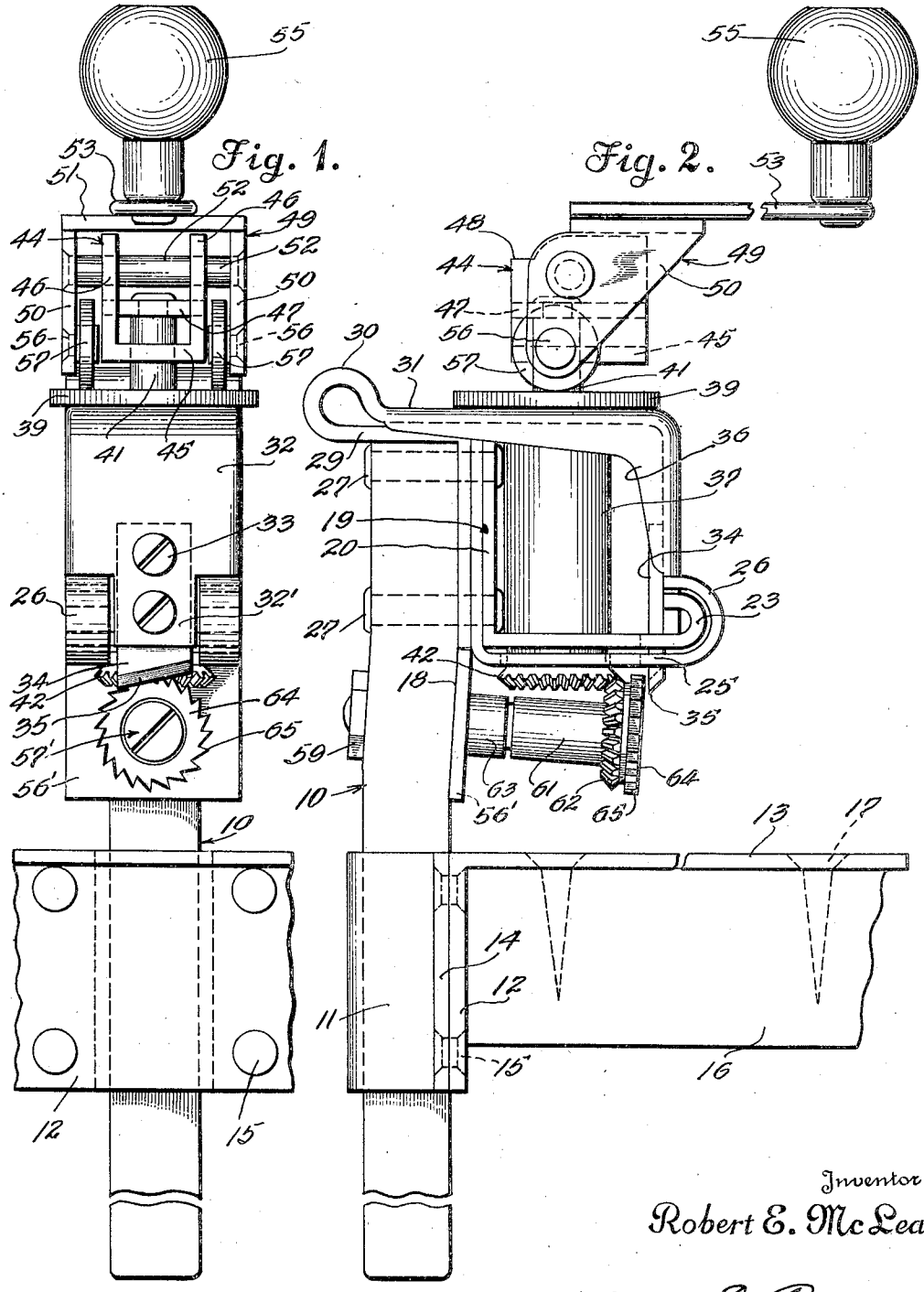
Feb. 21, 1950 R. E. McLEAN 2,498,440

ROTARY TYPE CAN OPENER

Filed June 13, 1946 5 Sheets-Sheet 1



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ROTARY TYPE CAN OPENER

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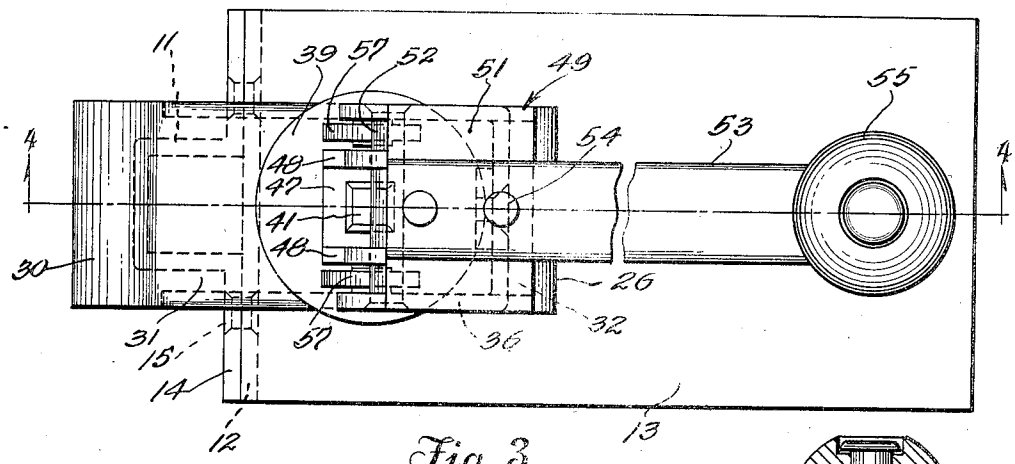


Fig. 3.

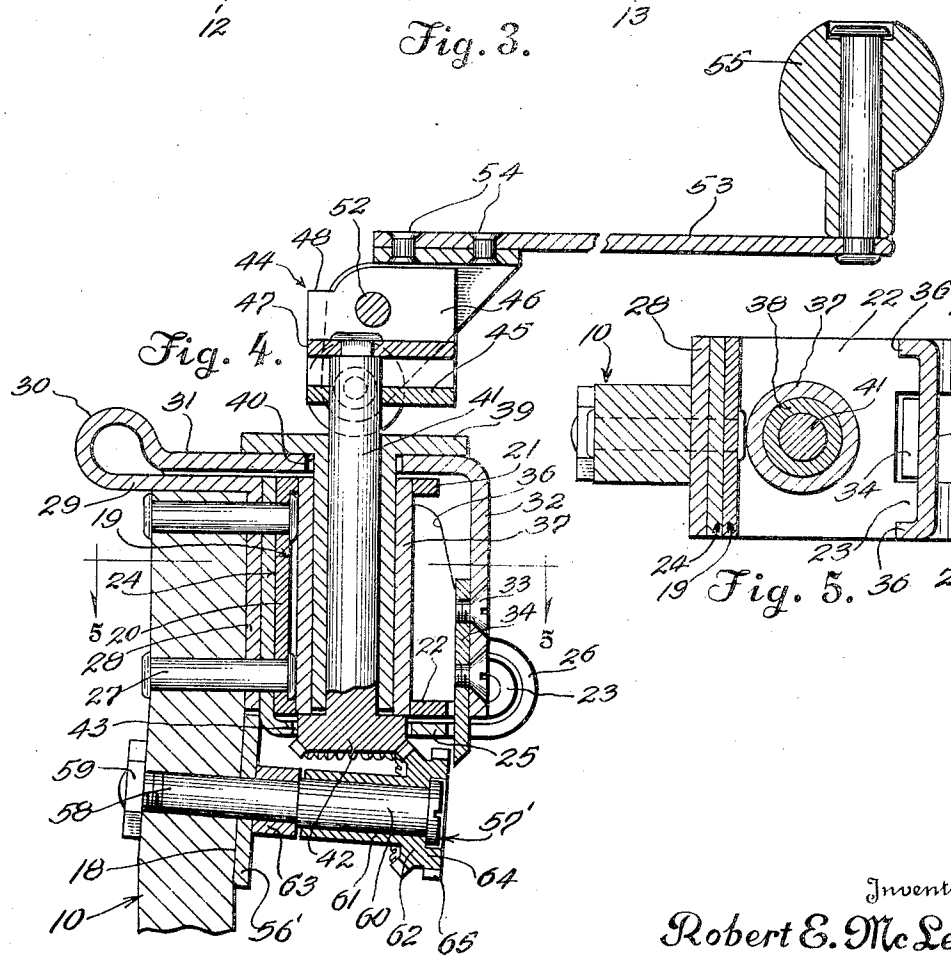


Fig. 4.

Fig. 5.

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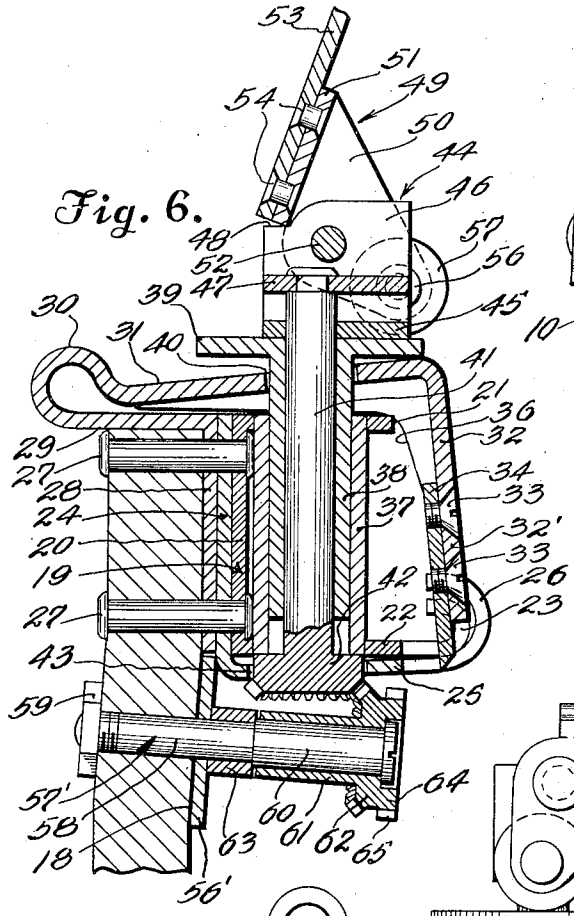
By Wilfred E. Lawson
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Feb. 21, 1950 R. E. McLEAN 2,498,440

ROTARY TYPE CAN OPENER

Filed June 13, 1946 5 Sheets-Sheet 3

Fig. 6.



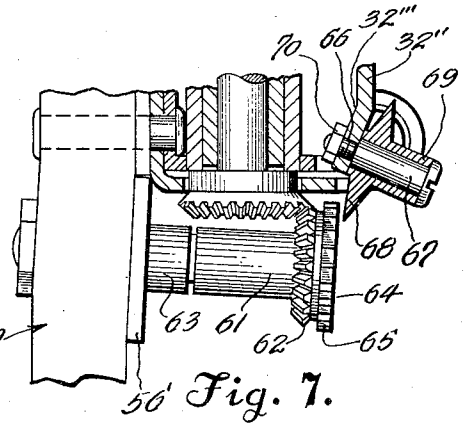


Fig. 7.

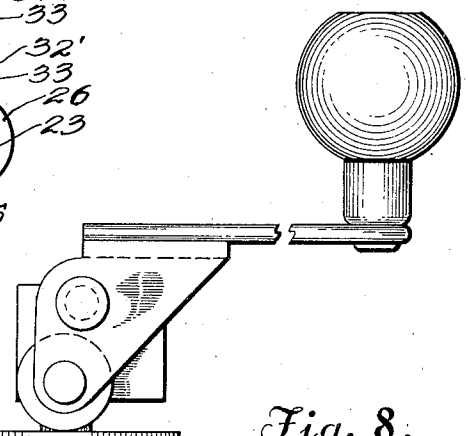
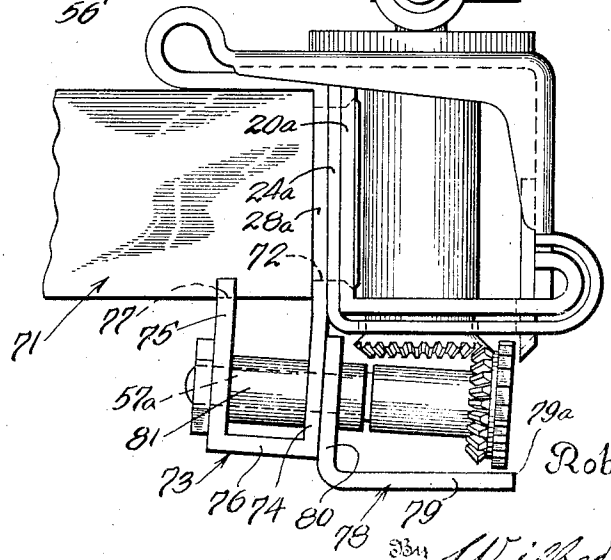


Fig. 8.



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ROTARY TYPE CAN OPENER

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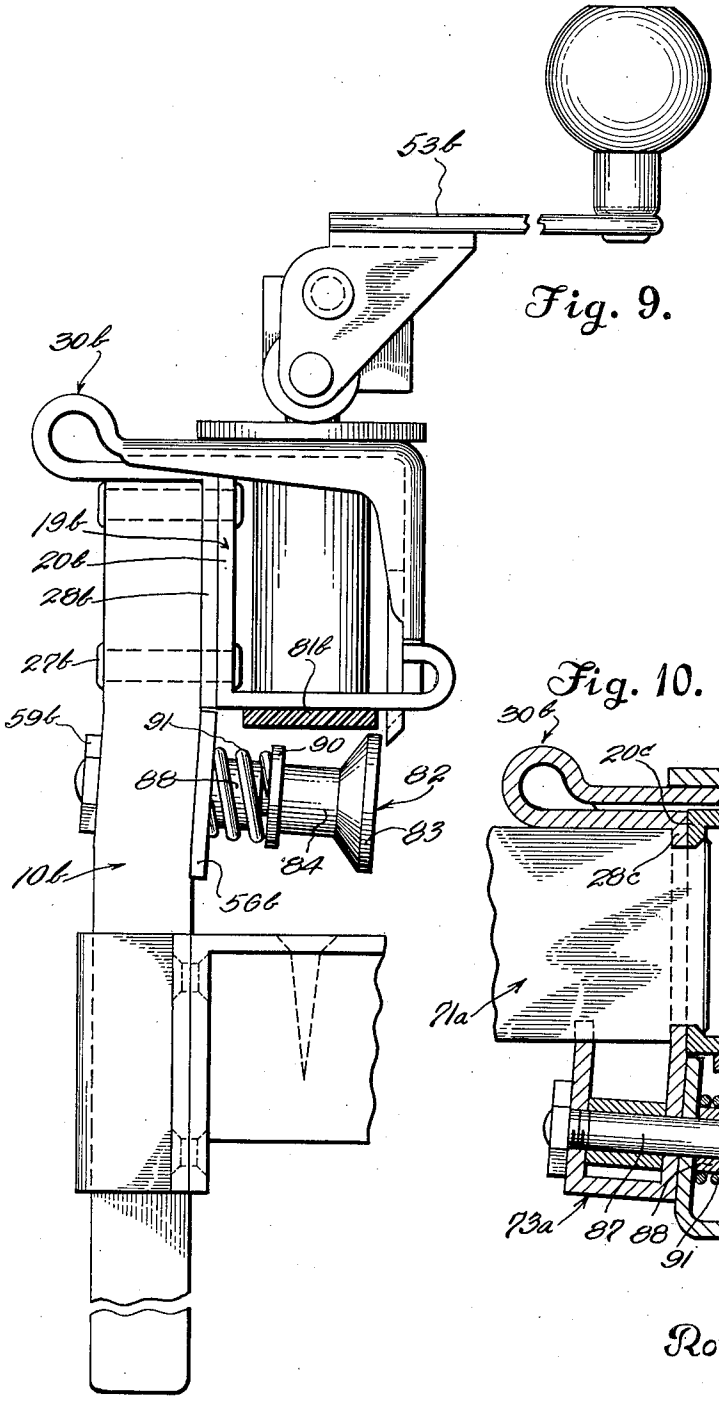


Fig. 9.

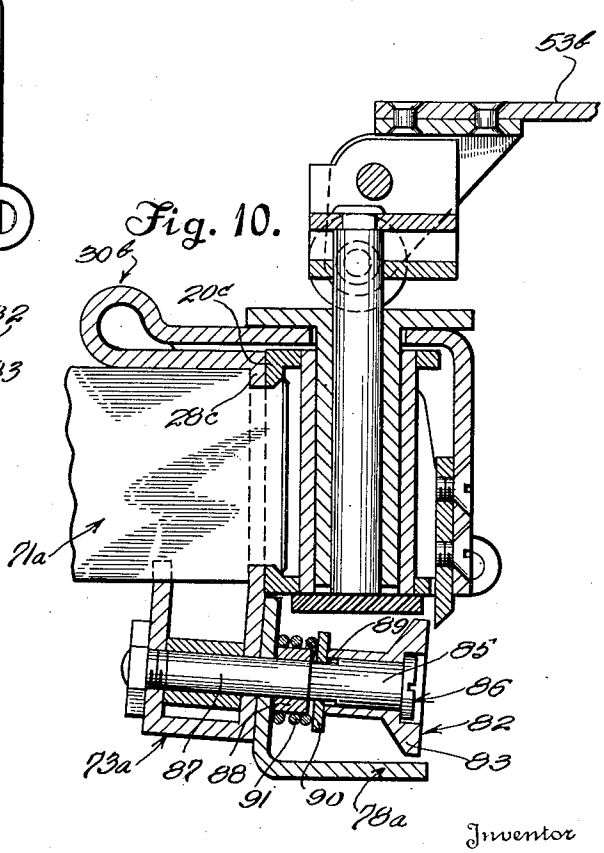


Fig. 10.

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ROTARY TYPE CAN OPENER

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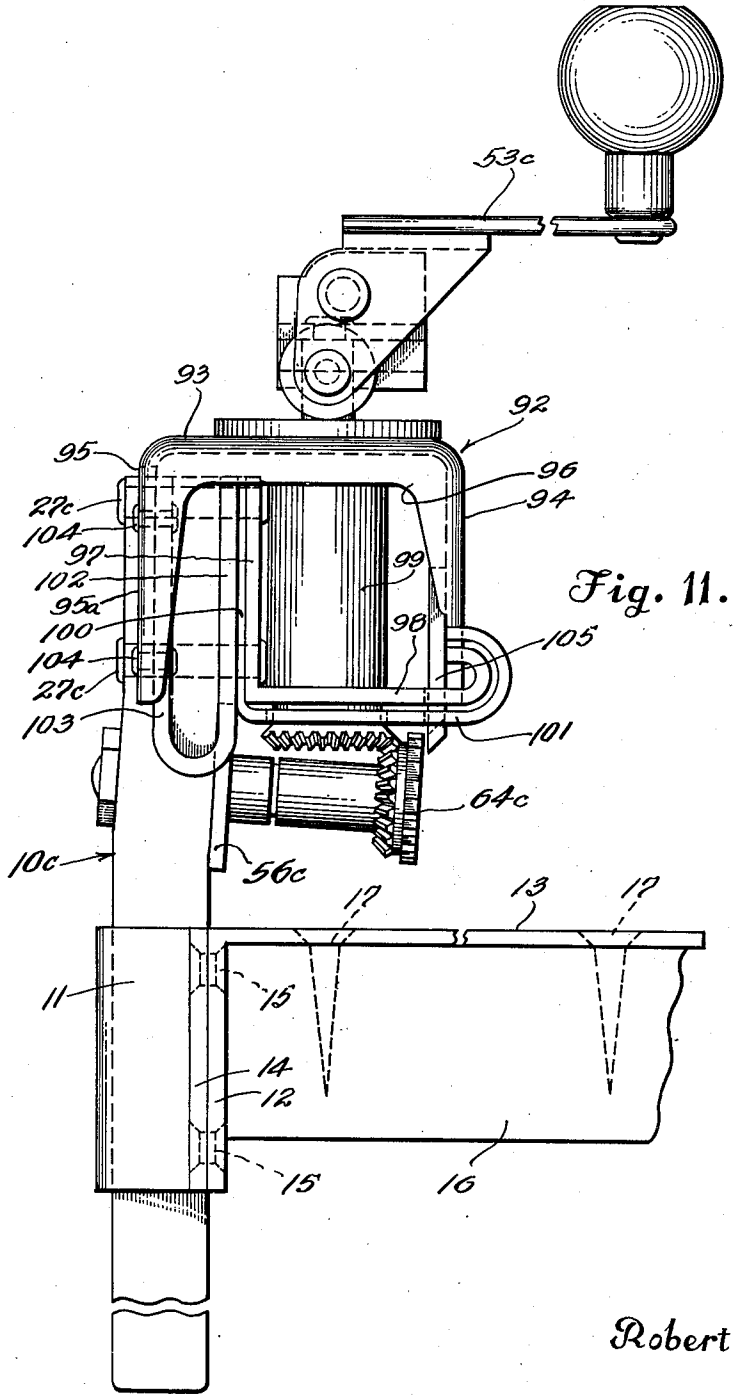


Fig. 11.

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Patented Feb. 21, 1950 2,498,440

UNITED STATES PATENT OFFICE

2,498,440

ROTARY TYPE CAN OPENER

Robert E. McLean, Fort Benning, Ga., assignor to John C. Hockery, Kansas City, Mo., as trustee

Application June 13, 1946, Serial No. 676,453

18 Claims. (Cl. 30—8)

1

This invention relates generally to the class of cutlery and pertains particularly to improvements in can opening devices and more especially such devices of the rotary drive wheel type.

The opener of the present invention is of a type in which there is provided a single operating handle by means of which both oscillating and rotating motion is obtainable to accomplish the sequential operations of mechanically forcing a cutting element through a can head and simultaneously gripping the can rim or flange between such cutting element and a driving wheel, it being a particular object of the present invention to provide generally an improved construction of can rim engaging and can supporting means whereby rotational movement of the can relative to the cutting element may be effected with a minimum of effort and the operation of the device as a whole generally improved.

Another object of the invention is to provide a rotary drive wheel type can opener designed to be operated by a single operating handle of the character stated, wherein an improved knife or cutter element supporting means is provided, which is of a resilient character to readily shift the cutting element away from a can body when the operating handle is oscillated to an upright position and which moves into can engaging position under the urge of the handle when the handle is shifted to a horizontal working position, against a yieldable spring element which is shifted toward, and assists in maintaining in position, the rim of a can, when the rim is mounted upon a rotary supporting or driving wheel.

Still another object of the invention is to provide a can opener of the rotary drive wheel type, having operating means of the character above set forth, wherein a direct drive is had between the operating handle and the can rim engaging driving wheel.

Still another object of the invention is to provide, in a can opener of the character stated, novel yielding means for maintaining the can rim engaging and supporting wheel in proper position with respect to the cutter element whereby relative yielding movement between the cutter and the can rim engaging part is permitted under certain circumstances as, for example, when a thickened portion of the can body, such as a can seam, is passing between the cutter and the driving wheel.

A still further object of the invention is to provide a can opener which is sturdy, durable, efficient and simple and easy to operate and which

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because of such sturdy and durable construction, is particularly suitable for hard usage, as where numerous cans must be opened in limited time and the device must be depended upon to efficiently operate under such conditions an unusually long time.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of the specification, with the understanding, however, that the invention is not confined to a strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a view in front elevation of one embodiment of a can opener constructed in accordance with the present invention.

Figure 2 is a view in side elevation of the same, showing, in side elevation, a portion of the support on which the opener is mounted.

Figure 3 is a view in top plan of the opener.

Figure 4 is a vertical section taken substantially on the line 4—4 of Figure 3.

Figure 5 is a horizontal section taken substantially on the line 5—5 of Figure 4.

Figure 6 is a vertical section corresponding to Figure 4 but showing the operating handle raised and the opener in condition to receive a can, the outer end portion of the handle being removed.

Figure 7 is a detail section illustrating the use of a rotary or disk cutter in place of the rigid straight cutter shown in the preceding figures.

Figure 8 is a view in side elevation of the opener structure shown in Figures 1 to 6 inclusive but modified for mounting on a wall bracket and showing a modified arrangement of the driving wheel support and can rest.

Figure 9 is a view in side elevation of a can opener having a structure corresponding to the opener shown in my prior Patent No. 2,386,490 of October 9, 1945, but having a modified can rim engaging supporting wheel and mounted upon a vertical supporting post in the manner hereinafter described.

Figure 10 is a view in vertical section of the opener structure shown in Figure 9 but illustrating the mounting of the same upon a wall bracket type of support and illustrating another form of can rest and mounting for the can rim engaging can supporting wheel.

Figure 11 is a view in side elevation of a fur-

ther modification of the opener structure shown in Figures 1 to 6 inclusive, embodying an alternate or modified spring construction.

Referring now more particularly to the drawings, reference will first be had to the embodiment of the invention as illustrated in Figures 1 to 6 inclusive. In these figures the numeral 10 generally designates a supporting post or standard upon which the opener is mounted, such post being slidably engaged at its lower end in a guide 11 which is secured, as shown, to the flange portion 12 of a plate 13, through the medium of lateral wings 14 formed integrally with the guide 11, and rivets 15 or other suitable securing elements which pass through the wings and through the flange 12 in the manner illustrated.

The plate 13 is designed to be placed upon the top of a table or other suitable support, here designated 16, with the flange 12 extending downwardly across an edge thereof whereby the guide is vertically disposed and also the post 10 mounted therein. Suitable securing elements such as screws 17 are passed through the plate 13 into the underlying support to maintain the device in fixed position and the plate 13, being of substantial width and length, provides a suitable wear surface upon which cans may be positioned preparatory to the application thereto of the cutter device.

As shown particularly in Figures 2, 4 and 6 the post 10 has an inner face portion 18 which is inclined slightly toward the plate 13 or in other words extends oblique to the length of the post for the purpose of disposing the hereinafter specifically described can rim engaging supporting wheel for rotation on an axis which is inclined slightly from the horizontal.

Above the inclined portion 18 of the post, is positioned the substantially U-shaped body member which is generally designated 19 and which comprises the back plate 20 and the top and bottom arm plates 21 and 22 respectively.

At the free inner end of the bottom arm plate are the spaced upwardly and backwardly curved portions 23 which form integral continuations of the plate and which function as guides for a portion of a cutter supporting spring as hereinafter described.

The numeral 24 generally designates the can rest spring plate which is positioned against the back of the plate 20 and extends downwardly below the bottom arm plate 22 where it joins the inwardly extending angled portion 25 which constitutes the can rest spring. This can rest spring 25 is biased to move upwardly or rise to the position shown in Figure 6 when no opposition is offered to such movement such as will be hereinafter described.

The forward or inner end of the can rest spring 25 has extending therefrom the spaced upwardly and reversely curved resilient arms 26 which enclose the guides 23 and are in spaced parallel relation therewith when the spring 25 and bottom arm plate are in parallel relation, as shown in Figure 4.

As illustrated the body plate 19 and the can rest spring plate 24 are secured to the upper end of the post 10 by the long rivet pins 27 and interposed between the post and the plate 24 and also held in position by the pins 27, is a main spring plate 28. The upper end of this plate 28 is formed integrally with the right angularly extending top portion 29 which is disposed over and rests upon the top end of the post 10 and is

joined, through the medium of the looped portion 30, which constitutes the spring element, with a horizontal top or head plate 31 which lies over the plate 29 and extends across the top arm plate 21. This head plate 31 is formed integrally with the depending knife or cutter supporting plate 32 which extends down across the free ends of the top and bottom arm plates 21 and 22, the lower end of the plate 32 being reduced in width to provide the central extension 32' which passes between the spaced ends of the spring arms 26 and the guides 23 as is clearly illustrated in Figure 1.

Upon the inner side of this extension of the cutter supporting plate, is secured, by means of the screws 33 or in any other suitable manner, the knife blade cutter 34 which has the oblique cutting edge 35 which is disposed in a plane beneath the can rest spring 25.

The angular relation between the cutter blade supporting plate and the head plate 31 is made rigid whereby to prevent any relative movement between these plates, by the provision of the narrow web flanges at opposite sides of these plates, as best seen in Figures 2, 4 and 5 where such flanges are designated 36. Thus it will be seen that all flexing or bending action in this unit takes place in the looped spring portion 30 which is biased so that when downward pressure upon the top head plate 31 is removed, in the manner hereinafter described, the head plate will rise to shift the cutter 34 upwardly and outwardly as illustrated in Figure 6.

As will be readily apparent upon reference to Figures 4 and 6 the free ends of the spring arms 26 are so disposed that when the cutter supporting plate is pressed down to the vertical position shown in Figure 4, the lower edges thereof at opposite sides of the extensions 32', will bear upon the upper sides of the spring arms 26 and flex the can rest spring downwardly to the horizontal position in which it is shown in Figure 4. When such down pressure, by which the cutter supporting plate 32 is maintained in vertical position, is relieved so that the cutter plate and head plate may rise as shown in Figure 6, the can rest spring plate will move upwardly as shown in this last mentioned figure and as is also shown such upward movement will be limited through contact between the spring arms 26 and the guides 23.

The top and bottom arm plates 21 and 22 are suitably apertured to receive the ends of the guide sleeve 37, which ends are firmly secured to such arm plates so that the sleeve is held against movement.

Extending through substantially the entire length of the sleeve 37 is a tubular guide and bearing sleeve 38, the upper end of which is formed integrally with the disk head 39 which rests upon the top of the head plate 31 of the cutter supporting element. This guide and bearing sleeve 38 also passes through a suitable opening 40 which is formed in the head plate 31 and which is of sufficient size to permit the head plate 31 to shift from a horizontal position to an inclined position and at the same time cause the guide bearing sleeve to move in a straight line.

Rotatably supported in and extending through the guide and bearing sleeve 38 is a driving shaft 41. The lower end of this shaft carries a miter gear 42, a portion of which is rotatably positioned in an opening 43 formed in the can rest spring plate 25, which opening is of sufficient diameter to permit the spring plate 25 to shift relative

to the gear, without binding thereon. The teeth of this gear 42 are at all times below the spring plate 25.

While the gear 42 has been illustrated as being formed in one piece with the shaft 41, it is to be understood that the invention is not limited to this construction but that the gear may be attached to the shaft as a separate unit, if desired.

Disposed above the disk 39 is an upright substantially U-shaped frame 44 which comprises the horizontal bottom portion 45 and the spaced vertical or upright arms 46. The upper end of the driving shaft 41 extends through the horizontal portion 45 of this frame and is secured in and against rotation relative to, a cross plate 47 which is secured between the arms 46 above the horizontal portion 45 of the frame as is most clearly seen in Figures 1, 4 and 6.

Each of the arms 46 of the frame 44 has the top edge cut down slightly at the back of the frame to form the lowered stop shoulder 48. These shoulders provided by the two arms 46, limit the swinging movement of the hereinafter described operating handle.

Disposed over and enclosing the frame 44 is the handle yoke 49 which is also of substantially U-shaped form and is arranged in inverted position and comprises the side portions or wings 50 which are connected by the transverse web 51. The yoke frame 49 is of a width materially greater than the U-frame 44, as shown in Figure 1, and the arms 46 of the frame 44 are spaced from the side wings 50 of the yoke and such arms and wings are pivotally connected together by the transverse shaft 52 which extends across the upper end of the shaft 41. As will be readily seen the yoke 49 oscillates on the pivot shaft or pin 52 and on the upright arms 46 and such oscillation is effected through the medium of the crank lever 53 which is secured at one end by the rivets 54 or in any other suitable manner, to the top of the transverse portion 51 of the yoke and carries at its outer end the hand grip or knob 55.

The top or transverse portion 51 of the yoke 49 is set forwardly slightly with respect to the pivot pin or shaft 52 so that when the hand crank 53 is in horizontal position the back edge of the portion 51 will be a substantial distance forwardly of the stop shoulders 48 as shown particularly in Figures 2 and 4, but when the handle is swung upwardly and rearwardly, the back edge of the portion 51 will swing down into engagement with the stop shoulders 48 and thus limit the swinging movement of the lower ends of the side portions or wings 50 of the yoke, as shown in Figure 6.

Each wing 50 of the yoke carries a pivot pin 56 which extends inwardly toward but terminates short of a vertical arm 46 of the U-shaped frame 44. Each of these pivot pins carries a bearing wheel 57, the periphery of which has constant contact with the underlying top surface of the head 39, when the crank is in its down, horizontal or operative position as shown in Figures 2 and 4. When the handle is raised to its inoperative position the bearing wheels are free of contact with the head 39, as shown in Figure 6 and the head plate 31 is then free to rise and lift the bearing sleeve on the driving shaft 41. When so lifted, the top of the disk head 39 engages against the underside of the cross member 45 of the U-frame 44. It will also be apparent that this shifting of the crank 53 to the raised or inoperative position results in the rising and outward movement of the cutter knife.

Positioned against the inclined inside face 18 of the post 10 is a stop plate 56' which is maintained in position by the relatively long bolt 57' which has the reduced portion 58 which extends through the plate 56' and through the post 10 and receives the securing nut 59 upon its outer end.

A portion of the length of the bolt 57' from the forward end or head end thereof constitutes a bearing or arbor 60 upon which is rotatably mounted the relatively long hub portion 61 of a miter gear 62. Interposed between the bearing portion 60 of the bolt and the stop plate 56', is a spacer collar 63.

The stop plate 56' limits the downward movement of the post 10 through the base guide 11. This stop plate prevents the driven miter gear and the can driving wheel 64 which forms an integral part of the gear, from engaging the base plate 13. Obviously, this stop plate may, if desired, be made as an integral part of the plate 28.

The miter gear 62 is in toothed connection with the shaft driven miter gear 42 and the integrally formed can rim engaging driving wheel 64 is provided with the peripheral teeth 65 which, when the can top cutting knife 34 is in lowered or operative position, positions close to the inner side of the knife as shown in Figure 4. As is also shown in this figure the teeth 65 are in relatively close proximity to the underside of the spring plate 25 and it will therefore be understood that when the device is in use, the can rim flange will rest upon the teeth 65 and its top edge will bear against the underside of the spring plate 25, the cutting edge of the knife penetrating the can top or head and engaging against the innerside of the flange in opposed relation with the teeth 65.

When the operating crank or handle 53 is in down or horizontal position as shown in Figures 1, 2, 3 and 4, the axes of the pivot pins 56 will be in line with the axis of the drive wheel shaft 41 so that the bearing wheels 57 roll upon the flange 39 in substantially a true circle in relation to the axis of the shaft 41. When the operating handle 53 is in the position illustrated in Figure 2 the axis of the pivot pin or shaft 52 is slightly forward of the axis of the driving wheel shaft to prevent the handle 53 from accidentally swinging upwardly from the illustrated position.

Figure 7 illustrates a slight modification of the structure shown in Figures 1 to 6 to provide for the use of a disk or circular type cutter in place of the blade type. All of the parts are unchanged with the exception of the lower end portion of the cutter supporting plate. In this figure the lower end portion of such plate, corresponding to the portion 32', Figure 1, is designated 32'' and, as shown, this lower portion is extended at a downward and outward inclination as indicated at 32''' and this inclined portion has fixed therein the reduced and screw threaded end 66 of a pivot bolt 67 which extends inwardly and downwardly. Upon the bolt 67 is rotatably mounted the disk cutter 68 which has a relatively long hub portion 69 whereby the desired degree of stability is given the cutter. A lock nut 70 is threaded upon the reduced threaded portion 66 of the bolt whereby to securely maintain the latter in position.

It will be readily seen that the disk cutter 68 operates in association with the can rim engaging driving wheel 64 in exactly the same manner as does the knife 34 and accordingly it is not be-

lieved that a further description of the arrangement and operation of this modified structure will be necessary.

Figure 8 illustrates a modified construction of the opener as shown in Figures 1 to 6, inclusive, for mounting on a supporting arm which may be attached to and extend from a wall or other vertical supporting surface. Provision is also made in this modified construction for a second can rest to maintain the side of a can a predetermined distance away from the lower face of the can driving wheel.

In this modified construction the plate body forming a part of the knife or cutter carrying unit is designated 28*a* and the can rest spring plate and the back plate of the U-shaped body are designated respectively 24*a* and 20*a*. Since the structures of which these two last mentioned plates form a part and also the structural features associated with the upper part of the plate 28*a* and the control and operating means, are exactly the same as in the previously described figures, it is not believed that it is necessary to give a detailed description of such parts in connection with this modified construction.

The supporting arm for the construction shown in Figure 8 is generally designated 71. The forward end portion only of the arm is shown, it being understood that the opposite end may be attached to or mounted on a supporting structure in any manner desired as, for example, by the use of a wall supported bracket such as that illustrated in my United States Patent No. 2,351,531 of June 13, 1944, or those illustrated in my United States patent applications Serial No. 509,303, now Patent No. 2,411,448, filed November 6, 1943; Serial No. 540,848, now Patent No. 2,437,647, filed June 17, 1944; or Serial No. 549,722, now Patent No. 2,427,613, filed August 16, 1944.

As shown, the forward end portion of the bracket arm 71 is reduced as indicated at 72, and extended through suitable aligned slots formed in the three plates 20*a*, 24*a* and 28*a*, the forward end of this reduced portion or tongue 72 being suitably swaged to lock or bind the parts firmly together and against the end of the arm.

The plate portion 28*a* of the cutter supporting unit is extended downwardly and is shaped to form a bracing terminus which is generally designated 73 and which comprises the two spaced parallel portions 74 and 75 and the lower intermediate or connecting portion 76. These portions are set at a slight angle from the vertical to correspond with the angular disposition of the face portion 18 of the post 10 and the free upper end of the vertical portion 75 is suitably notched as indicated at 77 to receive the lower edge of the arm 71.

Disposed against the inner face of the portion 74 is the can rest 78 which comprises the lower horizontal portion 79 and the angled upwardly extending portion 80.

A spacer sleeve 81 is disposed between the two portions 74 and 75 of the bracing element, through which extends the reduced rear end portion of the pin or bolt 57*a*, which is of the same form and construction as the bolt 57' and serves the same function.

It will be readily seen that in the use of the modified construction shown in Figure 8, when a can is placed in position with the flange or rim bead thereof resting upon the toothed periphery of the driving wheel, the side of the can will bear against the end 79*a* of the can rest and the lateral thrust which will be imposed against the can rest by the weight of the can and any slight pressure which might be imposed by the knife, will be resisted and sustained by the part 73 which is braced against the lower edge of the supporting arm 71.

Figures 9 and 10 illustrate structure corresponding to that shown in my Patent No. 2,386,490 of October 9, 1945, but having a modified can rim supporting wheel and a cutter supporting spring means such as is here illustrated in Figures 1 to 6, the structure of Figure 9 being shown mounted upon a vertically movable support such as that illustrated in Figures 1 to 6 and described in detail in connection with such figures.

The can rim engaging and supporting wheel in these two figures is of the same design and is supported upon the same type of supporting shaft, therefore the same numerals will be employed in connection with the parts which are duplicated in these two figures.

In Figure 9 the cutter supporting spring includes, as in the preceding figures, a back plate which is here designated 28*b*, such spring being generally designated 30*b*. This plate is positioned against the inner side of the post 10*b* and it also has positioned against its inner face the plate 20*b* which forms a part of the U-shaped body, generally designated 19*b*.

Rivets 27*b* pass through the plates 20*b* and 28*b* to secure the structure to the post.

The numeral 84*b* designates the driving wheel which engages the outer side of the can rim and by means of which rotary motion is imparted to the can by means of the crank 53*b*.

The numeral 82 generally designates the can rim engaging and supporting unit. This unit comprises the wheel 83 which has a flat face which is positioned toward the side of the can and which, at its opposite side, is formed integrally with the relatively long hub 84. This wheel and hub are rotatably mounted upon the enlarged forward end portion 85 of the pivot bolt 86, the opposite end portion of which bolt is of reduced diameter as indicated at 87. This reduced portion of the bolt, when the device is mounted upon the post 10*b*, passes through the stop plate 56*b* and through the post as shown in Figure 9 and is maintained in position by the securing nut 59*b*. The unit 82 also includes the spacer collar 88 which engages at one side against the plate 56*b* when used in the post structure and at its other side it engages against the end of the pivot pin portion 85.

The portion 85 of the pivot bolt has the opposite flat surfaces 89 and a collar 90, having corresponding flattened portions, not shown, engages upon the pivot bolt 85 and such flattened portions engage the flattened faces 89 of the bolt to maintain the collar against rotation. This collar is engaged upon one side by the end of the hub 84 and upon its other side it is engaged by an end of the coil spring 91 which encircles the spacer 88 as shown in Figure 10.

In the post mounted form of the invention the spring 91 bears against the stop plate 56*b*.

The device as shown in Figure 10 is mounted upon a bracket arm 71*a*, the forward end of which arm is secured to the body plate 20*c* and 28*c* in the same manner as described in connection with the structure shown in Figure 8. Here, as in the previous structure, the lower end of the plate 28*c* is formed to provide the bracing terminal portion 73*a* which receives the reduced rear end portion 87 of the pivot bolt and which has disposed against its inner side the upright portion of the

can rest which is here generally designated 78a. In this construction as will be readily seen, the spring 91 bears against the upright portion of the can rest.

It will be seen upon reference to Figure 10 that the unit 82 is so constructed that the wheel 83 may have slight axial movement upon the pivot bolt 86 against the tension of the spring 91, such movement being permitted by reason of a slight clearance between the collar or washer 90 and the adjacent end of the spacer 88. This provides for the ready passage of a thickened portion of the can wall such as a seam or the like, between the supporting wheel 83 and the cutter.

As will be seen the structure shown in Figures 9 and 10 does not provide for a transmission of driving motion to the can rim flange through the medium of the supporting wheel but such driving motion is transmitted to the side of the flange by the periphery of the wheel 81b which is provided with oblique teeth for maintaining a non-slipping connection with the flange as described in my prior patent hereinbefore referred to.

In Figure 11 there is shown a modified construction of the device as illustrated in Figures 1 to 6, such modification residing in the cutter supporting spring construction.

Although illustrated as applied to the structure shown in Figures 1 to 6 of the present application, it is to be understood that the modification of Figure 11 may be applied to any structure shown in the present application or my prior Patent No. 2,386,490 of October 9, 1945, and irrespective of whether the opener structure is mounted on a vertical supporting post or on a horizontal arm extending from a wall or other supporting surface.

In this modified construction the numeral 92 generally designates the cutter supporting head which, unlike the previously described cutter supporting springs, is not of resilient material. This head comprises a top portion 93 and inner and outer vertical portions 94 and 95 respectively which have their sides joined by the continuous stiffening web or flange 96.

The rear vertical portion 95 is centrally cut out to receive or straddle the upper end of the supporting post 10c or a horizontal supporting bracket arm, not shown, if the device is to be used mounted upon such an arm. Thus the vertical portion 95 is formed to provide two depending legs 95a between which the post is located.

The numeral 97 designates the body plate with which is formed the right angularly extending lower arm 98 corresponding to the lower or bottom arm plate 22. The upper end of the body plate also has an upper arm plate which is not shown but which corresponds to the top arm plate 21 and between these arm plates is secured the sleeve 99. The mechanism within the sleeve and upon the top of the knife carrying unit 92 is the same as described in connection with the preceding figures, particularly Figures 1 to 6 inclusive and accordingly it is believed that further description of this mechanism in Figure 11 is unnecessary.

Also forming a part of the presently described modified structure is the can rest unit which comprises the vertical plate 100 and the horizontal can rest spring portion 101, the vertical portion 100 being secured to the upper end of the post 10c, by means of the rivet pins 27c, between the plate 97 and the plate 102, the lower portion of which may be extended to form the stop plate 56c. However, this stop plate may be a separate element if desired as in the preceding structure.

Formed integral with the lower part of the plate 102, at each side of the post 10c, is the spaced upwardly extending spring arm 103 which engages the inner side of a leg 95a, to which it is secured by rivets 104 or in any other suitable manner. These vertical spring arms 103, which, at their lower ends, are rounded to join the bottom part of the plate 102, form a resilient support for the unit 92, the central downwardly extended portion of the part 94 of which carries the cutter 105. Thus it will be seen that when the hand crank 53c is in down or horizontal position for the operation of the device, the cutter will be depressed or forced downwardly so as to have its cutting edge in proper position with respect to the cam rim engaging and driving wheel 64c but when the handle is raised the spring arms 103 will shift the forward part 94 of the knife carrier to raise the same upwardly and away from the can driving wheel.

It is to be understood that the spring arms 103 may be turned upwardly at the illustrated point or at any other point above or below the illustrated point in order to effect the desired lateral relation between the driving wheel 64c and the cutter 105 as the cutter is raised or lowered.

It is also to be understood that the disk or circular type cutter illustrated in Figure 7 may be used with the constructions illustrated in Figures 8, 9, 10, or 11, if desired.

I claim:

1. A rotary type can opener, comprising a head unit having a top plate and an angularly related depending cutter supporting plate, a cutter carried by said supporting plate, a support, spring biased means coupling said top plate with the support and constantly urging movement of the unit and cutter in one direction, a wheel rotatably supported beneath the head unit adjacent to the cutter and adapted to engage beneath and support a can rim flange, means for moving the head unit in the opposite direction against the spring biased means to bring the cutter into working relation with the wheel, means for transmitting rotary movement to a can supported by its rim on the wheel, and stiffening means connecting the top and depending plates together to maintain a rigid non-flexing relation therebetween and to restrict flexing action to the spring biased coupling means.

2. A can opener of the type set forth in claim 1, wherein the said rotary movement transmitting means comprises a rotatable driving member, and a positive driving coupling between the said driving member and said wheel.

3. A rotary type can opener of the character set forth in claim 1, wherein the said rotary movement transmitting means comprises a second wheel rotatably supported for engagement against a side of the can rim, and means for turning the second wheel.

4. A can opener of the character described, comprising a support, a plate secured to the support, a cutter element carrier resiliently coupled with said plate and including a horizontal top portion and a depending portion, a cutter element carried by the depending portion, a body secured to the support and lying beneath the top portion of the cutter element carrier and between the depending portion and the support, a shaft rotatably supported by the body and extending through the top portion of the cutter element carrier, said resilient coupling normally

urging upward movement of the cutter element carrier to effect shifting of the cutter outwardly from the shaft, means for urging movement of the cutter element carrier in the opposite direction to move the cutter toward such shaft, means for effecting rotation of the shaft, a pivot pin supported beneath said shaft and extending oblique to the axis of the shaft, a wheel rotatably supported upon the pivot pin and having its periphery adjacent to the cutter, said wheel being maintained on the pivot pin in a plane oblique to the adjacent side wall of a can applied to the cutter whereby the peripheral face of the wheel will bear against the underside of the rim flange of a can to support the latter, and means operated by and upon rotation of the shaft for imparting rotary motion to a can supported by its rim upon said wheel.

5. A can opener of the character stated in claim 4, wherein the first mentioned support comprises a post, a plate designed to be secured to a horizontal supporting surface, and a guide integral with the plate having the post slidably extended therethrough.

6. A rotary type can opener, comprising a body portion designed to be disposed adjacent to the top of a cam rim flange, a wheel carried by the body portion for rotation, a support to which said body portion is secured, a pivot pin carried by said support and extending obliquely across the rotary axis of said wheel and in spaced relation with the wheel, a wheel mounted for rotation upon the pivot pin and having its periphery adjacent to the periphery of the first wheel, a cutter carried by the body for movement relative to the wheels and adapted to secure the flange of a can rim between the second mentioned wheel and the cutter, the second mentioned wheel being adapted to engage the underside of a can rim flange for the support of the latter, means for moving the cutter relative to the second mentioned wheel, means for rotating the first mentioned wheel, and means for transmitting rotary motion of the first mentioned wheel to the flange of the can engaged on the periphery of the second mentioned wheel to effect rotation of the can relative to the cutter.

7. A can opener of the character stated in claim 6, wherein said support comprises a post, a plate member adapted to be secured to a supporting body, a guide formed integral with the plate and adapted to receive said post for maintaining the post in a vertical position, and a stop carried by the post for limiting its downward movement through the guide.

8. A can opener of the character stated in claim 6, with a can rest spring plate secured to the support and disposed to extend over the periphery of the second mentioned wheel and transversely of the cutter and adapted to be engaged by the top edge of the can rim flange when the latter is in position upon the periphery of the second mentioned wheel, said spring plate being biased to move away from the periphery of the second mentioned wheel, and means for engaging the spring plate and flexing the same to a predetermined position adjacent to the periphery of the second mentioned wheel by and upon movement of the body in a direction to bring the cutter and second mentioned wheel into operative relation.

9. A rotary type can opener comprising a support, a pair of arm plates secured to the support in vertically spaced relation, a resilient can rest plate secured to the support and disposed beneath

the lower one of the pair of arm plates and biased to normally move upward toward the adjacent arm plate, a cutter support including a top plate and a depending plate, means resiliently coupling the top plate with the support and normally urging the depending plate upwardly and outwardly with respect to the upper and lower arm plates, a cutter carried by the depending plate, a rotatable shaft extending vertically through the said pair of arm plates and through the can rest plate and top plate, means connected with the upper end of the shaft for imparting rotary motion thereto, said means being movable to exert downward pressure against said top plate whereby to oscillate the depending plate downwardly and inwardly against the action of said resilient means, said depending plate when moved downwardly functioning to force said can rest plate downwardly, a can rim flange engaging and supporting wheel rotatably mounted beneath the can rest plate for cooperative action with said cutter when the cutter is moved downwardly, and a driving connection between said wheel and said shaft for imparting rotary motion to the wheel.

10. A rotary type can opener of the character stated in claim 9, wherein said wheel is supported from said support to turn on an axis extending oblique to the axis of the shaft whereby the wheel turns in an inclined plane.

11. A rotary type can opener of the character stated in claim 9, wherein said wheel includes gear teeth, and a gear carried by the shaft and operatively coupled with the gear teeth of the wheel.

12. A rotary can opener of the character stated in claim 9, wherein said resilient can rest plate includes a pair of upwardly extending substantially semicircular arms having their upper ends disposed in the line of movement of portions of the lower edge of the depending plate to be engaged by such plate upon movement thereof in a direction to bring the cutter into operative relation with said wheel.

13. A rotary type can opener comprising a support, a body secured to the support and including vertically spaced upper and lower arm plates, a shaft extending between and through the arm plates and supported thereby for rotation, a cutter spring unit including a vertical plate secured to the support, a head plate and a depending plate forming an integral continuation of the head plate, a spring element between the head plate and the vertical plate, a cutter carried by the depending plate, means operatively connected with the upper end of the shaft for effecting rotation of the same and for applying down thrust to said head plate to move the same against the action of said spring to bring the cutter supporting depending plate into vertical position, a can rim flange engaging and supporting wheel, a pivot pin carried from said support and having said wheel rotatably mounted thereon, said pin being disposed across the lower end of said shaft and oblique to the length of the shaft whereby the top part of the wheel is closer to the cutter than the lower part of the wheel when the cutter is in working position relative to the wheel, a can rim flange engaging driving wheel carried upon the lower end of the shaft and having a portion of its periphery in close proximity to and above the periphery of the first wheel, and means yieldingly holding the first wheel against axial movement upon the pivot pin.

14. A rotary type can opener of the character stated in claim 13, wherein the support comprises

a vertical post, a plate adapted to be secured to the top of a supporting surface such as a table or the like, and a guide carried by the plate and having said post slidably extended therethrough.

15. A rotary type can opener of the character stated in claim 13, wherein the supporting means for said pivot pin includes a plate having spaced relation with the first mentioned wheel, said first mentioned wheel including a hub, the said yieldable means for the first mentioned wheel including a coil spring interposed between the hub and the last mentioned plate.

16. A rotary type can opener of the character stated in claim 13, wherein the supporting means for said pivot pin includes a plate having spaced relation with the first mentioned wheel, said first mentioned wheel including a hub, the said yieldable means for the first mentioned wheel including a coil spring interposed between the hub and the last mentioned plate, and said support comprising a vertical post against which said last mentioned plate is positioned, a plate adapted to be secured to the top of a supporting body such as a table or the like, a guide secured to the last mentioned plate and adapted to have said post slidably positioned therein, the plate against which said spring means bears functioning as a stop to limit the downward movement of the post through the guide.

17. A rotary type can opener comprising a support, a body carried by the support and including top and bottom arm plates, means carried by the arm plates forming a shaft guide and bearing, a rotary shaft extending through said guide and bearing, a cutter carrying head unit including a head plate disposed above said top arm plate, a depending plate spaced from said body and support and a pair of depending legs having said support interposed therebetween, a pair of spring arms secured to the support and each secured to one of said legs, said spring arms being biased to normally swing said head unit upwardly to effect movement of the depending plate away from the shaft, a cutter element carried by the depending plate, a can rim flange engaging wheel rotatably supported below the bottom arm plate for cooperative action with said cutter, a driving connection between said shaft and said wheel, and means operatively connected with the shaft for effecting rotation of the same and for also applying downward thrust to said head member to move the latter against the bias of the spring arms to bring the cutter into cooperative relation with said wheel.

18. A rotary type can opener of the type stated in claim 17, with a resilient can rest plate connected with said support and disposed beneath said bottom arm plate and above the can rim flange engaging supporting wheel, and means for applying downward thrust to said resilient can rest plate upon downward swinging of the cutter supporting plate.

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