

[54] CAN CRUSHER

3,667,386	6/1972	Workman	100/233
3,732,804	1/1971	Moller	100/233 X

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FOREIGN PATENTS OR APPLICATIONS

[22] Filed: **Aug. 10, 1972**

1,394,107	2/1965	France	100/DIG. 2
1,156,139	6/1969	Great Britain	100/DIG. 2

[21] Appl. No.: 279,708

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[52] U.S. Cl..... 100/233, 100/DIG. 2, 100/295,
100/293

[51] **Int. Cl.**..... **B30b 7/00**

[58] **Field of Search**..... 100/233, 295, DIG. 2,
100/293

[57] **ABSTRACT**

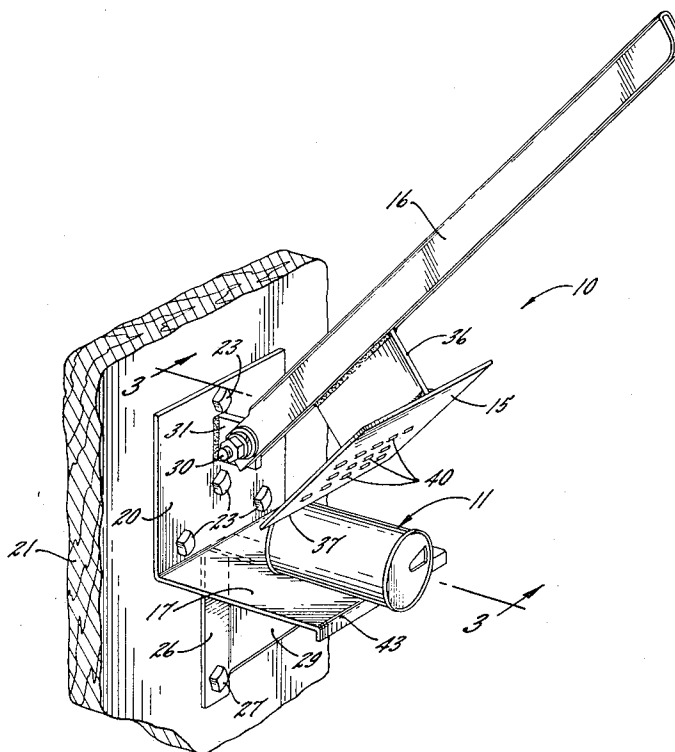
The crusher includes a swingable lever carrying a press plate which folds the closed end portion of the can outwardly over the main body of the can and smashes the main body downwardly as the lever is swung downwardly. By swinging the lever downwardly through an additional stroke, the press plate may be used to flatten the folded portion downwardly against the main body of the can.

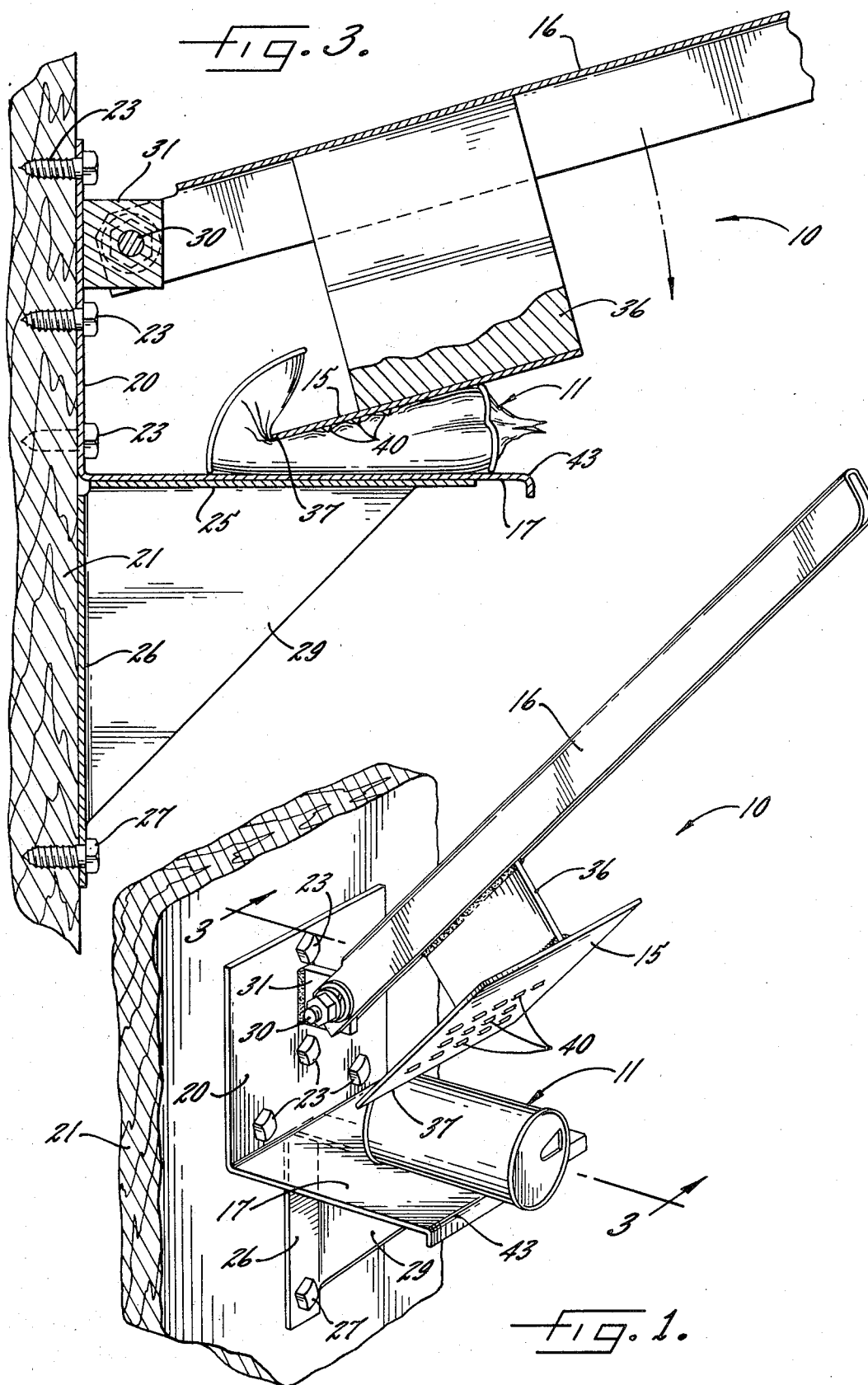
7 Claims, 6 Drawing Figures

[56] **References Cited**

UNITED STATES PATENTS

2,563,379	8/1951	Smith.....	100/DIG. 2
2,603,270	7/1952	Voight et al.	100/233
2,638,957	5/1953	Danielson	100/DIG. 2
2,905,079	9/1959	Brock	100/DIG. 2
3,009,414	11/1961	Griemert.....	100/DIG. 2





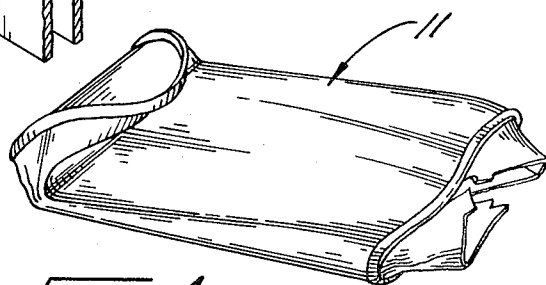
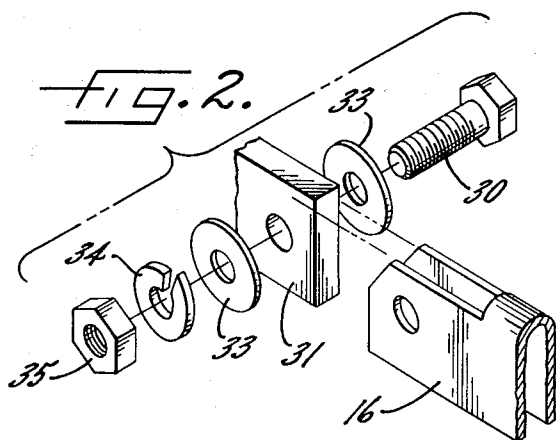


FIG. 4.

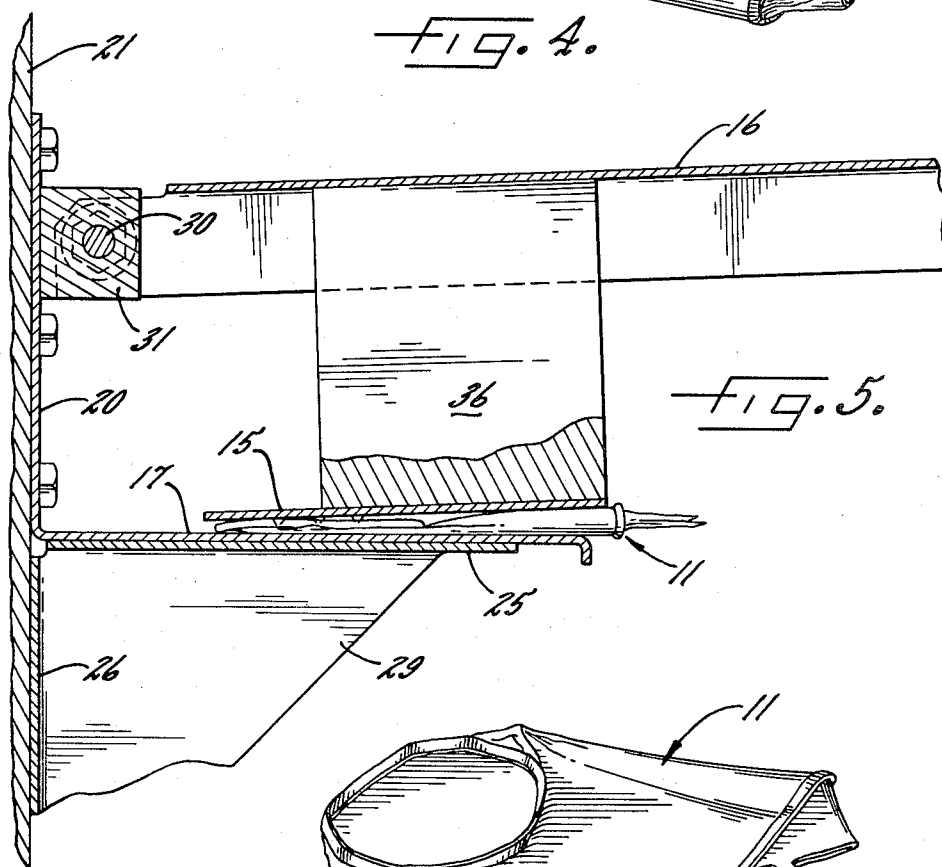


FIG. 5.

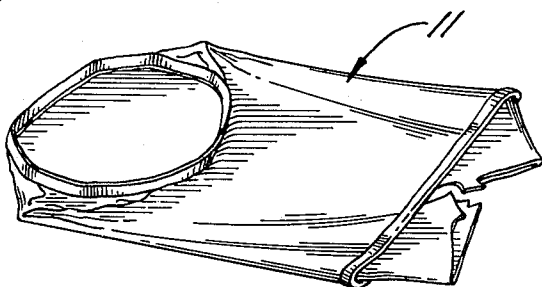


FIG. 6.

CAN CRUSHER

BACKGROUND OF THE INVENTION

This invention relates generally to a device for crushing cans and the like and, more particularly, to a hand-operated can crusher having a pivoted lever adapted to be swung downwardly to crush the can. Can crushers of this general type are disclosed in U.S. Pat. Nos. 2,563,379 and 2,638,957 and in French Patent 1,394,107. The crusher disclosed in the latter patent may be appropriately called a folder-smasher in that crushing is effected by folding over the closed end portion of the can and by smashing the body of the can downwardly.

SUMMARY OF THE INVENTION

The general aim of the present invention is to provide a comparatively simple, rugged and inexpensive folder-smasher type can crusher which is capable of crushing the can to a more nearly flat condition and in an easier manner than has been possible heretofore.

A more detailed object is to provide a can crusher with which the initially folded and smashed can may be quickly and easily re-smashed in its entirety in order to better flatten the folded end portion of the can and to more compactly crush the body of the can.

This invention also resides in unique constructional details facilitating manufacture and use of the crusher and contributing to a long and durable service life.

These and other objects and advantages of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a new and improved can crusher embodying the novel features of the present invention.

FIG. 2 is an exploded perspective view of parts of the crusher.

FIG. 3 is an enlarged fragmentary cross-section taken substantially along the line 3—3 of FIG. 1 and showing the crusher folding and smashing a can.

FIG. 4 is a perspective view of a can after the latter has been folded and partially smashed.

FIG. 5 is a view similar to FIG. 3 but shows the crusher being used to completely smash the folded and partially smashed can shown in FIG. 4.

FIG. 6 is a perspective view of the completely smashed can.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in the drawings for purposes of illustration, the invention is embodied in a device 10 for crushing a cylindrical can 11 or the like after the top of the can has been opened by either complete or partial removal of the top lid or by removal of a pull tab as in the case of the can which has been illustrated. In this instance, the can is crushed initially by first folding the closed end portion of the can outwardly over the main body of the can to reduce the strength of the can and then by smashing the remaining body portion of the can downwardly, so that the can is flattened toward the condition shown in FIG. 4.

The present invention contemplates a new and improved can crusher 10 which not only serves to fold

and smash the can 11 into the partially crushed condition shown in FIG. 4 but which also may be used subsequently to crush the folded and smashed can as a whole thereby to fully and compactly flatten the can as shown in FIG. 6. For these purposes, the crusher 10 comprises a flat press plate 15 carried on a swingable lever 16 and adapted to coact with an underlying shelf 17 to first fold and then smash the can as the lever is swung downwardly. After the can has been folded and smashed and the press plate returned upwardly, the can may be repositioned on the shelf and the plate swung downwardly once again to press the folded portion flat against the smashed body of the can. As a result, the same crusher may be used in a two-step operation and without modification to fold and smash the can and then to completely flatten the can.

More specifically, the lever 16 is mounted on and the shelf 17 is formed integrally with a sheet metal mounting bracket 20 adapted to be anchored rigidly to an upright member 21 such as a wall or post. As shown in FIG. 3, the mounting bracket is an upright plate which is connected to the post 21 by a series of fasteners in the form of screws 23. The shelf 17 extends outwardly at a right angle relative to the lower end of the plate 20 and is braced by an L-shaped member or bracket whose horizontal leg 25 is welded to the underside of the shelf and whose vertical leg 26 is fastened to the post by a screw 27, there being a triangular reinforcing web 29 formed integrally with and extending between the two legs.

The lever 16 is mounted to swing upwardly and downwardly between raised and lowered positions (see FIGS. 1 and 3) on a horizontal pin or bolt 30 which extends through an ear 31 rigid with the bracket plate 20 just below the uppermost screw 23. Advantageously, a friction lock is formed by two flat washers 33 and a lock washer 34 (see FIG. 2) telescoped over the bolt and held on the latter by a nut 35. The washers exert a frictional force on the lever and allow the lever to be stored in a fully vertical position when the crusher 10 is not in use.

To mount the press plate 15 on the lever 16, a vertical plate 36 (FIGS. 1 and 3) is welded to and depends from the underside of the lever and is connected to the upper side of the press plate midway between the side edges thereof. The press plate 15 herein is rectangular in shape and is located such that its inner edge 37 (FIG. 3) is spaced inwardly from the inner edge of the vertical plate 36 and is spaced outwardly from the vertical bracket plate 20.

In using the crusher 10, a can 11 is placed on the shelf 17 in a crushing position while the lever 16 is disposed in its raised position and the press plate 15 is spaced well above the shelf (see FIG. 1). In the crushing position, the can rests on its side on the shelf and is located with its closed end facing the vertical bracket plate 20 and spaced outwardly from the bracket plate.

As the lever 16 is swung downwardly, the inner edge 37 of the press plate 15 initially engages the upper wall of the can 11 approximately one-half inch from the closed end of the can and, with continued downward swinging of the lever, the inner edge of the plate crimps the closed end portion and folds the latter outwardly to double the closed end portion back over the main body of the can and thereby reduce the crush strength of the can (see FIG. 3). As the closed end portion of the can is folded, the lower surface of the press plate engages

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the main body of the can and smashes the latter downwardly against the shelf 17 during final downward swinging of the lever, such smashing being effected in a comparatively easy manner because of the reduced strength of the can. Upon being folded and smashed, the can is drawn inwardly a slight distance between the plate 15 and the shelf 17 and, to facilitate such inward drawing, serrations 40 (FIG. 1) are formed on the underside of the press plate to roughen the latter and increase the drag of the plate along the can. Also, the outer edge of the shelf is preferably bent downwardly on a radius as indicated at 43 in FIG. 3 so that the bead or rim around the open end of the can will not catch on the outer edge as the can is drawn inwardly.

After being initially folded and smashed, the can 11 is flattened to the partially crushed condition illustrated in FIG. 4. Thereafter, the can may be re-located on the shelf 17 in a position disposed somewhat further outwardly along the shelf than before. Then, as the lever 16 is again swung downwardly, the lower surface of the press plate 17 directly engages the folded portion of the can as shown in FIG. 5 and flattens the folded portion against the main body of the can while at the same time flattening the body to even a greater extent (see the can shown in FIG. 6). Accordingly, the can can be crushed to a nearly perfectly flat condition and yet the crusher need not be modified or adjusted between the first fold-smash stroke and the final flattening stroke.

I claim as my invention:

1. In a device for crushing cylindrical cans, the combination of, a supporting bracket, means for anchoring said bracket rigidly to an upright member, a generally horizontal shelf rigid with said bracket and projecting outwardly therefrom, said shelf being adapted to support a can in a crushing position in which the can is disposed on its side on the shelf with the open end of the can facing away from said upright member and with the closed end of the can facing toward said member, an elongated lever overlying said shelf and pivotally connected to said bracket at a point located above the shelf, said lever being swingable upwardly away from said shelf to a raised position and downwardly toward said shelf to a lowered position, and a generally flat plate anchored rigidly to said lever and located beneath the latter, said plate being disposed in substantially hor-

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izontal overlying relation with said shelf when said lever is in said lowered position and having an inner edge spaced outwardly from the inner end of said shelf whereby the closed end portion of a can placed on said shelf in said crushing position is engaged and folded outwardly over the body of the can by said edge and the body of the can is smashed downwardly by said plate as said lever is swung downwardly from said raised position to said lowered position.

2. A device as defined in claim 1 in which roughened serrations are formed on the underside of said plate to help drag the can inwardly between said plate and said shelf during folding and smashing of the can.

3. A device as defined in claim 2 in which the free outer edge of said shelf is turned downwardly to facilitate inward movement of the open end of the can across said outer edge as the can is dragged inwardly between said plate and said shelf.

4. A device as defined in claim 1 in which a generally horizontal pin connects said lever to said bracket, and a friction washer telescoped over said pin to hold said lever releasably in said raised position.

5. A device as defined in claim 1 in which a vertical plate is joined to the upper side of said horizontal plate approximately midway between the side edges thereof and is connected to the underside of said lever, the inner edge of said vertical plate being spaced outwardly from said inner edge of said horizontal plate.

6. A device as defined in claim 1 in which said bracket comprises an upper vertical portion supporting said lever, said shelf comprising a metal sheet joined integrally to and projecting horizontally from the lower end of said vertical portion, an L-shaped brace having a horizontal leg joined to and underlying said shelf and having a vertical leg lying alongside said upright member, and a reinforcing web joined to and extending between said legs.

7. A device as defined in claim 6 in which said anchoring means comprise threaded fasteners, there being at least one fastener connecting the lower end of said vertical leg of said brace to said upright member and there being at least one fastener located above said lever and connecting said upper vertical portion of said bracket to said upright member.

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