CABINET MODEL CAN OPENER

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8 Claims. (Cl. 312—22)

1 The present invention relates generally to can openers, and more particularly to a cabinet can opener.

2 In the drawings:

Fig. 1 is a top plan view of a can opener cabinet with an integral can opener in closed or stored position;

Fig. 2 is a front elevation thereof;

Fig. 3 is an end elevation thereof, showing the hinge end of the closed cabinet;

Fig. 4 is a top plan view thereof, showing the cabinet in open or operating position;

Fig. 5 is a front elevation of the open cabinet with liner removed;

Fig. 6 is a fragmentary horizontal section through the hinge end of the closed cabinet taken along the line 6—6 of Fig. 2;

Fig. 7 is a fragmentary horizontal section through the hinge end of the open cabinet taken along the line 7—7 of Fig. 6;

Fig. 8 is an enlarged vertical section through the open cabinet taken along the line 8—8 of Fig. 4, can opener parts being in cutting positions and a portion of the can opener crank being broken away to conserve space;

Fig. 9 is a fragmentary vertical elevation of the open door and integral can opener, the can opener being in position to receive a can, portions of parts being broken away either to reveal details of construction or to conserve space;

Fig. 10 is a vertical section through the open cabinet door and integral can opener taken along the line 10—10 of Fig. 8, portions of the cabinet and of the trigger release being broken away to conserve space;

Fig. 11 is a vertical section through the open cabinet door and integral can opener taken along the line 11—11 of Fig. 8,

40 Referring to the drawings more particularly by reference numerals, 28 indicates a metal back-plate providing the principal structural support for the can opener cabinet and providing, in addition, means such as the angular deformities 21 for demountable attachment to a trapezoidal wall plate (not shown). A styled housing, shown generally as 22, preferably of molded plastic material, includes an outer shell 23, an inner turned flange 24 extending continuously around the front opening except for the hinge end, thereby forming a door jamb, an acute angled flange 25 extending across the hinge end, and buttresses 26 at the corners and at points intermediate along the upper and lower sides of
the shell and on the inside thereof. A liner 27, preferably of molded plastic material, may be assembled within the housing 22 to improve the appearance of the interior of the cabinet. This liner 27 is shaped like an open rectangular box with one end removed and has a beaded front edge 28 Rabatted to join smoothly and evenly with the housing flange 24. The liner 27 is retained in place by the flange 24 and the back plate 20, the latter being secured to the buttresses 26 by means of screws 30. Lenghwise movement of the liner 27 is additionally restrained by abutment of the beaded edge 28 against the buttresses 26. Attachment of the backplate 20 to the buttresses 26 enables the housing shell 23 to extend rearwardly beyond the backplate so as to permit substantially flush abutment of the shell 23 with a kitchen wall (not shown), except for a portion of the rear edge of the shell which is cut back as shown to allow mounting engagement of the backplate deformmates 21 with a trapezoidal wall plate (not shown) as aforesaid.

A hinge bracket 35 secured to the backplate 20 as by spot welding has an upper flange 36 and a lower flange 37, each flange having a hole 33 vertically aligned one to the other for insertion of a hinge pin 39 having near the upper end thereof deformities 50 for retention in said holes. In addition, the lower flange 37 has attached thereto, as by a pivot pin 40, a trigger release 41 rotatable in a plane parallel to the flange and about the pivot pin 40, being limited in its rotative motion, however, by a lock pin 42 secured, as by riveting, to the trigger release 41 and by projecting upward therefrom through a slot in 40 for the trigger housing 33. The lock pin 42 has a hole 2 for a purpose to appear and in addition, styling groove 73 for improved appearance. The door has a hole 72 for a purpose to appear and may, in addition, have styling grooves 73 for improved appearance.

The door plate 55, in addition to serving as the principal structural member of the door assembly 55, serves also as a supporting frame for a can opening mechanism. For this purpose, the door plate 55 has an impressed boss 75 of irregular contour and extending in a direction away from the door 63, said boss containing an elongated opening or slot 76. Additionally, the door plate 55 has a hole 71 as shown and a hole 78 as shown in Fig. 11 for respective purposes to appear. A body 79 is secured to the boss 75, as by rivets 80, and has an impressed boss 81 of elongated shape and containing an irregular opening 82 in the shape of a round hole with a slot extending horizontally therefrom. Additionally, the body 79 has an impressed circular boss 83 containing a hole 84, as shown in Fig. 11, a subtended circular boss 85, a can engaging flange 86, and a hole 87 formed through a flange 88, the flange 88 being formed from the parent metal of the body by a deforming operation. The hole 87 has a bushing 89 pressed therein, the bushing being further secured by a turned back shoulder 90. The bushing 89 extends also through the hole 77 in the plate 56 and the hole 12 in the door 63 and contains an elongation 91 upon one end of which is mounted a crank shown generally as 92. The crank 92 includes a formed arm 93 and a roller type handle 94 attached to the free end of the arm 93 by means of a pin 95. The pin end of the arm 95 is secured to the shaft 91 by pressing therein. At the other end of the shaft 91 is mounted a cup washer 96 which abuts a shoulder 97 on the shaft 91, a gear 98, a flat washer 99, and a feed wheel 100, the latter being internally threaded for attachment to a reduced threaded portion of the shaft 91 and thus retaining all members mounted at this end of the shaft against the shoulder 97. A conical compression spring 101 bears at one end against the end of the bushing 89 and at the other end against a bearing plate 102 contiguous to the arm 93 and thus continuously urges the members and all elements assembled thereon to the right as shown in Fig. 10 until the cup washer 96 bears continuously against the end of the bushing 89. It is obvious that rotation of the crank 92 will cause rotation of the shaft 91 and all elements assembled thereon including the gear 98 and the feed wheel 100, the latter of which has a milled or serrated edge adapted to be disposed under the rim of a can to be opened.

A carrier 105 slidable engages the bosses 81, 83 and 85 of the body 79 and is slidably attached to the body at one end by the engagement of a pin 106 in the slotted portion of the opening 82 in the boss 81, as shown in Fig. 12. The other end of the carrier 105 is pivotally mounted on the perimeter of a disc 107 supported in the hole 94 contained in the boss 83 of the body 79. The disc 107 is rotated by a handle 108 to which it is secured, as by rivets 109. The handle 108 with the attached disc 107 is pivotally mounted to the carrier 105 by means of a pin 110, said pin being disposed eccentrically with respect to the center of the disc 107 and extending through the hole 78 in the door plate 56, said hole being sufficiently large to clear the pin and associated members as the handle 108 is rotated. The head end of the pin 110 mounts a can engaging deflector bracket 111 on the face of the carrier 105, the pin being pressed into the latter two members
and retained at its other end by the action of a compression spring 112 acting between the handle 108 and a cup-shaped spring washer 113 retained by a slotted washer 114 as shown in Fig. 11. The spring 112 thus causes the carrier to be urged against the bosses 83 and 85 of the body 78, as shown in Fig. 11, but at the same time permits this end of the carrier to be separated from the body 78 by the application of a force sufficient to overcome the spring action. The carrier 105 has an outwardly stamped bulge 120, upon which is mounted a stud shaft 121 having grease grooves 122 and at its outer end a reduced threaded portion 123, said stud shaft being disposed in a downwardly inclined direction due to the shape of the bulge 120. A hub 124, having a cutting disc 125 is rotatably mounted on the stud shaft 121 and is retained thereon by a nut 126 having a frusto-conical body 127 adapted to fit within a similarly shaped recess in the hub and also to abut a shoulder 128 on the stud shaft 121, as shown in Fig. 10. A gear 129 is mounted on a right angle to the hub 124, being in driving engagement therewith by means of matching flats on the periphery of the hub and on the hole of the gear, but at the same time being capable of some angular movement relative thereto due to the loose engagement of the flats. The gear 129 is mounted on a position at right angles to the cabinet 60 which will cause the lock pin 42 to engage with the locking notch 52 and thus to hold the door firmly in open position. When it is desired subsequently to close the door, the lock pin 42 is disengaged from the locking notch 52 by rotating the trigger 48 against the action of the spring 47 which, due to the rotating movement of the locking pin against the side of the locking notch, causes the locking pin to move the door so that the locking pin will rest at the locking notch end of the circular arc 50, from which position the door may be swung to its closed position with the same hand used to operate the trigger.

To open a can, the door assembly 55 is placed in open position and the handle 108 is rotated forwardly to the position of Fig. 9. The latter motion, by virtue of the eccentric attachment of the carrier 105 to the disc 107, lifts the outer end of the carrier causing separation of the gear 129 from the gear 99 and also separation of the cutting disc 125 from the feed wheel 100. Thereupon, the rim of a can may be inserted in the space between the cutting disc 125 and the feed wheel 100 so that the rim of the can is forced downward to penetrate the lid 75 of the can just inside the rim. The action of the spring 112, while permitting sufficient lateral movement of the carrier 105 to provide space for the wall of the can between the side of the feed wheel 100 and the side of the cutting disc 125, at the same time resists such movement and causes the cutting disc 125 to bear against the inside of the rim of the can. The lid is therefore sheared just inside the rim and the inside of the rim is at the same time pressed and folded neatly and smoothly against the inside of the wall of the can.

The lowering of the carrier 105 also permits the deflector bracket 111 to engage, and the ledge 135 to overlie, the rim of the can so that the can is held and supported firmly in a vertical position. It will be noted that, during its eccentric movement, the carrier 105 both slides and pivots at its rear attachment where the pin 106 engages the slotted opening 82.

The lowering of the carrier 105 also permits the engagement of the gears 99 and 128 so that thereafter, when the crank 97 is rotated, the gear 99 will drive the gear 128, thus causing simultaneous rotation of the cutting disc 125 and the feed wheel 100 at relative speeds determined by the gear ratio. As the crank 97 is rotated, the rotating feed wheel 100 will cause the can to turn on its own axis thus feeding the lid against the rotating cutting disc 125, thereby shearing the lid and smoothing the rim.

When the lid has been partially or completely severed as desired, the can may be released by again lifting the carrier 105. The handle 108 may then be rotated to its closed position and the cabinet door assembly 55 may be closed as above described.

Manifestly, the can opener mechanism and the plastic housing are so related that the entire structural load and operating load are carried by the former and the bracket unit, the plastic elements being carried rather than serving as a support. It is also clear that opening of the door simultaneously positions the can opening mechanism for use and effects locking in place.

It is clear that there has been provided a cabinet can opener which fulfills the objects and advantages sought therefor.

It is to be understood that the foregoing description and the accompanying drawings have been given by way of illustration and example. It is also to be understood that changes in form of the elements, rearrangement of parts, and substitution of equivalent elements, which will be obvious to those skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

1. A cabinet mounting for enclosing a can opening mechanism having means for demountable attachment to a wall and including a hinged door, means for retaining the door in its closed position, means for retaining the door in its opened position, said retaining means comprising a detent mechanism for locking the door in a position substantially normal to the wall for a can cutting operation and means on said cabinet for releasing the door from the locked position, said cabinet including a deformed plate-like element constituting the supporting frame of a can opening mechanism which is integral in relation with said door element.

2. A demountable wall cabinet mounting for enclosing a can opening mechanism comprising
a load-bearing assembly and a non-load-bearing external housing, said cabinet including a movable door having a main load-bearing element and a non-load-bearing external element, the said load-bearing element of said cabinet including also a main frame member for supporting a can opening mechanism, said can opening mechanism being disposed on the inside of said door on said load-bearing element and having an operating crank communicating with said mechanism and extending outside of said door, so as to occupy the cabinet when the door is in its closed position and so as to be in position for instant use when the door is in its opened position.

3. A mounting for supporting a can opening mechanism comprising a plate assembly having means for demountable attachment to a wall bracket, a door plate hinged to said plate assembly and constituting a principal frame member of a can opening mechanism assembled with the door plate, said can opening mechanism including an operating crank, detent means for holding the door plate in a position substantially parallel to the plate assembly, detent means for locking the door in a position substantially normal to the plate assembly, means for releasing the door from its locked position, a styled housing secured to the plate assembly thereby to form a cabinet to receive substantially all of the can opening mechanism except the operating crank therefor when the door plate is in the aforesaid position substantially parallel to the plate assembly, a liner for the cabinet thus formed, said liner being for the purpose of improving the appearance of the exterior panel of said cabinet, and a styled door secured to the door plate so as to be movable therewith and thereby to serve as the front exterior panel of the cabinet when the door plate is in the aforesaid position substantially parallel to the plate assembly.

4. A demountable wall cabinet for enclosing a can opener mechanism and adapted to be mounted on a wall bracket, said cabinet including a load-bearing metal backing plate for connection to the wall bracket, a cabinet housing of plastic material for receiving said can opener mechanism secured to said backing plate and being provided with a door opening, a load supporting hinge member secured to said backing plate positioned in said housing, a door swingably mounted on said hinge member from a closed position to an open position normal to the wall, and said door having means on its inside for supporting a can opener mechanism.

5. A demountable wall cabinet for enclosing a can opener mechanism and adapted to be mounted on a wall bracket, said cabinet including a load-bearing metal backing plate for connection to the wall bracket, a cabinet housing of plastic material for receiving said can opener mechanism secured to said backing plate and being provided with a door opening, a load supporting hinge member secured to said backing plate positioned in said housing, a door swingably mounted on said hinge member from a closed position to an open position normal to the wall, which door comprises an inside load supporting member and an outer plastic covering which is adapted to interfit with said housing when the door is closed, and said door having means on its inside for supporting a can opener mechanism on the inner load supporting member with an operating crank connected thereto on the outside of said plastic door covering.

6. A demountable wall cabinet for enclosing a can opener mechanism and adapted to be mounted on a wall bracket, said cabinet including a load bearing metal backing plate for connection to the wall bracket, a cabinet housing of plastic material for receiving said can opener mechanism secured to said backing plate and being provided with a door opening, a load supporting hinge member secured to said backing plate positioned in said housing, a door swingably mounted on said hinge member from a closed position to an open position normal to the wall, said door having means on its inside for supporting a can opener mechanism, and detent means for locking the door in a position substantially normal to the backing plate and means positioned on said housing for releasing the door from its locked position.

7. A submounting for enclosing a can opening mechanism having means for demountable attachment to a wall and including a hinged door, means for retaining the door in its closed position, means for retaining the door in its opened position, said retaining means comprising a detent mechanism for locking the door in a position substantially normal to the wall for a can cutting operation and means on said cabinet for releasing the door from the locked position, said door including a deformed plate-like element mounted on said cabinet, said opening mechanism, said door having means on its inside for supporting a can opening means assembled in integral relation so as to be substantially enclosed within the cabinet when the door is in its closed position and so as to be in position for instant use when the door is in its opened position, including a trigger biased in the open locked position by a spring which is operable for disengaging said detent mechanism for manual closing of the door.

8. A cabinet mounting adapted for enclosing a can opening mechanism having means for demountable attachment to a wall and including a hinged door for supporting a can opening mechanism, means for retaining the door in its closed position and means for retaining the door in its opened position, said door retaining means including a detent disc formed by a flange on said door and rotatable therewith about the door hinge and having detents therein corresponding to open and closed positions of said door, and a trigger having a detent engaging lock pin normally biased against said detent disc, which pin is disengageable upon actuation of said trigger.

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