Nov. 11, 1952 G. A. LEHMANN ET AL 2,617,185

MAGNETIC LID HOLDING MEANS FOR CAN OPENERS

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FIG. 1.

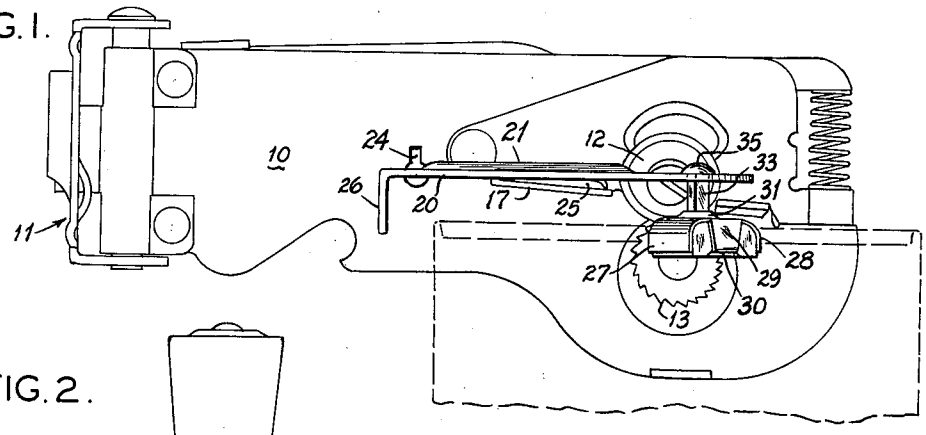


FIG. 2.

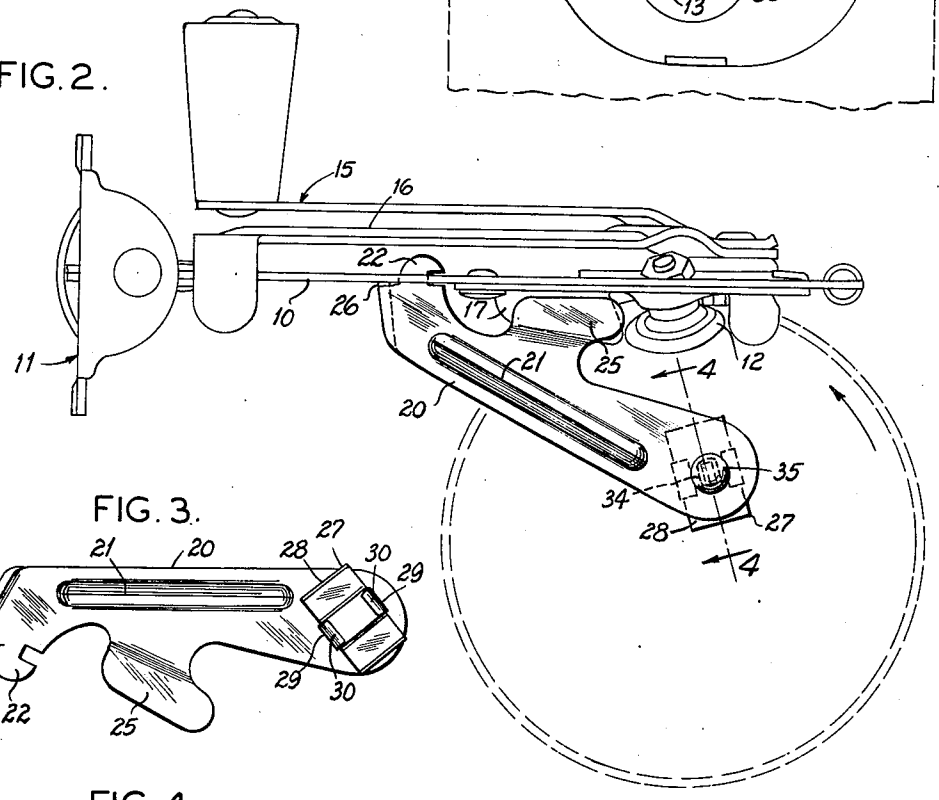
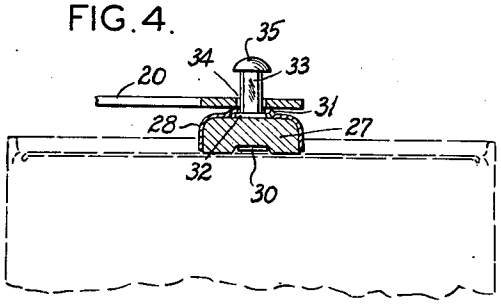


FIG. 3.

FIG. 4.



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MAGNETIC LID HOLDING MEANS FOR CAN OPENERS

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6 Claims. (Cl. 30—124)

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This invention relates to can openers and has particular reference to magnetic lid holding means for can openers.

The invention has for its principal object the provision of an improved device adapted for detachable mounting on a can opener for magnetically engaging and holding the can lid during and after the severance thereof so as to prevent the lid from dropping into the contents of the can and to facilitate its removal.

The means of the present invention include an elongate plate having novel means at one end coacting with provisions on the can opener frame for detachably and pivotally connecting the plate to the frame, the attachment means normally supporting the plate in a horizontal position above the level of the can top and permitting free upward pivotal movement thereof. A magnet is dependingly mounted in a novel and improved manner on the outer end of the plate or arm so that it will seat firmly on the can top and will adjust itself so as to conform to changes in the angularity of the can top during the opening process, thereby enabling it to retain its hold on the top.

In the drawing, Fig. 1 is a side view of the lid holding device hereof, shown mounted on a can opener;

Fig. 2 is a top plan view of the assembly illustrated in Fig. 1;

Fig. 3 is a bottom plan view of the magnetic lid holding device, and

Fig. 4 is a sectional view as taken along the plane indicated by line 4—4 of Fig. 2.

Referring now by characters of reference to the drawing, the lid holding means of the invention is intended for use on and in connection with a wall mounted can opener of the type illustrated in Figs. 1 and 2. This device has an elongate frame plate 10 having provisions indicated generally at 11 for mounting the same on a wall, with the plate 10 disposed in a vertical plane. The operating mechanism at the opposite or outer end of the frame plate includes a cutter 12 which may be a fixed blade or a rotary disc, the latter being shown herein; a tooth feeding wheel 13 that engages the upper rim of the can and serves to turn the same relative to the cutter 12; a crank 15 by which the feeding wheel is rotated; suitable means operated by and identified with the lever 16 for moving the feeding wheel 13 toward and from the blade 12 at the start and finish of the opening process, and a bracket 17 that projects laterally from the frame plate 10 and serves to guide and maintain the can in a

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substantially vertical position during the opening process.

The lid holding device of this invention, comprises an arm 20 formed in the present example of flat metal stock and having a longitudinal reinforcing rib 21 pressed therein. At its inner end the arm 20 is shaped to provide a key projection consisting of a head portion 22 connected by a narrow neck of metal 23 to an end edge surface of the arm. The key projection aforesaid is compatible with a key slot 24 formed in the frame plate 10 of the can opener, located inwardly and substantially at the level of the laterally projecting bracket 17. The described key and slot means affords detachable mounting for the lid holding arm 20 and also permits that member to pivot upwardly about the key slot opening as a fulcrum point. The arm is normally supported in a substantially horizontal position, having an intermediate laterally projecting portion 25 adapted to seat downwardly against the frame projection 17, and having a depending end flange 26 near its key projection 22 adapted to bear against the side surface of the frame plate. The parts 22, 25 and 26 of the arm coact with the frame plate in a manner normally to hold the arm in a substantially horizontal position, yet permit the outer end of the arm to rock or pivot upwardly. The arm is adapted to be connected to and disconnected from the frame plate by placing it in a substantially vertical position and with its key projection 22 in substantial registration with the key slot 24, thus permitting of lateral relative movement of the parts. The detachable feature above described is highly advantageous because it facilitates cleaning, and permits of more compact packaging.

As best appears from Fig. 2 the arm 20 extends angularly forwardly from the side of the can opener frame plate and its forward or outer end is spaced laterally from the cutter, substantially at the horizontal level thereof. Suspendingly mounted on the outer end of the arm is a magnet 27 consisting in the present example of a somewhat elongated rectangular metal blank, preferably formed of aluminum-nickel-cobalt alloy. It is preferably formed to provide salient pole faces on its bottom surface. The magnet 27 is carried by a holder 28 of sheet metal, the holder embracing the end surfaces of the magnet and including a strap portion 29 that extends across the top and downwardly along the sides, terminating at inwardly turned tabs 30 that embrace the mid-under portion of the magnet. A boss 31 formed on the holder 28 accommodates

an enlarged head portion **32** on the lower end of a vertical stud **33** that projects through a slotted opening in the top of the said boss. Stud **33** is rectangular in cross section and it projects upwardly loosely through a correspondingly shaped opening **34** in the forward end of the arm **20**, terminating in an enlarged head portion **35** at the upper end of the stud.

The described mounting provisions for the magnet affords a highly flexible connection which permits the magnet to turn in a horizontal plane through a limited arc, to swing to a limited extent in all vertical planes, and to be displaced upwardly relative to the arm as will appear from the positions of the members as shown in Figs. 1 and 4. The non-circular opening **34** in the arm coacts with the stud **33** in a manner to limit turning thereof such that the magnet is prevented from turning in the direction of normal can rotation during an opening operation beyond a position of right angular relationship with the frame of the can opener. That is to say, in the course of a can opening operation the magnet will attach itself to the top of the can which will turn in the direction of the arrow shown in Fig. 2. The magnet is permitted by its mounting provision to turn with the can until it attains a position of right angular relationship with respect to the can opener frame, as also appears from Fig. 2. Further rotation of the magnet is prevented and continued rotation of the can will be accompanied by a sliding of its top surface against the pole faces of the magnet.

The purpose of limiting rotation of the magnet as aforesaid until it assumes a right angular position with respect to the can opener frame is that when the magnet is in the described position it is best adapted to retain its hold on the top. The can top is caused to tilt upwardly from a point on its circumference adjacent the blade at the completion of the cutting operation. The extremely flexible mounting of the magnet allows it to adjust itself to any changing angular position of the can top during and following the cutting process. The described mounting arrangement places the magnet in an optimum position for holding the can lid and permits of a smaller magnet being employed as compared with those of heretofore prevailing types of magnetic lid-holding means.

Having described our invention what we claim and desire to secure by Letters Patent is:

1. In combination with a can opener including a frame member, a lid-holding device including an arm, means detachably and pivotally connecting said arm at one end to said frame member, a magnet having a mounting stud projecting upwardly from the top thereof, said stud passing loosely through an opening in the outer end of said arm and terminating in an enlarged head portion, said magnet being adapted for vertical movement and limited angular movement relative to said arm.

2. In a can opener, a frame member having a key slot formed therein, a lid holding device including an arm, said arm having a key projection compatible with said slot for detachably connecting the arm to said frame member, and a magnet swingably mounted on the outer end of said arm.

3. In a can opener, a frame member having a key slot formed therein and having a projection at one side thereof, a lid holding device including an arm having a key projection compatible with said slot for detachably and pivotally connecting the arm to said frame member, said arm being adapted to seat downwardly against said frame projection, and a magnet swingably mounted on the outer end of said arm.

4. In a can opener, a frame member having a key slot therein and a projection at one side thereof, a lid holding device including an arm having a key projection compatible with said key slot for detachably and pivotally connecting the arm to said frame member, said arm being adapted to seat downwardly against said frame projection, said arm having a depending flange abutting the side surface of the frame whereby said arm is normally positioned in a substantially horizontal plane, and a magnet movably mounted on the outer end of said arm.

5. In combination with a wall mounted can opener including a frame member, a lid holding device including an arm detachably connected to said frame member, an elongated magnet having salient pole portions on the bottom thereof, a magnet holder including a strap extending across the top of the magnet, slotted openings formed in said strap and said arm, a stud extending loosely through said openings and having enlarged head portions at the ends thereof, said magnet being thereby adapted for limited vertical movement, and limited angular movement in both horizontal and vertical planes relative to said arm, said slotted openings and said stud being formed and arranged so as to check horizontal angular movement of the magnet in one direction when the longitudinal axis of the magnet is substantially at a right angle to the frame member of the can opener.

6. In a can opener, a frame member having a key slot therein and a projection at one side thereof, a lid holding device including an arm having a key projection compatible with said key slot for detachably and pivotally connecting the arm to said frame member, said arm normally seating downwardly against said frame projection, said arm having a depending flange abutting the side surface of the frame whereby said arm is normally positioned in a substantially horizontal plane, a magnet, a magnet holder including a strap extending across the top of the magnet, openings formed in said strap and in the outer end of said arm, a stud extending loosely through said openings having enlarged retaining heads on the ends thereof, said magnet being adapted for limited vertical movement and limited universal swinging movement with respect to said arm.

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