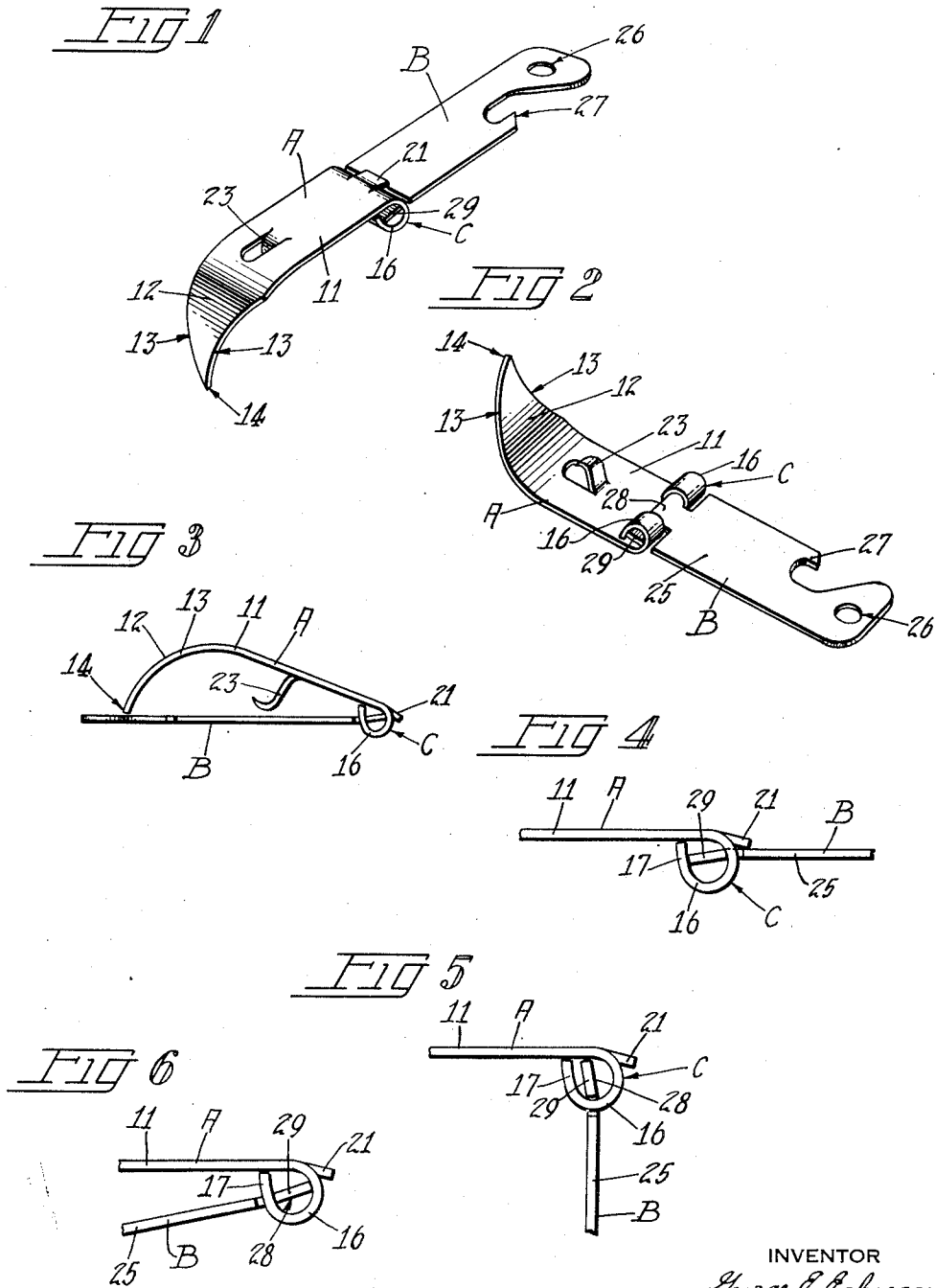


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FOLDING CONTAINER PUNCH

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FOLDING CONTAINER PUNCH

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The present invention relates to container or can opening devices and has particular reference to an improved two piece foldable punch opener of the lever type for quickly and easily producing a pouring opening in liquid holding containers having a fulcrum serving projection such as an end seam or joint.

An object of the invention is the provision of a punch opener which is foldable, in jackknife fashion, into a compact form of a size readily adapted to be carried in a vest pocket and wherein sharp points and projecting elements are protected or shielded to prevent injury to clothing or to the user and which when unfolded or extended to its full length provides a rigid opener adapted to produce a pouring opening, in one arcuate movement of the opener, in liquid holding containers such as beer cans, fruit juice cans, and the like.

Another object is the provision of such an opening device which is made of two pieces hingedly connected in such a manner as to facilitate compact folding of the device while simultaneously providing for rigid cooperation between the pieces when in an extended relation for use.

Another object is the provision of such an opening device wherein the two pieces comprising the device may be locked together when in a folded relation to prevent inadvertent opening of the device and similarly may be locked together when in an extended relation to prevent collapse of the device when in use.

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 drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a perspective view of an opening device in ready-for-use position embodying the instant invention;

Fig. 2 is a view similar to Fig. 1 and showing the device in an inverted position;

Fig. 3 is a side view of the device folded into inoperative position; and

Figs. 4, 5, and 6 are enlarged fragmentary views illustrating the hinge portion of the device and showing the parts of the device in different positions.

As a preferred embodiment of the instant invention the drawings illustrate a two piece punch opener generally comprising a punch member A and a handle member B permanently connected by a hinge C. The members A and B are con-

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structed preferably from steel plate of like thickness and width which insures sufficient strength without superfluous bulk and may be nickel or chrome plated to enhance their appearance and to protect them against rusting.

The punch member A comprises a flat plate section 11 which at its outer end is deflected out of its plane in a downwardly (as viewed in Fig. 1) curved, triangular shaped punch or cutter 12 having sharp side cutting edges 13 which merge into and terminate in a sharp piercing point 14. At its inner end the punch member A terminates in a pair of spaced hollow pintle bearings 16.

The pintle bearings 16 are disposed one on each side of the plate section 11 adjacent its longitudinal edges so as to spread the bearings as far apart as possible, to insure lateral rigidity in conjunction with the handle member B. The pintle bearings 16 preferably are formed from the material of the plate section 11, this material being bent downwardly (as viewed in Fig. 1) out of the plane of the plate section and thence inwardly and upwardly, against the under face of the plate section in a substantially cylindrical form or loop as best shown in Figs. 4, 5 and 6.

The tail or terminal ends of the loops or cylindrical bearings 16 are slightly flattened, these tail ends being formed with a curvature which is slightly less than that of the remaining portion of the bearings so that the distance across the inside of the bearings at these tail portions is slightly less than the true inside diameter of the bearings. These slightly flattened tail portions constitute locking wall sections 17 having a locking function which will be hereinafter explained.

Between the two pintle bearings 16, the punch member A is formed with a stop lug extension 21 which is an integral portion of the plate section 11. This stop lug 21 projects outwardly beyond the punch member at a downward angle (as viewed in Figs. 3, 4, 5 and 6) to the plane of the punch member and terminates just beyond the pintle bearings 16. This lug engages against the handle member B when the members A and B are in operating position as shown in Fig. 1.

Intermediate its ends, the punch member A is formed with a hook shaped fulcrum or pivot lug 23 (Figs. 2 and 3) which preferably is struck out of the material of the plate section 11. This hook is adapted to engage the underside of a container rim, seam or other projection.

The handle member B like the punch member A comprises a flat plate section 25. At its outer end the handle member is formed with an aper-

ture 26 which may be used for hanging the device in a convenient place. This end of the handle member may also be cut away in such a fashion as to form a bottle cap removing hook 27.

The inner end of the handle member B is connected to the punch member A. For this purpose, the handle member is formed with a T shaped flat pintle 28 (see Fig. 2) which extends beyond the plate section 25 and projects downwardly at a slight angle to the plane of the plate section 25 as best shown in Fig. 4. The pintle is formed with a pair of flat laterally extending trunnions 29 (Figs. 4, 5 and 6) which engage in the pintle bearings 16 of the punch member and are confined against displacement. The trunnions are of a width just sufficient to engage within the pintle bearings with a freely rotative fit, except when an edge of the trunnions engage against the locking section 17 of the bearings when the fit becomes tight for locking the handle in place.

When the opening device is not in use or is to be carried or packed in a small space, the hinge connection C permits ready folding of the handle member B under the punch member A into the position shown in Fig. 3. In this compactly folded or nonoperating position, the sharp piercing point 14 of the punch member A engages against the plate section 25 of the handle member B. The point is thus protected or shielded from inflicting injury or damage to person or clothing. In this position of the device members, the cutting edges 13 and the fulcrum 23 are also shielded so that no projecting portion of the device is exposed. In this folded relation of the opener members, an edge of the pintle trunnions 29 is wedged against the locking sections 17 of the pintle bearings 16 as best shown in Figs. 3 and 6 and this locks together the opener members and thus prevents inadvertent opening while in a pocket or other place where damage could be done by the piercing point 14 if the members should spread apart.

When the device is to be used in opening a container, the handle member B may be hinged outwardly on its hinge connection C as shown in Fig. 5 from the position shown in Figs. 3 and 6 to that shown in Figs. 1, 2 and 4. In its fully unfolded position the handle member B provides an extension of the punch member A, the plate sections 14, 25 of these members lying in planes which are substantially parallel to each other, one slightly below the other as shown in Fig. 4 with their longitudinal side edges in parallelism and locked against displacement by the stop lug 21 and the wedging action of the edges of the pintle trunnions 29 against the locking sections 17 of the pintle bearings 16 as shown in Fig. 4. In this extended and locked relation of the members, the stop lug 21 extends over and engages against the top surface of the handle member B as shown in Fig. 4 and imparts rigidity to the two piece construction as a whole.

In this extended and rigidly locked relation of the members A and B, the opener may be applied to a container to be opened by engaging the fulcrum hook 23 under a projecting rim or end seam with the piercing point 14 engaging against the adjacent wall of the container. A quick, steady, upward pressure applied to the handle member B will rock or pivot the opener on its fulcrum 23 and thus cause the piercing point 14 to puncture the container wall and then cause the cutting edges 13 to cut the wall in such a fashion that a triangular shaped pouring open-

ing is formed in the container with one arcuate stroke of the opener. The cut metal is thereby bent inwardly against the wall of the container and the contents may be readily poured from the opening thus produced.

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.

I claim:

1. A device for producing a pouring opening in a container wall, comprising a punch member, a handle member hingedly secured to and foldable against the punch member in jackknife fashion into a nonoperative position, said punch member at its outer end being deflected out of its plane and terminating in a piercing point and at its inner end terminating in a hollow pintle bearing of substantially cylindrical form, said pintle bearing including a locking wall section of a lesser degree of curvature than the remaining portions of said bearing, said punch member having a stop lug projecting beyond said punch member and engageable against said handle member for holding said punch member and said handle member in a rigid extended operating position when the members are unfolded, said handle member at its inner end terminating in a pintle engageable in said pintle bearing for hingedly connecting it to said punch member, said pintle having a face engageable with said locking wall section of said pintle bearing for locking said handle member in nonoperating position when the handle member is folded against said punch member, said handle member when in folded position being disposed against and shielding said piercing point when the device is in folded position, and fulcrum means on said punch member for engaging under the top rim of a container to rock said punch member inwardly when said handle and punch members are in extended position, whereby to cut a portion of a container wall and to deflect inwardly said cut portion, said fulcrum means when the device is in folded position being disposed between said handle and punch members.

2. A device for producing a pouring opening in a container wall, comprising a punch member, a handle member hingedly secured to and foldable against the punch member in jackknife fashion into a nonoperative position, said punch member at its outer end being deflected out of its plane and terminating in a piercing point and at its inner end terminating in a hollow pintle bearing of substantially cylindrical form, said pintle bearing including a locking wall section of a lesser degree of curvature than the remaining portions of said bearing, said punch member having a stop lug projecting beyond said punch member and engageable against said handle member for holding said punch member and said handle member in a rigid extended operating position when the members are unfolded, said handle member at its inner end terminating in a flat pintle engageable in said pintle bearing for hingedly connecting it to said punch member, said pintle having opposed edge portions separately engageable with said locking wall section of said pintle bearing for locking said handle member in nonoperating position when the handle member is folded against said punch member and for locking said handle

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member in an extended operating position when it is unfolded, said handle member when in folded position being disposed against and shielding said piercing point when the device is in folded position, and fulcrum means on said punch member for engaging under the top rim of a container to rock said punch member inwardly when said handle and punch members are in extended position, whereby to cut a portion of a container wall and to deflect inwardly said cut portion, said fulcrum means when the device is in folded position being disposed between said handle and punch members.

3. A device for producing a pouring opening in a container wall, comprising a punch member having an outer end deflected out of its plane and terminating in a piercing point and having an inner end terminating in a hinge element, a handle member hingedly secured at its inner end to the hinge end of said punch member and foldable against the punch member in jackknife fashion, the hinge elements of said punch and handle members engaging one another in a wedged action when the members are folded thereby locking them in a non-operative position, fulcrum means formed in said punch member between its piercing point and its hinge element and be-

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ing deflected out of the plane of the punch member on the same side as said deflected piercing point for engaging under the top rim of the container, and a stop lug formed integrally with and projecting beyond the hinged end of said punch member and engageable against said handle member for holding said members in rigid extended operating position, whereby rocking of said extended punch and handle members about said engaged fulcrum means forces said piercing point into the wall of the container cutting out a portion of the container wall and deflecting it inwardly in the production of said pouring opening.

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