April 4, 1939. F. F. HOSMER 2,152,887

CAN OPENER

Filed May 29, 1937

FIG. 1.

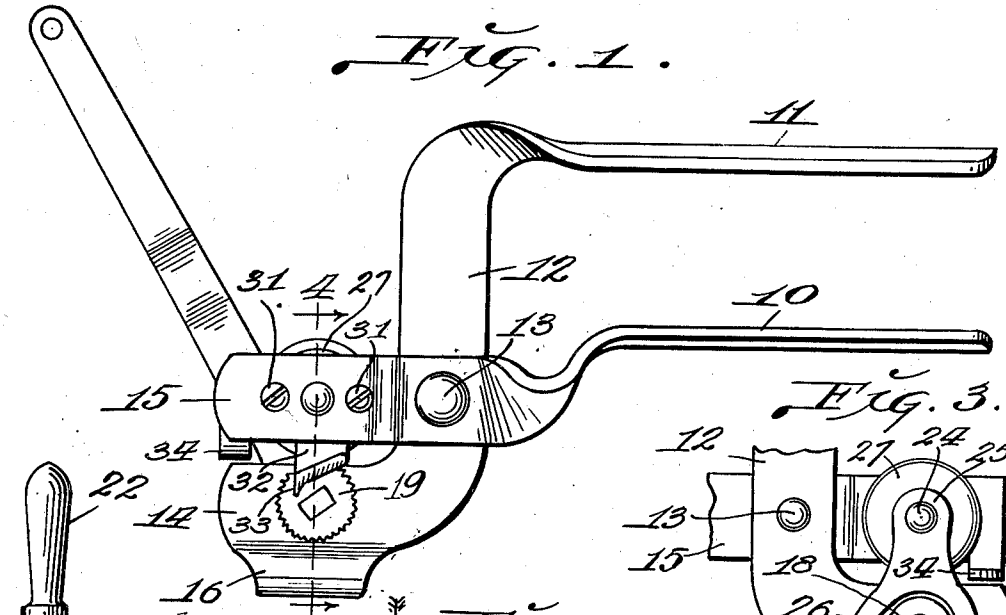


FIG. 2.

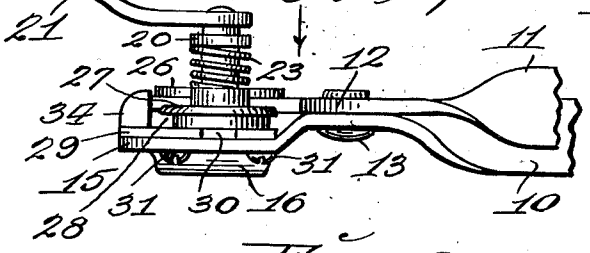


FIG. 3.

FIG. 4.

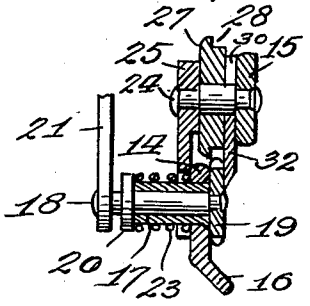


FIG. 6.

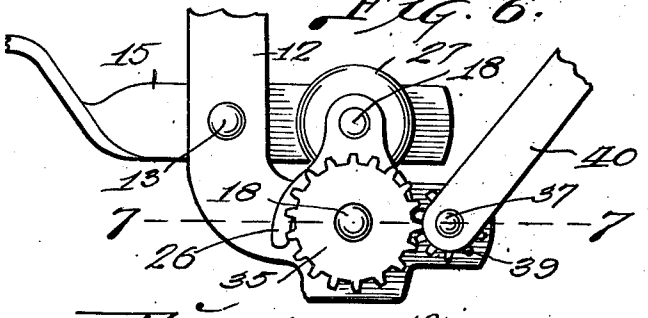


FIG. 5

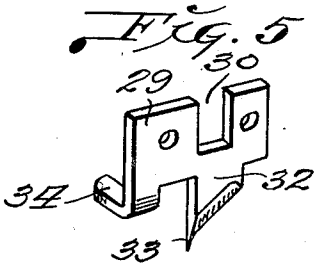
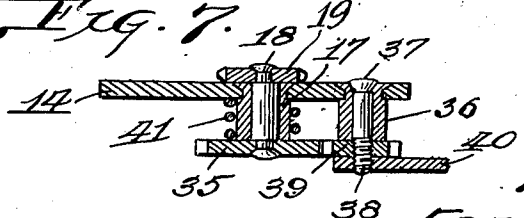


FIG. 7.



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UNITED STATES PATENT OFFICE

2,152,887

CAN OPENER

Frank F. Hosmer, Glendale, Calif.

Application May 29, 1937, Serial No. 145,476

3 Claims. (Cl. 30—15)

My invention relates to a can opener, and the construction herein set forth is an improvement on the can opener patented by me January 28, 1936, Patent Number 2,028,778, and also the can opener forming the subject-matter of my application for United States Letters Patent filed August 7, 1935, Serial Number 35,075.

The principal objects of my present invention are, to generally improve and simplify the construction of the particular forms of can opener disclosed in my aforesaid Letters Patent and application for Letters Patent, as well as other forms of similar can openers, further, to provide a can opener having relatively few parts thereby minimizing production costs, and further, to provide simple and efficient means for maintaining the jaws on the forward ends of the handles in proper relative positions with respect to each other, particularly while the operating parts of the opener are subjected to strains during the can opening operation, and further, to provide simple means for guiding the can while the same is being rotated during the cutting and opening operation.

A further object of my invention is, to provide means whereby the crank handle that is utilized for driving the can rotating disc will be held against swinging downwardly and thereby striking against the can after the hand of the operator has been removed from said crank handle.

With the foregoing and other objects in view my invention consists in certain novel features of construction and arrangements of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a side elevational view of a can opener constructed in accordance with my invention.

Fig. 2 is a top plan view of the can opener.

Fig. 3 is a rear elevational view of the jaws of the can opener, and which view is taken looking in the direction indicated by the arrow 3 in Fig. 2.

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 1.

Fig. 5 is a perspective view of the plate used in my improved can opener.

Fig. 6 is a rear elevational view similar to Fig. 3 and showing a modified form of the driving means.

Fig. 7 is a horizontal section taken on the line 7—7 of Fig. 6.

Referring by numerals to the accompanying drawing which illustrates a preferred embodiment of my invention, 10 and 11 designate handles preferably constructed from strap metal, and which handles are spaced apart and substantially parallel with each other, as illustrated in Fig. 1, when the device is being used to open a can.

Depending from the front end of the upper handle 11 is a vertically disposed leg 12, and pivotally connected to the lower portion of said leg by means of a rivet 13 or otherwise, is a forward portion of handle 10.

Projecting forwardly from the lower end of the vertical leg 12 of handle 11 is a jaw 14 that is substantially parallel with the handle 11, and projecting forwardly from the pivoted end of handle 10 is a jaw 15 that is slightly offset with respect to jaw 14.

Formed integral with the lower edge of jaw 14 and projecting downwardly therefrom on the same side with the jaw 15, is a lip or flange 16 that provides a bearing for the side of the can while the same is engaged by the opener.

Rigidly fixed in any suitable manner to jaw 14 directly above the lip 16 is a rearwardly projecting tube 17 that provides a horizontal bearing for a shaft 18.

Rigidly secured in any suitable manner to the front end of shaft 18, immediately adjacent the front face of jaw 14, is a disc 19 having a toothed edge that is adapted to engage the bead on the edge of a can top, in order to impart rotary motion to said can as the toothed wheel is rotated.

Carried by shaft 18 and bearing against the rear end of the tube 17, is a disc 20, and secured on the rear end of shaft 18 adjacent this disc, is the inner end of a crank handle 21, the outer end of which carries a handle 22.

The outer portion of this crank handle is offset with respect to the end that is connected to shaft 18, in order that the hand which manipulates said crank handle will not contact with the hand holding the handles 10 and 11 while the can opener is in use.

In order to hold the shaft 18 against rotation after the hand of the operator has been removed from the crank handle, an expansive spring 23 is arranged on the tubular bearing 17 between the rear face of jaw 14, and the disc 20, such spring producing sufficient friction against the disc to hold the shaft against rotation until the hand of the operator engages and manipulates the crank handle.

Rigidly seated in jaw 15 directly above shaft 18, is one end of a shaft 24, and rigidly secured to the rear end of said shaft, is the upper end of a depending arm 25, the lower portion of which is bifurcated to provide a pair of fingers 26 that normally bear directly against the rear face of

jaw 14 on opposite sides of tubular bearing 17. This arm 25 and its fingers 26 are for the purpose of maintaining the jaws 14 and 15 in proper relation, particularly while said jaws are under strains developed while the can opener is in use. The length of the finger 26 nearest the pivot 13 between the jaws is such that said finger is always in contact with the rear face of jaw 14, even when the jaws are opened to their limit of movement.

Mounted to rotate freely on shaft or stud 24, is a solid wheel 27, a portion of the periphery of which is cut away to provide a groove 28 that is positioned directly above the periphery of the toothed wheel 19 and said groove providing a space for the reception of the bead on the can to which the opener is applied.

Positioned between the wheel 27 and jaw 15, is a substantially rectangular plate 29 of hardened metal having a notch 30, for the accommodation of the stud or shaft 24, and said plate is detachably secured to jaw 15 by screws 31 that pass through said jaw on opposite sides of the stud 24.

Formed integral with the lower edge of this plate 29, is a substantially triangular blade 32 having its lower inclined edge sharpened, and such edge is positioned directly against the upper portion of disc 19, as illustrated in Figs. 1 and 4.

The forward lower edge of the blade 32 is provided with an integral point 33, which is adapted to puncture the top of the can and thereby enabling the sharp edge of the blade to more readily enter or cut through the can top when the opener is applied to the can.

Formed integral with the forward end of plate 29 and projecting rearwardly from its lower edge, is a short horizontally disposed lip 34, that provides a bearing for the bead on the upper edge of the can while the same is engaged by the opener.

In the use of the can opener just described, the handles are manipulated so as to swing the jaws apart, and said jaws are positioned at the side of the can just above the top thereof, and the opener is manipulated so that the bead on the upper edge of the can overlies the toothed edge of wheel 20. The handles are now brought together, and after the point 33 has punctured the can top, further closing movement of the jaws will move the sharp edge of blade 32 into or partially through the top of the can. As the jaws 10 and 11 are gripped in the left hand, the bead on the upper edge of the can is engaged by the teeth of disc 20 and said bead occupies the groove 28 in wheel 27. The handle 22 of crank 21 is now engaged by the right hand, and said crank is turned, thereby imparting rotary motion to the shaft 18 carrying the toothed wheel 19 and the teeth later engaging the rim on the can will rotate said can against the inclined sharp edge of blade 32, thereby cutting the can top close to the bead on the edge of the can.

During this rotation of the can, the side of the same bears against the outwardly presented lip 16 and the top of the bead bears against the under face of lip 34, and thus the can is supported above and below the point where the blade cuts through the can top.

During the cutting of the can, or while the opener is under strains that might tend to spread the jaws 14 and 15 apart laterally, the fingers 26, that are secured to stud 24 that is seated in the upper jaw 15, bear against the rear face of jaw 14 and thereby counteracts any tendency of the jaws to separate laterally.

When the right hand is removed from the crank handle, the same will maintain its position and not drop down onto the can, as a result of the friction produced by the coil spring 23 which bears against the disc 20, that is carried by the shaft on which the crank handle is mounted.

It will be noted that in my improved can opener, the handles 10 and 11 are elevated with respect to the tops of the cans that are engaged between the jaws of said handles, and thus the fingers of the left hand which grips the handles are entirely above the plain occupied by the can, with a result that there is no contact between the can and fingers while the opener is being used. Further, the particular shape of the handles and jaws enables the opener to be conveniently moved downward into a container of hot water to grip and remove a can that is being heated prior to the opening thereof, and such action being accomplished without injury to the hand.

In the modified construction illustrated in Figs. 6 and 7, the shaft 18 that is journalled in tube 17, and the latter being rigidly fixed to the lower jaw 14, has, rigidly secured to its rear end, a small gear wheel 35, and lower jaw 14 is extended forwardly a sufficient distance to receive a tubular bearing 36.

Mounted for rotation in this bearing is a small shaft or pin 37, and the end thereof that projects rearwardly of the tubular bearing 36 is threaded, as designated by 38.

Screw-seated on the threaded end of the pin 37 is a pinion 39 that meshes with the larger gear wheel 35, and also mounted on the threaded end of the pin, is one end of a crank handle 40.

Thus motion is transmitted from the crank handle 40 to pinion 39, and thence through gear wheel 35 to the shaft 18 that carries the toothed wheel 20, and which latter engages the bead of the can to impart rotary motion to the latter. Where this construction is employed, the sharp edge of blade 32 must be reversely arranged from the position it occupies in the form of opener illustrated in Figs. 1 to 4 inclusive, for, in the modified construction, the can rotates in the opposite direction from that to which it rotates when engaged by the preferred form of the opener.

In the modified construction, an expansive coil spring 41 is mounted on the tube 17 between the jaw 14 and gear wheel 35, so as to normally hold the gear wheel and pinion against rotation, and consequently, maintaining the crank handle 40 against dropping downward by gravity, after the hand has been removed from said crank handle.

Thus it will be seen that I have provided a can opener that is relatively simple in construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form and construction of the various parts of my improved can opener may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. In a can opener, a pair of pivotally connected handles, jaws projecting from the forward ends of said handles, a shaft mounted for rota-

tion in the lower jaw, manually operable means mounted for operation on the lower jaw for imparting rotary motion to said shaft, a toothed wheel carried by the forward end of said shaft, a separately formed blade detachably secured to the upper jaw, the lower portion of which blade overlies the upper portion of said toothed wheel and resilient means carried by the shaft on which the crank handle is mounted for holding the same against rotation until force is applied thereto.

2. A can opener as set forth in claim 1 and with a can bearing lip projecting rearwardly from said blade.

3. A can opener as set forth in claim 1, with means secured to the upper jaw and overlying the rear face of the lower jaw on opposite sides of the shaft that is mounted for rotation in the lower jaw for resisting strains developed during operation of the can opener, and which tend to separate the jaws laterally.

FRANK F. HOSMER.