

March 6, 1951

S. O. MORRISON

2,543,746

CUP DISPENSER

Filed July 20, 1948

Fig. 1.

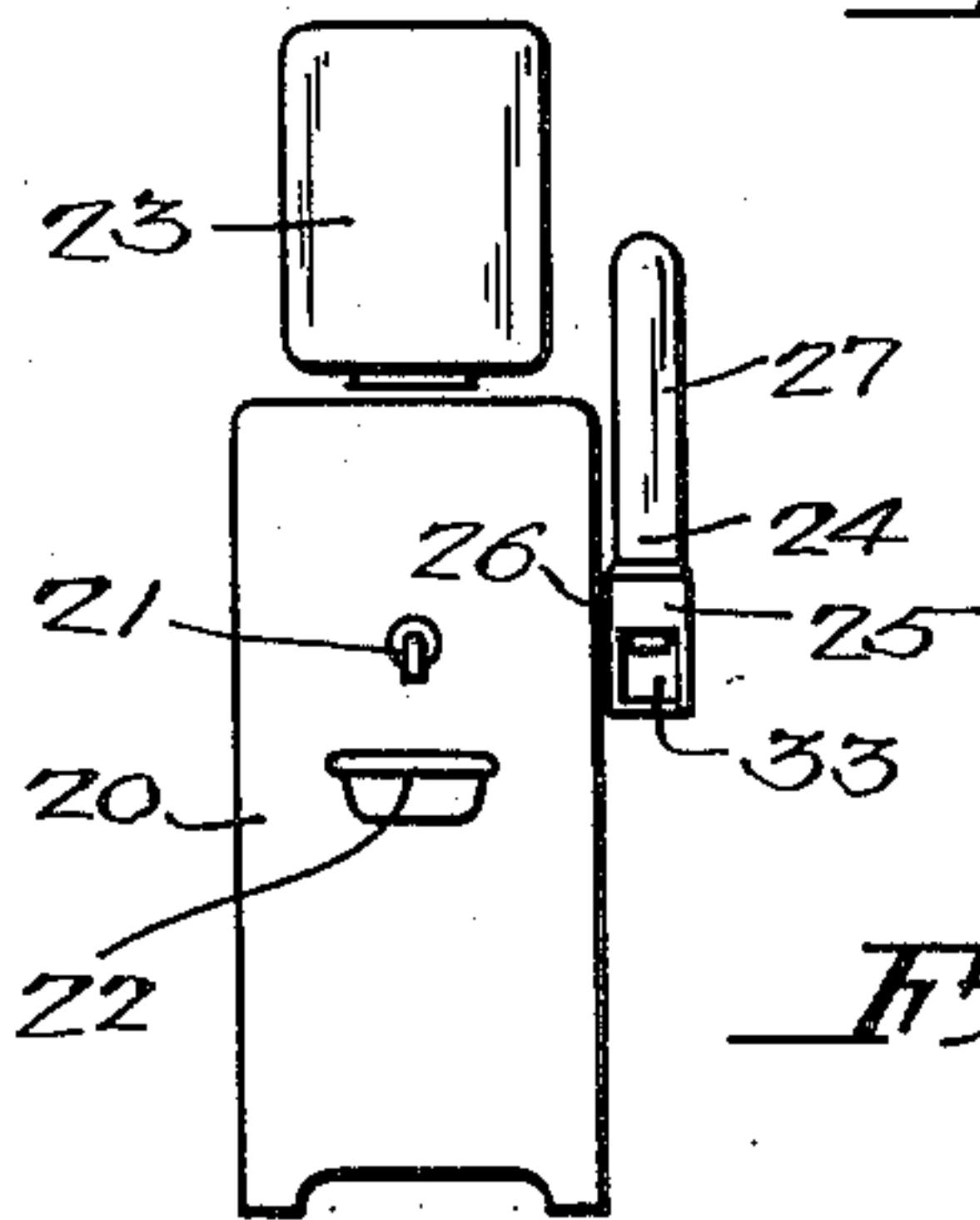


Fig. 4.

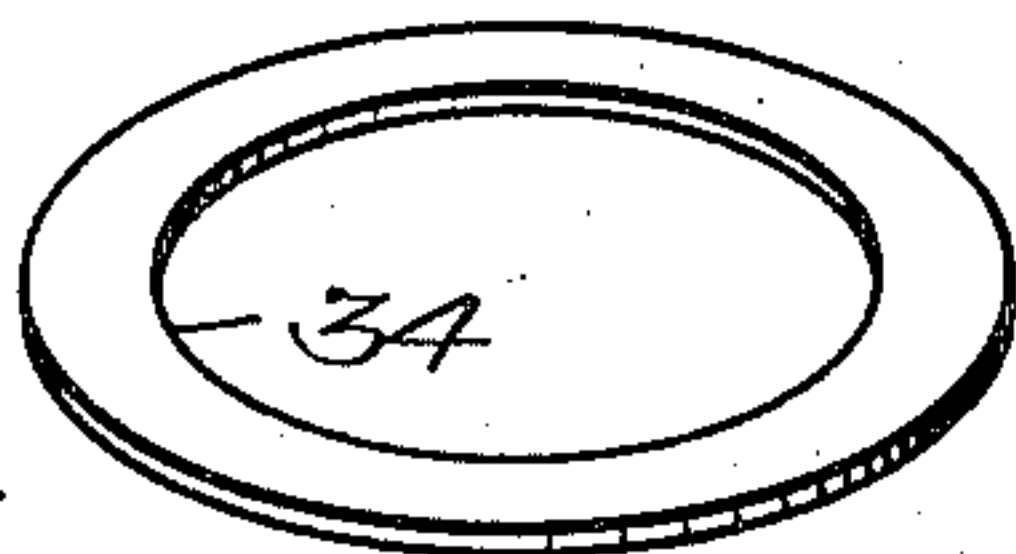


Fig. 6.

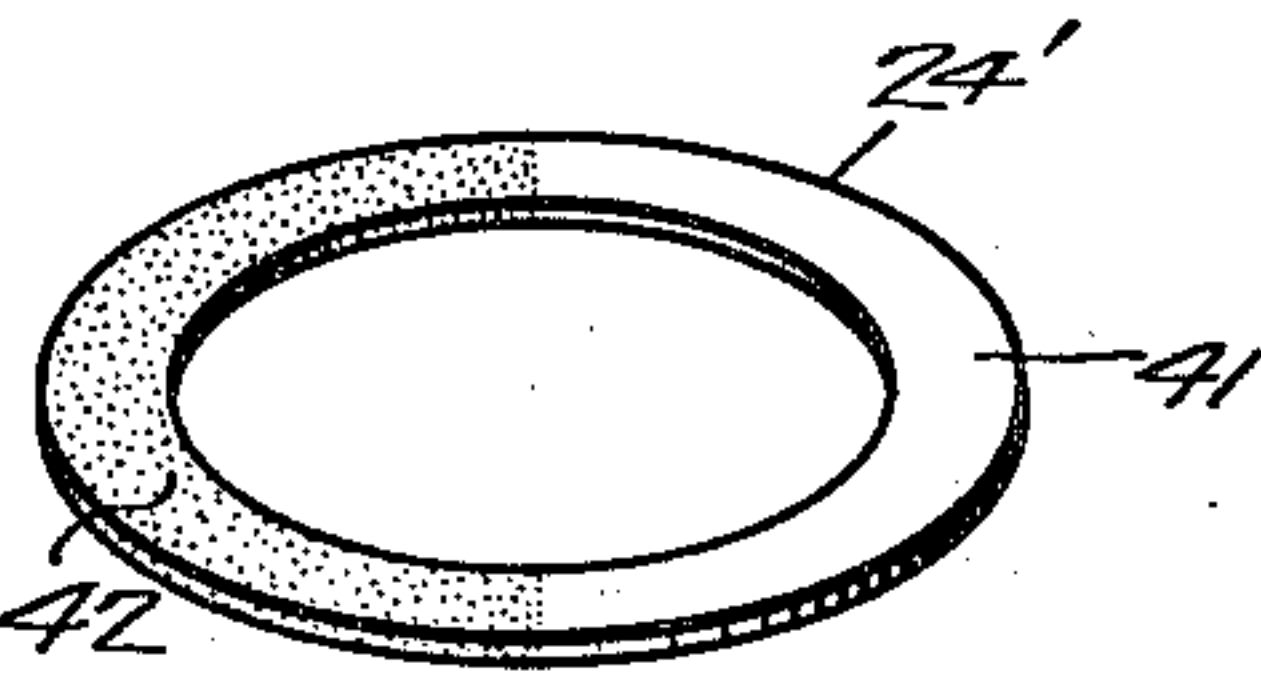


Fig. 5.

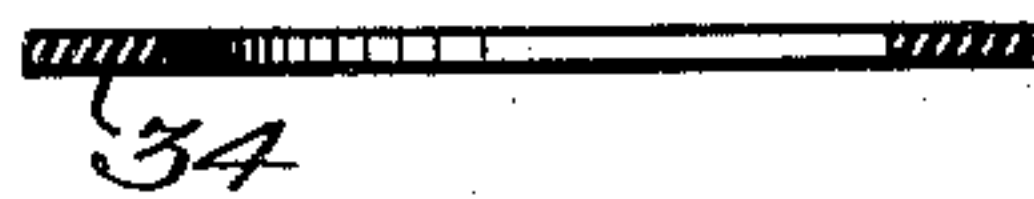


Fig. 7.

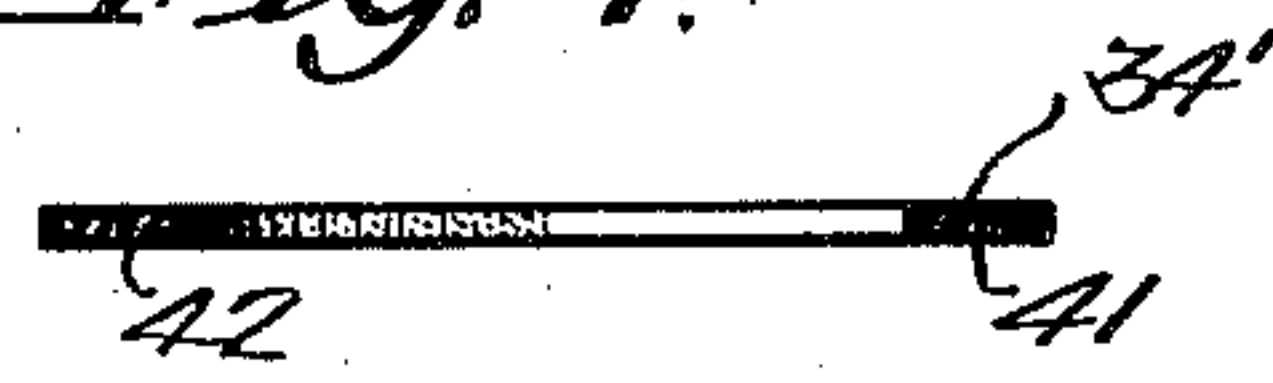


Fig. 2.

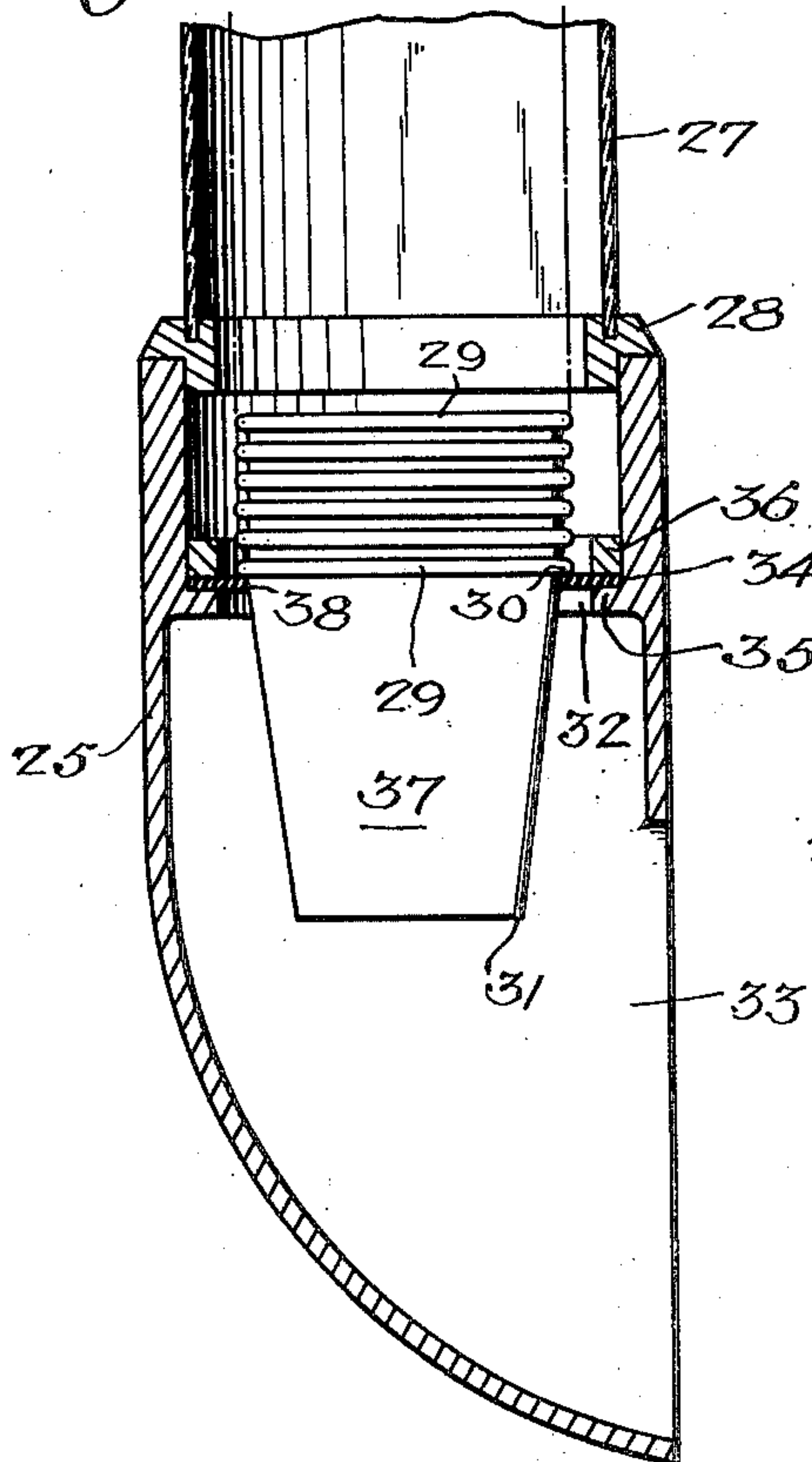
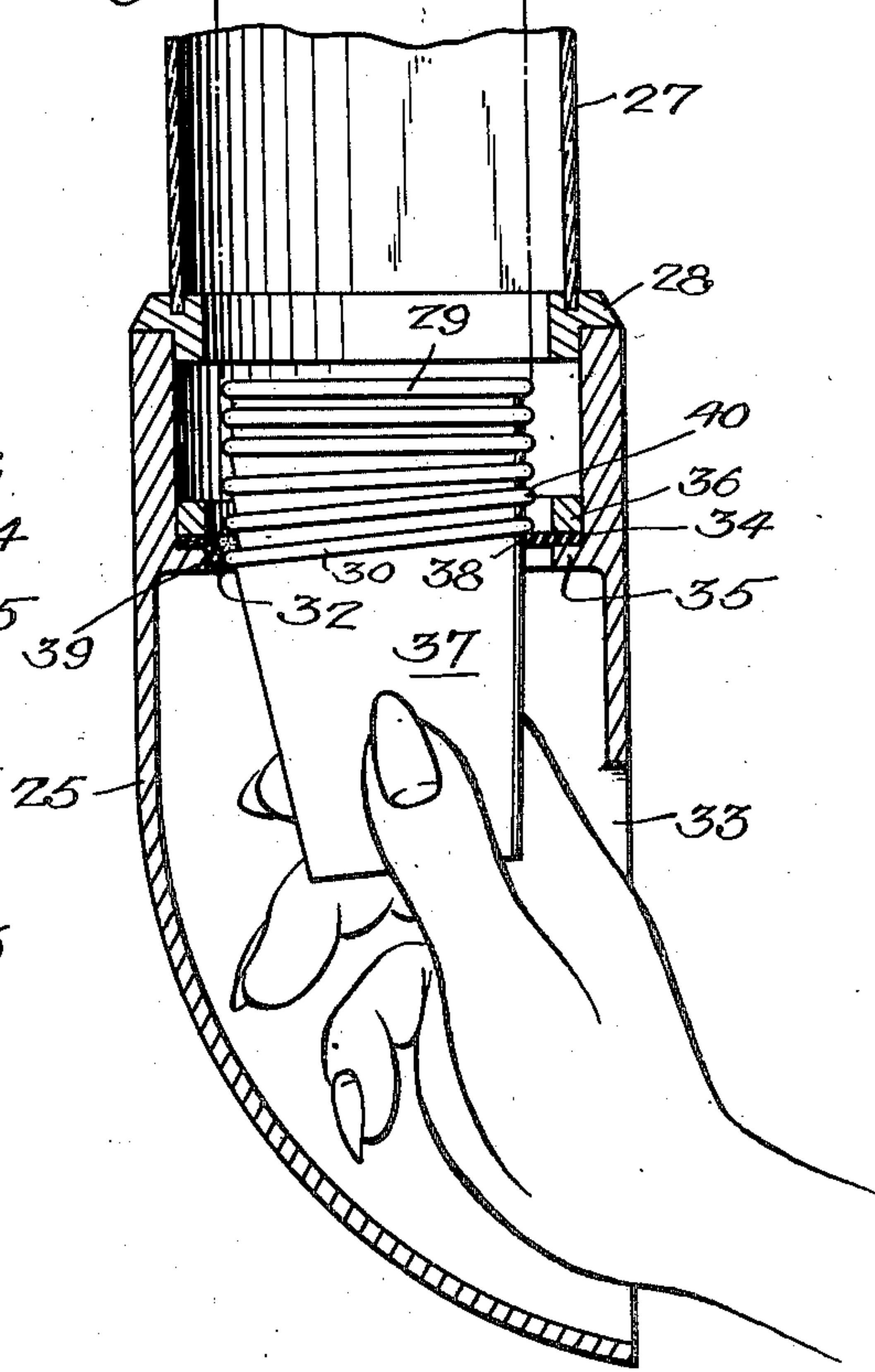


Fig. 3.



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## UNITED STATES PATENT OFFICE

2,543,746

## CUP DISPENSER

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Application July 20, 1948, Serial No. 39,738

2 Claims. (Cl. 312—43)

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The present invention relates to a dispenser for drinking cups.

A purpose of the invention is to assure cleanliness of cups which are stacked in a cup dispenser.

A further purpose is to prevent the intrusion of insects into the space around the cups held in a holder.

A further purpose is to simplify the operation of a cup dispenser so as to permit withdrawal of a cup merely by pulling on the same and without the operation of a trigger or lever.

Further purposes appear in the specification and in the claims.

In the drawing I have chosen to illustrate a few only of the embodiments in which the invention may appear, choosing the forms shown from the standpoints of convenience in illustration, satisfactory operation and clear demonstration of the principles involved.

Figure 1 is a front elevation showing the dispenser of the invention applied on any suitable water cooler.

Figure 2 is a detailed fragmentary central vertical section of the lower end of the dispenser.

Figure 3 is a view corresponding to Figure 2 showing the operation of removing a cup from the dispenser.

Figure 4 is a perspective of the resilient ring employed at the mouth of the dispenser.

Figure 5 is a central radial section of the resilient ring of Figure 4.

Figure 6 is a perspective of a variant form of resilient ring.

Figure 7 is a central radial section of Figure 6.

In the drawings like numerals refer to like parts.

Describing in illustration but not in limitation and referring to the drawings:

In the prior art practice dispensers for drinking cups have commonly employed levers or triggers for releasing the cups. This mechanism has prevented thoroughly sealing the stack of cups in the holder around the dispensing opening, and it has commonly been possible not only for dust to enter and soil cups being held in the dispenser, but also for insects and the like of the character for example of ants or even more repulsive insects to enter the dispenser and soil the cups.

Such prior art devices have been subject to the further disadvantage that in many cases it has been necessary to use two hands to operate the dispenser, or to employ the trigger action of a finger while at the same time grasping the cup with other fingers.

In the present invention a very simple and

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economical form of dispenser has been designed which is comparatively safe against intrusion of dust and insects, and which is very simple to operate and can be operated by a single motion of one hand.

As shown in Figure 1, a suitable water cooler 20 is provided with a water dispenser 21 and a drip basin 22. Water may be taken from a bottle 23 or any other suitable source. The cup dispenser 24 may be located in any convenient manner in association with the water cooler, and in order to indicate that it may assume any desired position, the dispenser is here shown in a thoroughly conventional manner located external to the water cooler rather than being built into the same, as shown in copending application Serial No. 39,740, filed July 20, 1948, for Cup Dispenser and Disposal Unit.

The dispenser conveniently comprises a suitably metallic housing 25 supported by a bracket 26 and surmounted by a suitably transparent cup holder 27 removably connected to the housing by a removable mounting collar 28 resting in the top of the housing.

A sequence of cups 29 is vertically supported in the cup dispenser. Each cup is desirably circular, provided with a rim 30, desirably at the top, and tapering from the rim to a small diameter at the bottom 31. The cups internest as shown.

The cup dispenser has a mouth 32 at the bottom of the cup holder, access to the mouth being had through a dispensing opening 33 below and in front of the mouth.

The lowermost cup is supported in the mouth by a resilient gripping and sealing ring 34 mounted on a bottom flange 35 in the housing and gripped by an upper metallic ring 36 inside the hollow interior of the housing. The resilient ring 34 extends radially inwardly beyond the flange 35 and beyond the ring 36 to engage the lowermost cup 37 against the tapered side wall of the cup at 38 immediately under the rim 30. The resilient ring 34 thus makes an all around tight seal with the lowermost cup as shown in the position of Figure 2, at the same time supporting the sequence of cups including the lowermost cup.

The resilient ring may be made of any suitable resilient material, preferably soft rubber. The rubber may be natural rubber or synthetic rubber such as Buna S, Buna N, chloroprene (neoprene) or Thiokol. Other rubber-like material may be used for the dispensing ring, such as polyethylene, polyvinyl chloride or polyvinyl chloride-acetate, provided of course such ma-



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materials be plasticized to exhibit rubber-like properties.

The procedure for removing a cup from the dispenser is simply to reach in the hand as shown in Figure 3, grasp the lowermost cup 37 and rock, preferably about the nearest point of engagement 38 between the rim and the resilient ring. The tendency then is to deflect or bend the resilient ring downward at 39 at the opposite edge of the cup until the rim of the lowermost cup passes below the ring and the ring snaps upwardly against and engages the rim 40 of the next upper cup. Slight downward pull now causes the rim of the lowermost cup to move below the resilient ring all around the ring, so that the lowermost cup is released to the user while the next upper cup is retained in the position of Figure 2.

It will be seen that in this device the user himself feeds the next lowermost cup down with the aid of gravity while he is dispensing the lowermost cup.

In most cases the resilient ring will take the form of an ordinary washer as shown in Figures 4 and 5. In some cases however it is desirable to compound two opposite portions of the resilient ring from resilient material of different stiffnesses, for example rubber of different durometers. Thus in Figure 6 the resilient ring 34' has a comparatively stiff side 41 and a comparatively soft side 42. When this is used it is usually preferable to place the stiff side toward the user and to place away from the user the edge which is first to release the cup rim and which will undergo the most severe deformation.

It will be evident that by the present invention a very simple and natural pulling and rocking action applied by the hand removes the cup from the dispenser.

It will also be evident that in accordance with the present invention the resilient ring gives very effective and sanitary sealing of the sequence of cups against dust, insects and other foreign contamination.

In view of my invention and disclosure variations and modifications to meet individual whim

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or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of our invention without copying the structure shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a dispenser for cups each having an outwardly extending circular rim at one end of each cup, a holder containing a sequence of cups vertically in a position with the rim at the top and the remainder of the cup extending below the rim, the holder having a mouth at the bottom and a resilient rubber-like ring around the mouth which is relatively stiffer at one portion of the circumference and relatively softer at another portion of the circumference, the ring engaging and gripping the rim and being too small to pass the same without distortion, and on distortion the ring passing the rim and dispensing the cup.

2. In a dispenser for cups each having an outwardly extending circular rim at one end of each cup, a holder containing a sequence of cups vertically in a position with the rim at the top and the remainder of the cup extending below the rim, the holder having a mouth at the bottom and a resilient rubber-like ring around the mouth, stiffer on the side toward the user and softer on the side away from the user, the ring engaging and gripping the rim and being too small to pass the same without distortion, and on distortion the ring passing the rim and dispensing the cup.

SAMUEL O. MORRISON.

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