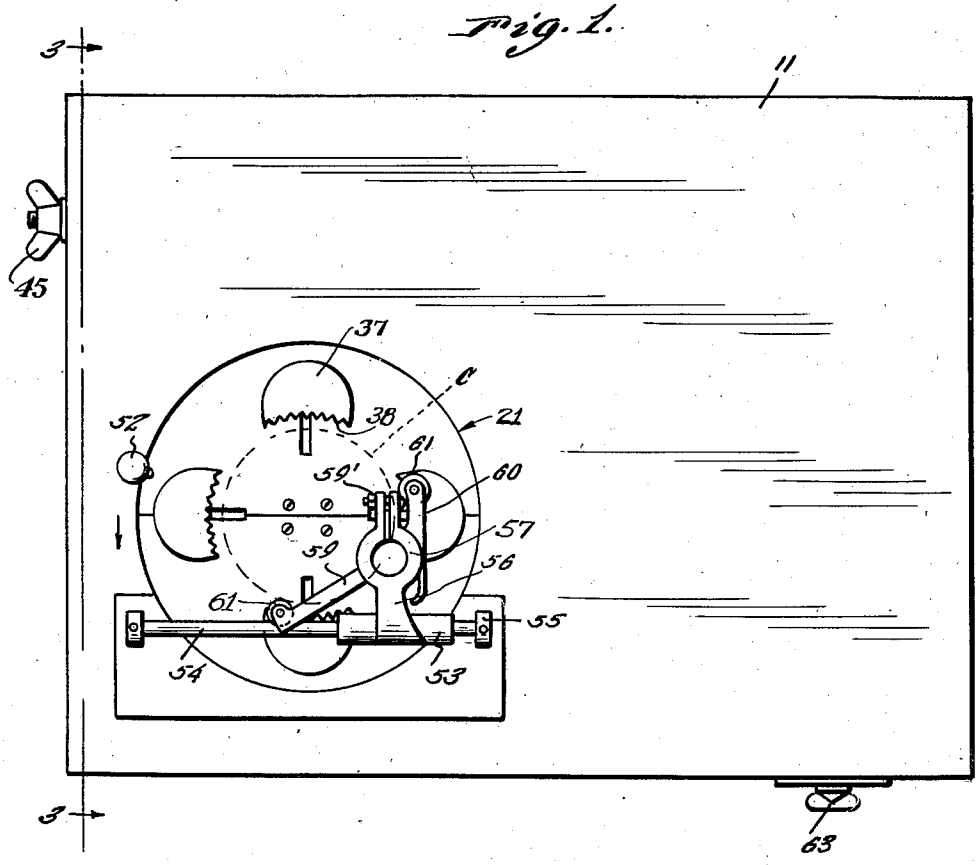
Dec. 27, 1932. E. L. McCOLLOM 1,892,582

ELECTRIC CAN OPENER

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Fig. 1.



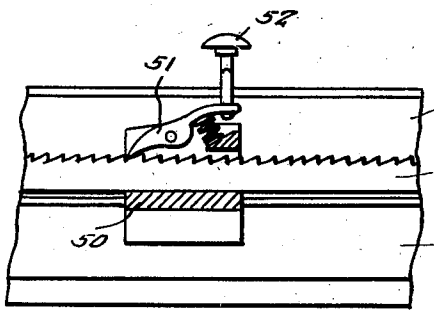


Fig. 2.

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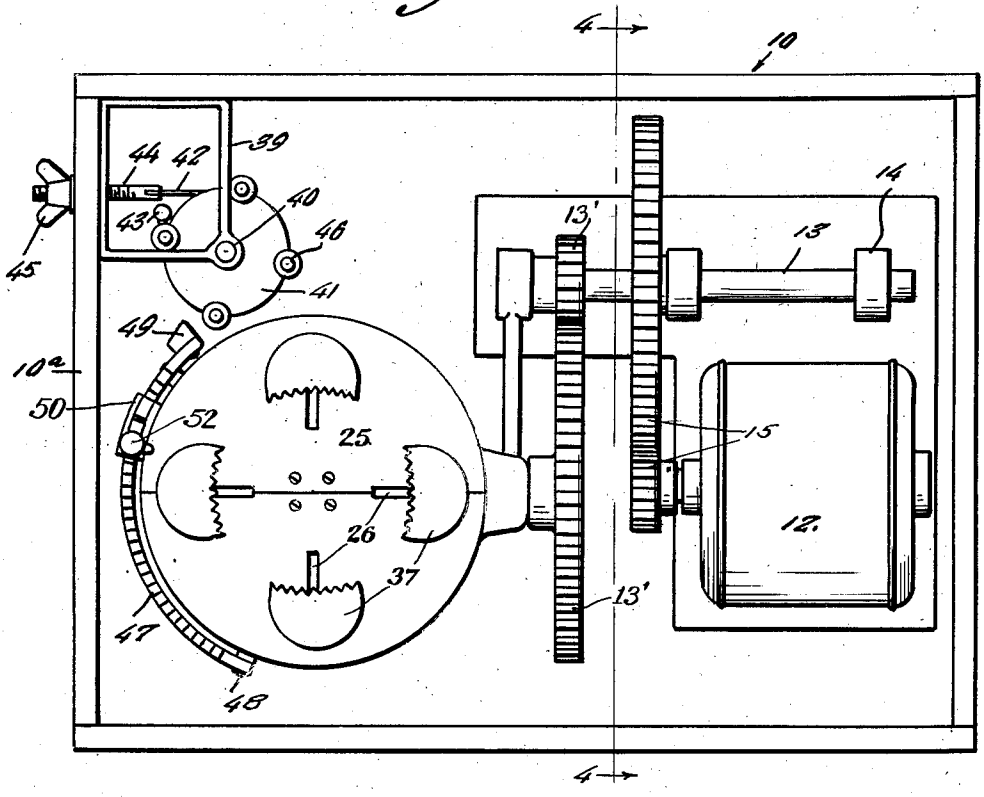
Attorney

Dec. 27, 1932. E. L. McCOLLOM 1,892,582

ELECTRIC CAN OPENER

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Fig. 2.



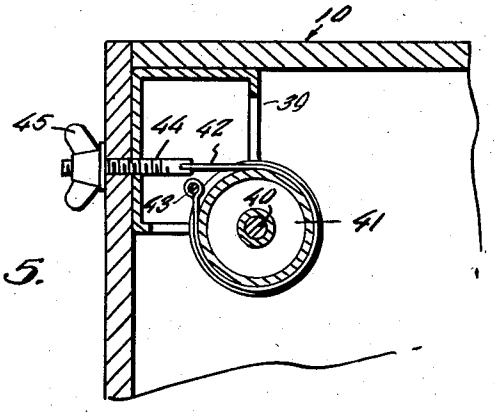


Fig. 5.

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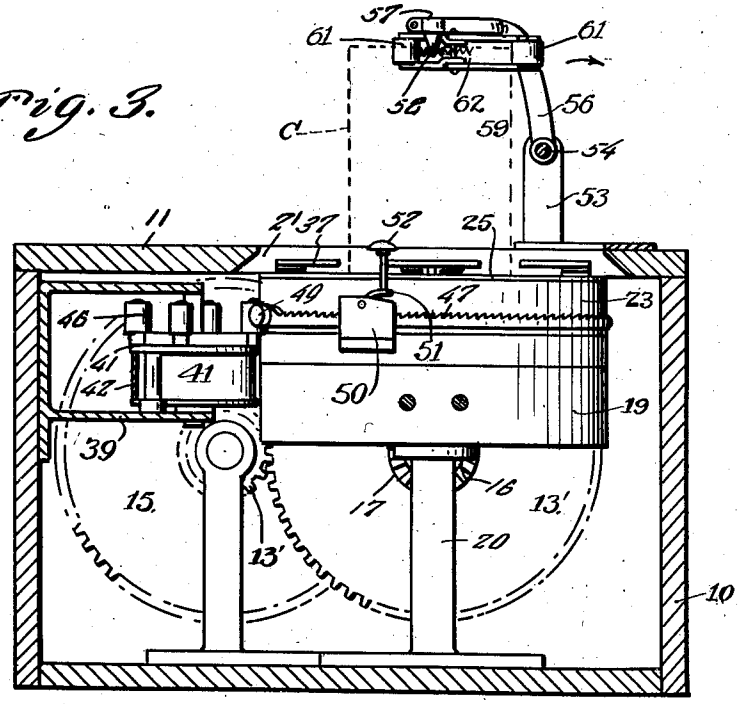
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ELECTRIC CAN OPENER

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Fig. 3.



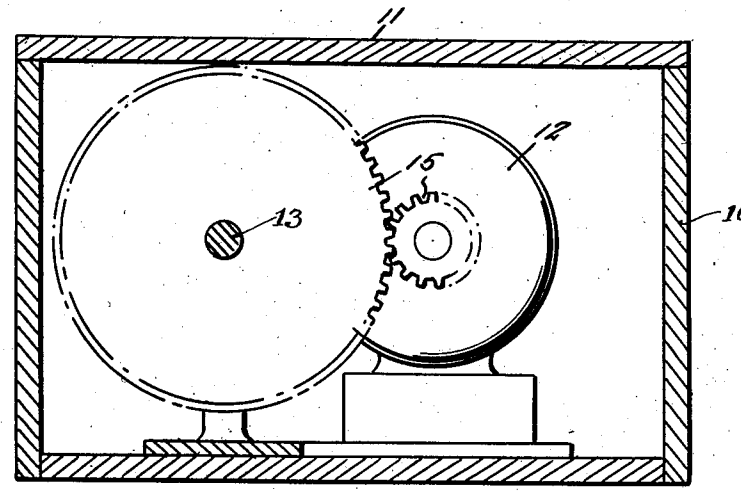


Fig. 4.

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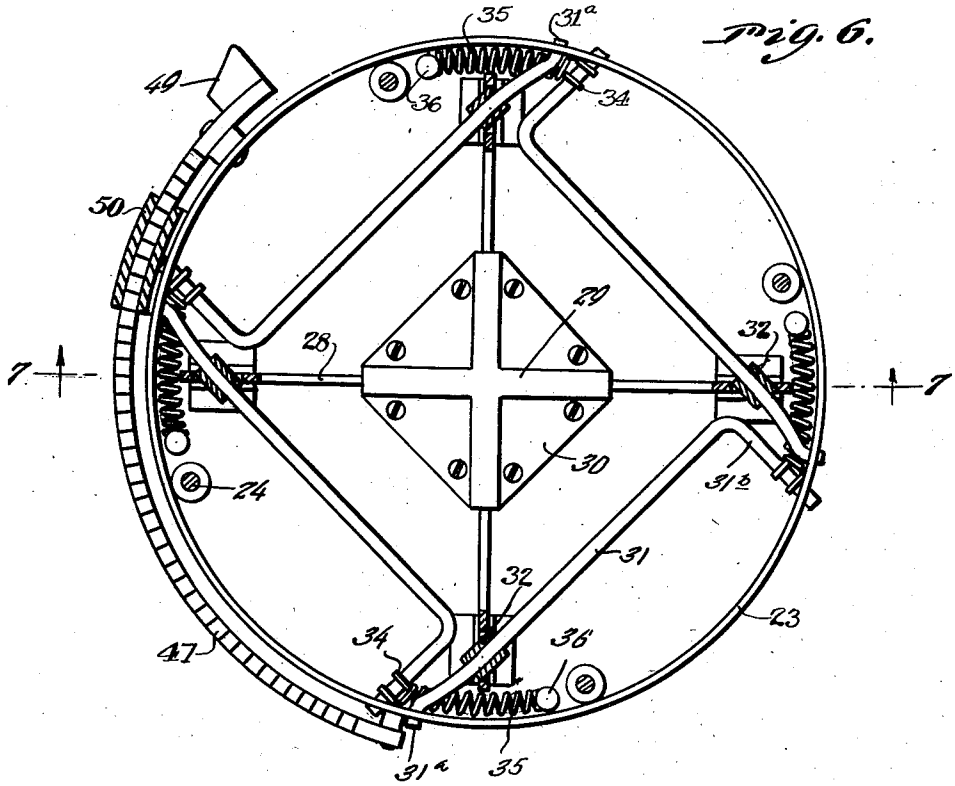
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ELECTRIC CAN OPENER

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Fig. 6.



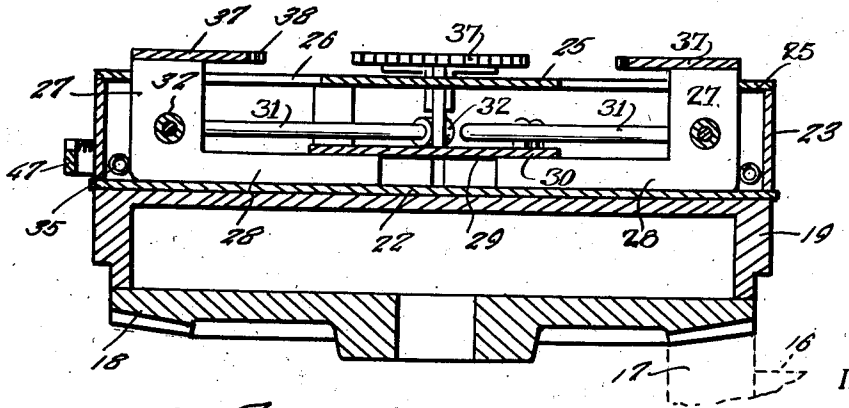


Fig. 7.

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UNITED STATES PATENT OFFICE

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ELECTRIC CAN OPENER

Application filed August 11, 1931. Serial No. 556,442.

The object of this invention is to provide a device for opening cans, whereby to facilitate and minimize the labor usually required for opening cans by manually operated tools as is now the common practice.

A still further object of the invention is to provide a motor driven can opener capable of being used for opening cans of varying size, and which will permit of the opening of the can with little or no danger of injury to the operator, will insure a complete removal of the top of the can, consists of comparatively few parts, not likely to easily get out of order, is thoroughly practical and efficient in operation, and otherwise well adapted for the purpose intended.

Other objects and advantages of the invention will be apparent from a study of the following, taken in connection with the accompanying drawings wherein:

Figure 1 is a top plan view of the can opener.

Figure 2 is a view similar to Figure 1, the lid of the casing being removed.

Figure 3 is a transverse sectional elevational view taken substantially on the line 3—3 of Figure 1.

Figure 4 is a similar view taken substantially on the line 4—4 of Figure 2.

Figure 5 is a fragmentary detail sectional elevational view of a rotatable drum and manually operable brake device associated therewith.

Figure 6 is a top plan view of a turntable, the can supporting disk being removed.

Figure 7 is a transverse sectional view taken substantially on the line 7—7 of Figure 6.

Figure 8 is a fragmentary detail sectional elevational view showing the dog and ratchet means for securing the jaws at the desired adjustment.

With reference more in detail to the drawings, it will be seen that 10 designates generally a box-like casing provided with a removable cover 11.

Suitably arranged in the casing is an electric motor 12 which drives a shaft 13 journalled in bearings 14 through the medium of gearing 15. Power from shaft 13 is transmitted through gearing 13′ to a shaft 16 that is equipped with a beveled pinion 17. Pinion 17 is in mesh with an annular beveled gear 18 provided on the bottom of a hollow turntable 19. See Fig. 7. Turntable 19 is suitably journalled on the upper portion of a standard 20, and through the medium of the shaft and gearing arrangement just described, is driven from the electric motor 12.

The turntable 19 is arranged in alinement with a circular opening 21 provided in the lid 11.

The turntable 19 on the top thereof is provided with a metallic wear plate 22 and is also provided with a circular rim 23 that is separate from the turntable, and on its inner periphery engages vertical rollers 24 arranged in a circular series adjacent the peripheral edge of the wear plate 22. The plate and rollers are attached to the table.

Supported on the upper edge of the rim 23 is a disk like sectional can supporting plate 25 that is provided with a plurality of radial slots 26 through which extend posts 27 provided on the outer ends of sliding bars 28 arranged to slide radially inwardly and outwardly with respect to the axis of the turntable 19.

The bars 28 are slidable in the ends of sleeves 29 arranged in the center of the turntable, and in the present instance, the sleeves are of cruciform arrangement, being pressed upwardly from a plate 30 bolted or otherwise secured to the wear plate 22 so that the sleeves move with the table.

For each bar 28 there is provided a rod 31 that extends through a diagonally disposed sleeve 32 extending through the post 27 of the bar 28.

Each bar 31 has a slightly curved end 31*a* suitably secured to the rim 23, and a lateral end 31*b* secured in a suitable manner to the rim 23. From the foregoing it will be apparent, that when the rim 23 is rotated relative to the turntable, or the turntable is rotated relative to the rim, a radial shifting of the bars 28 will be effected.

To the ends 31*b* of the rods 31 are secured as at 34 the ends of springs 35 that are anchored as at 36 adjacent the rollers 24. The

springs 35 normally urge the rim 23 to rotate in an anti-clockwise direction relative to the turntable 19.

On the upper end of each post 27, is a gripping jaw 37 that is provided with an arcuate toothed edge 38.

From what has been hereinbefore stated, it will be apparent that the jaws 37 are normally disposed radially outwardly with respect to the center of the turntable, and to move the jaws 37 into gripping engagement with a can supported on the center of plate 25, the turntable 19 is rotated while the rim 23 remains stationary thus causing a radial inward shifting movement of the bars 28 in the manner hereinbefore described, inward movement of the bars 28 being limited only by the diameter of the can engaged by the jaws 37.

Rim 23 is held stationary while the turntable 19 rotates to effect an engagement of the jaws with the can, in the following manner. In the corner of the box 10 is suitably mounted a bracket 39 in which is rotatably supported on a vertical axis 40, a drum 41. See Figs. 2 and 3. A brake band 42 is disposed about the periphery of the drum 41 and is anchored at one end as at 43. The free end of the band 42 is suitably connected to an adjusting screw 44 extending through an end wall 10*a* of the casing, and having a wing nut 45 threadedly engaged therewith. On the top of the drum 41 adjacent the periphery thereof is a circular series of stops or rollers 46.

An arcuate rack bar 47 is secured at its ends as at 48 to the rim 23, and at one end the rack bar 47 is provided with a lateral projection or abutment 49 suitably shaped to engage the rollers 46.

The rack bar 47 extends through a sleeve 50 suitably mounted on the periphery of the turntable 19, and pivotally mounted on the sleeve is a spring pressed dog 51 normally engaged with the teeth of the ratchet bar 47. See Fig. 8.

Now, assuming that the jaws 37 are in their radially outward position, and the can to be opened, shown in broken lines in Figure 1 and designated generally by the reference character C, is properly positioned on the plate 25. Motor 12 is energized, causing the turntable 19 to rotate in a clockwise direction. Immediately upon the starting of the motor 12, adjusting screw 44 is adjusted to cause the band 42 to engage the drum 41 so that the drum is held against rotation.

As is apparent from a study of Figure 2, turntable 19 and rim 23 will rotate as a unit until the projection 49 engages a roller 46 arranged in the path of movement of the projection. Upon engagement of the projection 49 with a roller 46, the rim 23 will be held against rotation, while the turntable 19 will continue to revolve. As the turntable 19 continues to revolve, it will be apparent, that sleeve 50 will move relative to the ratchet bar, and springs 35 will be caused to expand, while sleeves 32 will be caused to move along the rods 31 toward the right in Figure 6 causing the bars 28 to move inwardly until the toothed edges 38 of jaws 37 are in gripping engagement with the can C.

The time required for effecting a shifting of the jaws into engagement with the can, will be almost negligible, so that immediately the jaws are in contact with the can, screw 44 is adjusted in a reverse direction for moving the band 42 out of engagement with the drum 41. Thus the rim 23 being retained in the angular adjustment it has now assumed with respect to turntable 19, through the medium of the dog 51 engaging rack bar 47, the turntable 19 and rim 23 will now be free to rotate as a unit, the extension 49 engaging the rollers 46 merely causing the drum 41 to rotate without in any wise imparting rotative action of the rim 23.

A push button 52 operable vertically through a suitable opening provided therefor in the cover plate 11, is connected in any suitable manner with the dog 51 and obviously, after the opening of the can has been completed, and the current to the motor 12 is shut off for stopping the turntable 19, the dog 51 is moved out of engagement with the rack bar 47 by merely pressing down on the push button 52. When dog 51 is thus moved out of engagement with the rack bar 47, it will be apparent that the rim 23, under action of the springs 35 will rotate in an anti-clockwise direction in Figure 6 relative to the turntable 19, thus causing the bars 28 to move radially outwardly with respect to the turntable, and the jaws 37 moving in a corresponding direction with the bars will of course move out of engagement with the can, permitting the open can to be moved from the disk 25.

The cutter or knife structure of the can opener comprises a sleeve 53 slidable on a fixed rod 54 mounted between brackets 55 rising from the lid 11. The sleeve 53 has integral therewith a curved arm 56 the arm 56 adjacent its free end merging into the split ring like clamping portion 57, the ends of which are arranged in opposed relation, and the portion 57 is contacted about a suitable knife or cutting blade 58 through the medium of suitable bolt and nut means 59' engaged with said opposed ends of the clamp like portion 57.

The sleeve 53 is rotatable about the axis of the bar 54 for moving the cutting element 58 into and out of engagement with the top of the can.

Sleeve 53 is retained against longitudinal shifting movement when the cutter is en-

gaged with the can through means of a suitable guide device, which in the present instance comprises a pair of suitably mounted pivotally connected arms 59 and 60, each of which at its free end is equipped with a roller 61 engageable with the peripheral wall of the can.

The arms are normally urged toward the can through the medium of suitable spring means 62.

From the foregoing, it will be seen that when the can has been clamped in position on the disk 25, the arm 56 is swung downwardly so that the knife blade 58 is forced into the top of the can adjacent the periphery of the can. Obviously the knife remains stationary as the can rotates, thus severing the top of the can in an arc of a circle, and when the can has completed one full revolution the top portion of the can may be removed.

Sleeve 53 is readily shiftable longitudinally on bar 54 to accommodate cans of varying diameters.

A suitable control switch 63 for the motor 12 is mounted on a side wall of the casing 10 so that one may have ready control of the operation of the 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. A can opener comprising in combination a turntable, driving means therefor, a rim for the turntable capable of rotation relative thereto, a plurality of bars slidably mounted on the turntable radially relative thereto, a can engaging jaw on each bar, a rod extending obliquely through each bar and secured at its ends to said rim, a spring for each rod anchored to the turntable and secured at one end to one end of its rod, means for imparting rotation to the turntable relative to the rim to cause said bars to move radially in one direction relative to the turntable, and said springs being adapted to cause said rim to rotate relative to the turntable upon release of the last named means whereby to cause said bars to move radially relative to the turntable in an opposite direction.

2. In a device of the character described, a turntable, a rim therefor and separable therefrom, a sleeve fixedly mounted on the turntable, an arcuate rack bar extending through the sleeve and secured at its ends to the rim, a spring pressed pivotally mounted dog on the sleeve engageable with the rack bar to normally retain said rim and turntable in fixed relation to rotate as a unit, work engaging elements mounted on the turntable within the confines of said rim and constrained to move radially relative to the turntable, and means connecting said work engaging elements with the rim for effecting a shifting movement of said elements upon relative movement of said turntable and rim.

3. A can opening machine comprising in combination a turntable, driving means therefor, a rim for the table separate therefrom, dog and ratchet means locking the rim to the table to rotate as a unit, radially shiftable can engaging elements mounted on the turntable, means connecting said elements with the rim, manually operable releasable means to hold the rim fixed during rotation of the turntable whereby to cause said can engaging members to move radially inwardly into gripping engagement with the can to be retained in engagement with the can during rotation of the rim and turntable as a unit, and means for rotating the rim relative to the turntable upon release of said dog and ratchet means and in a direction opposite to the direction of rotation of the turntable whereby to cause said can engaging member to move out of engagement with the can.

4. In a device of the character described, a rotatable element, a plurality of jaws mounted thereon and shiftable radially thereto, an annular member concentric to said rotatable member, rods connected with said annular member, said jaw member having slidable engagement with said rods, spring means normally urging said annular member to rotate in a direction opposite to the direction of rotation of said rotatable member whereby to cause a shifting of the jaws in one direction, releasable means normally connecting said annular member and said rotatable member to rotate as a unit, and being operable to permit the rotatable member to rotate relative to the annular member, releasable means for retaining said annular member against rotation during rotation of the rotatable member whereby to cause said jaws to move inwardly toward one another.

In testimony whereof I affix my signature.

ELZA L. McCOLLOM.