Nov. 12, 1935. J. P. SCHOENBERGER 2,020,580

CAN OPENER

Filed June 1, 1931

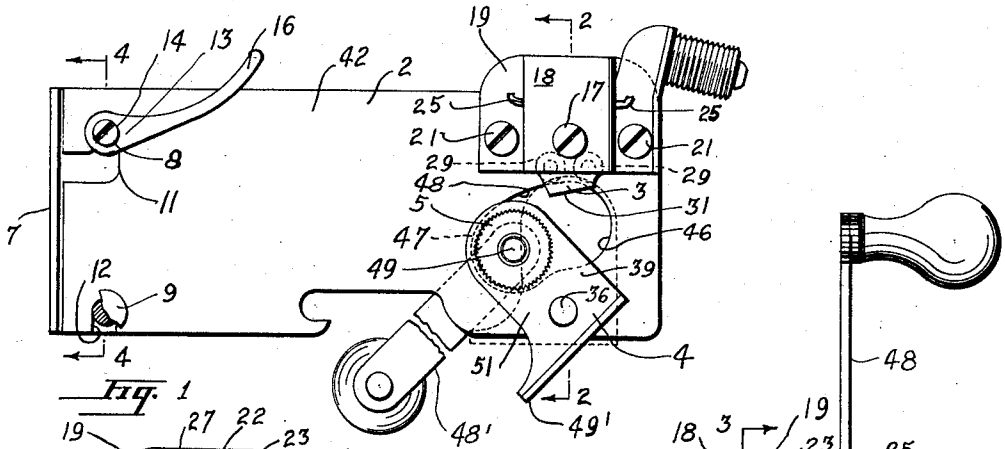


Fig. 1

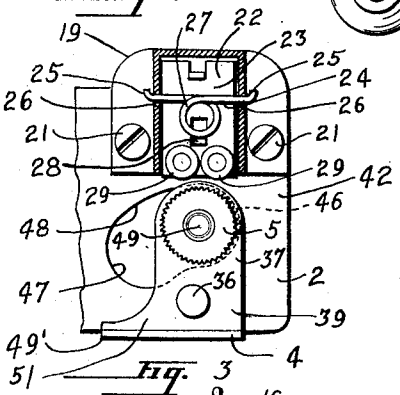


Fig. 3

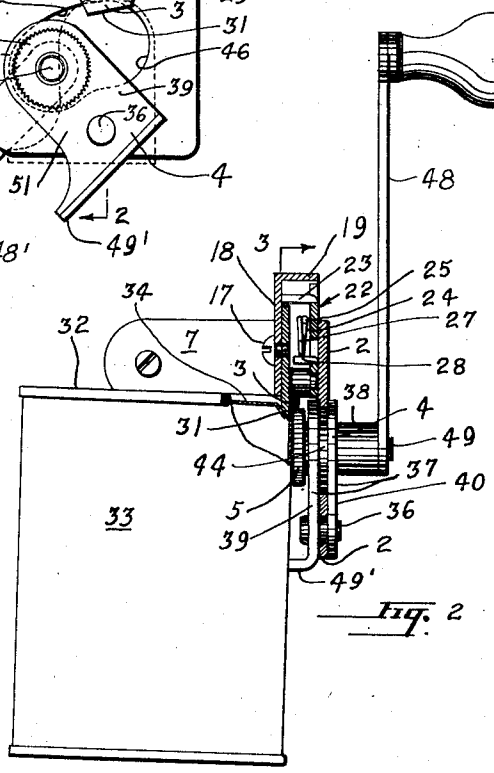


Fig. 2

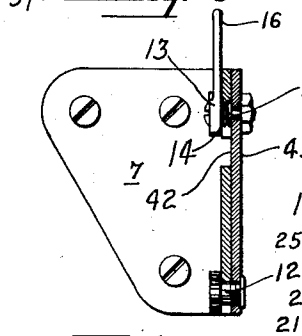


Fig. 4

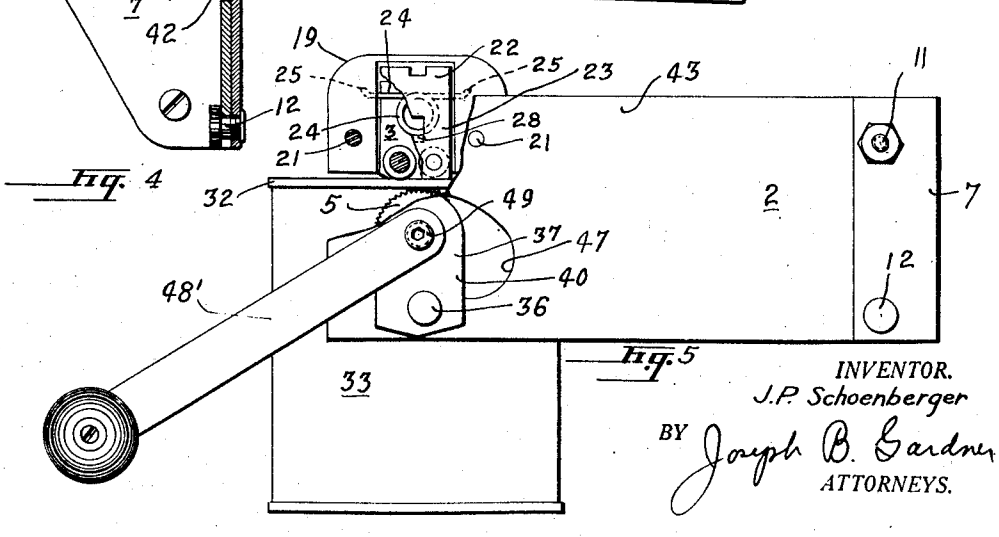


Fig. 5

INVENTOR.
J.P. Schoenberger
BY Joseph B. Gardner
ATTORNEYS.

Patented Nov. 12, 1935 2,020,580

UNITED STATES PATENT OFFICE

2,020,580

CAN OPENER

John P. Schoenberger, Oakland, Calif.

Application June 1, 1931, Serial No. 541,263

5 Claims. (Cl. 30—3)

The invention relates to a can opener of the type in which a friction wheel is arranged to engage the can to effect rotation thereof while a shearing blade extends into the can.

An object of the invention is to provide a can opener of the character described which may be operated to effect the full and efficacious opening of the can with practically no effort and with the use of but one hand.

Another object of the invention is to provide an opener of the character described which is of extremely simple construction and in which is eliminated the multiplicity of levers heretofore used for effecting the various operations of the opener.

A further object of the invention is to provide an opener of the character described in which the friction wheel will be practically locked in position when the can is held thereby for rotation relative to the blade.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawing:

Figure 1 is a side view of the opener inoperatively disposed.

Figure 2 is an end view of the opener operatively engaged with a can, parts being broken away and shown in section as on the line 2—2 of Figure 1.

Figure 3 is a fragmentary side view partly in section and with the parts shown as for operation.

Figure 4 is a sectional view of the opener support, taken on the line 4—4 of Figure 1.

Figure 5 is a rear view of the opener substantially as shown in Figure 2, with parts removed to disclose the hidden parts more clearly.

As illustrated in the drawing, the can opener of my invention comprises, in common with openers of the class described, a support 2, a blade 3, a can backing-element 4, and a friction wheel 5 which is arranged to be moved to the element 4 so that on rotation of the wheel the blade will penetrate the can and the latter caused to rotate until the complete opening of the can is effected. The support 2 on which the various parts of the opener are all carried is here shown in the form of a plate arranged to be detachably secured to a bracket 7 suitably secured to some relatively fixed object. Attachment of the plate to the bracket may be effected by means of headed studs 8 and 9 provided on the bracket and designed to releasably engage in slots 11 and 12 formed in the plate, clamping of the plate and bracket with the studs operatively disposed in the slots being afforded by turning a nut 13 engaging on a threaded portion 14 of the stud 8 and arranged to bear against the plate, a handle 16 affixed to or formed integral with the nut providing a convenient means of turning the nut. With the plate 2 thus readily attachable to or detachable from the fixed object, the opener may be put away when not in use.

The blade 3, as shown in Figure 2, is disposed adjacent the top of the plate and in spaced relation to the side thereof. As here shown the blade is conveniently secured by means of a screw 17 to the inner side of a front wall 18 of a casing 19 which is affixed to the plate by means of screws 21. Mounted for movement in the casing at the back of the blade is a backing element 22 which includes a slide 23 bearing against the walls of the casing and held in an outwardly extended position by means of a spring 24 which has its ends 25 inserted in openings 26 in opposing walls of the casing and its middle portion 27 coiled and pressed against a tongue 28 on the slide 24. Carried at the outer extremity of the slide and immediately back of the blade is a pair of rollers 29 whose axes are parallel to that of the friction wheel and whose outermost portions lie inwardly of the shearing edge 31 of the blade. The rollers are arranged in the present embodiment of the invention, in cooperation with the friction wheel 5, to grip the rim 32 of the can 33 when the can is being rotated during the cutting operation, and the relationship of the rollers to the blade is such that the rollers will engage the rim while the blade is projected through the top or end wall 34 of the can. By reason of the resilient mounting of the backing element, the proper gripping of the rim between the wheel and the rollers may be provided regardless of the existing variations in the depth of the rim on the different cans. The rollers, as explained, provide the medium of contact between backing element and the can, and in view thereof the necessary pressure may be exerted against the rim to permit the desired tractive engagement between the wheel and rim, without in any way interfering with the free movement of the can relative to the backing element during the cutting operation. It will

be seen that since the rollers are mounted independent of the blade, the thrust imposed on the blade during the shearing operation is not assumed by the spring 24, and therefore the latter may be designed to provide a resilience best suited for obtaining a proper grip of the rim than for absorbing the shearing thrust of the blade.

Among the other important novel features of the invention is the mounting of the friction wheel whereby its operative positioning and action will be positive and easy to effect. Connected to the supporting plate below the blade and rollers, such as by means of a pivot pin 36, is a lever 37 on one arm 38 of which is mounted for rotation the friction wheel 5. The latter is positioned on the lever in the plane of rotation of the rollers and may be positioned, on appropriate positioning of the lever, to lie back of the blade in cooperative relation to the rollers for gripping therebetween the seam or rim of the can. The lever as will be clear from Figure 2 is formed of two sections 39 and 40, respectively positioned on the front and rear sides 42 and 43 of the supporting plate. Movement of the lever to and from operative positioning relative to the blade and rollers is preferably limited by engagement of a spacing member 44 with portions 46 and 47 at opposite ends of an arcuate slot 48 formed in the plate and in which the member 44 is disposed. It is to be noted, as will be clear from Figures 3 and 5, that the lever may for operative positioning be sufficiently moved to bring the axis of rotation of the friction wheel past an imaginary line intersecting the rollers and fulcrum point of the lever, thereby causing the wheel to be resiliently locked in operative position when the can rim is clamped between the wheel and rollers. Rotation of the wheel may be effected by means of a crank 48' which is fixed to the wheel shaft 49 for rotation with the wheel and is disposed on the rear side 43 of the plate. Preferably a guard or guide 49' is formed on the arm 51 of the lever section 39, which serves to keep the side walls of the can from rubbing against the side of the friction wheel during the cutting operation.

In operating the opener, the lever 37 is first positioned in spaced inoperative relation to the blade and rollers, as indicated in Figure 1, whereby the rim or seam of the can may be readily inserted between the friction wheel and blade with the side of the can in contact with the top portion of the side of the wheel and with the guard 49. The lever is then moved, by pulling the crank, to place the top or end wall of the can against the edge of the blade. Then with the periphery of the wheel held firmly against the lower edge of the rim, the crank is rotated whereby the blade will penetrate the can top and the lever moved until the top of the rim is pressed in engagement with the rollers and the wheel seated in locked position as aforesaid. As the rotation of the wheel is continued the shearing of the top is effected, and at the same time the blade will press the cut edge of the can downwardly and against the inner side of the can so that a smooth surface will be had. After the cutting operation is completed, the rotation of the wheel may be reversed whereby the lever will be forced out of locked position and the rim of the can released from engagement. It will be seen that the operative positioning and cutting of the can as well as the releasing of the same after the cutting is completed, may be readily effected by manipulating but one member, that is the crank, in and moving same in one general direction or the other.

That the opener of my invention is well adapted to the accomplishment of the objects hereinbefore referred to should now be fully apparent.

I claim:

1. A can opener comprising, a support, an open ended casing secured thereto, a blade carried in said casing and extending from the open end thereof, a spring pressed plate movable in said casing and extending from said end, a pair of rollers mounted on said plate, and a frictional wheel carried by said support and movable towards a position adjacent to and intermediate of said rollers in a manner providing for the gripping of the rim of a can at three points between the rollers and wheel and thereby securely holding said rim against relative rotational movement about its contact with said rollers and wheel, said gripping of the can rim also causing a penetration of said blade through the top of the can.

2. A can opener comprising, a support, a blade carried thereby in outwardly spaced relation, a backing plate slidably carried on said support, a pair of rollers mounted on said plate and movable therewith and positioned inwardly of the blade and arranged for engagement with the rim of the can, a friction wheel carried on the support for movement to and from said rollers and arranged to cooperate therewith to clamp the rim of the can between the rollers and the periphery of the wheel, and a spring urging said plate in the direction of said wheel to provide a resilient clamping between said rollers and wheel.

3. A can opener comprising, a support, a cover member secured to said support and defining therewith an open ended casing, a cutter blade secured in said casing and extending from the open end thereof, a backing plate movably mounted in said casing, a tongue on said backing plate, a spring mounted in said casing, and engaging said tongue for urging said backing plate in the direction of said end, a pair of rollers carried by said backing plate, and a frictional wheel carried by said support and movable to and from said rollers for resiliently gripping therebetween the rim of a can to be opened while forcing said cutter blade into the can.

4. A can opener comprising, a support, a cover member secured to said support and defining therewith an open ended casing, a cutter blade secured in said casing and extending from the open end thereof, a backing plate movably mounted in said casing and provided with a tongue spacing the plate from said member and arranged to engage the top of said blade for limiting the movement of the plate towards said end, a second tongue on said backing plate, a spring mounted in said casing and engaging said second tongue for urging said backing plate in the direction of said end, a pair of rollers carried by said backing plate, and a frictional wheel carried by said support and movable to and from said rollers for resiliently gripping therebetween the rim of a can to be opened while forcing said cutter blade into the can.

5. A can opener comprising, a supporting plate, a cover member secured to said plate and defining therewith an open bottom chamber and being provided with a pair of side openings, a cutter blade secured to said member in said chamber and extending from the open bottom thereof, a backing plate movably mounted in said chamber and provided with a tongue spacing the plate from said member and arranged to engage

the top of said blade for limiting the movement of the plate towards said bottom, a second tongue on said backing plate, a spring mounted in said chamber with the ends thereof secured in said cover member openings and engaging said second tongue for urging said backing plate in the direction of said bottom, a pair of rollers carried by said backing plate, and a frictional wheel carried by said supporting plate and movable to and from said rollers for resiliently gripping therebetween the rim of a can to be opened while forcing said cutter blade into the can.

JOHN P. SCHOENBERGER.