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E. L. ACKER
CAN OPENER ATTACHMENT
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Fig. 1.

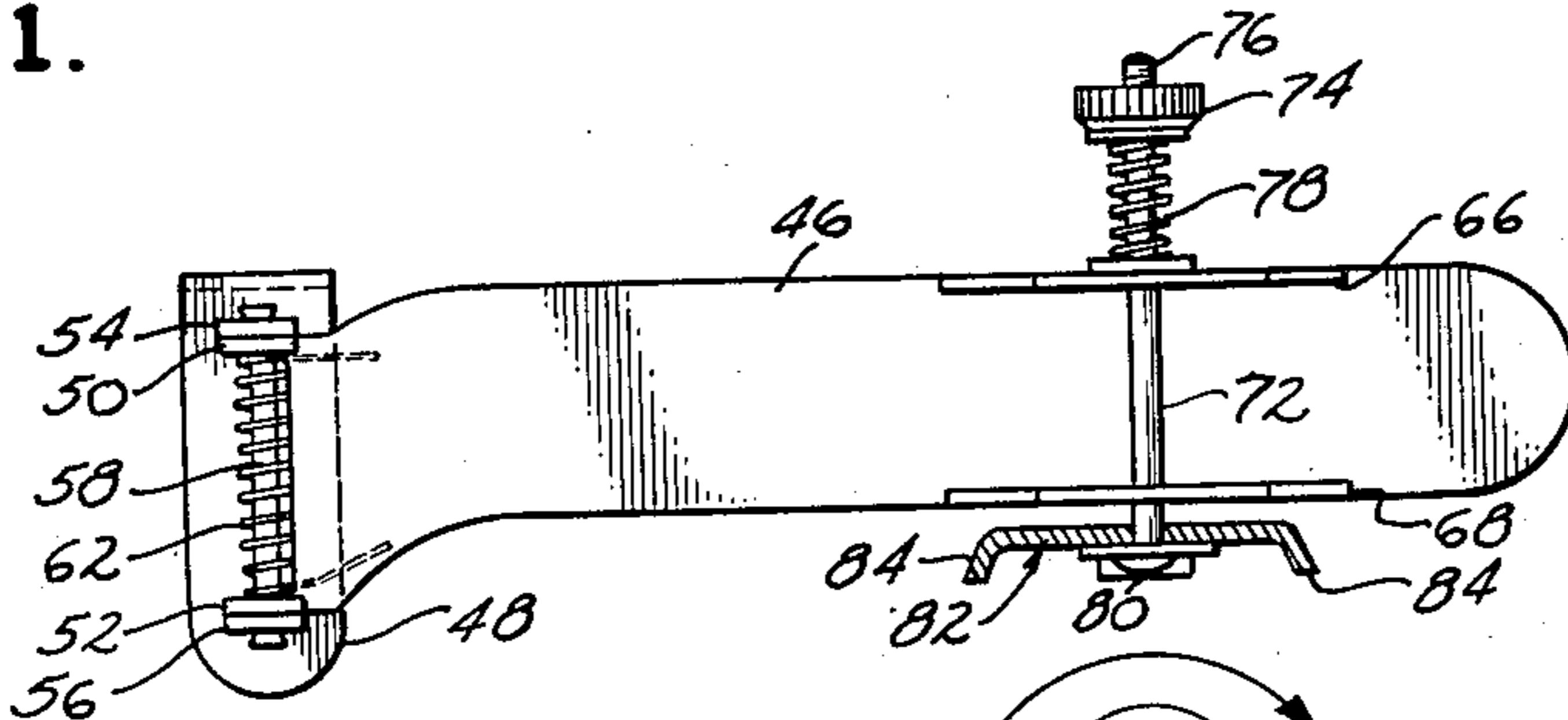


Fig. 2.

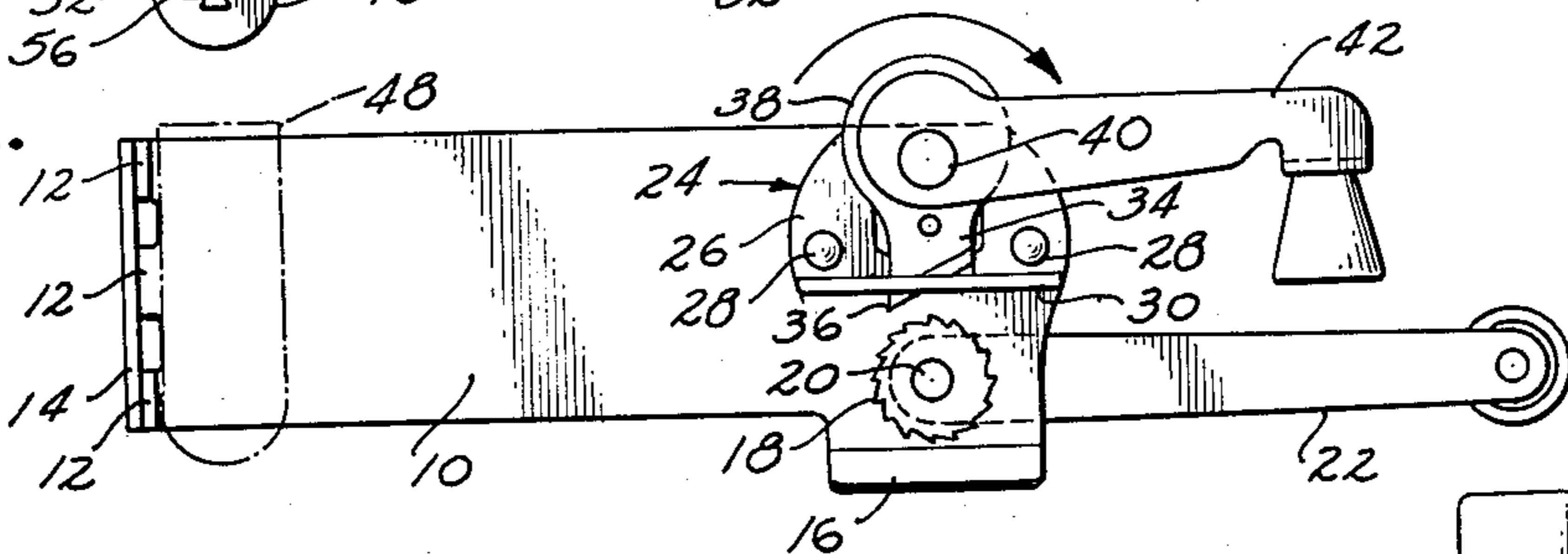


Fig. 3.

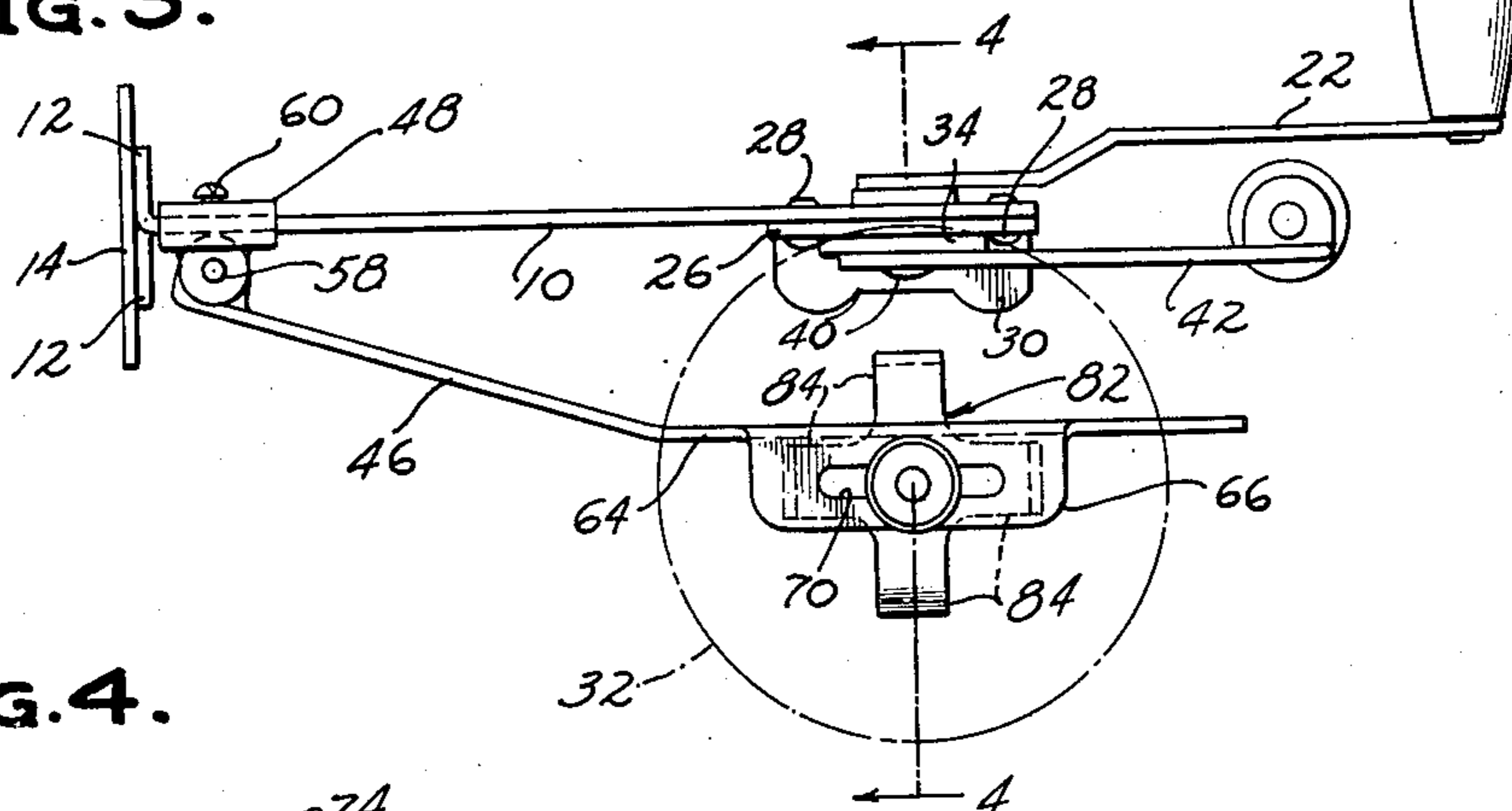
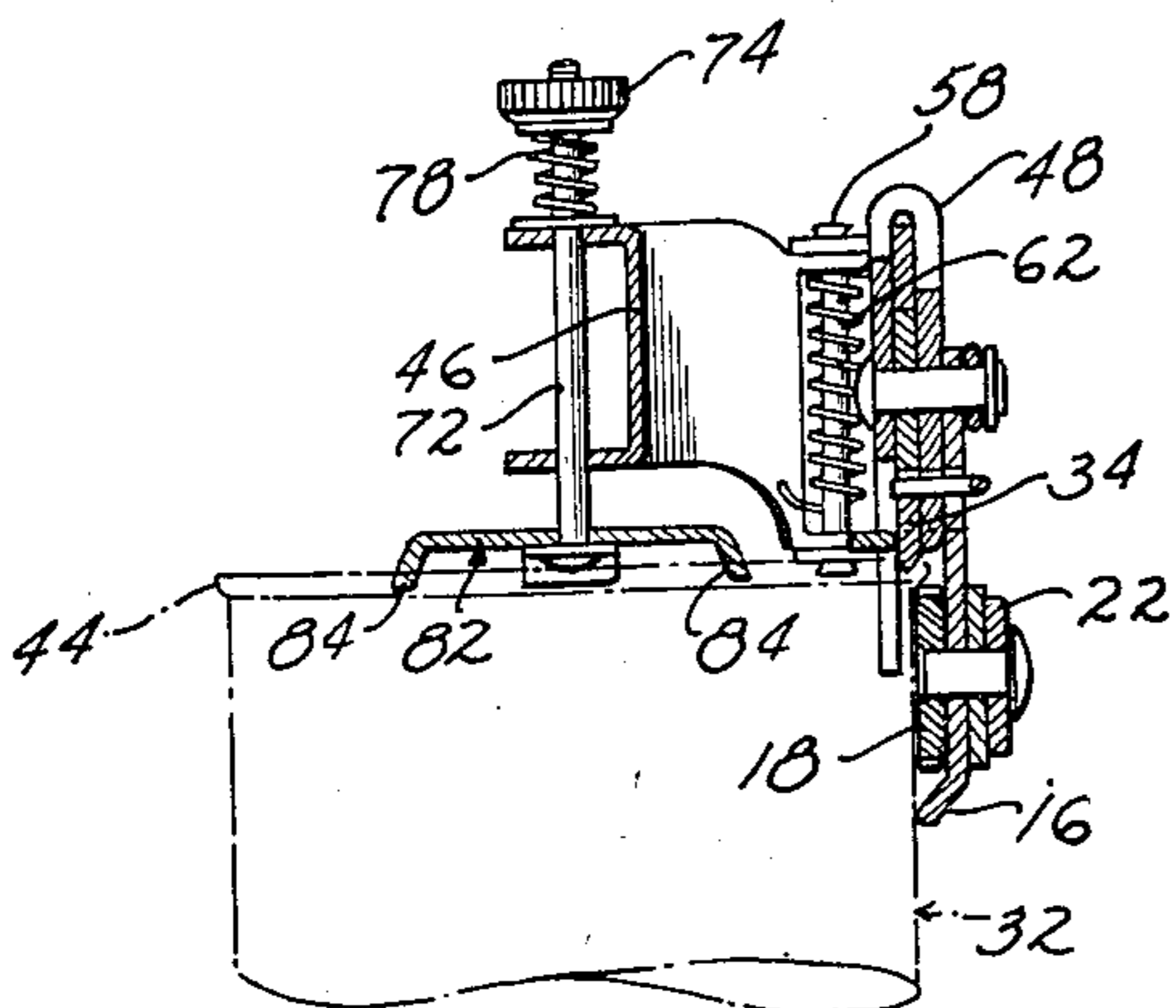


Fig. 4.



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CAN OPENER ATTACHMENT

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3 Claims. (Cl. 30—124)

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This invention relates to a device for use in association with can openers for the purpose of immediately lifting the can top as soon as it is severed and removing it from its position above the can so as to completely expose the opened top of the can.

The present device employs a magnetic element to grip the metallic can top. While magnetic lifts have been suggested for such purpose before, they have not been embodied in a unit which possessed the present advantages or accomplished a like or equally satisfactory result.

It is an object of the present invention to provide a device embodying means for automatically lifting and removing a newly severed can top to a position entirely out of line with the can opening rather than merely holding the top from dropping into the can.

Another purpose resides in the provision of such a device which may be readily and adjustably attached to present can openers, particularly those which are adapted for mounting on a wall or upright support.

Still another object is to provide such a device having quick adjustment means for centering the lifting element above successive cans which may differ in size or top area.

A further purpose resides in the provision of means for adjusting the lifting power of the magnet after it has attached itself to a can top so that such force is overbalanced by the weight of the whole can and underbalanced by that of the top when detached therefrom.

It is within the province of the disclosure to improve generally, and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in details of construction and operation hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the drawings, which form part of the present specification—

Figure 1 shows my top lifting unit in side elevation unconnected to a can opener, with the magnetic lift element seen in vertical section.

Figure 2 is a side elevational view of a wall-type can opener, showing in broken lines the po-

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sition at which the mounting bracket of my attachment is connected.

Figure 3 is a top plan view of the connected can opener and attachment in operative position, with the position occupied by a can indicated in broken lines.

Figure 4 is a vertical sectional view taken along the line 4—4 of Figure 3 as viewed in the direction of the arrows, with parts shown in elevation.

It will be appreciated that the purity or sterilization of foodstuff or other material packed in a can is immediately ended once the can is punctured by an opening device. However the ensuing risk of contamination is increased many fold by even momentary depression of the (partially or completely) severed can top into the can contents, or by the fluid from the can running over the can top and draining back into the can, since the outer face of the top may obviously contain many kinds of impurities or contamination. In addition, if the completely severed can top drops down into the can, it is retrieved often only with considerable difficulty and inconvenience. It will be observed accordingly that all of these problems are eliminated in a notable manner by the present device.

My can top lifter is here shown in association with a conventional wall-type can opener to which it is detachably connected.

The operation of the can opener itself may be briefly summarized as follows: A generally vertical base plate 10 is attached by footing elements 12 to a transverse vertical plate 14 which is adapted to be received in a wall bracket (not shown) so as to suspend the whole unit in a position projecting outward from the wall.

Adjacent the free end of the base plate, the lower edge of the latter projects downward and angularly to one side to form a lateral can-engaging lug 16. Spaced above the lug and generally centered in relation to the length thereof, is a feed wheel 18 formed of a hardened steel disk with a toothed peripheral edge and mounted on a shaft 20. The shaft traverses the base plate and is attached on its opposite end to an operating crank 22.

Above the lug 16 and feed wheel 18, and in alignment therewith along the same side of the base plate is an L-shaped guide member 24, the flat upright portion 26 of which is secured by studs 28 in juxtaposition to the base plate while the lower, outward projecting ledge 30 of the L serves as an abutment for the top edge of a can 32 which is to be opened.

Projecting downward thru an opening in the

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horizontal ledge of the guide member, is a blade 34, the pointed end 36 of which is adapted to puncture the top of a can as the first step in cutting out the top thereof. The upper, annular head 38 of the blade is eccentrically mounted on a shaft 40 which traverses the base plate and carries on one end a rock arm 42. Movement of the latter from left to right as indicated by the arrow in Figure 2, moves the blade end 36 downward to puncture the top of a can held against the ledge 30. Movement of the crank 22 then causes the feed wheel 18 by frictional engagement with the lower surface of the head 44 to rotate the engaged can 32 while the depressed blade 34 simultaneously cuts out the can top in an annular pattern, close to the inner face of the peripheral bead 44 of the can. When the top has been thus completely severed, the can is disengaged from the can opener by lifting the rock arm 42 and elevating the blade.

My attachment is constructed with a vertically disposed, elongated extension arm 46 conveniently formed from sheet metal or the like. Means are provided at one end for hinged connection to a mounting bracket 48 by which the attachment unit is adjustably and removably secured to the base plate 10 of the can opener. Such pivot or hinge means are here typified by a pair of laterally turned parallel, vertically spaced, apertured bearing ears 50, 52 which are adapted to be received in juxtaposition to a correspondingly spaced pair of apertured ears 54, 56 of the bracket, and thus coupled together by a hinge pin or shaft 58.

The mounting bracket 48 itself is desirably formed as an inverted U-shaped clip which can be slipped down over the base plate 10 anywhere along its length—or moved lengthwise therealong—and anchored at the desired location either by the inherent compressive tension between the opposite arms of the U, or by suitable fastening means such as one or more screws 60. The purpose of providing for accommodation lengthwise along the base plate is to permit the free end of the arm to be disposed opposite the feed wheel 18 and cutting mechanism regardless of variations in the length of individual base plates 10.

Automatic retraction means are provided for withdrawing the severed can top from the area of the can. As here arranged they move it laterally by means of a coil spring 62 wound about the hinge pin 58 and disposed to urge the extension arm to swing away from the base plate 10 by reason of its opposite ends pressed against the arm and mounting bracket respectively.

Toward its outer extremity the extension arm is angularly bent to form a section 64 adapted to be disposed substantially parallel to the base plate and provided with a pair of outturned horizontal flanges 66, 68 along its top and bottom edges. Each flange is formed with a longitudinal slot 70, vertically aligned so as to journal a spindle 72 jointly therein.

This centering mechanism also carries tensioning or balance means related to the power of the magnet, or lifting element. The spindle shaft 72 projects beyond both flanges 66, 68 and bears an adjustment unit 74 upon its upper threaded end 76. About the threaded end of the shaft, and bearing respectively against the upper face of the flange 66 and the lower face of the unit 74, is a helical expansion spring 78. The tendency of the compressed spring 78 is to raise the spindle 72 by pressure against the underface of

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the unit 74 and this force can thus be increased by screwing the unit down further on the shaft.

At the opposite or bottom end of the shaft 72 is an enlarged head 80 between which and the adjacent flange 68 there is rotatably mounted a magnetic disk or claw member 82 here shown with a peripheral series of downturned fingers 84 which are arranged to extend downward at least level with the bottom of the spindle head 80. It will be seen accordingly that as the magnet and shaft 72 are drawn downward to attach itself to the top of a can, such movement compresses the spring 78. Since successive can tops are located at the same vertical elevation, by means of the unit 74, the tension of the compressed spring 78 can be set or adjusted from time to time so that it is only slightly overbalanced by the attraction of the magnet 82 to a whole can 32 when the latter is mounted along the can opener in position for cutting out the top. When the weight of the can is in effect disconnected from the top, the weight of the top alone is greatly overbalanced by the strength of the spring.

Accordingly in operation, the can 32 is mounted on the can opener by insertion of the blade end 36 therein thru operation of the rock lever 42. The mounted extension arm 46 is moved from its outswung position to the place where the magnet 82 overlies the can; the fingers 84 being centered in relation thereto if necessary by horizontal movement of the spindle 72 along the slots 70. The magnet automatically moves downward the small amount necessary to attach itself to the can top and it retains its hold while the can is rotated and the top cut out by manipulation of the operating lever 22.

However as soon as the can top is cut free of the can, the compressed spring 78 immediately raises the spindle 72, magnet 82 and severed can top attached thereto, and the wound or tension spring 62 at the same time swings the extension arm 46 away from the cutting head and base plate, thus clearing the open top of the can. It will be understood of course that withdrawal of the severed top from over the can opening need not be limited to lateral or linear retraction.

In this manner, it will be seen that the severed can top has had no opportunity to sink into the liquid or other contents of the opened can. Not only are the sterile contents of the can kept free of contamination from contact with the outer surface of the severed top, but the latter also is made instantly available on the magnet and does not have to be fished out of the can where it would otherwise sink. It will be seen as well that not even the magnet or any part of my attachment requires cleaning as a result of opening a can, and the only "resetting" it takes is to swing the arm 46 in toward the cutting head when another can of the same size is in place for opening.

While I have herein shown and described my invention in what I have presently conceived to be the most practical and preferred embodiments, it is recognized that departures may be made therefrom within the scope of my invention, which is not to be limited to the details disclosed herein, but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices.

The invention having been herein described, what I claim as new and desire to secure by Letters Patent is:

1. A can opener attachment of the character described comprising in combination: an exten-

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sion arm, means for movably connecting one end of said arm to a can-opener-carrying support; a movable shaft mounted along said arm spaced from said end at a point adapted to be disposed above the top of a can to be opened; a can-attachable lift element secured to said shaft; means for centering said lift element along said arm in relation to the can top; resilient means for raising the lift element when holding a severed can top; other means for adjusting the tension of said resilient means; and means disposed between the extension arm and support so as to urge the two apart whereby the lift element with severed can top attached thereto will carry the same out of alignment with the open can.

2. A can opener attachment of the character described comprising in combination: a clip adapted for detachable connection to a can-opener-carrying support; an outwardly projecting extension arm one end of which is hingedly secured to said clip, the other end of which is adapted to overlie the top of a can when the latter is connected to a can opener for opening; a shaft laterally and axially moveably disposed adjacent the other end of said arm; a can-attachable lift element rotatably mounted on an end of said shaft which is adapted to be disposed immediately above the top of a can being opened; a spring-tension adjustment unit threadedly mounted on the other end of said shaft; a spring disposed about said shaft between said unit and the extension arm; and resilient means mounted between said clip and extension arm and disposed to urge the latter to hinged movement away from said position wherein the free end thereof overlies the top of a can, whereby a severed can top held by said lift element is retracted from above the can.

3. A can opener attachment of the character

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described comprising in combination: a clip adapted for detachable connection to a support; an outwardly projecting extension arm one end of which is hingedly secured to said clip, the other end of which is adapted to overlie the top of a can when the latter is connected to a can opener for opening; a pair of laterally extending flanges transversely spaced apart adjacent said other end, each flange formed with a mutually aligned slot generally parallel to said extension arm; a shaft laterally and axially moveably disposed in said slots and extending beyond the outer face of each flange; a can-attachable lift element mounted on one end of said shaft which is adapted to be disposed immediately above the top of a can being opened; spring-tension adjustment unit threadedly mounted on the other end of said shaft; a spring disposed about said shaft between said unit and the adjacent flange; and resilient means mounted between said clip and extension arm and disposed to urge the latter to hinged movement away from said position wherein the free end thereof overlies the top of a can, whereby a severed can top held by said lift element is retracted from above the can.

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