April 1, 1941. T. A. LONG 2,236,974

CAN OPENER

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Fig. 1.

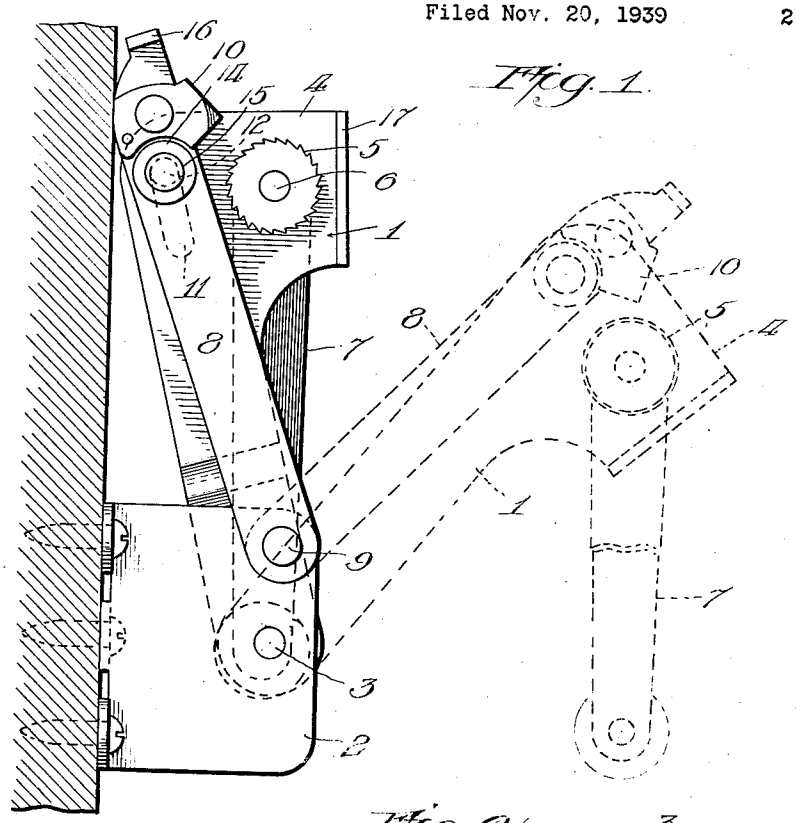


Fig. 2.

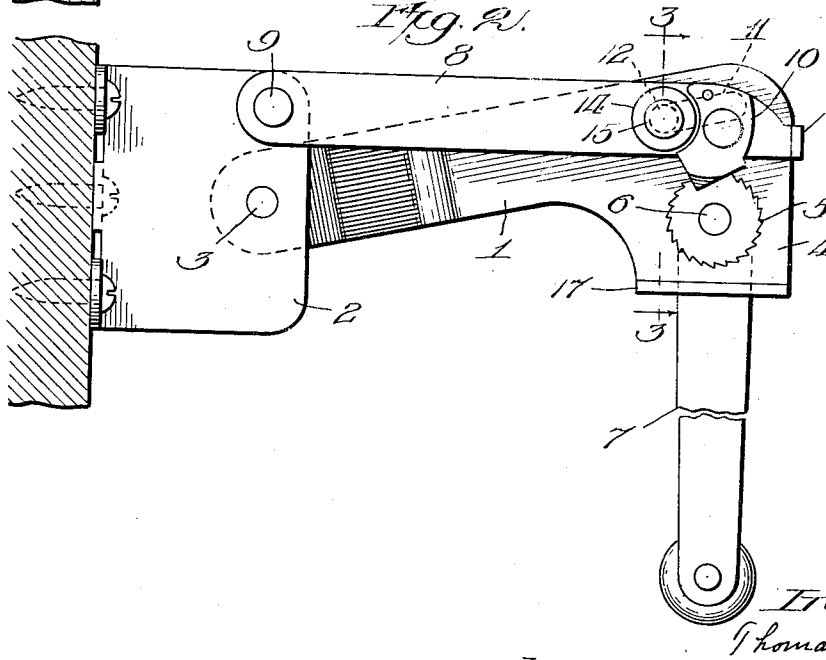
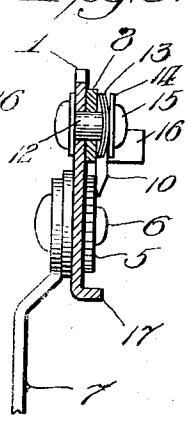


Fig. 3.



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Fig. 4.

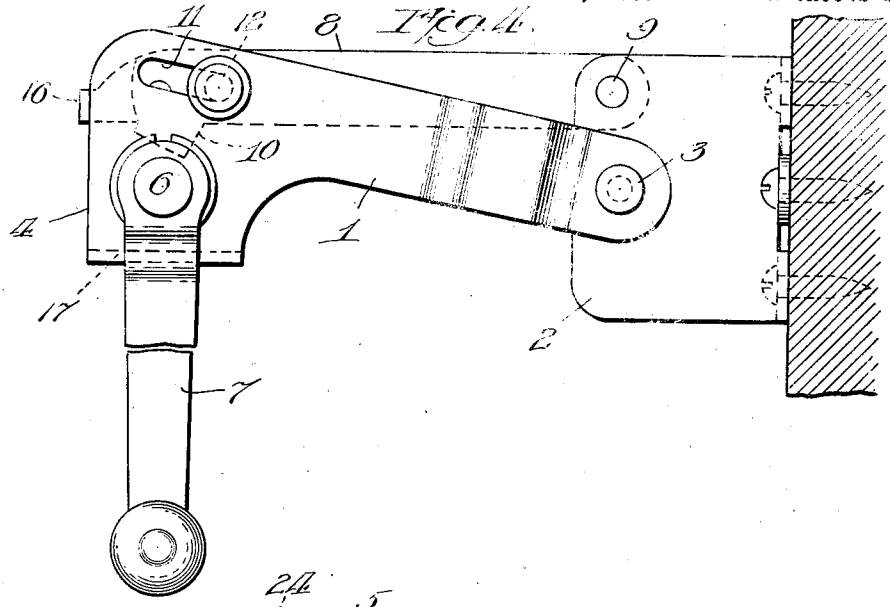
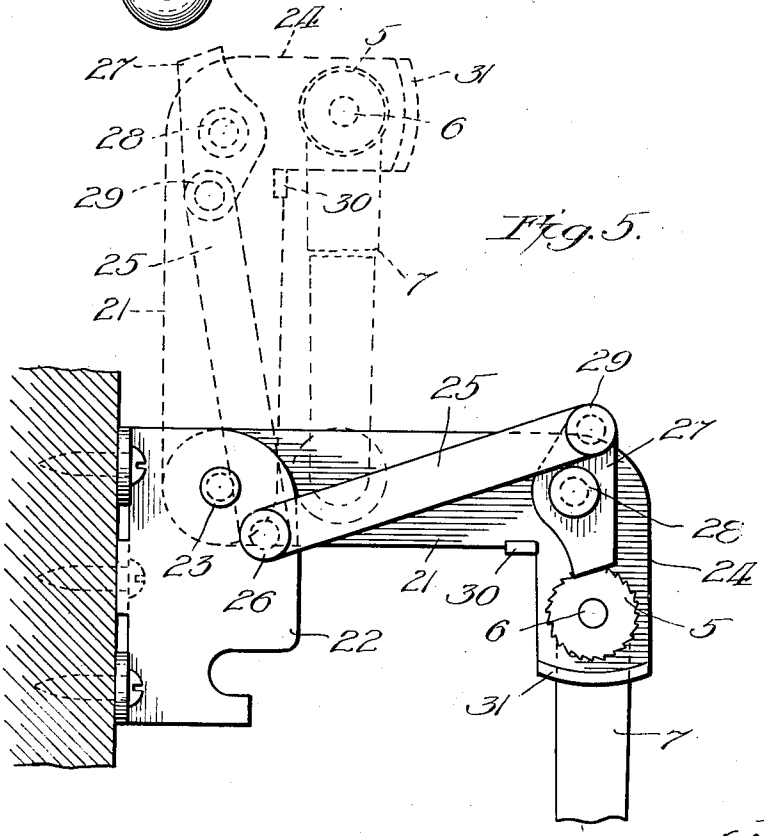


Fig. 5.



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UNITED STATES PATENT OFFICE

2,236,974

CAN OPENER

Thomas A. Long, Hammond, Ind.

Application November 20, 1939, Serial No. 305,283

10 Claims. (Cl. 30—15)

The present invention relates to that type of can opener which comprises a blade adapted to puncture the end of a can the external bead of which, at that end, rests on a wheel or roller for feeding the can against the blade, and has for its object to simplify and improve the construction of such devices.

In the case of can openers of the type under consideration, the blade and the feed wheel must be movable relatively from and toward each other, in order to open the device for the reception of a can and to close the device upon the can and drive the blade or cutter through the can end so as to puncture the latter. In all of the can openers of this kind that have come to my attention, they are provided with two handles or levers, one for shifting the blade from and toward the feed wheel and the other for turning the wheel. One of the objects of the present invention is to eliminate one handle or lever and adapt the wheel operating member to the shifting of the cutter.

It is common practice to mount can opening devices on brackets or base members which may be secured to a stationary support, usually a kitchen wall, window frame, or the like. Consequently, if the can opener is left permanently in position, ready for use, it may project out into the room, or other useful space, to an objectionable degree. One of the objects of the present invention is to permit a can opener to be permanently mounted, if desired, upon a vertical wall or other support, while having the capacity to be swung back out of the way when not in use.

A further object of the present invention is so to construct the can opener that the movements thereof between its working and idle positions are utilized to shift the cutter from and toward the feed wheel; the cutter being moved away from the wheel when the device is swung back out of the way, and being finally brought into can-puncturing position when the can opener is swung outwardly again. Consequently, in a can opener embodying the various features of invention, the relative movements of the feed wheel and the cutter toward and from each other are accomplished by simply shifting the can opener between its working and idle position; the cutter and the feed wheel being separated far enough to permit the insertion or removal of a can in the device at some point intermediate between the working and idle positions of the device. Thus, after the device has operated upon a can to remove the end thereof, the device need only be started on its backward movement to free the can. Likewise, when the device is in its idle position and it is desired to use it, the device need only be swung toward its working position and, while it is still at some distance from its working position, the can may be inserted in the usual way; the final movement of the device to its working position causing the cutter to puncture the can end.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a side elevation showing one of the improved devices fastened to a wall and swung back to an idle position against the wall and showing, in dotted lines, a position intermediate between the idle and working positions; Fig. 2 is a view similar to Fig. 1, showing the device in its working position; Fig. 3 is a section on line 3—3 of Fig. 2; Fig. 4 is a view similar to Fig. 2, showing the opposite side of the device from that which appears in Figs. 1 and 2; and Fig. 5 is a side elevation of a modified construction, the device being shown in full lines in its working position and in dotted lines in its idle position.

Referring to Figs. 1 to 4, 1 represents a long flat arm connected at its rear end to a bracket 2 by a horizontal hinge pin 3. The free end of the arm is widened in the downward direction, as indicated at 4. Mounted on one side of the part 4 is any usual or suitable feed wheel 5 fixed to one end of a short shaft 6 that extends through the arm and has an operating handle or crank 7 attached to the end on the opposite side of the arm. A second arm 8 is connected at one end to the bracket 2 at a considerable distance above the hinge pin 3 by a horizontal hinge pin 9. On the arm 8, near the free end of the latter, is fixed a blade 10 of any usual or suitable construction, lying in a plane just outwardly from the drive wheel 5 so as to be capable of being forced down through the end of a can which has its external bead resting on the drive wheel. The arms 1 and 8 are connected together toward their free ends so that they may be swung together upwardly and rearwardly from the position shown in Fig. 2 to the position shown in Fig. 1. Obviously, if the cutter lies directly above the feed wheel when the parts are in their working position, as in Fig. 2, a relative shifting of the wheel and the blade in the direction of the length of

the arms must occur when the device is swung upwardly and rearwardly, due to the fact that the two hinge pins are spaced apart in the vertical direction. In order to permit the swinging movements of the arms to be made, and the necessary cooperation between the feed wheel and the cutter to be effected, I provide the arm 1, near its free end, with a slot 11 extending in the direction of the length of the arm, and provide the arm 8 with a pin 12 that extends through this slot; the width of the slot being preferably equal to the diameter of the pin. The slot is of such length, and the pin 12 is so located, that when the device is swung down into its working position, the pin bottoms at the inner end of the slot and thus prevents any further downward movement of either arm.

It is desirable that the cutter lie close to the outer side face of the feed wheel when the can opener is in its working position. This is one of the functions of the pin 12. In view of the fact that wear occurs in the use of the device, which might result in a looseness in the support for the cutter, the pin 12 is made long enough so as to permit one or more spring washers 13 and a flat, stiff washer 14 to be placed between the head 15 on one end of the pin 12 and the side of the arm 8. In assembling the parts the spring washers are compressed or contracted somewhat, so that they exert a constant yieldable force pressing the two arms together in the vicinity of the cutter.

At the free end of the arm 8 is a lateral projection or finger 16 projecting from the same side as that on which the cutter is located. This finger or projection acts as a stop to hold the bead of the can down against the feed wheel and to maintain the can in a vertical position. The lower marginal portion of the downward extension 4 of the arm 1 is flanged laterally in the same direction as the projection or finger 16, as indicated at 17, for engagement with the cylindrical periphery of a can engaged with the opener.

In Fig. 5 there is illustrated a modified construction operating on the same principle as the other. In this device the arm 21 is not greatly different from the arm 1 heretofore described; being connected at one end to a bracket 22 by a horizontal hinge pin 23. On a downward extension 24 at the free end of the arm 21 is the feed wheel 5 adapted to be turned by the handle 7. The second arm or link 25 is connected to the bracket 22 by a horizontal hinge pin 26 at a point outwardly from and below the hinge pin 23. The cutter is in the form of an elongated blade 27 connected to the arm 21 by a horizontal pin 28 extending through the blade at about the middle thereof. The lower end of the member 27 constitutes the cutter proper, while the upper half is simply a lever arm by which the blade may be shifted between working and idle positions; this shifting being accomplished through a connection with the outer end of the arm or link 25; the connection being in the form of a pin 29 that permits relative swinging movements between the cutter member and the link or arm 25. A finger or projection 30 arranged at the juncture between the inner or rear edge of the part 24 of the arm 21 and the lower edge of that arm, and a flange 31 at the lower end of the part 24 correspond to and have the same functions as the elements 16 and 17 in the other form of the device.

The parts are so proportioned that when the device is swung down as shown in full lines in Fig. 5, the cutter member assumes substantially a vertical position, with its lower end overlapping the upper part of the feed wheel. As the device is swung upwardly, the cutter is rocked upon its pin so that in its final position it forms, in effect, an extension of the arm or link 25, as shown in dotted lines. It will be seen that the rocking of the cutter begins with the upward movement of the device, so that the cutting edge is soon carried away from the vicinity of the feed wheel and thus permits the can to be removed from the device before the latter has gone very far in the direction of its idle position. Conversely, a sufficient gap remains between the cutter and the feed wheel, upon returning the device to its working positions, to permit the insertion of a can, until the device has made the greater part of its return movement.

It is believed that the operation of both forms of my improved device has been sufficiently explained heretofore. However, it may be noted, further, that as long as the user must grasp the handle in order to turn the feed wheel, he may as well do so at the starting point, using this handle to pull the device from its idle toward its working position, and applying therewith the necessary force to puncture the end of a can that has been inserted between the feed wheel and the cutter at some point short of the final working position.

While I have illustrated and described with particularity only the preferred form of my invention, with a single modification, I do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms and arrangements which come within the definitions of my invention constituting the appended claims.

I claim:

1. In a can opener, a base, an arm supported at one end on said base for swinging movements, a feed wheel on said arm, a cutter on said arm movable from and toward the feed wheel and adapted to be forced through the end of a can engaged with said wheel, and means operated through the swinging of said arm in one direction to move the cutter away from the wheel and by the swinging of the arm in the other direction to cause the cutter to puncture the end of a can operatively engaged with said wheel.

2. In a can opener, a base, an arm supported at one end on said base for swinging movements from a working position to an idle position, a feed wheel on the other end of the arm, a cutter mounted on the arm for movements from and toward the feed wheel, and means to cause said cutter to move from and toward said wheel when said arm is oscillated.

3. In a can opener, a base, an arm projecting from and supported at one end on said base for swinging movements from a working position to an idle position, a feed wheel on the arm, a second arm hinged to and projecting from said base, a cutter, and means connecting the cutter and said arms together to cause the cutter to move away from said wheel when the arm is swung toward its idle position and to move toward the wheel when the arm is swung toward its working position.

4. In a can opener, a base, an elongated member supported at one end on said base for swinging movements, a feed wheel on said member, a cutter, a second elongated member supported at one end for swinging movements about an axis parallel to and spaced apart from the axis about

which the first member swings, and connections between both of said members and the cutter to cause the cutter to move away from the wheel when said members are swung in one direction and toward the wheel when said members are swung in the other direction.

5. In a can opener, a base, an elongated member supported at one end on said base for swinging movements, a feed wheel on said member, a second elongated member supported at one end on said base for swinging movements about an axis parallel to and spaced apart from the axis about which the first member swings, a cutter mounted on said second member, and connections between said members to cause the cutter to move away from the wheel when said members are swung in one direction and toward the wheel when said members are swung in the other direction.

6. In a can opener, a base, an elongated member supported at one end on said base for swinging movements, a feed wheel on said member, a cutter movably mounted on the aforesaid member and adapted to be forced through the end of a can engaged with said wheel, a second elongated member supported at one end on said base for swinging movements about an axis parallel to and spaced apart from the axis about which the first member swings, and a connection between said second member and the cutter to cause that member to move the cutter away from the wheel when said members are swung in one direction and to cause the cutter to puncture the end of a can operatively engaged with said wheel when said members are swung in the other direction.

7. In a can opener, a supporting base, an elongated member hinged at one end to the base for vertical swinging movements, a second elongated member similarly hinged to the base at a point above the hinge axis of the first member, a feed wheel on the first member, a handle for turning the wheel, a cutter, and a connection between the cutter and each of said members to compel the latter to move in unison and to cause the cutter to move from and toward the wheel when the said members are oscillated.

8. In a can opener, a support, an elongated member hinged at one end to said support for vertical swinging movements, a feed wheel on the other end of said member, a handle for turning said wheel, a second elongated member similarly hinged to said support at a point above the hinge axis for the first member, a slot in and extending lengthwise of the first member in the vicinity of said wheel, a pin on the other member projecting through said slot, and a cutter on said second member adjacent to said pin.

9. In a can opener, a support, an elongated member hinged at one end to said support for vertical swinging movements, a feed wheel on the other end of said member, a handle for turning said wheel, a second elongated member similarly hinged to said support at a point below the hinge axis for the first member, a slot in and extending lengthwise of the first member in the vicinity of said wheel, a pin on the other member projecting through said slot, and a cutter on said second member adjacent to said pin; the parts being so proportioned that, when said members are approximately horizontal, the pin lies in the extreme inner end of the slot and prevents further downward swinging movements of the said members.

10. In a can opener, a support, an elongated member hinged at one end to said support for vertical swinging movements, a feed wheel on the other end of said member, a handle for turning said wheel, a second elongated member similarly hinged to said support at a point above the hinge axis for the first member, a cutter device mounted on the first member for rocking movements from and toward said wheel, and a connection between the second of said members and the cutter device to cause the latter to rock when said members are oscillated.

THOMAS A. LONG.

CERTIFICATE OF CORRECTION.

Patent No. 2,236,974. April 1, 1941.

THOMAS A. LONG.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, line 20, claim 9, for "below" read --above--; and line 36, claim 10, for "above" read --below--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 31st day of March, A. D. 1942.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)

DISCLAIMER

2,236,974.—*Thomas A. Long*, Hammond, Ind. CAN OPENER. Patent dated April 1, 1941. Disclaimer filed July 25, 1942, by the inventor.

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5, 6 and 10 in said patent.

[*Official Gazette August 25, 1942.*]