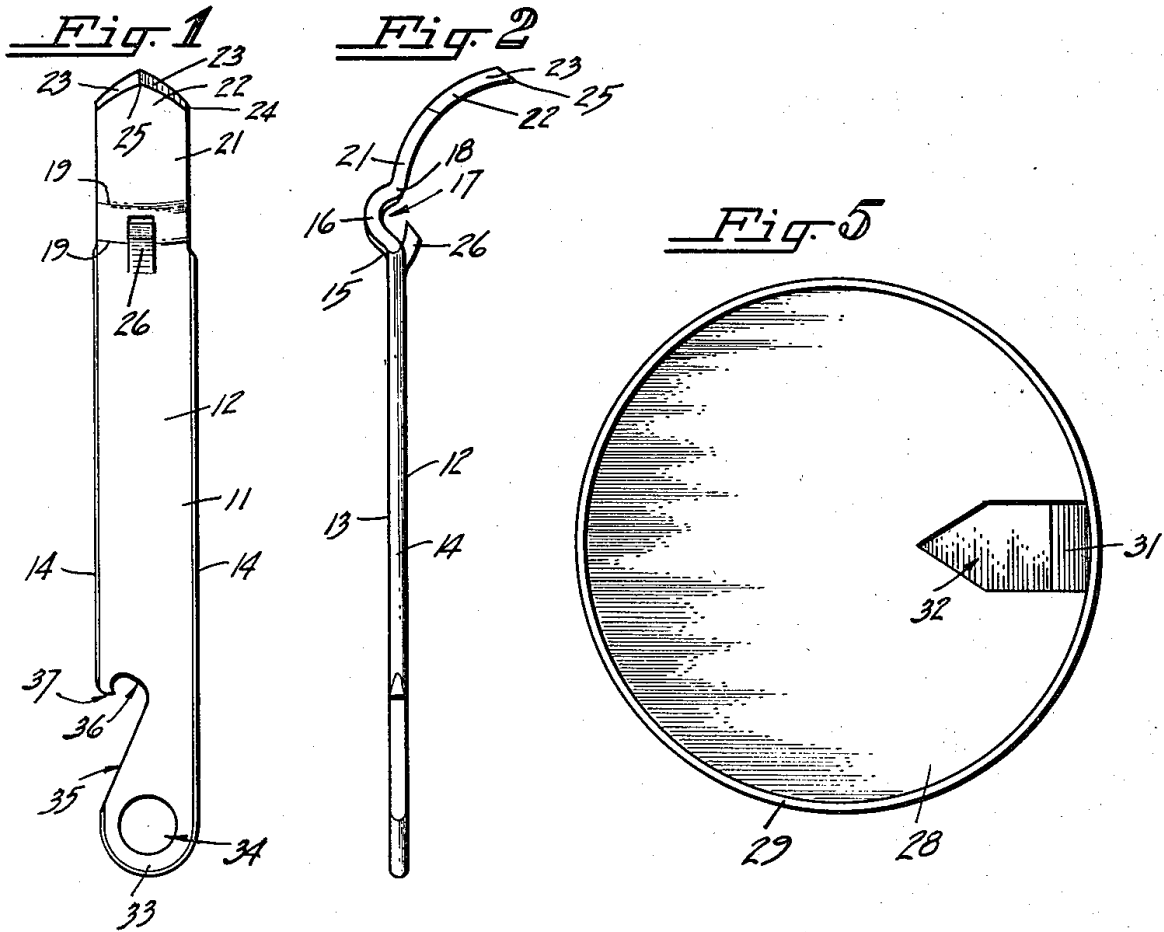
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CONTAINER OPENER

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1,996,550

CONTAINER OPENER

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7 Claims. (Cl. 164—119)

This invention relates in general to container opening devices and more particularly to a punch opener for producing a substantial pouring opening in containers having projecting end seams or joints.

The principal object of the invention is to provide a container opener which at one stroke or turning movement produces a substantial pouring opening in a wall of a container through which the contents, be they fluid or granular, may be readily dispensed.

Another important object of the invention is to provide a container opening punch or cutter adapted to work on the lever principle and which employs a projecting end joint of a container, for example, the end seam, as a fulcrum or pivot point about which the cutter may be rocked into opening position in a single arcuate movement.

Another important object of the invention is the provision of such a rocker punch whose operating parts are all adapted to be formed out of a single piece of steel or other suitable material in a few simple die operations, and which, because of its simplicity of construction, can be produced inexpensively and automatically with a view to supplying the public with an efficient opening tool at small cost.

Still another important object of the invention is the provision of such a punch opener which is adapted to produce a substantial and complete pouring opening quickly at one arcuate movement of the opener. While such rapidly and completely created opening is desirable in connection with containers filled with most products, dry or wet, from the standpoint of the time element, it lends itself exceptionally well to and solves a real problem in the opening of containers filled with effervescent liquids such as beer, where a quick and adequate opening will prevent ebullition and spilling of the contents.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is an elevational view showing the inner side of the cutter punch;

Fig. 2 is a view similar to Fig. 1 showing the cutter punch edgewise;

Fig. 3 is a perspective view of an end part of a container with the cutter punch pivotally positioned upon the end seam ready to start the cutting operation;

Fig. 4 is a cross sectional view of container and punch and showing the latter in finished cutting position; and

Fig. 5 is a top plan view of a container showing the opening produced by the cutter punch of the present invention.

To illustrate a preferred embodiment of the invention the drawing shows a punch opener formed from a single plate of tool steel or other suitable material. It comprises a body or handle part 11 of substantially rectangular configuration and cross section and of a thickness and width which insures sufficient strength and weight without superfluous bulk. The handle 11 is defined by an inner surface or wall 12, an outer surface or wall 13 and side edges 14, which may be rounded to eliminate sharp corners which might injure the hand of the user.

At the bend 15, the handle 11 merges into a concavo-convex container rib engaging pivot member or hump 16, which provides a rounded recess 17 adapted to receive and loosely pivot upon a container rim. Referring to Fig. 1, it will be observed that the member 16 is or may be formed arcuately between the lines 19—19, transversely to its convexity, to conform to the arcuate periphery of a circular container rim. The convexity of the hump 16 and its arcuation defined by lines 19—19 are, however, gradual enough to provide a recess 17 which will fit over a straight sided rim of a container as well as a circular rim. The rounded recess 17, furthermore, has sufficient range to receive and freely pivot upon the rims of different kinds of containers.

The member 16, at 18, merges into the cutter punch proper. This punch member is curved or hooked inwardly (Fig. 3) from the plane of the outer surface 13 of the handle 11, and comprises a rectangular body portion 21, terminating into an angular cutting member 22. The member 22 has two cut edges 23 beginning at the terminal points 24 of the side edges of the body portion 21 and converging into a sharp cutting point 25, which is first to come into cutting operation.

Cooperating with the pivot member 16, the cutter punch is also formed with another container rim engaging member or lug 26. The lug 26 is preferably struck up, adjacent a central longitudinal line of the cutter punch, (Fig. 1) partially from the metal of the handle 11 and partially from the metal of the hump 16. One end remains integral with the handle 11 and the free end is severed from the hump 16. It is bent inwardly from the line of connection with the handle and is inwardly and thence outwardly

curved. Its free end is beveled to a sharp edge and terminates substantially in spaced alignment with the axis of the pivot member 16 and is adapted to engage the underside of a projecting container rim.

To exemplify a preferred application of the present invention, Figs. 3, 4 and 5 illustrate a well known type of container which may be opened by means of the cutter punch. This container comprises a body 27 and a top end 28 secured to the body in any suitable manner, as by a double seam 29, which constitutes the top rim or joint of the container. The rim may assume any other suitable form as long as it projects beyond the horizontal plane of the top end 28 and beyond the cylindrical plane of the body so as to provide a fulcrum for the pivot member 16 and an engaging projection or purchase for the lug 26.

To open a container, the cutter punch is grasped by its handle 11 and positioned, as shown in Fig. 3, with the recess 17 of the hump 16 engaging the top edge of the container rim or seam 29, and with the beveled edge of the lug 26 engaging the bottom edge of the seam. The cutter punch is then rocked pivotally about the container rim, both the handle and the punch proper describing an arcuate path of movement, the former an upward movement and the latter a downward movement, the while the sharp point of the curved punch member begins the cutting operation. Continued rocking movement brings the cut edges 23 into operation and brings the cutter punch to the finished cutting position shown in Fig. 4, where the cut portion 31 of the container wall is shown bent inwardly, outwardly and upwardly under the cutting and pressure force of the curved punch member.

As shown in Fig. 5, a pouring opening 32, of a shape corresponding to the shape of the parts 21-22 of the punch member is thus readily produced by one quick arcuate rocking movement of the cutter punch. Obviously, the size of the opening can be controlled by the size of the punch member, and the latter can be made of any dimensions within apparent limits.

The end of the handle 11, remote from the punch member, is preferably rounded at 33 to eliminate sharp corners.

Inward of the part 33 the handle 11 is provided with a circular aperture 34 which permits the cutter punch to be strung on a wire or hung upon a nail.

Adjacent the aperture 34 the metal of the handle 11 is cut away along a slanting line 35 from an edge 14 towards the longitudinal center line, thence outward and downward along a curved line to form a rounded recess 36 and a hook like projection 37, adapted for removal of the well known crown cork bottle cap. This addition does not constitute a part of the present invention, but is merely a convenience for the user of the cutter punch.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

We claim:

1. A device for producing a pouring opening in a container wall, comprising a handle, a punch at one end of said handle having a transverse

dimension substantially greater than the thickness of said handle, and non-perforating means between said handle and punch, and struck from said handle on the longitudinal axis thereof, for engaging under the top rim of a container as a fulcrum to rock said punch inwardly, thereby to cut a portion of a container wall and to deflect inwardly said cut portion.

2. A container punch for producing a pouring opening of substantial width in a container wall, comprising a handle, a cutter punch at an end of said handle, a non-perforating lug struck from and depending from said handle and adapted to pivotally engage under the top rim of said container to serve as a fulcrum for said cutter punch to produce a substantial pouring opening in a wall of said container when said handle is raised in an arcuate movement.

3. A container punch, comprising a handle, a punch at one end of said handle and means formed integrally with said handle and conforming to the contour of the top rim of a container for pivotally engaging above said rim the while said punch is rocked inwardly, thereby to cut a substantial pouring opening in a wall of said container and deflect inwardly the walls of said pouring opening, said handle having a depending lug member disposed in a plane substantially at right angles to the plane of the handle and at the longitudinal axis thereof to engage under said top rim and serve as a fulcrum for the rocking movement of the punch.

4. A container punch, comprising a handle plate terminating in an arcuately curved cutter punch and a lug struck from and depending from said plate and spaced inwardly from said cutter punch for engaging under a container seam while said punch is rocked over said seam to cut and deflect inwardly a wall portion adjacent said seam.

5. A container punch, comprising a handle plate terminating in a cutter punch having cut edges inclined towards a container wall to be cut, and rounded container rim engaging means, and a lug depending centrally from and substantially at right angles to the plane of said handle plate adapted to engage under said rim, said punch being adapted to be pivotally rocked about said rim to produce a substantial pouring opening adjacent said rim.

6. A device for producing a substantial pouring opening in an end wall of a liquid container having projecting end rims, comprising in combination, a one-piece metal plate, one end of said plate being formed into a handle, the other end being formed into a curved cutting blade, a curved part intermediate said handle and said blade conforming to the shape of the container end rim and adapted to be pivotally rocked over said rim, and fulcrum means intermediate the side edges of said plate to engage under said rim, said blade severing a substantial portion of the end wall of the container to be opened and pushing said severed portion against the side wall of the container when said handle is rocked from a position below said end wall to a position thereabove.

7. A device for producing a substantial pouring opening in an end wall of a liquid container having projecting end rims, comprising in combination, a one-piece metal plate, one end of said plate being formed into a handle, the other end being formed into a curved cutting blade, a part between said handle and said blade being curved beyond the planes of said handle and

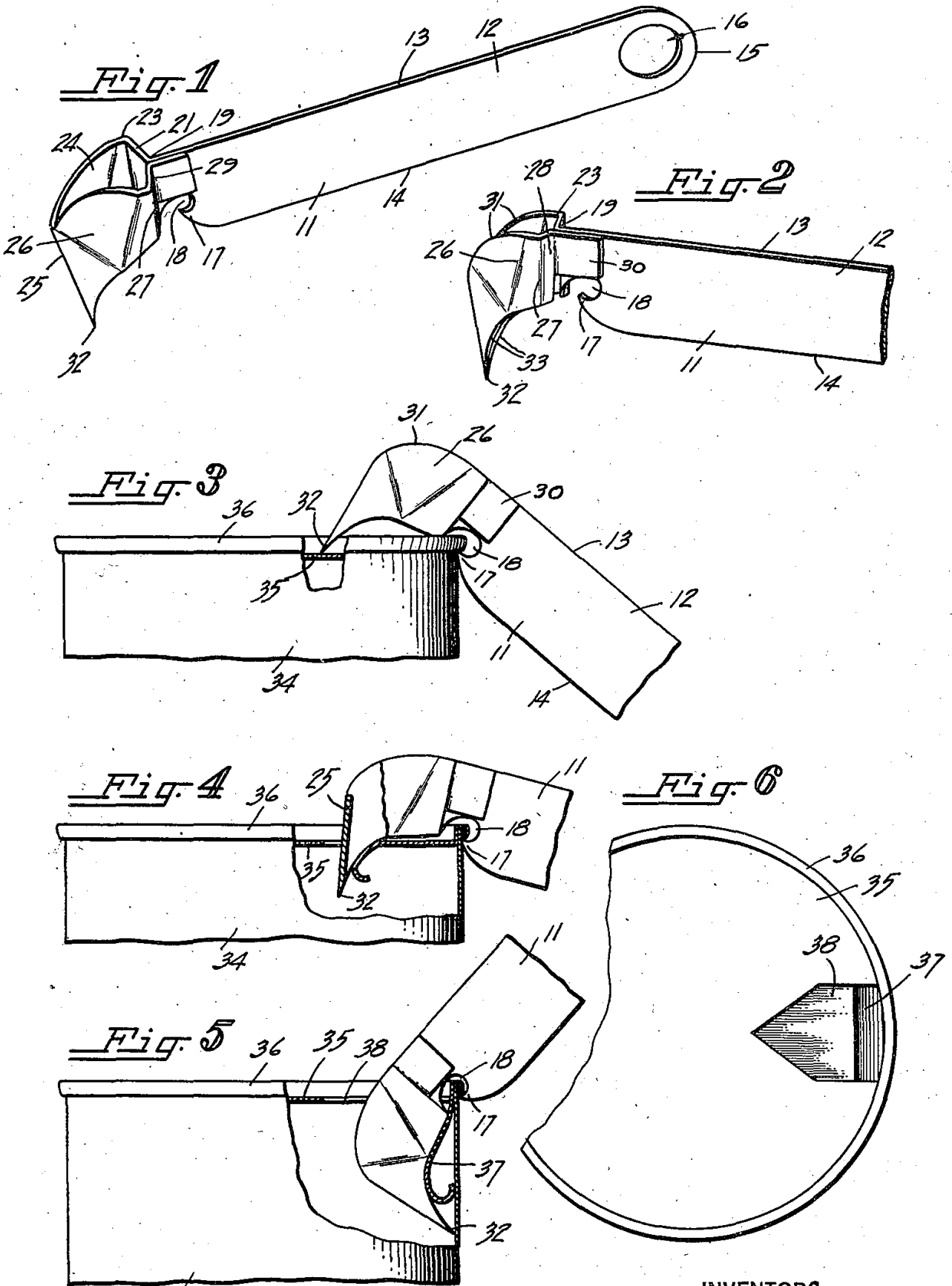
said blade and adapted to pivotally engage and
rock over said rim, and fulcrum means struck
out of said plate adjacent said curved part and
along the longitudinal center of said plate to
5 engage under said rim, said blade severing a
substantial portion of the end wall of the con-

tainer to be opened and pushing said severed
portion against the side wall of the container
when said handle is rocked from a position be-
low said end wall to a position thereabove.

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CONTAINER OPENER

Filed June 20, 1933



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1,996,551

CONTAINER OPENER

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Application June 20, 1933, Serial No. 676,750

3 Claims. (Cl. 164—119)

This invention relates in general to container opening devices and more particularly to a punch opener for producing a substantial pouring opening in containers having projecting end seams or joints, the while also venting said containers through said opener.

The principal object of the invention is the provision of a container opener having an enlarged, hollow or open cutting head, which at one stroke or turning movement cuts and vents a filled container and quickly produces a substantial and complete pouring opening in a wall of a container, through which the contents, be they fluid or granular, may be readily dispensed.

Another important object of the invention is to provide a container opening punch or cutter adapted to work on the lever principle and which employs a projection of a container, for example, the end seam, as a fulcrum or pivot point about which the cutter may be rocked into opening position in a single arcuate movement.

Another important object of the invention is the provision of such a rocker punch whose operating parts are all adapted to be formed out of a single piece of steel or other suitable material in a few simple operations, and which, because of its simplicity of construction, can be produced inexpensively and automatically with a view to supplying the public with an efficient opening tool at small cost.

Still another important object of the invention is the provision of such an opener, which, because of its enlarged, hollow or open cutter head construction, lends itself exceptionally well to, and solves a real problem in, the quick opening and venting of containers filled with effervescent liquids such as beer, where a quick and adequate opening and venting will prevent ebullition and spilling of the contents.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a perspective view of the opener of the present invention;

Fig. 2 is a view similar to Fig. 1, showing details of construction from a different angle, with parts of the handle broken away;

Fig. 3 is an elevational view of the opener and a container top, with parts broken away and in section, showing the opener pivotally posi-

tioned upon an end seam ready to start the cutting operation;

Fig. 4 is a view similar to Fig. 3, showing the opener in an initial stage of the cutting operation;

Fig. 5 is a view similar to Fig. 4, showing the opener in finished cutting position; and

Fig. 6 is a partial top plan view of a container showing the opening produced by the cutter punch of the present invention.

To illustrate a preferred embodiment of the invention, the drawing shows a punch opener formed from a single plate of tool steel or other suitable material. It comprises a body or handle part 11, of substantially rectangular configuration and cross section, and of a thickness and width which insures sufficient strength and weight without superfluous bulk.

The handle 11 is preferably of a length which is slightly in excess of the width of the average adult person's hand and is generally defined by opposed side walls 12 and top and bottom edges 13 and 14.

Its free end 15 is rounded to eliminate sharp corners which might injure the hand of the user. Inward of this end the handle 11 is provided with a circular aperture 16, which permits the cutter punch to be strung on a wire or hung upon a nail.

The end of the handle 11 opposite the free end 15 is cut away, along a curved line, from the bottom edge 14 upward and forward, thence backward, upward, forward and downward along a substantially elliptical line, to form a container seam engaging hook 17 and an elliptical container seam receiving recess 18. This recess may be dimensioned to be just large enough to receive and engage a container seam or container projection or, preferably, it may be made a little larger, as illustrated in Figs. 3, 4 and 5, to accommodate seams of varying dimensions.

At a line of bend 19 (Figs. 1 and 2) the metal of the handle 11 merges into a rear wall 21, which forms part of the hollow cutter or punch head referred to. The rear wall 21 extends outwardly at substantially right angles to the side walls 12 of the handle 11, and at a line of bend 23 the rear wall 21 merges into a side wall 24, which converges towards an apex 25, where the metal is bent at an acute angle to form another side wall 26, which corresponds in shape and dimension to the side wall 24.

The wall 26 diverges outwardly from the apex 25 to a line of bend 27, where it merges into a second rear wall 28, which corresponds in shape

and dimension to the rear wall 21. The rear wall 28 extends to a line of bend 29, which corresponds to the line of bend 19, and thence the metal in the form of a rectangular plate 30 extends rearwardly a short distance parallel with and engaging the side wall 12 of the handle 11, and is secured to the latter in any suitable manner, as by spot welding.

The rear walls 21 and 28 and the side walls 24 and 26 converging upon the apex 25 constitute generally an enlarged and hollow cutter or punch head, having substantially V-shaped openings at top and bottom.

It will be noted by reference to Figs. 1 and 2, that the metal of the side walls 24 and 26 is cut away at the top along curved lines converging upon the apex 25 to form curved top edges 31. The side walls 24 and 26 are also cut away at the bottom and sharpened, along curved lines which converge at the apex 25 in a sharp cutter point 32, and provide curved cut edges 33.

To exemplify a preferred application of the opener, Figs. 3 to 6 illustrate a well known type of container which may be opened by means of the cutter punch. This container comprises a body 34 and a top end 35 secured to the body in any suitable manner, as by a double seam 36, which constitutes the top rim or joint of the container. The rim may assume any other suitable form, as long as it projects beyond the horizontal plane of the top end 35 and beyond the cylindrical plane of the body 34, so as to provide a fulcrum for the pivot recess 18, and an engaging projection or purchase for the hook 17.

To open a container, the opener is grasped by its handle 11 and positioned, as shown in Fig. 3, with the edge of the recess 18 engaging the top edge of the container rim or seam 36, and with the sharp edge of the hook 17 engaging the bottom edge of the seam. The cutter punch is then rocked upward and forward pivotally about the container rim, both the handle and the punch head describing an arcuate path of movement, the former an upward movement and the latter a downward movement, the while the sharp cutter point 32 of the cutter head begins the cutting or punching operation (Fig. 4). Continued rocking movement brings the curved cut edges 33 into operation and brings the punch head to the finished cutting position shown in Fig. 5, where the cut portion 37 of the container wall is shown deflected inwardly, outwardly and upwardly under the cutting and pressure force of the curved punch head.

It will be noted by reference to Fig. 4, that while the cutting or punching operation is in progress, a triangular opening 38, formed by the converging walls 24 and 26 at the apex 25 of the cutter head, is left between the cut portion 37 and the apex of the cutter head. This opening together with the V-shaped open top of the cutter head provide a gas escape channel which is desirable in the case of cans filled with beer or other contents which form gases.

As shown in Fig. 6, a pouring opening 39, of a shape corresponding to the shape of the punch head, as defined by the cut edges 33, is thus readily produced by one quick arcuate rocking movement of the cutter punch. Obviously, the size of the opening may be controlled by the size of the punch head, and the walls constituting the latter can be made of any desired dimensions within apparent limits.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

We claim:

1. A device for producing a pouring opening in an end wall of a liquid container having projecting end seams, comprising in combination, a one-piece metal plate, one end of said plate being formed into a handle, the other end being formed into an angular hollow cutter head, said plate having a curved wall defining a container seam receiving recess between said handle and said head for pivotally moving about said seam the while said head is rocked into cutting position, fulcrum means cooperating with said recess to engage under said seam, said head severing a portion of the end wall of the container to open it and pushing said severed portion against the side wall of the container as said handle is rocked from a position below said end wall to a position thereabove.

2. A device for producing a pouring opening in an end wall of a liquid container having projecting end seams, comprising in combination, a one-piece metal plate, one end of said plate being formed into a handle, the other end being bent and folded into an angular hollow cutter head, said plate having a curved container seam engaging wall defining a recess, and a seam engaging hook between said handle and said head and adapted to pivot on a said seam when the head is rocked by movement of said handle into container end wall cutting position.

3. A device for producing a pouring opening in a wall of a container having projecting end seams, comprising in combination, a metal plate, one end of said plate being formed into a handle and the other end having a cutter head rigid therewith, said head having side walls of a width substantially greater than the thickness of said plate and converging toward the front of the head and diverging toward its rear, said side walls having their lower edges formed into curved cutting edges, container seam receiving means, said handle and head and receiving means cooperating to produce a pouring opening in a wall of said container when said device is rocked over a said seam.

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