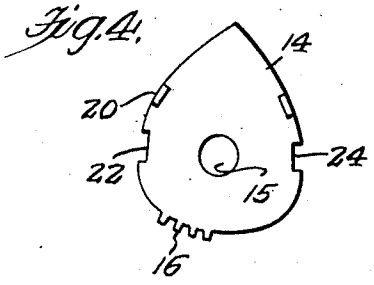
Sept. 11, 1934. C. G. FAWKES 1,973,338

CAN OPENER

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Fig. 4.



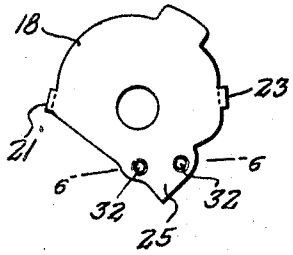


Fig. 5.

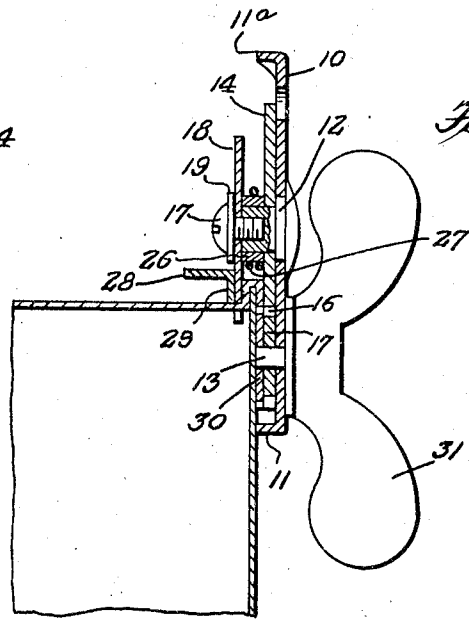


Fig. 1.

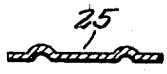


Fig. 6.

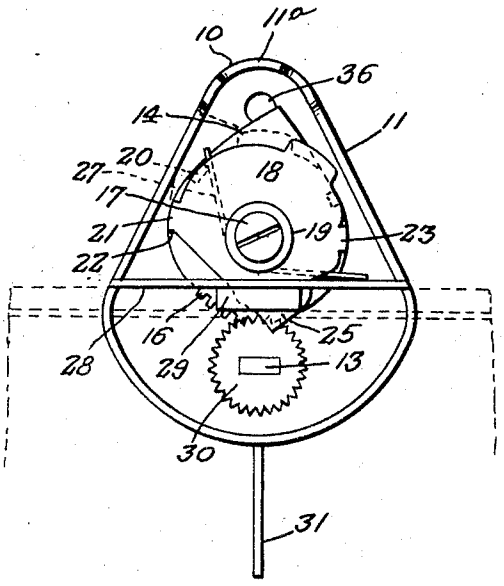


Fig. 3.

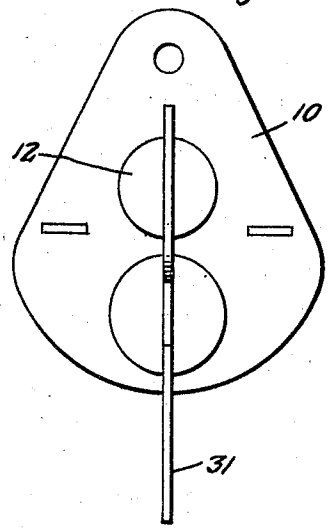


Fig. 2.

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Fig. 7.

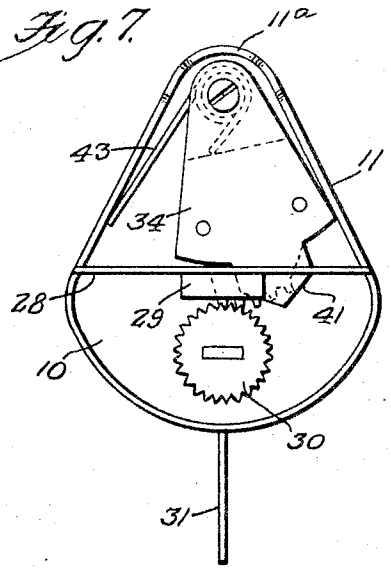
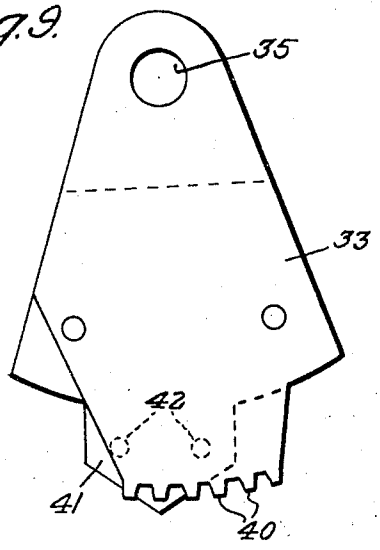


Fig. 9.



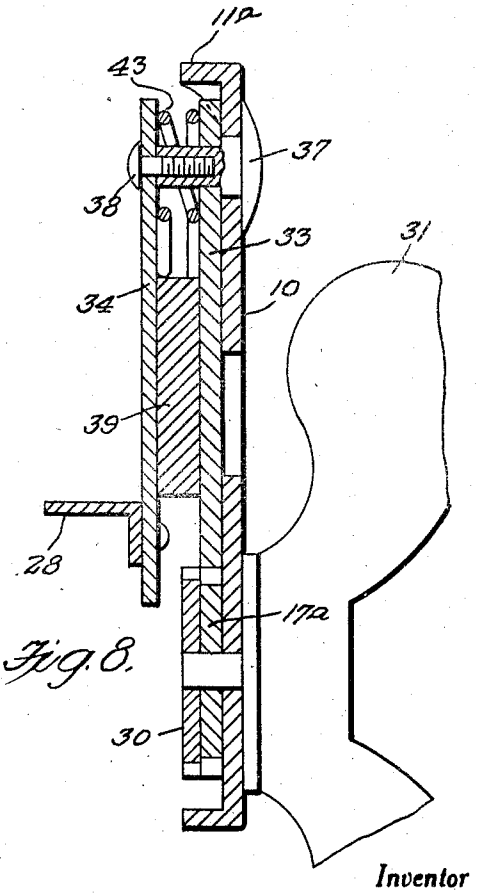


Fig. 8.

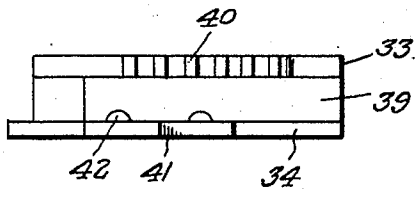


Fig. 10.

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Patented Sept. 11, 1934 1,973,338

UNITED STATES PATENT OFFICE

1,973,338

CAN OPENER

Charles G. Fawkes, Denver, Colo.

Application October 27, 1932, Serial No. 639,888

3 Claims. (Cl. 30—3)

This invention relates to can openers and in accordance with the present invention a device of this character is provided which can be constructed at nominal cost, retailed at a popular price, and which consists of comparatively few parts, can be used to open cans either cylindrical or rectangular, can be easily and quickly operated and will remove the top of the can without leaving rough or jagged edges.

The invention together with its numerous objects and advantages will be best understood from a study of the following description, taken in connection with the accompanying drawings wherein:

In the drawings:

Figure 1 is a vertical sectional elevational view taken through the opener, the same being shown applied to a can.

Figure 2 is a rear elevational view of the opener.

Figure 3 is a front elevational view of the opener, the same being shown applied to the can.

Figure 4 is a plan view of an especially constructed rack segment.

Figure 5 is a plan view of the cutting blade.

Figure 6 is a sectional view taken substantially on the line 6—6 of Figure 5.

Figure 7 is a front elevational view of a slightly modified form of the invention.

Figure 8 is a vertical sectional view therethrough on an enlarged scale.

Figure 9 is a plan view of a rack segment and blade assembly, on an enlarged scale and

Figure 10 is an end elevational view of the assembly shown in Figure 9.

Referring to the drawings by reference numerals 10 indicates a case of metal or other suitable material which is rounded at its bottom portion and from a point upwardly from the bottom tapers to its upper end. The peripheral wall of the case is designated by the reference numeral 11 and as is apparent the case is opened at one side.

A headed stub shaft 12 extends through an opening in the back wall of the case from the back to the front of the case and at its free end is provided with a threaded socket with which is screw threadedly engaged a set screw 17.

A gear segment comprises a plate 14 of the same general edge configuration as the case 10 and this plate is provided with an aperture 15 through which the shaft 12 extends. At its largest end the plate 14 is provided with a short series of gear teeth 16.

An apertured plate 18 is adapted to turn with the plate 14 and is secured in position between the head of the set screw 17 and the adjacent end of the stub shaft 12, a washer 19 being interposed between the plate 18 and the head of the set screw 17. The plate 18 is provided with lugs 21, 23 engageable with notches 22, 24 in the plate 14 so that upon rotation of the plate 14 plate 18 will move therewith. The plate 18 at one corner thereof is provided with a blade 25 that is adapted to puncture the top of the can and to subsequently cut the top of the can in a manner hereinafter more fully referred to.

The blade 25 is normally retained in a retracted or inoperative position within the case 10, that is to say in a position out of cooperative relation with a traction wheel 30, through the medium of a coil spring 27 that is disposed about a collar 26 arranged on shaft 12 between plates 14 and 18 as shown in Figure 1, said coil spring having one end thereof engaging lug 20 on plate 14, and the other end thereof engaging a bridge piece 28 that extends transversely of the casing 10 at the open side of the latter and near the lower portion thereof. Under action of spring 27 plates 14 and 18 are normally urged to rotate in an anti-clockwise direction, and the movement of said plate in this direction is limited by reason of an upper edge portion of plate 14 engaging the marginal wall 11 of the casing 10. To project the blade 25 into cooperative relation with the traction wheel 30 for the purpose of piercing the top of the can and subsequently cutting it, there is suitably supported on the rear wall of the case 10 a stub shaft 13 provided at one end with a handle 31. Fixed on the stub shaft 13 is a gear wheel 17 adapted to mesh with the teeth 16 of the gear segment plate 14, and also fixed on shaft 13 is the traction wheel 30.

For the purpose of properly spacing the blade 25 from the bead of the can there is provided adjacent opposite edges of the blade 25 and on the inner face of the plate 18 teats 32 that are adapted to bear against the inner face of the flange or bead of the cam, and in actual practice it will be found that these teats 32 will serve somewhat in the nature of ball bearings, reducing friction and insuring an effective operation of the blade whether the can opener be used for removing the top of a cylindrical or a rectangular can.

The aforementioned bridge piece or bar 28 extends transversely of the case 10 at the open side thereof and at its inner edge is suitably notched to accommodate the lower portions of plates 14 and 18, and at said inner edge is also provided with a depending flange 29 which coacts with the traction wheel 30 to retain the can opener in posi-

tion on the can against casual displacement and while the blade 25 is in its aforementioned retracted position. The flange 29, in actual practice, will also be found to be an aid in guiding the can opener, while when the opener is not in use, said flange 29 will also serve as a shield for the blade 25, since the latter when in retracted position will be disposed inwardly or upwardly from the lower edge of the flange 29. It will thus be seen that when the opener is not in use the flange 29 will not only serve as a guard to protect the blade 25, but also will serve as a guard to reduce to a minimum the possibility of one, handling the opener in a careless manner, from being cut by the blade.

It is also to be noted that practically all of the several parts of the device are located wholly within the case 10, the case thus providing an efficient protector for such parts.

In actual practice the blade 25 is normally in retracted position, that is to say in an inoperative position and out of cooperative relation with the traction wheel 30. In applying the opener to the can the bead thereof is first engaged with the traction wheel 30, the casing 10 being disposed at an angle to the perpendicular. As the opener is worked to a substantially vertical position the handle 31 is rotated in a clockwise direction causing plate 14 together with plate 18 to rotate in a clockwise direction so that the blade 25 moves into operative position between the bead of the can and the flange 29, and as the plate 14 moves into engagement with the wall of the case the point of the blade 25 effectually punctures the top of the can.

As the traction wheel 30 continues to rotate the blade 25 remains stationary with respect to the traction wheel, and as the entire device advances the blade 25 makes a shear cut close to the inside of the bead of the can. In this connection it will be noted that the shearing edge of the blade 25 will be at an angle to the surface of the can top.

In this connection it is also to be noted that the shearing edge of the blade 25 is not beveled but is of uniform thickness with the result that when the cutting operation is completed the edge portion of the severed cover will be forced up slightly to enable it to be received between the fingers and thereby be removed, thus providing against the severed cover dropping into the contents of the can.

When the cutting operation has been completed the handle 31 is rotated in a reverse direction whereupon plates 14 and 18 assisted by spring 27 will also be caused to rotate or swing in an anti-clockwise direction for moving the blade 25 into inoperative or retracted position with respect to the traction wheel 30. With the blade 25 thus retracted the device may be readily removed from the can.

In the form of the invention shown in Figures 7 to 10 inclusive the operation is substantially the same as above described, a gear segment and blade assembly such as shown in Figure 9 being substituted for the gear segment and blade assembly described in detail with respect to the invention shown in Figures 1 to 6.

In the assembly shown in Figure 9 there is provided a pair of substantially segmental shaped plates 33, 34 which are provided at their smallest ends with apertures 35 adapted to aline with an aperture 36 provided in the back wall of the casing 10 adjacent the upper smallest end thereof. For swingably supporting the plates 33, 34 there is provided a bolt 36 similar to the aforementioned bolt 12, and this bolt extends through the opening 36 and through the opening in the plate 33. A set screw 38 is threaded in the socket of the bolt 37 and extends through the opening 35 in the plate 34 for rotatably supporting the plate between the head of the screw 38 and the adjacent end of the bolt 37 as shown in Figure 8.

Plates 33 and 34 adjacent their largest ends are spaced through the medium of a block 39 interposed therebetween. At its lowest end the plate 33 is provided with an extension the lower edge of which is equipped with gear teeth 40 adapted to mesh with the gear wheel 17*a* corresponding to the gear wheel 17 described with respect to the form of the invention shown in Figure 1. At its lower end the plate 34 is provided with a reduced extension providing a blade 41 that is formed with a point for piercing the metal of the can. The blade 41 on its inner face and adjacent its opposite edges is provided with protuberances 42 corresponding to the protuberances 32 hereinbefore referred to in the description of the form of the invention shown in Figure 1.

For retaining the blade 41 in a retracted position there is provided a spring 43 disposed about the bolt 37, and one end of the spring bears against the spacer block 39 while the other end of the spring bears against the inner face of the wall 11 of the case. It will also be clear that swinging movement of the plates 32, 34 is limited by the peripheral wall 11.

The operation of the form of the invention thus described is thought to be clear from the above, and being similar to the operation described with reference to the form of the invention shown in Figure 1 further detail description thereof is deemed unnecessary.

The wall 11 of the case at the upper or smallest end thereof is extended outwardly to provide a bottle opener 11*a*, so that the structure also provides for a convenient combination bottle and can opener.

Even though I have herein shown and described the preferred embodiment of the invention, it is to be understood that the same is susceptible of further changes, modifications and improvements coming within the scope of the appended claims.

Having thus described my invention, what I claim as new is:

1. In a can opener, the combination of a casing comprising a flat plate provided with a marginal rim, a member pivotally mounted within the casing within the confines of said rim, a fixed pivot within the casing about which said member rotates as an axis, said member including a blade and a rack segment, a traction wheel mounted in the case to engage the bead of a can, a shaft on which said traction wheel is mounted journalled in the case, a ratchet wheel on said shaft meshing with the aforementioned rack, handle means connected with the shaft for rotating it, a coil spring disposed about said pivot and having one end engaging the pivoted member to normally rotate the latter in one direction, and an abutment within said casing with which the free end of the spring is engaged, and a bridge piece extending transversely of the casing and spaced from said plate, said bridge piece intermediate its ends having integral with its inner edge a depending guide flange for engagement with the top of the can for guide purposes, and said flange being also arranged with respect to the blade to serve as a guard for said blade.

2. In a can opener, a casing comprising a plate provided with a continuous marginal rim, a member pivotally mounted on the plate within the confines of said rim and provided with a cutting blade and a rack segment, a bridge bar extending between opposed portions of the rim in spaced relation to said plate to accommodate between said plate and the bridge bar the blade and rack segment, said bridge bar at its inner edge between its ends having a depending combined guide flange and blade guard, spring means engaged with the pivoted member for normally urging the latter to swing in one direction, a shaft mounted on said plate, a traction wheel on the shaft and disposed rearwardly of said blade, a ratchet wheel on the shaft behind the traction wheel and engaging the rack segment for rotating said member in opposition to said spring, handle means at the rear side of said plate engaged with the shaft for rotating it, and friction reducing protuberances on the side of the blade opposite to the bridge bar for engaging the bead of the can for guiding the device during the cutting operation.

3. In a device of the character described a carrier member, a pivot mounted on the carrier member, a pair of rotatable members on the pivot to rotate about the latter as an axis, said rotatable members being laterally spaced, and one of said members being provided with a blade, and the other of said members being provided with a rack segment, means connecting said members to rotate the pivot as a unit, a spring disposed about said pivot between said members, a fixed abutment for one end of said spring, and said spring having a second end engaging the connecting means between said rotatable members for normally urging said members to rotate in one direction, a ratchet wheel rotatably mounted on the carrier and engaging said rack segment for rotating the rotatable members in opposition to said spring, and an advancing wheel connected with said ratchet wheel and located laterally inwardly with respect to the blade, and means for rotating the ratchet wheel, and a bridge piece extending transversely of the plate and having an intermediate portion spaced from the plate, and end portions united with said plate, an integral guide flange on said bridge piece, and friction reducing teats on the side of the blade opposite to said guide flange.

CHARLES G. FAWKES.