Dec. 20, 1927.

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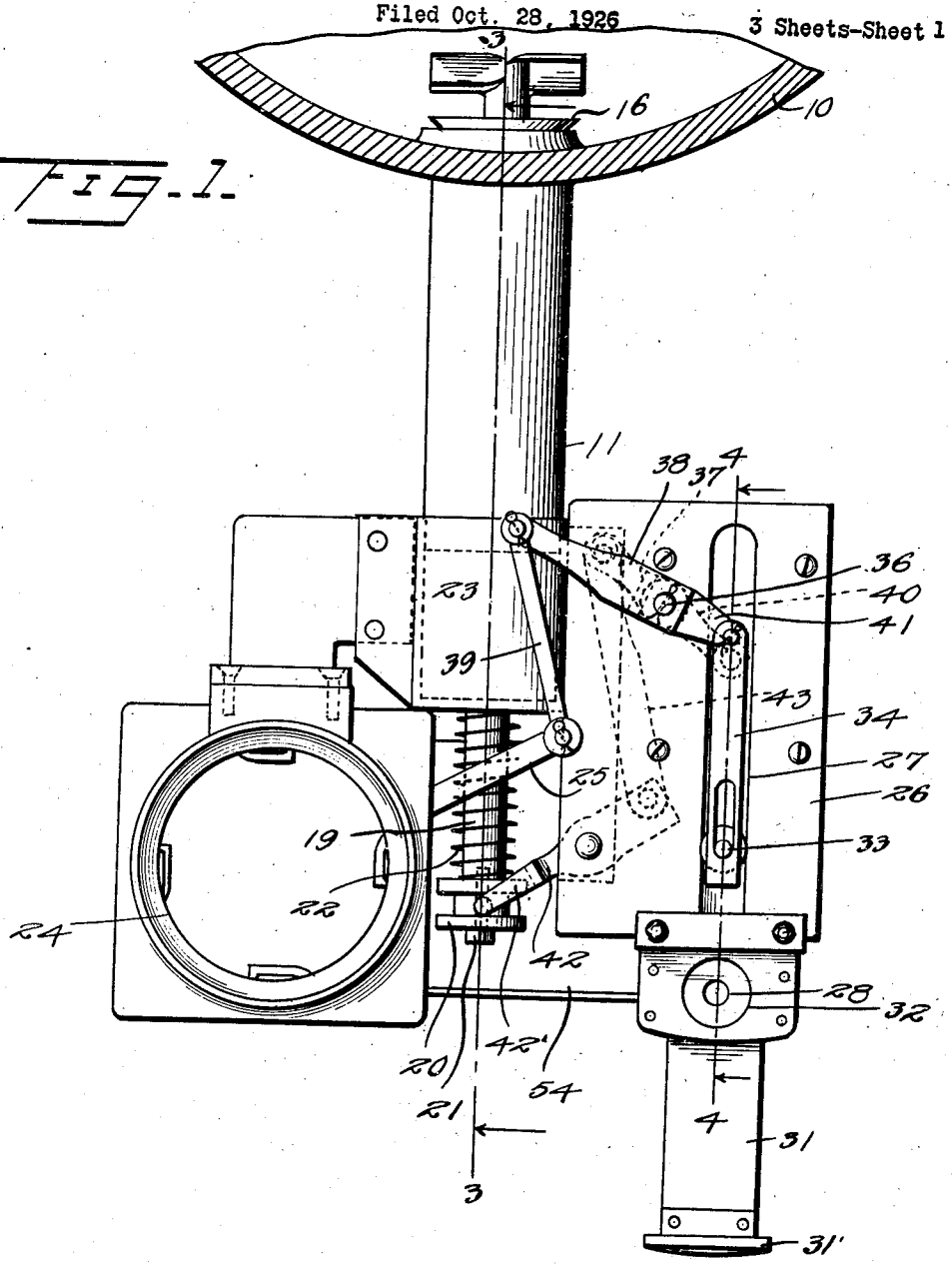
H. M. HENDERSON

LIQUID DISPENSING MACHINE

Filed Oct. 28, 1926

3 Sheets-Sheet 1

Fig. 1.



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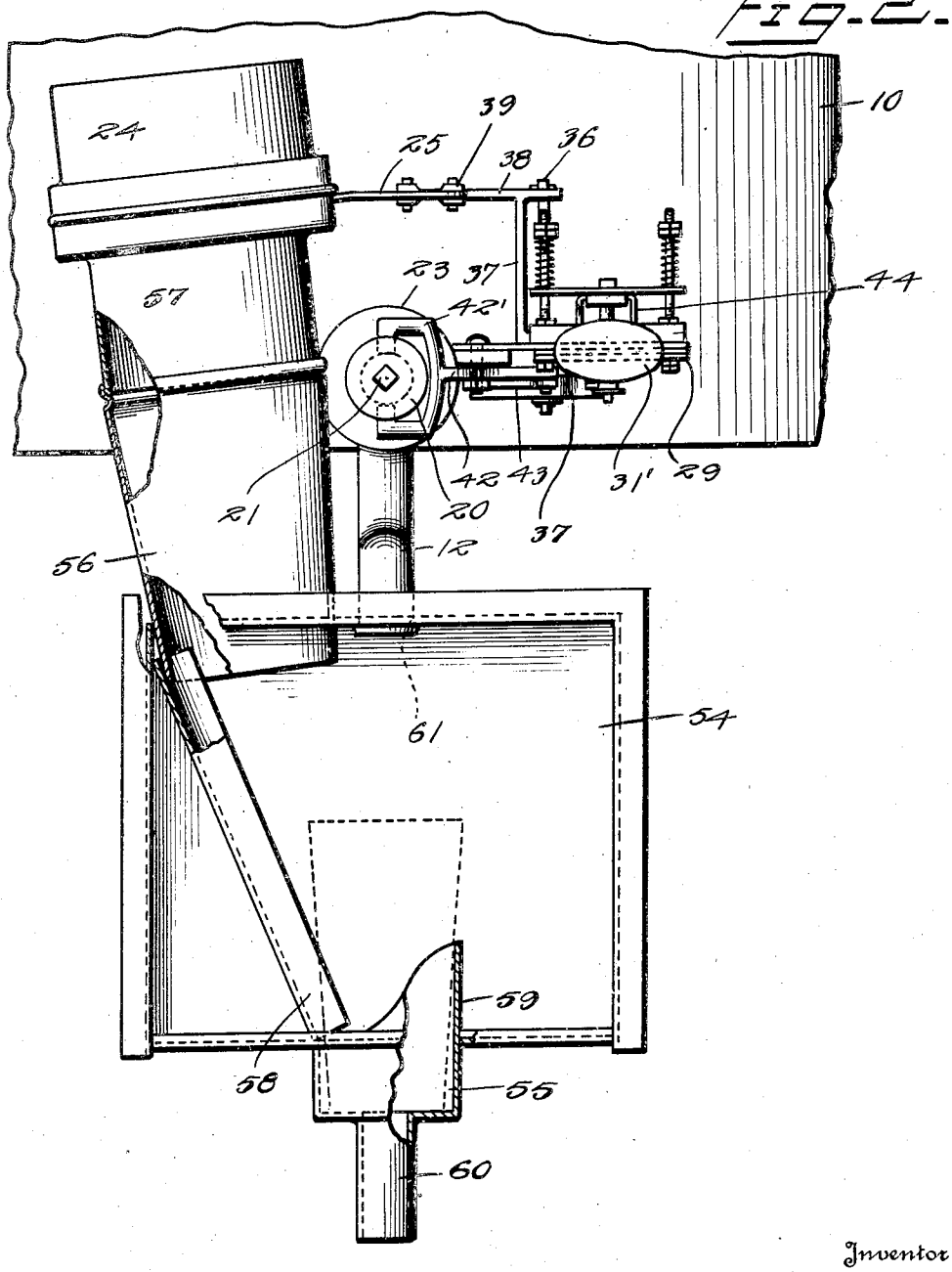
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Fig. 2.



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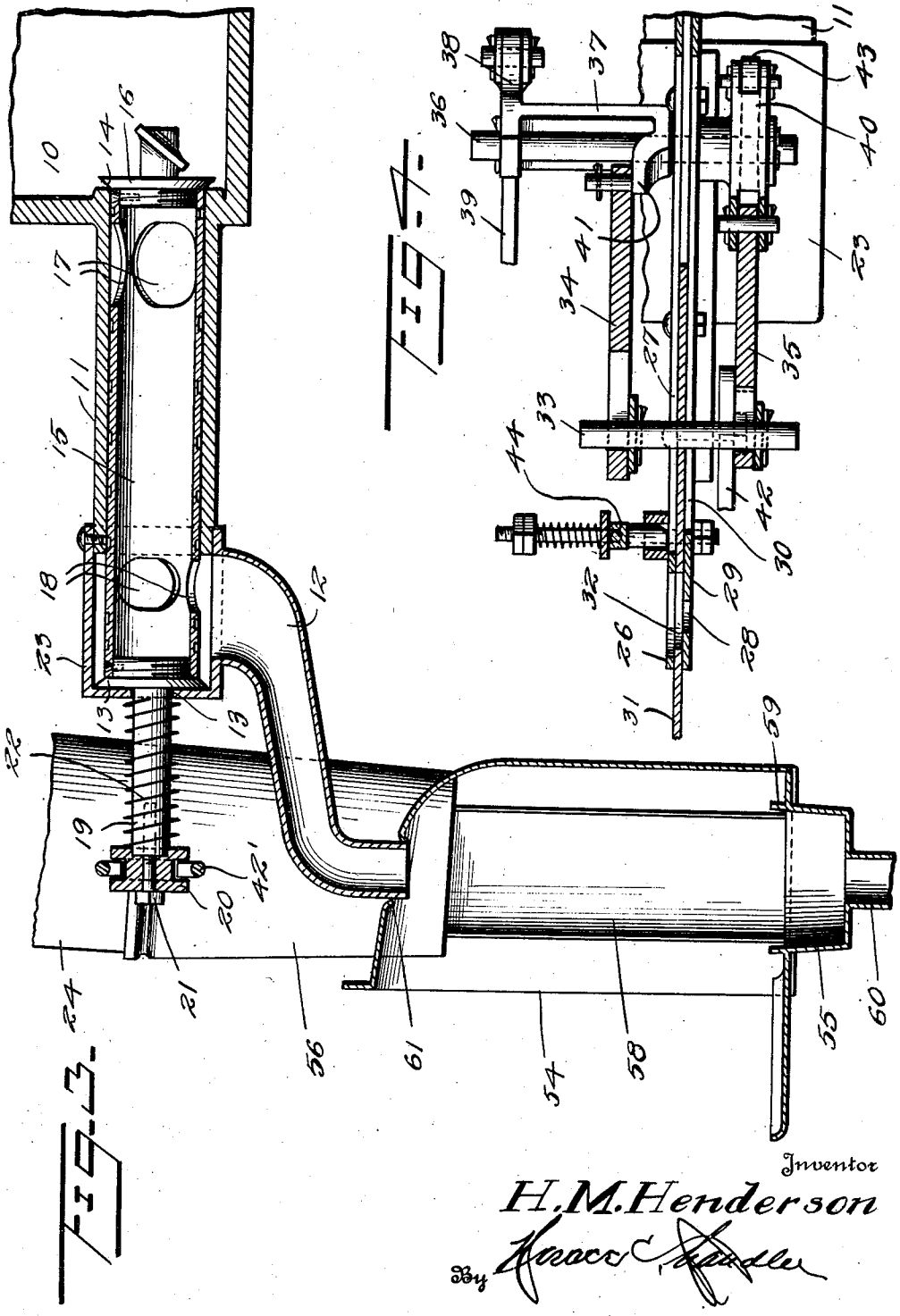


Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

HARRY M. HENDERSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

LIQUID-DISPENSING MACHINE.

Application filed October 28, 1926. Serial No. 144,867.

This invention relates to new and useful improvements in dispensing machines, and particularly to machines for dispensing beverages.

One object of the invention is to provide a machine of this character which is adapted to deliver a measured charge of liquid, upon actuation of a customer operated means.

Another object is to provide a machine of this character which will, upon actuation of a plunger or push-rod, place a drinking cup in position to receive the liquid, and subsequently deliver the charge of liquid into the cup.

Another object is to provide, in a machine of this character, a charge measuring device, in association with a liquid container, which will effectively prevent leakage of the liquid from the container, when in liquid receiving position, or when in charge delivering position.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawings.

In the drawings:

Figure 1 is a top plan view of the operating mechanism in normal position.

Figure 2 is a front elevation of the same.

Figure 3 is a vertical longitudinal sectional view on the line 3—3 of Figure 1.

Figure 4 is a vertical longitudinal sectional view on the line 4—4 of Figure 1.

Referring particularly to the accompanying drawings, 10 represents a portion of a tank, which is adapted to contain the liquid to be dispensed. Formed integrally with the lower portion of the side wall of the tank, and projecting outwardly therefrom, is a nipple 11, and formed on the lower side of the outer end portion of the nipple is a downwardly and outwardly inclined spout 12. In the center of the outer end wall of the nipple there is formed an opening 13. In the surrounding wall of the inner end of the nipple, or where the bore thereof enters the tank, there is formed a boss 14. Slidable in the bore of the nipple is a hollow cylindrical charge measuring member 15, the inner end of which is formed with a beveled head 16 arranged to seat against the boss 14, when the said member is in its outermost position. In the wall of the member 15, adjacent the head 16, are the elongated longitudinally extending openings 17, while elongated openings 18 are formed in said member a suitable distance outwardly of the openings 17, but extending circumferentially of the member. These openings 17 and 18 are spaced short distances from each other, so that each circular series of openings is, in effect, an opening or slot, extending completely around the member, whereby to facilitate the entrance of liquid from the tank, into the member, and also to facilitate the discharge therefrom into the spout 12. Both ends of the cylindrical member 15 are closed, and formed on the outer end is a stem 19, which is slidably disposed through the before-mentioned opening 13, of the nipple. On the outer end of the stem is mounted a peripherally grooved collar 20, the same being held in position on the stem by means of the terminal nut 21. Encircling the stem, and bearing against the said collar 20, and the end wall of the nipple, is a coil spring 22, which normally urges the cylindrical member outwardly, so that its openings 18 are in registry with the inner end of the spout 12. Mounted on the outer end of the nipple is a bracket 23, and supported on this bracket, at one side of said nipple, is a holder for sanitary paper cups, said holder being designated by the numeral 24. This holder is provided with an operating arm 25, projecting transversely of the outer end of the nipple, for causing the single delivery of the paper cups. Mounted on the bracket 23, at the other side of the nipple, is a horizontally disposed table 26, said table having a longitudinal slot 27 formed therein, and at the forward end of said table there is formed a comparatively small circular opening 28. Secured to the lower face of the table 26, and spaced a short distance therefrom, is a plate 29, also having a longitudinal slot 30, registering with the slot 27. Slidable longitudinally between the table 26, and the plate 29, is a plunger 31, said plunger having an opening in its intermediate portion, shown at 32, of a diameter to properly receive a coin of a certain size, as for instance, a nickel. Secured to the plunger 31, and extending vertically through the slots of the table and plate, both above and below thereof, is a pin 33, and engaged on the upper end of the pin is the longitudinally slotted portion of a link 34, while the longitudinally slotted portion of a similar link 35 is engaged on the lower end of the pin. Extending vertically through the table and plate, at the

side of the slots thereof, adjacent the nipple 11, is a pivot pin 36, and engaged on the upper portion of this pin is the vertical pivot portion 37, of a lever 38, the other end of said lever being pivotally connected with the cup operating arm 25, by means of the link 39. On the lower end of the pin 36 is a centrally mounted rock lever 40, one end of said lever being pivotally connected with the adjacent end of the before-mentioned link 35. The lower end of the vertical portion 37, of the lever 38, is formed with an apertured projection 41 which is pivotally connected to the adjacent end of the before-mentioned link 34. Pivotally supported on the lower face of the table is a rock lever 42, one end of which is pivotally connected with the other end of the rock lever 40, by means of the link 43. The other end of the rock lever 42 is formed with a yoke 42′, the ends of the arms of which are engaged in the groove of the collar 20, for actuating the stem of the cylindrical member 15, inwardly, the coil spring 22 serving to restore the stem to its outer limit of movement. On the outer end of the plunger is a hand-grip 31′.

The sliding movements of the plunger 31 are adapted to be controlled by a detent mechanism, represented, as a whole, by the numeral 44, but not described herein, as such details are fully set forth in my application filed of even date herewith.

The plunger is adapted to be pushed inwardly whereby to operate the various levers and links, and accomplish the release of a drinking cup, and the operation of the liquid measuring cylinder, to receive its charge of liquid from the tank. Releasing the plunger permits the cylinder 15 to be restored to normal outward position, by means of the spring 22, so as to register its openings 18 with the spout, and discharge its liquid into the cup placed below the spout.

Mounted beneath the cup delivering mechanism is a chamber 54, the front portion of which is open, as seen in the drawing, and formed in the bottom wall of this chamber is a cup receiving recess 55. In one end of the upper wall of the chamber there is secured a downwardly tapering spout 56, to the upper end of which is properly secured a downwardly tapering spout 57, forming a part of the cup mechanism. Leading downwardly, and laterally from the lower end of the spout 56, is a chute 58, in which the individual paper cups slide, to be seated, in an upright position in the recess 55. The lower end of the chute 58 is secured to the adjacent side of the recess 55, whereby to properly guide the cup thereinto. Erected on the opposite side of the recess 55 is a stop wall 59, against which the cup engages, and whereby such cup is prevented from moving beyond the recess, so that it will properly seat in the recess to receive the liquid from the spout 12. The customer simply reaches through the open front of the chamber and removes the filled cup from the recess.

Each time that the plunger 31 is pressed in and then released, a cup is first discharged down the chute, into an upright position in the recess 55, directly beneath the liquid spout 12, and then the cylinder 15 moved inwardly to receive a charge of liquid from the tank and outwardly to deliver its charge into the waiting cup. In the bottom of the recess 55 there is secured a drain pipe 60, to discharge any waste accumulating in the recess, such waste being arranged to be caught by any suitable receptacle which might be placed therebeneath.

In the center of the upper wall of the chamber there is formed an opening 61 through which the end of the spout 12 projects, to discharge the liquid directly into the cup.

What is claimed is:

1. In a liquid dispensing machine, the combination with a measuring valve and a cup dispensing mechanism, of a support, a plunger slidable on the support, links operatively connected with the plunger, connections between one of the links and the measuring valve, and connections between the other link and the cup dispensing mechanism.

2. In a liquid dispensing device, the combination with a measuring valve and a cup dispensing mechanism, of a guide disposed adjacent the valve and cup mechanism, a plunger mounted on the guide, a pin carried by the plunger and extending above and below the guide, a link connected with the upper end of the pin and with the cup mechanism, and a link connected with the lower end of the pin and with the measuring valve.

3. In a liquid dispensing device, the combination with a measuring valve and a cup dispensing mechanism, of a support adjacent the valve and having a longitudinal slot therein, a plunger slidable in the support, a vertical pin carried by the plunger extending below the plunger and upwardly through said slot, a link pivotally connected to the upper end of the pin above the support and operatively connected with the cup dispensing mechanism, and a link pivotally connected with the lower end of the pin and operatively connected with the measuring valve.

In testimony whereof, I affix my signature.

HARRY M. HENDERSON.