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DEVICE FOR OPENING CONTAINERS

James F. Hodgson, Marietta, Pa.

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8 Claims. (Cl. 30—8)

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This invention relates to a device for opening containers and it is primarily an object of the invention to provide a device of this kind which can be easily engaged and disengaged with respect to its work.

Another object of the invention is to provide a device of this kind which is constructed in a manner to operate to readily and completely sever the top of a container close to the side walls thereof and at the same time flatten the severed edges of the top of the container to preclude injury to persons handling the open container or the contents thereof.

A still further object of the invention is to provide a device of this kind particularly designed and adapted for use with containers having a plane top and wherein the device can be employed with equal facility with containers of various sizes, shapes and depths.

An additional object of the invention is to provide a device of this kind which, during its opening operation, will also readily pass over the conventional inside seam of the container and thereby substantially eliminate the liability of shearing off solder or portions of the tin or other material of the container to drop into the contents of the container.

The invention as herein embodied also has for an object to provide a device wherein the cutting element may have two distinct settings, one of which is rigid at a predetermined angle and the other setting being loose to yield to self-adjustment to compensate for any irregularities, such as seams, square corners, bent rims, etc.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved device for opening containers whereby certain important advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in elevation looking at one side of the device;

Figure 2 is an elevational view looking at the side of the device opposite to Figure 1, with an associated container diagrammatically indicated by broken lines; and

Figure 3 is a view in front elevation of the device as herein embodied, an associated container being also diagrammatically indicated by broken lines.

Figure 4 is a sectional view taken substantially on the line 4—4 of Figure 1.

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Figure 5 is a sectional view taken substantially on the line 5—5 of Figure 6.

Figure 6 is a sectional view taken substantially on the line 6—6 of Figure 3.

In the embodiment of the invention as illustrated in the accompanying drawings, S denotes a flat supporting member or plate provided at one extremity with a laterally disposed flange 1 of a length to extend above and below the adjacent end of the member or plate S and which flange provides means whereby the member or plate S may be effectively anchored to a wall or the like through the medium of holding screws 2 or otherwise as may be preferred.

The end portion of the member or plate S remote from the flange 1, or what may be termed the outer end portion, is transversely enlarged, as at 3, said enlarged portion being disposed downwardly. The forward extremity of the member or plate S in the lower part thereof and at substantially the junction of the portion 3 with the plate, is provided with an opening 4 which is defined by an outstanding bearing bushing 5 through which is insertible an end portion of an operating crank C.

This extremity of the crank C at its end is provided with a reduced portion 6 which threads within a central opening 7 in a can rim engaging driving wheel 8 of desired diameter. This wheel 8 has its periphery provided therearound with the sharp teeth or spines 9 for engagement from below with the usual outstanding rim 10 of the conventional container A of tin or kindred metal now generally in use. This rotor or feed wheel 8 by its engagement with the rim 10 operates to impose the desired rotation to the container A during a cutting operation as will be hereinafter more particularly set forth.

At a desired location above the wheel 8 and at the same side of the member or plate S is an elongated bar or arm 11, possessing a certain degree of inherent resiliency, and disposed in a general direction lengthwise of the member or plate S and having its inner extremity pivotally held, as at 12, to the member or plate S. This pivotal mounting 12 is herein disclosed as in relatively close proximity to the inner end of the member or plate S and slightly above the wheel 8. This arm 11 is of such length as to have its forward or free end extend over the wheel 8 and beyond the center of such wheel 8 at right angles to the longitudinal axis of the member or plate S.

The outer or free end portion of the arm 11 carries an underlying cutter blade 14 of a depth to penetrate under pressure the top of the container A and to properly sever such top when the con-

tainer A is in rotation. As is clearly illustrated in Figure 3 of the drawings, this cutter blade 14 is carried by the arm 11 in a position sufficiently spaced from the wheel 8 to allow the cutter blade 14 to penetrate the top of the container A inwardly of but in close proximity to the side wall of the container.

This cutter blade 14 at its inner end is provided with a head 15 for clamping contact when desired with the under surface of the arm or bar 11 and said head 15 at the axial center of the cutter blade 14 carries the outstanding shank 16 which is freely insertible through the properly positioned opening 17 in the arm or bar 11. This shank 16 is of a length to extend above the arm or bar 11 and threading upon said extended portion are the holding nuts 18.

These nuts 18 can be so adjusted as to effect a tight or rigid securement of the cutter blade 14 at such angle as may be desired or these nuts 18 may be so adjusted to provide a loose mounting of the cutter blade 14 to allow the same to readily roll over seams on the inside of the container A.

Secured, as at 19, to the central portion of the arm or bar 11 is a forwardly facing clip or offset tongue 20 under which engages the inner end portion of a lever 21. At a desired point inwardly of its inner end this lever 21 has disposed transversely therethrough a pivot bolt 22 which is extended through an adjacent slot 23 in the member or plate S and disposed transversely thereof and preferably at right angles to the longitudinal axis of said member or plate S.

Threading upon the free end portion of this pivot bolt 22 and, of course, at the side of the member or plate S remote from the lever 21 is a holding or clamping nut 24. The slot 23 permits an adjustment of the lever 21 to increase or decrease pressure on the container rim when the device is in operation and at which time the arm or bar 11 bears down upon said container rim.

The lever 21 is of a length to extend beyond the outer end of the member or plate S and said extended portion carries a suitable hand grasp 25. The outer end portion of the member or plate S in its upper part is provided therethrough with a second slot 26 through which is disposed a laterally directed shank 27 carried by the arm or bar 11 and the outer end portion of this shank 27 carries a head 28.

Interposed between this head 28 and the member or plate S is an expansible member 29, herein disclosed as a coil spring, encircling the shank 27. This member or spring 29 holds the arm or bar 11 against the member or plate S but permits yielding pressure on the inside of the rim of the container and allows for yielding movement of the cutter blade 14 when the same passes over an inside seam of the container.

The extent of swinging movement of the lever 21 in either direction is determined by the properly positioned stops 30 carried by the member or plate S and disposed beyond the face thereof adjacent to the lever 21.

Carried by the shank 16 of the cutter blade 14 and held between the nuts 18 is plate 31 which lies in a plane substantially perpendicular to the side face of the support plate S. This plate 31 has the two angular inner edges 31a which permit limited turning of the cutter shank by contact of the extremities of the edges 31a with the adjacent side of the member or plate S.

It is to be stated that the slot 26 is of such width with respect to the shank 27 as to eliminate any

interference to the rocking movement of the lever 21.

From the foregoing description it is thought to be obvious that a device for opening containers constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. A device of the class described comprising a support, a can rim engaging feed wheel rotatably carried by the support, an arm pivotally attached to the support for vertical swinging movement, a cutter blade carried by the arm for penetrating a wall of the container and cutting such wall upon rotation of the container, the cutter blade being turnable on an axis perpendicular to the rotary axis of the feed wheel, and means for limiting the turning of the cutter blade.
2. A device of the character described comprising a support, a feed wheel carried thereby, a member carried by the support for swinging movement toward or from the feed wheel, a cutter blade mounted on said member for partial rotation on an axis perpendicular to the swinging axis of the member, and releasable means for locking the cutter blade against turning on its rotation axis.
3. A device of the class described comprising a support, a feed wheel rotatably carried thereby, an elongated bar pivotally engaged with the support for movement toward or from the feed wheel and overlying said feed wheel, a cutter blade carried by the bar adjacent to and disposed toward the feed wheel, a lever operatively engaged with the support and with the bar for moving the bar toward or from the feed wheel, and a clip mounted on the bar, an extremity of the lever engaging between said clip and the bar.
4. A can opener of the rotary drive wheel type comprising a plate body, a peripherally toothed driving wheel rotatably supported thereon, means for rotating the driving wheel, a relatively long bar disposed adjacent to the side of the plate on which the wheel is located and pivotally secured at one end to the plate for swinging in a vertical plane over the wheel, a cutter carried by the bar and directed downwardly for engagement with the head of a can having its rim engaged by said wheel, said cutter including a stem extending through the bar for turning movement on an axis perpendicular to the bar, means carried by the stem for contact with the adjacent side of the body plate to limit the turning of the stem and cutter, and means connected with the plate above the bar whereby the manual application of downward thrust may be given to the bar.
5. A can opener of the character stated in claim 5, wherein the means for limiting the turning of the cutter and stem comprises a plate disposed on the stem horizontally above the bar and securing members carried by the stem above and below the plate for locking the plate in position, said plate having two angularly related edge portions adapted for contact with the adjacent face of the body plate.
6. A can opener structure of the character stated in claim 5, wherein the said means for manually applying downward thrust to said bar comprises a relatively long lever disposed above the bar and in longitudinal relation therewith, means pivotally coupling the lever with the body plate for oscillation of the lever on an axis paralleling the oscillation axis for the bar, said lever having an end extending beyond the forward edge

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of the body plate, a hand grip upon the extended end of the lever, and means loosely coupling the other end of the lever with the bar.

7. A can opener structure of the character stated in claim 5, wherein the body plate is provided with a vertical slot above said drive wheel, said bar extending across the slot, a bolt extending through the slot and engaging in the bar, the bolt having a head upon the end remote from the bar, and a spring interposed between the bolt head and the adjacent side of the body plate and constantly drawing the bar toward the body plate.

8. A can opener of the character stated in claim 5, wherein said means for manually applying downward thrust to the bar, comprises a relatively long lever disposed above the bar and extending longitudinally thereof, a vertical slot formed in the body plate adjacent to the inner end of the lever, a bolt passing through said slot and engaging the bar and carrying an element upon the end thereof remote from the lever, said

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element engaging the opposite side of the body plate from the lever, means at the other end of the lever for grasping the same, means forming a loose connection between the inner end of the lever and the bar, and spaced stop members carried by the body plate between which the lever is positioned for limiting the swinging movement of the lever.

JAMES F. HODGSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,534,932	Edlund	Apr. 21, 1925
1,617,142	Asbury	Feb. 8, 1927
1,889,119	Brocksmith	Nov. 29, 1932
2,070,261	Dazey	Feb. 9, 1937
2,446,633	Chandler et al.	Aug. 10, 1948