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R. E. ANDERSON

2,624,108

CAN PUNCTURING DEVICE

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FIG. 1.

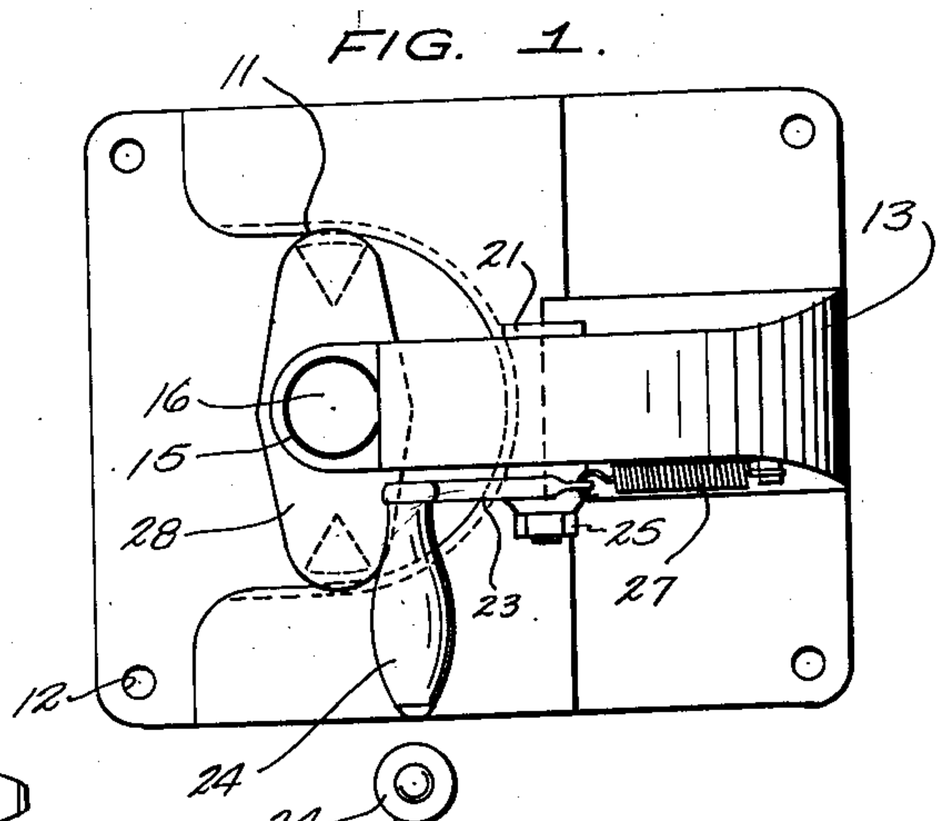


FIG. 4.

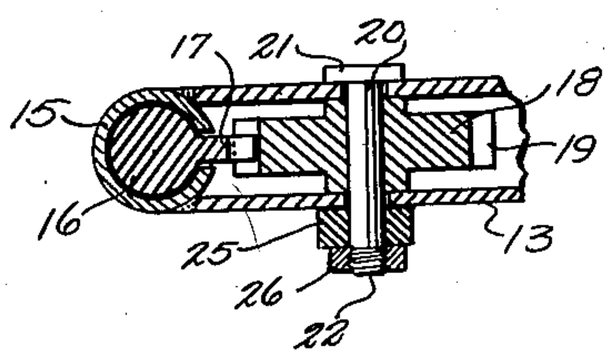


FIG. 2

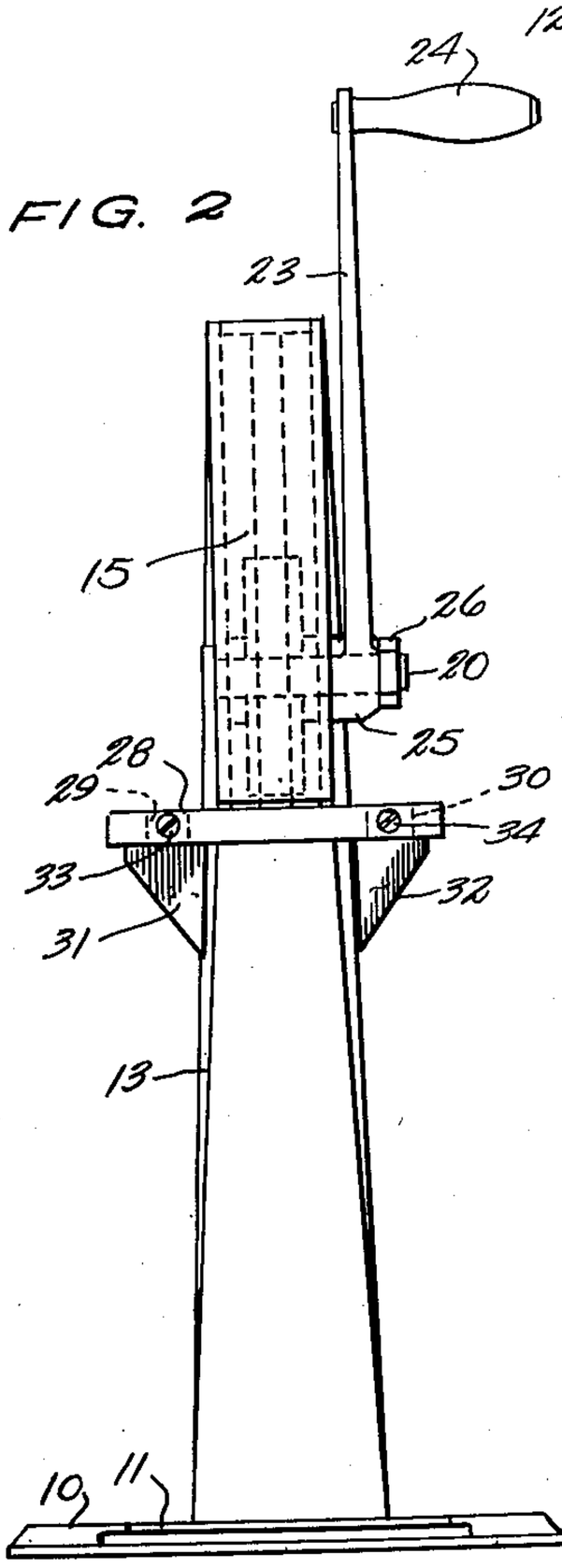
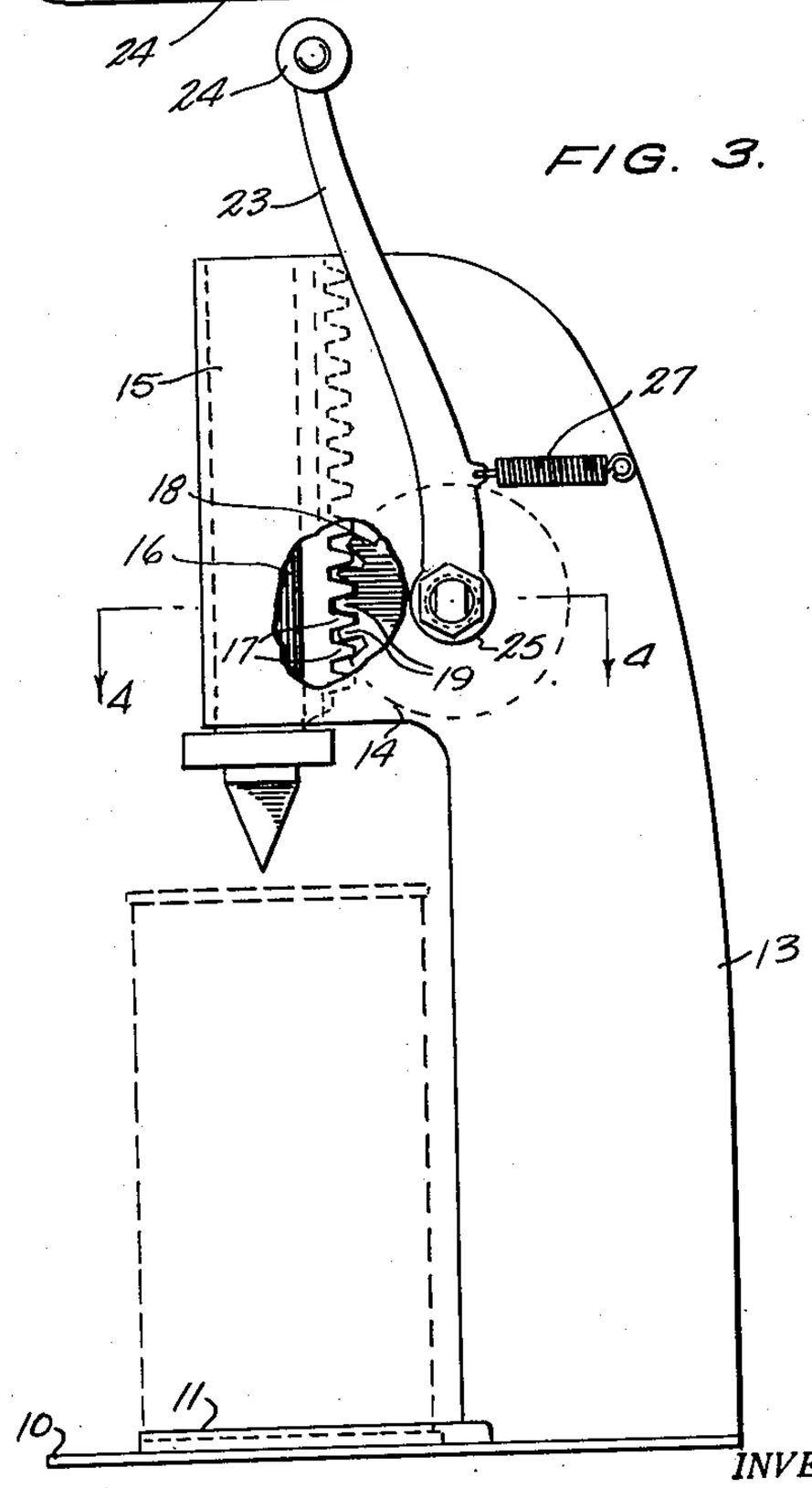


FIG. 3.



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CAN PUNCTURING DEVICE

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2 Claims. (Cl. 30—6.1)

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This invention relates to can puncturing devices and more particularly to a base mounted device for puncturing the top end of a can for the dispensing of liquid contents from the can.

It is among the objects of the invention to provide an improved can opener or can puncturing device which can be rigidly mounted on a fixed support, such as a counter or table, and manually operated to quickly puncture metal cans, which provides in the top end of the can two openings spaced apart diametrically of the top end of the can and located at the edge of such top end, which firmly supports the can in proper position during the puncturing operation, which has replaceable puncturing bits so that the bits can be sharpened or renewed when necessary without having to replace the entire device, and which is simple and durable in construction, economical to manufacture, and easy to operate.

Further objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawing wherein:

Figure 1 is a top plan view of a can puncturing device illustrative of the invention;

Figure 2 is a front elevational view of the device illustrated in Figure 1;

Figure 3 is a side elevational view of the device illustrated in Figure 1; and

Figure 4 is a transverse cross sectional view on the line 4—4 of Figure 3.

With continued reference to the drawing, the device comprises a flat base 10 which is preferably of rectangular shape and has a formation 11 providing a raised pillow for supporting the bottom end of a can and properly locating the can on the puncturing device. This base is provided at its corners with apertures 12 to receive fasteners, such as screws, for rigidly attaching the device to a supporting base structure, such as a counter or table.

A standard 13 is secured at one end to the base 10 at one side of the pillow 11 and is disposed substantially perpendicular to the base so that the standard upstands from the base when the base is operatively mounted on a generally horizontal supporting surface. This standard 13 is preferably hollow and of rectangular cross sectional shape and has at its end opposite the base 10 a lateral extension 14 the side of which remote from the standard is formed to provide an elongated guideway 15 the center line of which is substantially perpendicular to the base 10 and, when elongated, intersects the pillow 11 substantially at the center of the latter.

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The guideway 15 may be of cylindrical shape and a cylindrically shaped rack bar 16 is slidably mounted in the guideway 15 and provided along one side with a series of rack teeth 17, these teeth being disposed in a slot in the side of the guideway adjacent the standard 13.

A pinion 18 is journaled in the standard 13 adjacent the guideway 15 and has teeth 19 which mesh with the teeth 17 on the rack bar.

As is particularly illustrated in Figure 4, an axle pin 20 extends through and is journaled in registering apertures in the standard 13 and the pinion 18 is disposed in the hollow standard and secured on this axle pin. The axle pin has a head 21 on one end which head bears against the outer side of the adjacent side wall of the standard and has its opposite end externally screw threaded, as indicated at 22.

A hand crank 23 is provided at one end with a handle 24 and at its opposite end with an enlarged eye 25, the aperture of which receives the axle pin 20 adjacent the screw threads 22. The aperture in the handle eye and the associated portion of the axle pin are formed noncircular and provided with suitable keys so that the axle pin cannot rotate in the eye of the crank. The pinion 18 is also secured to the axle pin against rotation relative to the pin by a suitable noncircular formation or key construction.

A nut 26 is threaded onto the screw threaded portion 22 of the axle pin to secure the crank on the pin.

With this construction, when the handle is disposed in the upwardly extending position, illustrated in Figures 2 and 3, with the rack bar 16 retracted, and the handle is then pulled forwardly and downwardly, the pinion 18 is rotated forcing the rack bar in a direction toward the base 10. A tension spring 27 connected at one end to the standard 13 and at its opposite end to the crank 23 resiliently returns the crank to its upstanding position, retracting the rack bar 16 when the handle 24 is released.

A head 28, in the form of a flat plate, is secured on the base adjacent end of the rack bar 16 and overlies the pillow formation 11. This head is provided with two spaced apart apertures 29 and 30 leading from the lower to the upper surface of the head and with two tapped holes each of which extends from the front edge of the head to a corresponding aperture.

Two can puncturing bits 31 and 32 are secured to the head 28 and extend from the lower side of the head opposite the rack bar 16.

Each of these bits has a shank portion received

in a corresponding aperture in the head **28**, the bits being detachably secured to the head by set screws **33** and **34** which are threaded through the tapped holes to engage the bit shanks in the corresponding apertures **29** and **30**. At the proximal ends of the shanks **29** and **30** the bits are enlarged to provide transverse shoulders which bear against the under side of the head **28** to support the can puncturing pressure applied to the bit. At the sides of these shoulders opposite the shanks the bits **31** and **32** are formed in the shape of inverted triangular pyramids and have their adjacent side edges straight and substantially perpendicular to the under surface of the head **28**, in parallelism with the line of movement of the rack bar. The two outer sides of each bit are beveled or inclined, that is, the remaining two side edges of each bit converge downwardly toward one another and toward the first named side edge, so that each bit is tapered in a direction away from the corresponding shank substantially to a point at the end of the bit opposite the shank. With this construction, when the bits are forced into the top end of a metal can, the pointed ends of the bits will first contact the can top and, as the bits are forced into the can triangular tabs will be separated and folded downwardly and outwardly toward the side walls of the can providing two triangular shaped apertures in the top end of the can through one of which the liquid contents of the can may be poured, the other serving as an air inlet vent so that air may freely enter the can to replace the liquid poured therefrom. The openings in the can top are extended substantially to the side wall of the can so that the entire contents of the can may be poured therefrom without difficulty.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. A can puncturing device comprising a flat base, a standard upstanding from said base, a guideway carried by said standard above said base with its center line substantially perpendicular to said base, a rack bar slidably mounted in said guideway and having rack teeth on one side thereof, a pinion journaled in said standard above said rack adjacent said guideway and having teeth meshing with said rack teeth, a crank secured to said pinion to rotate the latter and

move said rack bar toward and away from said base, a head of rigid construction secured on the base adjacent end of said rack bar, and two can puncturing bits detachably secured to said head at spaced apart locations and extending from the side of said head opposite said rack bar, said bits being formed as inverted triangular pyramids and having adjacent side edges arranged in parallelism with the line of movement of said rack bar, the remaining side edges of the respective bits extending downwardly from said head in converging relation to one another and to said first named side edges to form can puncturing points at the lower ends of the bits.

2. A can puncturing device comprising a flat base, a standard upstanding from said base, a guideway carried by said standard above said base with its center line substantially perpendicular to said base, a rack bar slidably mounted in said guideway and having rack teeth on one side thereof, a pinion journaled in said standard above said rack adjacent said guideway and having teeth meshing with said rack teeth, a crank secured to said pinion to rotate the latter and move said rack bar toward and away from said base, a head of rigid construction secured on the base adjacent end of said rack bar, and two can puncturing bits detachably secured to said head at spaced apart locations and extending from the side of said head opposite said rack bar, said bits being formed as inverted triangular pyramids and having adjacent side edges arranged in parallelism with the line of movement of said rack bar, the remaining side edges of the respective bits extending downwardly from said head in converging relation to one another and to said first named side edges to form can puncturing points at the lower ends of the bits, said base having a raised pillow formation thereon for locating a can on said base and the center line of said guideway when extended, intersecting said pillow formation substantially at the center of the latter.

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