Aug. 16, 1938. M. J. ZIMMER 2,127,373

CAN OPENER

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Fig.1.

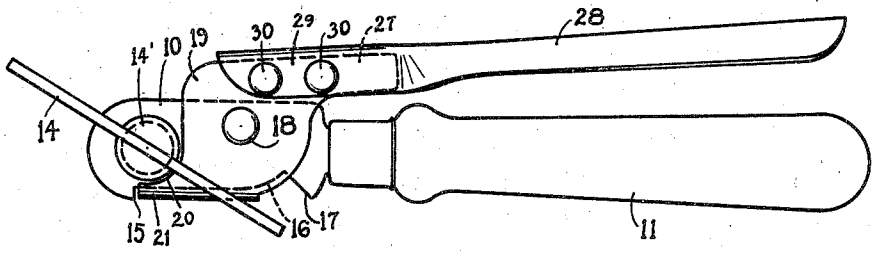


Fig.2.

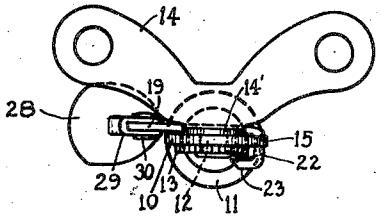
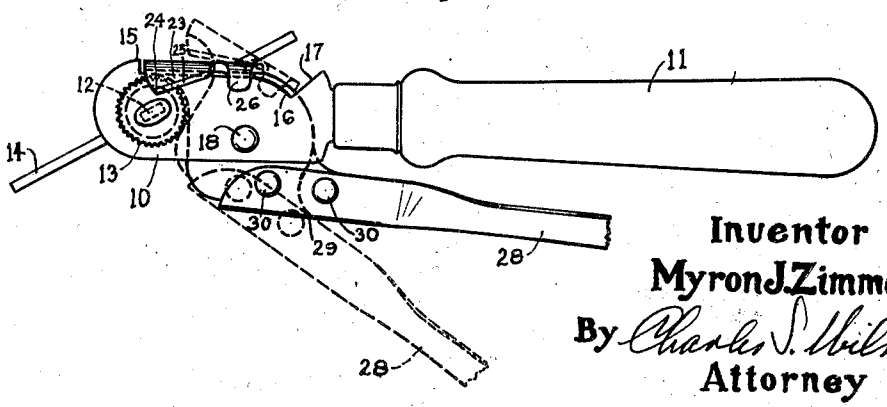


Fig.3.



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CAN OPENER

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Application August 20, 1936, Serial No. 96,989

3 Claims. (Cl. 30—15)

This invention relates to can openers and has for its object a device of this character which will firmly grip and hold the can and cause the can to rotate relatively to the opener simultaneously severing the head from the side wall of the can and turning any cut material remaining attached to the side wall flush against the inner face thereof.

Among its other objects the present can opener contemplates a simple and efficient means for puncturing the can head prior to the cutting thereof having no connection with the elements of the opener moving the can relatively to the shear or cutting blade of the opener.

With the above and other objects in view, as will be apparent, this invention consists in the construction, combination and arrangement of parts, all as hereinafter more fully described, claimed and illustrated in the accompanying drawing, wherein:

Fig. 1 is a side elevation of a can opener constructed in accordance with the present invention:

Fig. 2 is an end elevation thereof; and

Fig. 3 is a side elevation of the opener taken oppositely to Fig. 1, showing the elements of the can opener in operative position to sever the head from the side wall of the can and in dotted lines illustrating the position of the shear or cutting blade and its handle prior to the engagement of a can.

Heretofore, there have been many types of can openers incorporating a shear blade to sever the head of the can from the side wall thereof and to bend the residuary part of the head remaining attached to the side wall of the can inwardly and downwardly to rest flush against the inner face of said side wall. These prior can openers have usually involved moving parts which first operate to puncture the can head adjacent the rim thereof and the continued operation thereof cevers or cuts the head from the can wall and simultaneously bends downwardly and inwardly the residuary part of the can head remaining attached to said side wall. Considerable power has been required to initially puncture the can head and in many of the prior openers constant pressure on the blade has been required to hold the blade in position during the puncturing operation.

The present can opener contemplates a relatively simple construction which may be readily attached to the can and the can head punctured by one hand and requires no pressure to hold the blade in place while the traction wheel is turned. When the can head is punctured a mere holding action is required by the operator while the key or handle is turned to rotate the can relatively to the opener and against the blade. In other words, the puncturing of the can head is done merely by a slight gripping action with one hand of the operator after which the severing of the head from the wall of the can is accomplished by turning a key or handle which operates a rotary traction wheel causing the can to move relatively to the blade.

Reference being had more particularly to the drawing, 10 designates a frame piece having a handle 11 at one end thereof. The opposite end of the frame piece is pierced transversely by a rotary shaft 12 upon one end of which is secured or keyed a knurled traction wheel 13 and on the opposite end of which is fixed a laterally disposed key or handle 14 by which the shaft 12 and the traction wheel 13 may be rotated. It will be observed from Fig. 2 that the traction wheel 13 rotates substantially flush against one face of the frame piece 10 and that the base 14' of the key or handle 14 operates flush against the opposite face of said frame piece.

The upper edge of the frame piece 10 is cut away to create a shoulder 15 adjacent the outer or free end of the frame piece, which shoulder may act as a stop for the shear blade, as will be hereinafter more fully described. The inner end of the cut away upper edge of the frame piece 10 is curved inwardly or downwardly, as at 16, to provide for the pivotal action of the blade carrying member or plate, as will be hereinafter more fully described. The inwardly curved edge portion 16 of the frame piece 10, terminates in a shoulder 17 disposed at an angle to the curved edge 16 and to cut away edge and extending outwardly to a point substantially in alignment longitudinally of the frame piece 10 with the outer extremity of the shoulder 15.

A pivot 18 pierces the frame piece 10 near that edge of the latter opposed to the shoulders 15 and 17. On this pivot pin 18 is pivotally mounted a cutter plate 19 adapted to be moved on said pin in a plane substantially parallel to and flush against that face of the frame piece 10 opposed to the traction wheel 13.

That edge of the plate 19 adjoining the shaft 12 is curved outwardly, as at 20, toward the end of the frame piece 10 to pass about the base 14' of the key or handle 14 operating against the face of the frame piece 10 thereby creating an extension 21. The upper edge of the plate 19 is pro-

vided with a laterally disposed flange 22 (Fig. 2) which spans the adjoining or cut away edge of the frame piece 10 and the extension 21 is a continuation thereof. The flange 22 and extension 21 are provided with a downwardly extending shear blade 23 positioned in a plane parallel to the outer face of the knurled traction wheel 13 and is spaced somewhat outwardly from the plane of the outer face of said traction wheel. This shear blade 23 is provided with a relatively sharp puncturing point 24 in approximate alignment with the outer extremity of the extension 21 of the plate 19 and the edges of the blades diverge from said puncturing point 24. That is upon one side of the point 24 the edge of the blade 23 slopes upwardly toward the extremity of the extension 21 of the plate 19, while on the opposite side of the puncturing point 24 the edge of the blade slopes upwardly toward the flange 22 and is beveled, as at 25, to create a cutting edge.

At a point somewhat remote from the inner extremity of the blade 23 the flange 22 is provided with a downwardly extending guide finger 26 which projects over and bears against that face of the frame piece 10 which coacts with the blade 23 and traction wheel 13. In other words, the guide finger 26 operates over and substantially against the face of the frame piece 10 against which the traction wheel 13 operates while the blade 23 is spaced from that face of the frame piece 10 by the flange 22 and is positioned beyond the outer face of the traction wheel 13.

The edge of the plate 19 opposed to the blade 23 is provided with a longitudinally projecting handle ear 27. A handle 28 consisting of a metallic sheet, concavo-convex in cross-section, is fastened to the handle ear 27 of the plate 19 by bending the edges 29 of the inner extremity of the handle to rest in substantially parallel positions and upon each side of the finger or ear 27. The rivets 30 pierce the inner extremities 29 of the handle 28 and so secure them to the plate 19 and the handle ear 27 thereof, that the handle to all intents and purposes becomes an integral part of the plate 19.

In operation the handle 28 is manipulated to assume the position shown in dotted lines in Fig. 3 whereupon the blade 23 and flange 22 are elevated from the adjoining edge of the frame piece 10 by the movement of the plate 19 under the influence of the handle 28. This movement of the plate 19 causes the flange 22 thereof to generally follow the curved edge 16 of the frame piece 10 until the extremity of the flange contacts with the shoulder 17 of the frame piece, whereupon the movement of the plate 19 and handle 28 is arrested. With the elements in this position the edge of the traction wheel 13 is placed under the bead at the end of the wall of the can which joins the can head to the wall, after which the handle 28 is moved toward the handle 11 until it is substantially parallel thereto. This movement swings the plate 19 about the pivot 18 and brings the point 24 of the blade 23 into contact with the head of the can adjoining the bead so that the application of pressure to the handle 28 will cause the point 24 of the plate to puncture the can head and bring the edge 23 of the blade into operative position. Both the handles 11 and 28 are then engaged by one hand of the operator who rotates the key or handle 14 with the other hand. This rotates the traction wheel 13 and causes the edge 25 of the blade 23 to shear the head from the side wall of the can. As this is being done, the blade 23 causes the residuary portion of the head still attached to the side wall of the can to be bent downwardly and rest flush against the inner face of the side wall of the can. When the head has been completely removed from the side wall of the can the handle 28 may again be moved to the dotted line position in Fig. 3 whereupon the can is released from engagement with the opener.

At all times the blade 23 operates on and through the head of the can upon one side of the wall of the can, while the traction wheel 13 operates under the bead of the can and upon the opposite side of the wall thereof to the blade 23. As a result, the outer face of the flange 26 presents an edge or surface against which an external lateral portion of the can bead in leading relation to the portion thereof engaged by the traction wheel 13 may bear during the cutting operation.

What is claimed is:

1. In a can opener, the combination with a relatively flat frame piece, of a shaft mounted for rotation adjoining one end of said frame piece, a knurled traction wheel fixed to one end of said shaft and resting flatwise against the inner face of said frame piece, a key fixed to the opposite end of the shaft for rotation thereof, a plate pivotally mounted on the frame piece and resting flatwise against the outer face of said frame piece, a flange projecting laterally from the plate and having a leading portion and a trailing portion overhanging the inner face of the frame piece and overhanging a plane tangent to the upper circumferential limits of the traction wheel and also parallel to the longitudinal axis of the frame piece, said trailing portion providing a shear blade occupying a plane parallel with the faces of said traction wheel and offset outwardly from the outer face of the leading portion.

2. In a can opener, the combination with a relatively flat frame piece, of a shaft mounted for rotation in the outer end of said frame piece, a knurled traction wheel fixed to one end of said shaft and resting flatwise against the inner face of said frame piece, a key fixed to the opposite end of the shaft for rotation thereof, a pair of spaced stops on one edge of said frame piece, the edge of said frame piece being curved inwardly between said stops, a plate pivotally mounted on the frame piece and resting flatwise against the outer face of said frame piece, a flange projecting laterally from the plate and having a leading portion and a trailing portion, said portions overhanging the inner face of the frame piece and overhanging a plane tangent to the upper circumferential limits of the traction wheel and parallel to the longitudinal axis of the frame piece, and said portions being movable between the stops aforesaid, said trailing portion providing a shear blade parallel to the face of the traction wheel and said leading portion providing a bearing in a plane intermediate the inner face of the frame piece and the face of the trailing portion.

3. In a can opener, the combination with a relatively flat frame piece, of a shaft mounted for rotation adjoining one end of said frame piece, a can bead engaging traction wheel fixed to one end of said shaft and resting flatwise against the inner face of said frame piece, a key fixed to the opposite end of the shaft for rotation thereof, a plate pivotally mounted on the frame piece and resting flatwise against the face of the frame piece opposed to the fact thereof adjoining the

traction wheel, a flange projecting laterally from the plate, a shear blade to operate against and through the head of a can adjoining the bead thereof comprising a portion of said flange overhanging the inner face of the frame piece and overlying the can bead engaging edge of the traction wheel, and means presenting a surface against which an external lateral portion of the can bead in leading relation to the portion thereof engaged by the traction wheel may bear comprising a portion of said flange adapted to overhang the inner face of the frame piece in forward relation to the portion thereof overlying the bead engaging edge of the traction wheel.

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