

Dec. 7, 1926.

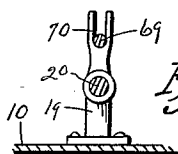
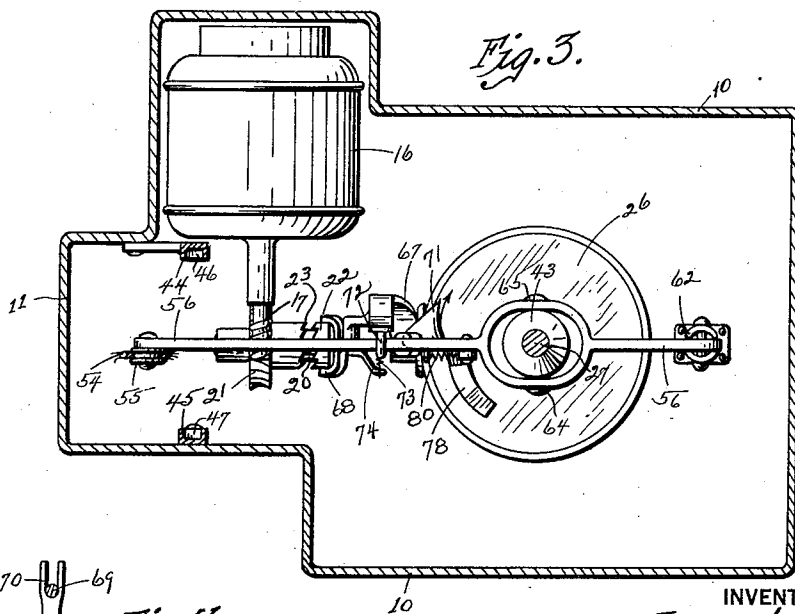
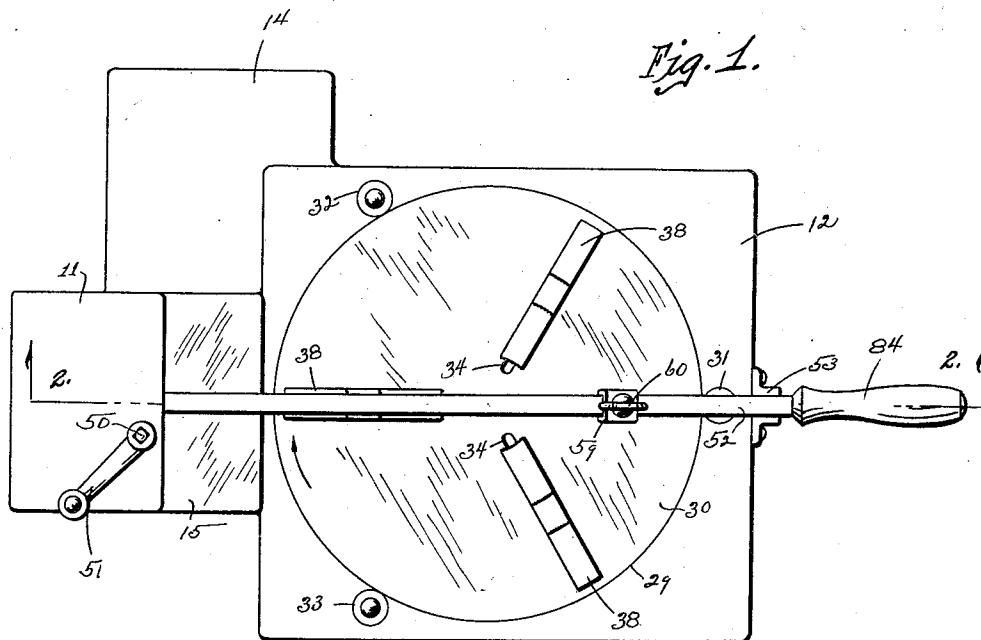
1,610,094

R. J. HODGINS

POWER CAN OPENER

Filed Sept. 25, 1925

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

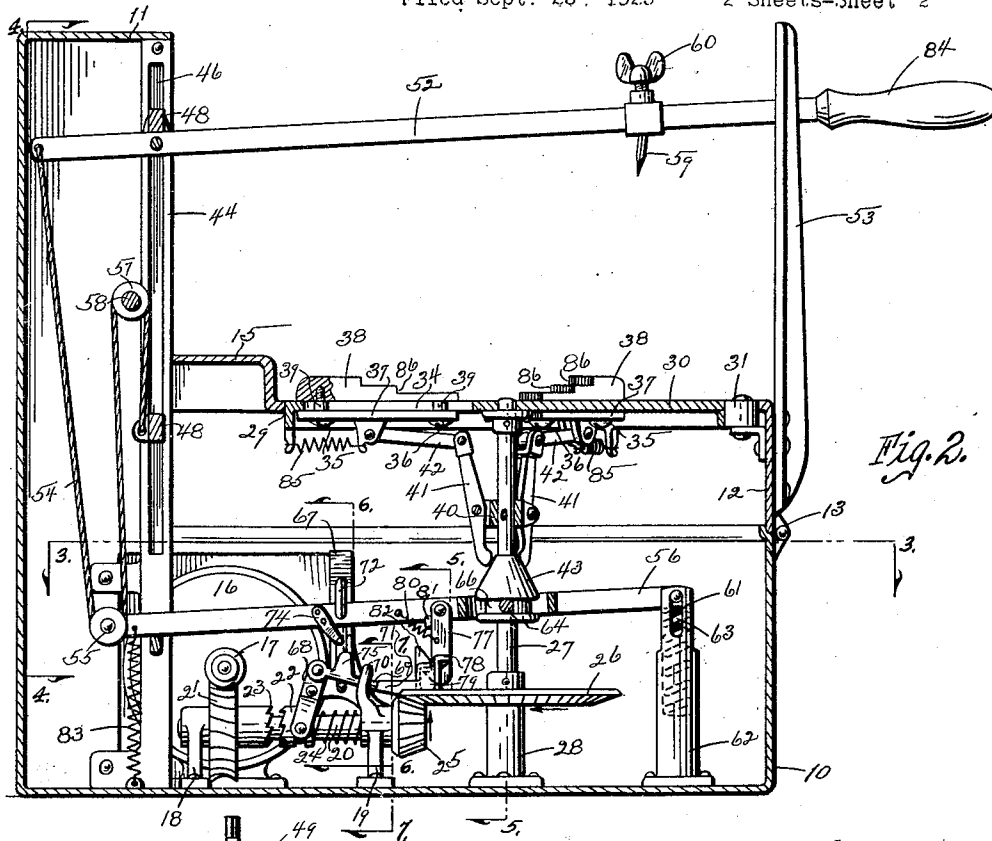


Fig. 2.

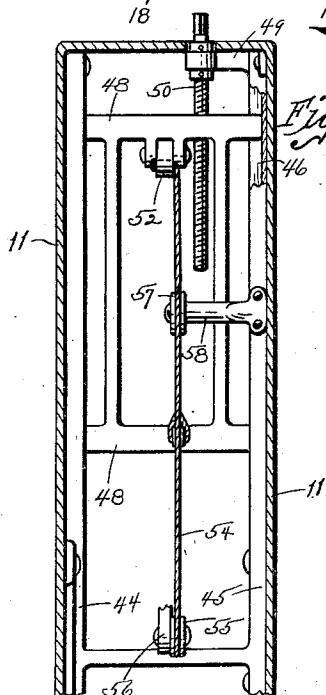


Fig. 4.

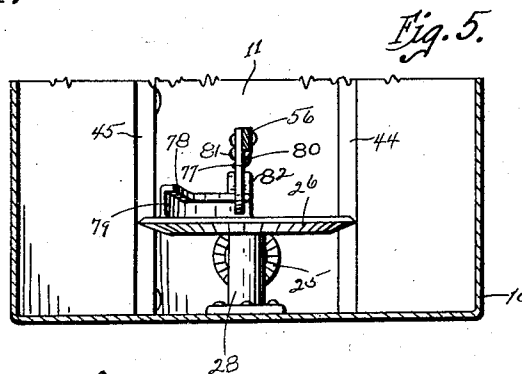


Fig. 5.

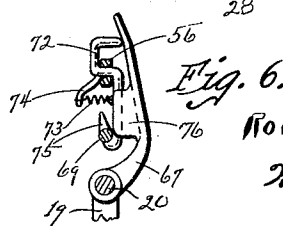


Fig. 6.

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UNITED STATES PATENT OFFICE.

ROBERT JAMES HODGINS, OF DES MOINES, IOWA.

POWER CAN OPENER.

Application filed September 25, 1925. Serial No. 58,535.

The object of this invention is to provide a power can opener for restaurants, hotels and the like.

A further object is to provide a power can opener which is adaptable to the various sizes of cans.

A further object is to provide a power can opener which is simple in construction and economical in manufacture.

More specifically the object of this invention is to provide a power can opener which is automatic in that the can is gripped and almost a complete circle cut in the top thereof by the operation of one lever.

A further object is to provide a means for preventing a complete circle to be cut in the top of the can.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Fig. 1 is a top plan view of my complete device ready for use.

Fig. 2 is a side sectional view of my device taken on line 2—2 of Fig. 1.

Fig. 3 is a top plan sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a back end sectional view of the knife elevating means and is taken on line 4—4 of Fig. 2.

Fig. 5 is a side sectional view of the means for preventing the can from being cut in a complete circle and is taken on line 5—5 of Fig. 2.

Fig. 6 is a side sectional view taken on line 6—6 of Fig. 2 and shows the means employed to throw the clutch into operative engagement.

Fig. 7 is a side sectional view taken on line 7—7 of Fig. 2 and shows one of the bearing or bracket members used in the device.

In large restaurants and hotels much time and energy is lost in opening with a small hand can opener the great amount of canned food used. My device solves these various problems:

I have used the numeral 10 to designate the base portion of the housing. The back end of this housing extends upward into a trough portion 11, while the front portion of the base is enclosed by the cover 12 and

the raised portion 15 hinged thereto by the hinge 13. The numeral 14 designates a cover over the remaining portion of the base housing 10. Mounted in the housing and below the cover 14 is the electric motor 16 having the form gear 17 on its drive shaft. Journaled in the bearing members 18 and 19 is the shaft 20 having loosely mounted thereon the worm gear 21 in engagement with the worm gear 17. The numeral 22 is a clutch member slidably mounted on and keyed to the shaft 20 and so positioned that its teeth will engage the ratchet teeth 23 on the hub of the gear 21 when in operative engagement. The numeral 24 is a spring for yieldingly holding the teeth in engagement. Permanently secured to the shaft 20 is the bevel gear 25 which is in engagement with the bevel gear 26 permanently secured to the shaft 27 rotatably mounted in the bearing member 28. Positioned within the opening 29 in the cover portion 12 and on the shaft 27 is the circular platform 30. The numerals 31, 32 and 33 are rollers which engage the marginal edge of the platform and act as a bearing therefor. In this platform are three radially extending slots 34. In each of these slots are two screws 35 and 36 which pass through a bar 37 on the under side of the platform and screw into a jaw 38 loosely resting on the top of the platform. The numeral 39 designates a washer on each of the screws and in the slot 34 which hold the bars and jaws the proper distance apart so that the same may slide in their respective slot. Pivotaly secured near their centers to the collar 40 secured to the shaft 27 are the three arms 41. The numeral 42 designates a link pivotaly secured at one end to each of the arms 41 and pivotaly secured to a lug on each of the bars respectively. Loosely mounted on the shaft 27 and just below the free ends of the arms 41 is the cone member 43. Secured to the sides and within the trough member 11 are two upright beams 44 and 45 having the grooves 46 and 47 into which slides the member 48. Journaled in but not slidably mounted in the bracket 49 secured to the beam 45 is the rod 50 having one end threaded into the member 48 and the other end extending through the top of the trough and onto which is secured the crank handle 51. Pivotaly secured near one end to the member 48 is the lever 52 having one end extending over the platform 30 and through the forked member 53 secured to the

cover 12 and the other end extending into the trough and secured to the cable 54. This cable extends down and around the roller 55 secured to one end of the second lever 56, up and around the pulley wheel 57 mounted on the bracket 58 secured to the beam 45 and then down and fastened to the lower portion of the member 48. By this arrangement an automatic adjustment is accomplished to compensate for the various distances obtained between the lever 52 and the lever 56 when the member 48 is lowered or raised by turning the crank handle 51. The numeral 59 designates a slidably mounted knife on the lever 52 and can be secured in any desired position thereon by the thumb screw 60. This adjustment allows for the various diameters of cans. The other end of the lever 56 opposite the end that carries the wheel 55, is pivotally mounted in a slot 61 in the bearing member 62. This bearing member is partially hollow and carries the spring 63 which yieldingly holds the lever 56 in the top of the slot 61. This lever encircles the cone member 43 and has two lugs 64 and 65 which enter and engage a circular groove 66 in the cone member. Pivotaly mounted on the bracket 67 near its center is the clutch fork 68. This fork extends on each side of the clutch member 22 and has two lugs which enter and engage a circular groove in the member 22. Pivotaly secured to the opposite end of this fork member is the rod 69 which extends through the forked bracket 70 and toward the bevel gear 26 where its end engages the cam lug 71 every time the bevel gear 26 makes one revolution. Extending through a hole in the lever 56 which is much greater in diameter than its own diameter is the S shaped member 72. The coil spring 73 secured at one end to a projection 74 on the lever 56 and at the other end to the S member below the lever 56 yieldably keeps the upper end of the S member in sliding engagement with the curved face of the bracket member 67 and the lower end of the S member extending outward so that when the lever 56 is lowered it will ride on the face of the projection 75 of the rod 69 until it catches under that rod. By this arrangement when the lever 56 is raised it will also raise the rod 69 over the cam lug 71 and allow the spring 24 to force the clutch into engagement. By further elevation of the lever 56 the upper end of the S member will be forced out and thereby the lower end will be forced in and will disengage itself from the rod 69 which will fall back in place to engage the cam lug 71 in the next revolution of the gear 26. The numeral 76 designates ears on the member 67 to guide the S member in its operations. The numeral 77 designates a hook pivotally mounted on the rod 56 which extends downward and engages at times the flange 78 on the

wall 79. The spring 80 yieldingly holds this hook under the flange once it is under the same. The lug 81 limits the hook to one direction. When the lever 56 is lowered the end of the hook rides down the face of the projection 82 until it hooks under and engages the flange 78. This prevents the lever 56 from being raised at this point until the bevel gear 26 has rotated enough until the hook is clear of the flange. The spring 83 yieldingly holds the lever 56 in lowered position and the lever 52 which carries the knife 59 in elevated position.

The practical operation of my invention is as follows:

Place a sample of the cans to be opened on the raised portion 15 and turn the crank 51 until the lever 52 is just above the can. Place a can on the jaws 38 and adjust the knife on the lever 52 so that it will cut the desired circle in the top of the can. Then pull the lever 52 by the handle 84 downward. This will cause the end carrying the roller 55 of the lever 56 to be elevated and as the hook 77 is in engagement with the flange 78 the lever 56 will be fulcrumed at this point and the other end will be lowered in the slot 61. By the end being elevated the S member 72 will raise the rod 69 over the cam lug on the bevel gear 26 which will throw the clutch in engagement and start the platform 30 with the can on it to rotating. As soon as the bevel gear 26 has turned enough to allow the hook 77 to be clear of the flange 78 the fulcrum of the lever 56 will change to its end that is pivoted in the slot 61, and as the handle 84 is further pulled down the lever 56 will continue to raise and with it the cone member 43 which will be forcing the lower ends of the arms 41 outward which will cause the jaws 38 to slide inward and grip the can and cause the same to rotate with the platform 30 despite the fact that the knife is now entering the can and having a tendency to prevent the same from rotating. By this time the S member has become disengaged from the rod 69 and that rod has fallen back into place and as the bevel gear 26 completes its revolution the cam lug thereon will engage the rod 69 and throw out the clutch and stop all the mechanism. By this operation the can has almost a complete circle cut in its top and as the knife blade is extending downward and inward into the can the cut portion will be raised which will make it easy to grasp and bend backward. By raising the handle the knife blade will also have a tendency to raise the cut portion. As the handle is raised all parts will return for another operation and the jaws will release their grip on the can, because as soon as the cone member is lowered the springs 85 will slide the jaws outward from the center of the platform. The steps 86 on the jaws allow for different sizes of cans and have

their inner faces serrated to facilitate the gripping of the cans. The hook 77 engaging the flange 78 for a portion of the revolution of the gear 26 prevents the knife from entering the can as soon as the platform starts rotating. This prevents a complete circle being cut in the top of the can.

If it is desired to get to the working parts, raise the handle out of the forked member 53 and swing the cover 12 back on the hinge 13.

It will readily be seen that my invention is automatic. All that is necessary is to place the can to be cut on the platform and pull down the lever. All machinery will stop as soon as it has been properly cut.

Some changes may be made in construction and arrangement of my improved power can opener without departing from the real spirit and purpose of my invention and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a device of the class described, a base member, a vertical shaft rotatably mounted on said base member, a platform secured to the top of said shaft, a means of securing a can to be opened on said platform, a bevel gear on said shaft, a motor, a clutch for operatively engaging said motor with said bevel gear, a lever pivotally mounted above said platform, and so designed and connected to the said clutch that when the same is pulled downwardly the clutch will be in engagement, and a knife secured to said lever, for the purposes stated.

2. In a device of the class described, a base member, a vertical shaft rotatably mounted on said base member, a platform secured to said shaft, a means for securing a can to be opened on said platform, a motor, a clutch mechanism operatively engaging said shaft and motor when in engagement, a lever pivotally mounted above said platform, and so designed and connected to said clutch mechanism that when the same is pulled downwardly the clutch will be in engagement, a knife on said lever, and a means of disengaging said clutch mechanism after the platform has made one revolution.

3. In a device of the class described, a base member, a vertical shaft rotatably mounted on said base member, a platform secured to said shaft, a means for securing a can to be opened on said platform, a bevel gear se-

cured to said shaft, a motor, a clutch mechanism for operatively engaging said motor with said bevel gear, a lever pivotally mounted at one end in a slot and extending over said bevel gear and clutch mechanism, a spring for yieldingly holding the said lever at the upper end of said slot, an arm extending over said platform and operatively connected to said lever, a knife secured to said arm, a trip secured to said lever for engaging said clutch mechanism when said arm is pulled downwardly, a flange on said bevel gear, a hook on said lever designed to engage the flange until the bevel gear has traveled a fraction of a revolution and thereby prevent for the time being the said knife from entering the said can, and a lug on said bevel gear for disengaging the clutch mechanism after the bevel gear has made one revolution.

4. In a device of the class described, a frame, a rotatable platform mounted on said frame, jaws slidably mounted on said platform for grasping a can, a clutch for operatively engaging said platform with a motor, a cam lug for throwing said clutch out when said platform has made one revolution, a tripping means for engaging the clutch again, a lever pivotally mounted on said frame, a knife on said lever, said lever so designed and connected that when it is lowered the tripping means will be actuated, the jaws will clamp the can and the knife will enter the top of the can on the said platform, for the purposes stated.

5. In a device of the class described, a base member, a vertical shaft rotatably mounted on said base member, a platform secured to the top of said shaft, jaws slidably mounted on said platform, arms pivotally secured near their center to said shaft and below said platform, a link connecting each arm at its upper end to a jaw, respectively, a cone member loosely mounted on said shaft and capable of engaging and forcing the free ends of said arms away from said shaft when elevated on said shaft, springs for holding said jaws in open position, an arm pivotally secured above said platform and operatively connected to said cone member so that when said arm is lowered the said cone will be elevated, and a knife slidably mounted on said arm.

Signed at Des Moines, in the county of Polk and State of Iowa, this 17th day of July, 1925.

ROBERT JAMES HODGINS.