

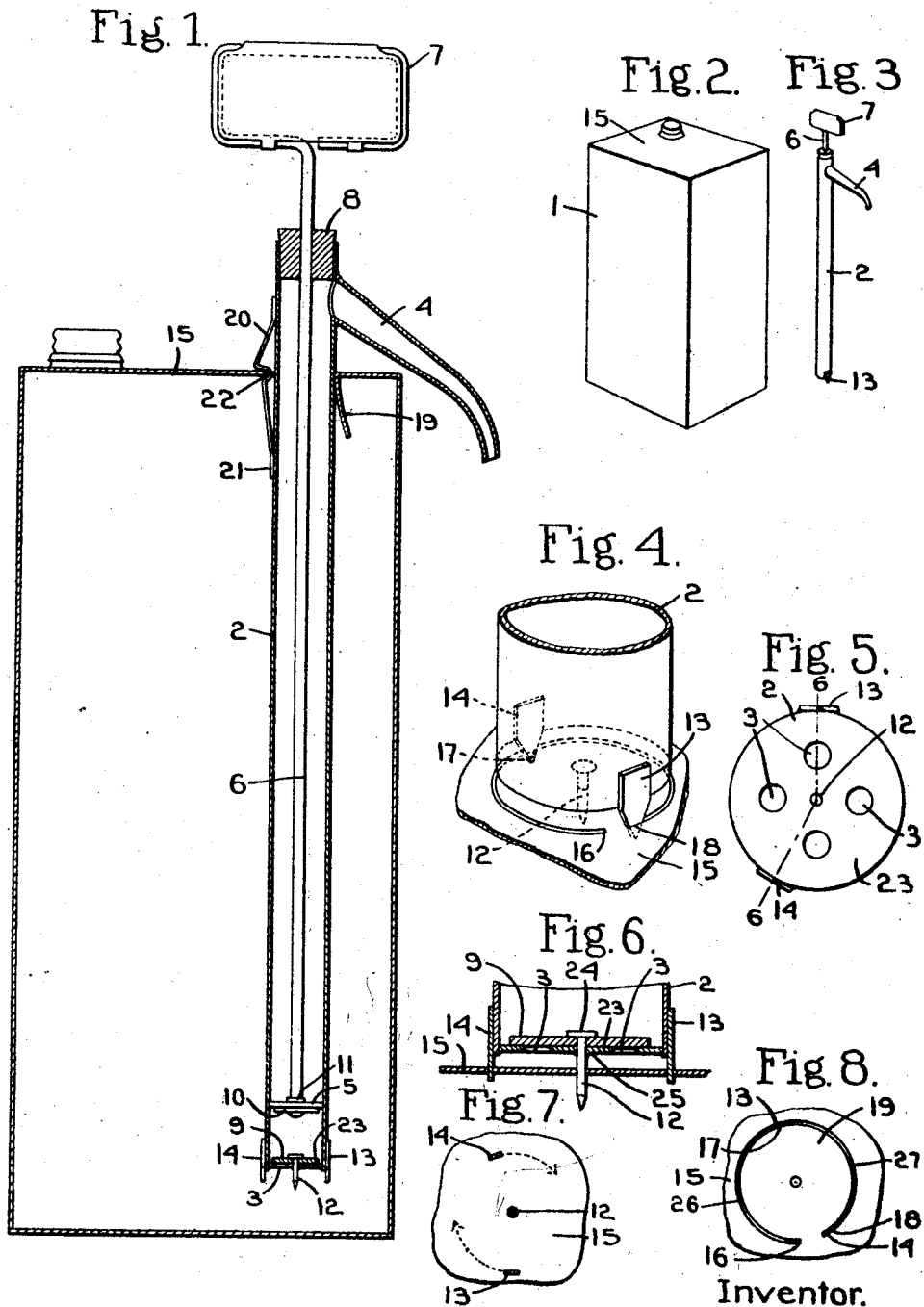
June 21, 1927.

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COMBINED PUMP AND CAN OPENER

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UNITED STATES PATENT OFFICE.

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COMBINED PUMP AND CAN OPENER.

Application filed October 26, 1925. Serial No. 64,797.

This invention relates to a combination can opener and pump by which an opening may be cut in the top of a can containing liquid and the liquid dispensed through said opening.

The device comprises a pump barrel or cylinder having a piston thereon and means on the end of the barrel by which an opening may be cut in the top of the can of a size to receive the pump cylinder.

In order to give an understanding of the invention I have illustrated in the drawings a selected embodiment thereof which will now be described after which the novel features will be pointed out in the appended claims.

Fig. 1 is a sectional view showing a can after the pump embodying my invention has been inserted therein;

Fig. 2 is a perspective view of the can before it is opened;

Fig. 3 is a perspective view of the combined pump and can opener;

Fig. 4 is a fragmentary perspective view showing the manner in which the can opener feature of the pump cuts an aperture in the top of the can to receive the pump cylinder;

Fig. 5 is a bottom plan view of the combined pump and can opener;

Fig. 6 is a sectional view through the lower end of the pump cylinder taken on the line 6—6, Fig. 5;

Fig. 7 is a view illustrating the relative position of the cutting knives when they begin the operation of cutting the hole in the can;

Fig. 8 is a view showing the way in which the knives operate to cut the hole in the can.

In the drawings 1 indicates a can containing liquid which may be of any suitable size or shape. The novel can opener and pump which is the subject of the present invention comprises a pump barrel or pump cylinder 2 having an inlet port 3 at its lower end and a discharge pipe 4 at its upper end. Operating in the barrel is a pump piston 5 which is connected to a piston rod 6 that extends beyond the upper end of the barrel and is provided with a handle 7 by which it may be operated. 8 indicates a closure for the upper end of the cylinder which also

forms a packing for the piston rod. If it is desired to make an inexpensive article I will preferably employ a cork for the closure 8 because this will both effect the necessary closure and also provide the requisite packing for the piston rod.

The inlet port 3 is normally closed by an inlet valve 9 which may conveniently be a disk of leather or other suitable material which is anchored centrally and which has its edges free so that when suction is created in the cylinder above the valve during the up-stroke of the piston the edges of the valve will lift up to allow liquid to enter the cylinder, while when the piston is carried downwardly the valve will close thus forcing the liquid past the piston into the cylinder above the latter. The piston 5 is also in the form of a disk of leather or similar material which just fills the cylinder and which is confined between a relatively large flange 10 on its under side and a relatively small collar or the flange 11 on its upper side. During the up-stroke of the piston it will lie against the flange 10 and form a tight joint with the walls of the cylinder and during the down stroke the edge of the piston may curve upwardly to allow the liquid to pass.

The pump cylinder has at its lower end provision for cutting an opening in the top of the can of a size to receive the pump cylinder so that the device may be used first to cut an opening in the can and after the pump has been inserted through the opening, as shown in Fig. 1, the device may be used to empty the can.

The can-cutting features comprise a centering pin 12 secured to the end of the cylinder axially thereof and two cutting blades 13 and 14 which are secured to the peripheral portion of the cylinder. These cutting blades extend beyond the bottom of the cylinder and are preferably pointed as shown in Fig. 4, each having a cutting edge. The centering pin 12 projects further beyond the end of the cylinder than the cutting blades and the purpose of this is to hold the cylinder in proper position during the can-cutting operation.

In using the device the lower end of the pump cylinder will be pressed against the

can top with sufficient pressure to cause both the centering pin and the pointed knives to puncture the can top 15. Since the centering pin 12 is longer than the knives the first operation will be that the pin will puncture the can top after which the pointed end of the knives may be pushed through said can top. After the top has thus been punctured the pump is turned about its axis; the centering pin 12 serving as a positioning device to hold the pump cylinder in proper position during the rotating operation. The turning of the pump about the centering pin 12 as an axis will cause the cutting blades 13 and 14 to make circular cuts in the top 15 of the can thus cutting a hole in the can of a size to receive the pump cylinder 2.

In cutting the hole in the top of the can it is desirable that the circular piece of the can top which is thus cut out should not remain on the centering pin when the pump is inserted in the can because if it did so remain there is a possibility that it might clog the inlet ports 3 and thus interfere with the operation of the pump. I have, therefore, provided a construction by which a hole may be made in the top of the can without cutting the metal disk which filled the hole entirely free from the can top. I do this by giving the cutting blades the relative position shown in Figs. 5 and 7, from which it will be observed that the blades do not stand diametrically opposite each other. The blades have such a relative position that when they are forced through the top 15 of the can said blades 13 and 14 will enter the can at the points indicated in Fig. 7. If now the blades are turned in the direction of the arrow in Fig. 7 the blade 13 will reach the position initially occupied by the blade 14 as shown in Fig. 8 before the blade 14 reaches the position initially occupied by the blade 13. In other words, a turn of less than one-half a revolution will cause the blade 13 to cut the top 15 from the point where said blade 13 entered to the point where the blade 14 entered, that is, during this less than one-half revolution the blade 13 will make the cut 26 in the top 15 from the point 16, Fig. 8, when said blade 13 entered the top, to the point 17, while the blade 14 will make the cut 27 in the top from the point 17 to the point 18. When the pump cylinder has been given partial turn so that a cut has been made in the top from the point 16 around to the point 18 then the pump is removed and metal 19 enclosed within the cut is bent downwardly into the interior of the can as shown in Fig. 1. This leaves a hole in the top of the can through which the pump cylinder may be inserted as shown in Fig. 1.

The pump is provided with suitable means for locking the pump in position, this be-

ing a spring catch device 20 which extends longitudinally of the pump and is secured thereto at the lower end as shown at 21. This catch device is provided with a re-entrant portion or recess 22 in which the edge of the opening in the can is received. The device 20 is in the nature of a spring catch so that when the pump is inserted to the proper point the re-entrant portion 22 will snap over the edge of the opening in the can top and thus hold the pump from vertical movement while it is being operated.

The centering pin 12 also functions as a means for retaining the inlet valve 9 in place. This centering pin is in the form of a headed pin which is inserted through both the valve 9 and the bottom 23 of the cylinder, the head 24 of the pin resting against the washer 9 which forms the inlet valve. This pin is anchored to the bottom 23 of the cylinder by being soldered thereto as shown at 25.

The pump embodying this invention is very inexpensive to manufacture and may be furnished with a can as means for dispensing the contents of it. The device is useful for a great variety of purposes and is specially useful in connection with cans containing kerosene or other similar liquid which it is desired to dispense in small quantities at a time. Kerosene and many other similar liquids are frequently sold in five-gallon cans. It is extremely difficult to pour out a small quantity from a full five-gallon can without spilling and wasting a considerable quantity. My invention, however, provides a means by which small or large quantities can be dispensed from cans without any spillage or wastage.

While I have illustrated herein a selected embodiment of my invention I do not wish to be limited to the constructional features shown.

I claim:

1. A combined pump and can opener comprising a pump cylinder having an inlet port at its lower end, an inlet valve for said port, a piston operating in the cylinder, a can-puncturing centering pin extending from the bottom end of the pump and by which the top of a can may be punctured, and two cutters extending from the bottom of the pump for cutting an opening in the can as the pump is turned about the centering pin, said cutters being situated in a non-diametrical relation, whereby less than one-half a revolution of the pump will make a circular cut in the can top slightly less than a complete circle so that by bending the material thus cut down into the can a hole is produced into which the pump barrel may be inserted.

2. In a pump, the combination with a

5 pump cylinder having an inlet port at one end, a disk valve controlling said port, a combined puncturing and centering pin extending through the valve and the end of the cylinder, and knives on the ends of the pump cylinder for cutting a hole in a can when the pump is turned about the punctur-

ing and centering pin, said puncturing and centering pin being anchored to the bottom of the cylinder and serving to hold the disk valve in place. 10

In testimony whereof, I have signed my name to this specification.

ROY A. THORNTON.

Certificate of Correction.

Patent No. 1,632,933.

Granted June 21, 1927, to

ROY A. THORNTON.

It is hereby certified that error appears in the printed specification of the above-numbered patent requiring correction as follows: Page 2, line 117, claim 1, for the word "tow" read *two*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 26th day of July, A. D. 1927.

[SEAL.]

M. J. MOORE,
Acting Commissioner of Patents.