July 2, 1946. J. M. JOHNSON 2,403,373

CAN OPENER

Filed July 30, 1945

Fig. 1

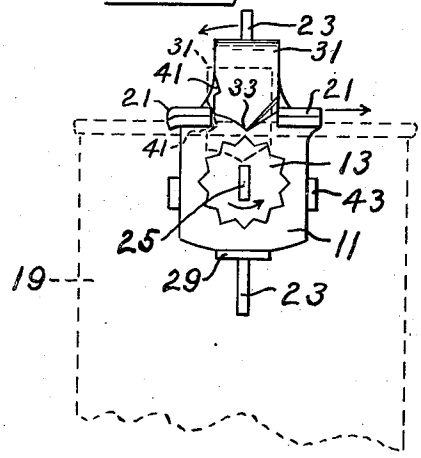


Fig. 2

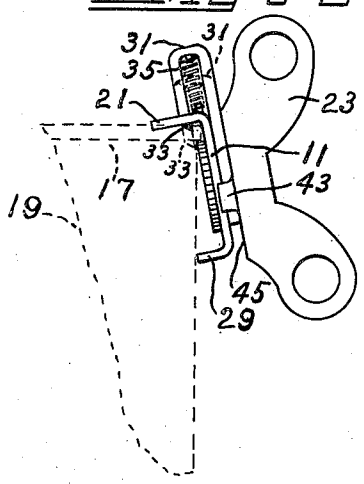


Fig. 3

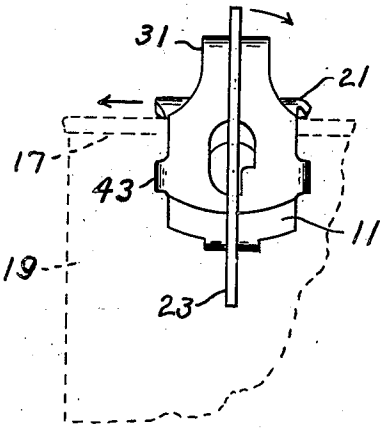


Fig. 4

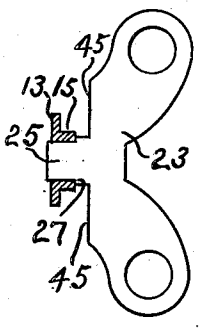


Fig. 5

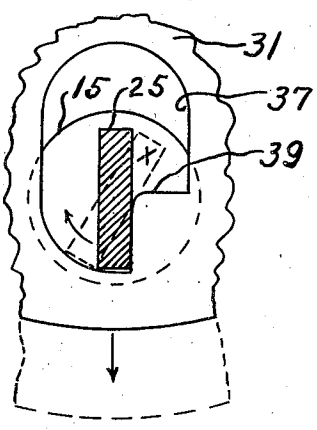


Fig. 6

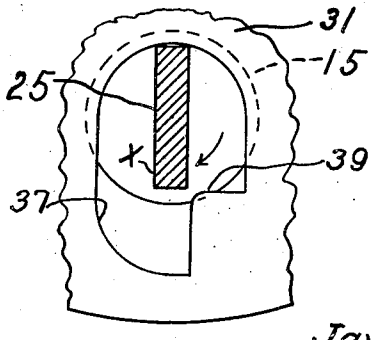
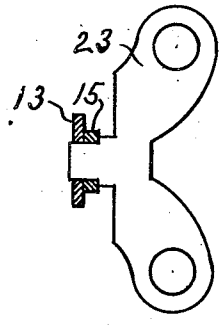


Fig. 7



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CAN OPENER

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4 Claims. (Cl. 30—15)

1

My invention pertains to closure openers and more particularly to can openers.

It is an object of my invention to provide an improved can opener of a simple rugged construction which is positive and effective in its operation.

It is also an object of my invention to provide an improved can opener which positively pierces the can when its operation is started.

It is a further object of my invention to provide an improved can opener which can be easily and effectively applied on a can to be opened.

Further objects and advantages are within the scope of the invention, such as relate to the arrangement, operation and function of the related elements of the structure, to various details of construction and to combinations of parts, elements per se, and to economies of manufacture and numerous other features as will be apparent from a consideration of the specification in conjunction with the drawing disclosing specific embodiments of the invention, in which:

Fig. 1 is an elevational view of the inner side of my improved can opener, a can being represented in dotted lines, the down position of the cutter being also represented by dotted lines;

Fig. 2 is an edge elevational view;

Fig. 3 is an elevational view of the outer side of the can opener;

Fig. 4 is a side elevational view of the manual turning means, with the toothed wheel shown in cross-section thereon;

Fig. 5 is an enlarged fragmentary view, partially diagrammatic, showing the camming action of the manual turning member for moving the cutter;

Fig. 6 is a similar view showing how the cutter is moved down after one-half a turn of the manual turning element; and

Fig. 7 is a view similar to Fig. 4 but showing another construction.

Referring more specifically to the figures of the drawing, I have illustratively disclosed an embodiment of my improved can opener comprising a bearing plate or base 11 which carries a toothed wheel 13, or any suitable traction wheel, having a hub ring 15 projecting from one side for rotative insertion into a suitable aperture in the base. The teeth or serrations on the periphery of the wheel 13 are preferably hardened and suitably shaped for gripping and biting into the down turned edge 17 of the rim of a can 19 for traveling the opener around the top of can.

Guide means 21 are provided projecting inwardly from the upper edge of the base plate 11

2

to slide around the top of a can 19, as the opener is operated. The guides 21 are preferably a pair of spaced apart lugs turned in from the upper edge of the base plate and these are suitably above the wheel 13 for holding the upper edge thereof snugly up against the down-turned edge of the can top for gripping and bitting sufficiently to move the can opener around the can as the wheel is rotated by manipulating manual turning means 23 projecting adjacent the outer side of the bearing plate. As Fig. 4 shows, the manual turning means 23 has an extension 25 of a rectangular cross-section which is inserted through a corresponding aperture in the central portion of the hub ring and wheel, wherein it is firmly secured in any suitable manner, as by peening the inner end of this extension. The outer end of the hub ring 15 abuts shoulders 27 on the extension for holding it and the wheel firmly together, and the extension is long enough to support the handle spaced from the outer side of the plate. Fig. 7 shows how the hub ring 15 may be provided as a separate element instead of being integral with the traction wheel 13.

From the lower edge of the base or bearing plate 11 a guide lug 29, which is turned inwardly, is of a suitable length for holding the toothed wheel 13 away from the side of a can.

A cutter element 31 of a generally U-shape is provided inverted over the upper edge of the bearing plate 11 so that it may pass down with its ends on opposite sides of the plate 11. The open end of the cutter adjacent the inner side of the base plate is terminated in a sharp portion 33 suitable for piercing and cutting a can top. Normally, when the can opener is not in operation, the sharp portion 33 reposes at a position above the upper edge of the wheel suitably to facilitate installation upon a can, where it is normally held by a small compression spring 35 disposed within the U-shaped cutter element and reacting between the yoke thereof and the upper edge of the base plate 11.

Since the cutter is normally in this uppermost position, it is easy to install it upon the can, as shown in full lines in Figs. 1, 2 and 3. As soon as the handle 23 is rotated to turn the toothed wheel and travel the opener around the top of the can, as represented by the arrows, the cutter 31 is moved down to the position as represented by the dotted lines in Figs. 1 and 2, for piercing and cutting the top of the can. This is accomplished by the other open end of the U-shaped cutter element passing down over the outerside of the bearing plate 11 where it is cammed by

the extension 25 of the manual turning element as it rotates. This outer end of the cutter element is provided with an aperture 37 through which the extension 25 passes from the wheel on the inner side to the handle 23 on the outer side of the base plate. The aperture 37 is provided with a cam protuberance 39 projecting in toward the axis of the extension 25 as shown in Fig. 5. As the rectangular cross-section of the extension rotates, in the direction represented by the arrow, it turns through the dotted line position and moves the cutter element 31 down, as represented by the arrow, to a lower position shown dotted. By the time upper edge of the extension cross-section, marked X, has turned down, the cutter has been drawn down to this lower position, where it is shown in full lines in Fig. 6. This pierces the can top and sets the cutter for cutting the can as the can opener travels around the can top, as represented by the straight arrow in Figs. 1 and 3.

A notch 41 is provided at a suitable position above the cutting point in the rear edge of the cutter for hooking or latching under the front edge of the rear one of the pair of guide lugs 21, when the cutter is down and being pressed ahead to cut the can. There is sufficient slack between the sliding cutter element 31 and the base plate so that it can wobble or rock enough to permit this latching action. The pressure of the cutting edge against the can holds the cutter latched down in this manner until the operation is completed. Then the spring 35 again lifts the cutter to its uppermost position so that the can opener may be conveniently installed upon any cam to be opened.

The outer down-turned end of the U-shaped cutter element, which slides on the base plate, is preferably provided with a pair of guide lugs 43 turned inward from opposite sides to loosely hug the edges of the base plate 11 and guide the slidable movements of the cutter element thereon, as may be seen in Figs. 1, 2 and 3. Such movements are further guided and outward movement of the outer portion of the cutter element away from the base is limited by the inner straight edges 45 of the handle passing freely thereover, as may be seen in Figs. 2, 3 and 4.

It is apparent that within the scope of my invention modifications and different arrangements may be made other than herein disclosed, and the present disclosure is illustrative merely, the invention comprehending variations thereof.

I claim:

1. A can opener comprising, a base plate having an aperture, a traction wheel having a hub ring projecting from one side into said aperture for rotatively mounting the wheel upon the plate, for rotation adjacent the inner side thereof, a rectangular slot extending through the central portion of said wheel and hub ring, manual turning means adjacent the outer side of said plate, an extension projecting from said turning means, said extension being of a rectangular cross-section suitable to be inserted and secured in said slot in the wheel and hub ring, with the manual turning means spaced from the outer side of said plate, guide means projecting inwardly from said plate suitably for sliding around the top of a can while holding the traction wheel snugly up against the peripheral down-turned edge of a can top, a cutter of a generally U-shape inverted over the upper edge of said plate so that it may pass down over the plate with its open ends adjacent the opposite sides of the plate, the end of the cutter adjacent the inner side of the plate being terminated in a sharp portion adapted to be moved to a position above said wheel suitably to facilitate installation upon a can or to a position down adjacent the inner side of the wheel for piercing and cutting a can top, the outer end of said cutter passing over the outer side of said plate and having an aperture surrounding the manual turning means, and the cooperative edges of said aperture and said manual turning means being conformed for cooperative camming action to move the cutter down to pierce and cut a can as the turning means is rotated for traveling the opener around the top of a can.

2. A can opener in accordance with claim 1 and further characterized by having a resilient means continuously urging said cutter to an uppermost position relative to said base plate.

3. A can opener comprising, a bearing plate having an aperture, a traction wheel having a hub ring projecting from one side into said aperture for rotatively mounting the wheel upon the plate, for rotation adjacent the inner side thereof, a rectangular slot extending through the central portion of said wheel and hub ring, manual turning means adjacent the outer side of said plate, an extension projecting from said turning means, said extension being of a rectangular cross-section suitable to be inserted and secured in said slot in the wheel and hub ring with the manual turning means spaced from the outer side of said plate, a pair of guides extending inwardly in spaced relation from the upper edge of said plate and projecting inwardly for sliding around over the top of a can while holding the traction wheel up against the down-turned peripheral edge of a can top, a cutter of a generally U-shape, said U-shaped cutter being disposed to pass down over the upper edge of the plate in inverted position with the inner end passing down between said pair of guides projecting in from the upper edge of the plate, the terminus of said inner end of the cutter being disposable adjacent the inner side of the traction wheel for cutting the top of a can or movable to a higher position to facilitate installation upon a can, the outer end of said cutter passing down along the outer side of said plate and having a portion or surface suitably conformed for engagement by said manual turning means for camming the cutter down to pierce and cut a can top, a spring within said U-shaped cutter for reacting between the yoke of the cutter and the upper edge of said plate to continuously urge the cutter to move to an uppermost position, and the rear edge of the inner end of said cutter having a notch adapted to fit over the adjacent edge of the rearmost guide of the pair of guides from the upper edge of the plate when the cutter is moved down where it is held in latching position while the cutter is moved ahead for cutting the top of a can.

4. In combination in a can opener, a base plate, a traction wheel rotatively mounted on said plate for rotation adjacent the inner side of the plate, manual turning means secured to said wheel and extending adjacent the outer side of the plate, a pair of guides extending from the upper edge of said plate and projecting inwardly to slide around the top of a can while holding the upper edge of the traction wheel snugly against the under edge of the peripheral rim of the can top, a cutter of a generally U-shape, said U-shape cutter being disposed to pass down over the upper edge of the base plate in inverted position with

the inner end passing down between said pair of guides projecting in from the upper edge of the plate, the terminus of said inner end of the cutter having a sharp portion disposed adjacent the inner side of the traction wheel for cutting the top of a can or movable to a higher position to facilitate installation upon a can, the outer end of said cutter passing down over the outer side of said plate and having a surface disposed for engagement by said manual turning means, the engageable surfaces of said outer end of the cutter and the manual turning means being suitably conformed for camming the cutter down to pierce

and cut a can top, a spring within said U-shaped cutter and reacting between the yoke of the cutter and the upper edge of said plate to continuously urge the cutter to move to an uppermost position, and the rear edge of the inner end of said cutter having a notch adapted to fit over the adjacent edge of the rearmost guide of the pair of guides from the upper edge of the plate, when the cutter is moved down, where it is held in latching position while the cutter is moved ahead for cutting the top of a can.

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