

March 15, 1938.

E. K. MORLOK

2,111,123

DISPENSER

Filed March 5, 1936

2 Sheets-Sheet 1

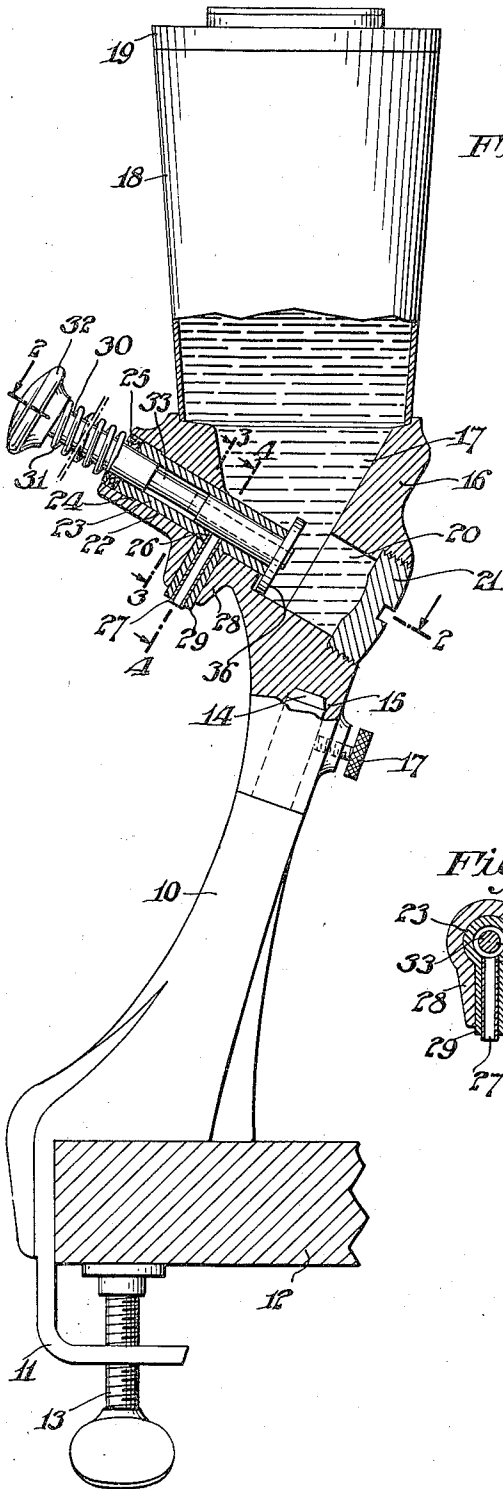


Fig. 1.

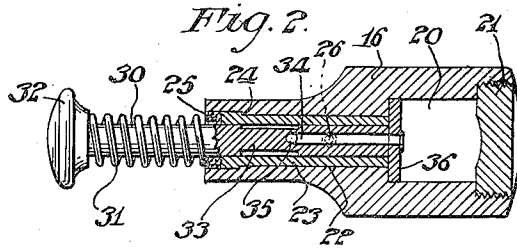


Fig. 2.

Fig. 3.

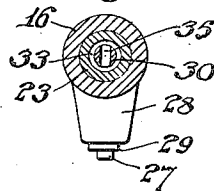


Fig. 5.

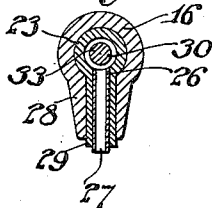
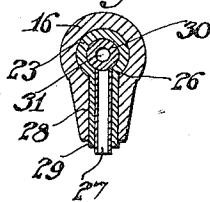


Fig. 4.



Inventor:
Edward K. Morlok,
By *H. B. Williamson*
Attorney.

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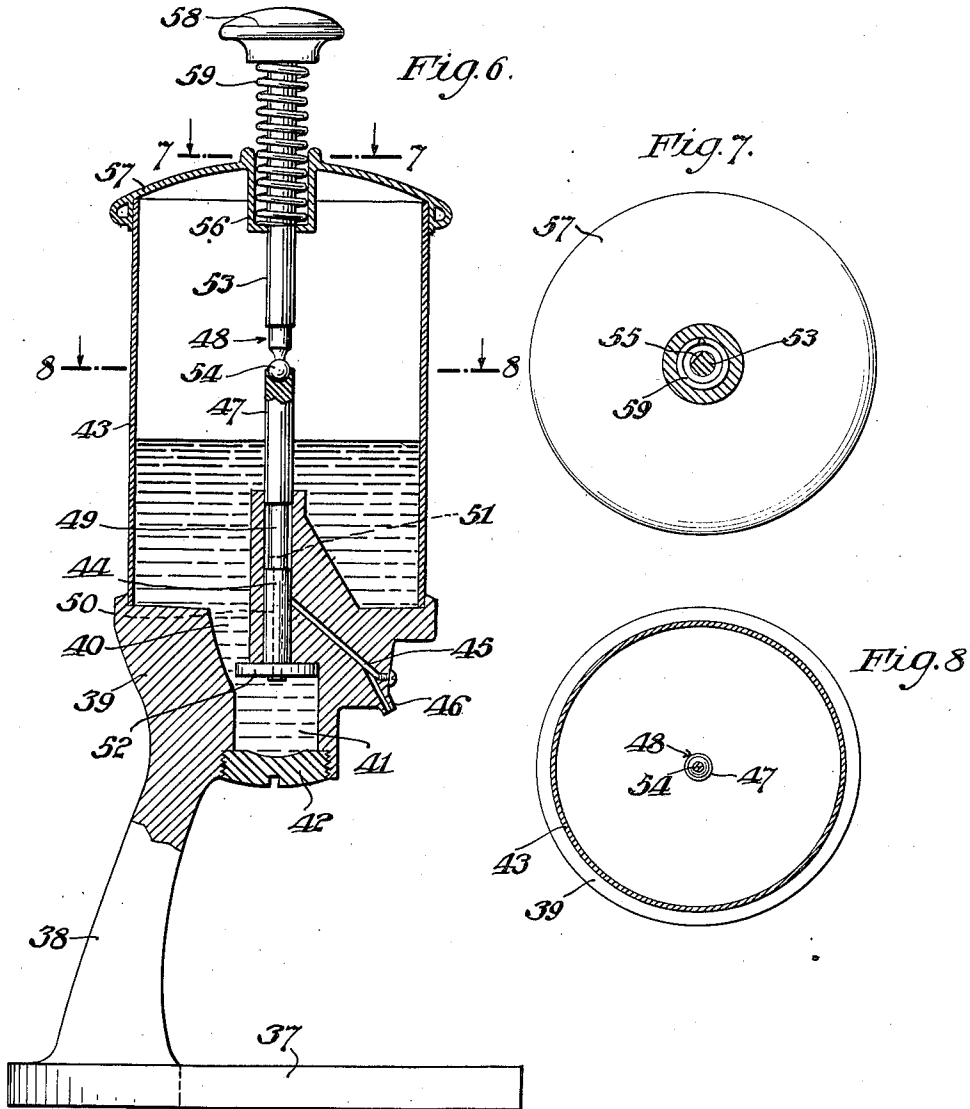
E. K. MORLOK

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DISPENSER

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2 Sheets-Sheet 2



Inventor:
Edward K. Morlok,
By W. B. Williamson
Attorney.

UNITED STATES PATENT OFFICE

2,111,123

DISPENSER

Edward K. Morlok, Collingswood, N. J.

Application March 5, 1936, Serial No. 67,265

6 Claims. (Cl. 221-102)

My invention relates to a new and useful dispenser and has for one of its objects to generally improve the construction of devices of this character and which is especially adapted for dispensing thick bodied or syrupy fluids in measured quantities.

Another object of the invention is to so construct the dispensing apparatus that any fluid in the spout or nozzle at the end of the ejecting operation will be withdrawn into the cylinder and returned to the main body of fluid.

Another object of the present invention is to provide a unique dispensing mechanism with an outlet orifice, nozzle or spout of very small diameter. This is essential to the operation of the device.

A further object of the invention is to construct a dispenser in which the dispensing mechanism may be positioned either obliquely or vertically in the casing.

A still further object of the invention is to provide a specially constructed two-piece plunger rod that permits the cap of the fluid container to be displaced without effecting the position of the plunger.

With the above and other objects in view this invention consists of the details of construction and combination of elements hereinafter described and then specifically set forth in the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same I will describe its construction in detail, referring by numerals to the accompanying drawings, in which:—

Fig. 1 is a view partly in elevation and partly in vertical section, illustrating one form of the invention.

Fig. 2 is a section on the line 2—2 of Fig. 1, a portion of the plunger rod and spring being left in elevation.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 1.

Fig. 5 is a similar section when the plunger is depressed.

Fig. 6 is a sectional elevation of a modification.

Fig. 7 is a section on the line 7—7 of Fig. 6; and

Fig. 8 is a section on the line 8—8 of Fig. 6.

In carrying out the invention as herein embodied, reference first being had to Figs. 1 to 5 inclusive, 10 represents a standard of suitable design including a jaw 11 to embrace a support 12, such as a counter, table and the like, and having a clamping screw 13 to fasten the standard in place. The standard has a tongue 14 to enter a

socket 15 in the casing or body 16 of the dispenser which casing is held in place by a set screw 17.

The casing 16 is constructed to include a liquid chamber 17 open at the top for communication with a receptacle 18 which may be made separately from the casing and fixed to the latter. The top of the receptacle 18 may be closed by a cover or lid 19. The bottom of the liquid chamber 17 communicates with a measuring chamber 20, the outer end of which is formed by a removable screw plug 21.

A bore 22 is produced in the casing 16 in endwise alignment with the measuring chamber 20 and preferably a bushing 23 is fitted in said bore and positioned by shoulders 24. A suitable packing 25 may be located at the outer end of the bushing 23 to prevent leakage. A hole 26 is formed through one wall of the bushing 23 and an outlet orifice or nozzle tube 27 is fitted in said hole and projects through the nozzle or spout projection 28 on the casing and said tube 27 may be enclosed in a bushing 29 mounted in the projection 28.

A plunger rod 30 is longitudinally slidably mounted in the bushing 23 and is urged outward by a spring 31, one end resting against the outer end of the bushing 23, the packing 25 or a portion of the casing and the other end engaging the handle 32 on the outer end of the plunger rod. Said plunger rod 30 has an intermediate reduced portion 33 with a longitudinal hole 34 extending from its inner end to a cross hole 35 leading to opposite points on the surface of the reduced portion thereby forming a passageway from the inner end of the plunger rod to the space between the reduced portion thereof and the bushing 23.

On the inner end of the plunger rod 30 is a plunger or piston 36 which snugly fits the measuring chamber 20 and is adapted to be projected into said measuring chamber by applying pressure to the handle 32 and compressing the spring 31.

While the plunger rod 30 and component parts are retracted, as in Fig. 1, the outlet, spout or nozzle is closed by the large or full sized inner end portion of said plunger rod but the parts are so located or arranged relative to each other that when the outlet is uncovered the plunger or piston 36 have entered the measuring chamber 20. This will close said measuring chamber except for the passageway in the plunger rod thereby causing whatever quantity of liquid that is trapped in the measuring chamber to be forced through the holes 34 and 35 into the space about

the reduced portion of the plunger rod, thence through the outlet or spout.

When pressure on the plunger rod 30 is released the spring will return the parts to their normal positions and during the return movement a suction action will be created in the measuring chamber 20, the holes 34 and 35, the space about reduced portion of the plunger rod and the outlet or nozzle. This suction will draw or suck back any liquid not forced from the nozzle or outlet and thus prevent any drops from dripping onto the dispenser or supporting article.

In the modification illustrated in Figs. 6, 7, and 8, I have shown a base 37 provided with a standard 38 carrying a casing 39 having a liquid chamber 40 above the vertical measuring chamber 41 having its outer or bottom wall formed by a removable screw plug 42. A receptacle 43 may be mounted on the casing in communication with the liquid chamber 40 to provide a continuation of said liquid chamber and provide the desired capacity.

A suitable part of the casing is provided with a vertical bore 44 in endwise alignment with the measuring chamber 41 and an outlet orifice or nozzle opening 45 leads from said bore at a point intermediate its ends to the exterior of the casing, preferably through a nozzle or spout projection 46.

One element 47 of a hinged or universally jointed sectional plunger rod 48 is slidably mounted in the bore 44 and has a reduced portion 49, the same as previously described, normally located above the outlet 45. Also as described in connection with the other form of the invention, this section 47 of the plunger rod has a longitudinal hole 50 extending from its inner end to a cross hole 51 leading to opposite points on the surface of the reduced portion. On the inner or lower end of the rod section 47 is mounted a plunger or piston 52 of the same diameter as the measuring chamber 41 and adapted to be projected into the same.

For purposes of illustration the plunger rod section or element 53 is shown as connected with the section or element 47 by a ball and socket joint 54. Said plunger rod section 53 has a flat side 55 to provide an irregular contour which fits a similarly shaped hole in the bottom wall of the socket 56 formed with the displaceable cover or lid 57. The section 53 of the plunger rod projects above the cover and has a handle 58 on its outer end. A spring 59 for retracting the plunger rod and component parts is mounted in the socket and engages the handle 58. This arrangement permits the cover or lid to be withdrawn from the receptacle upon compression of the spring and then the ball and socket joint between the two sections of the plunger rod allows said cover to move to one side for partially uncovering the receptacle to permit refilling of the latter.

The operation of dispensing mechanism in this form of the device is identical with that described in connection with the first form illustrating the invention.

Of course I do not want to be limited to the exact details of construction herein shown and described as these may be varied without departing from the scope of the invention.

Having thus described my invention what I claim as new and useful is:—

1. A dispenser including a casing having a liquid chamber and a measuring chamber therein in communication with each other, said casing provided with a bore in endwise alignment with

the measuring chamber and further having an outlet leading from a point intermediate the ends of the bore to the exterior of the casing and said outlet positioned a predetermined distance from the measuring chamber, a plunger rod slidably mounted in said bore and normally covering said outlet, said rod having a reduced portion of a length approximately equal to the length of the stroke of the rod to uncover said outlet while the plunger rod is in said measuring chamber, said rod also having a passageway from its inner end to the reduced portion, and a plunger on the inner end of the rod for projection into the measuring chamber and substantially the same distance from the inner end of the reduced portion as the outlet is from the measuring chamber whereby a predetermined quantity of liquid will be forced through the outlet and the backstroke will cause a suction action in the measuring chamber prior to the plunger rod closing the outlet to withdraw any liquid from the outlet after a dispensing operation.

2. The structure in claim 1, wherein the plunger rod is of sectional construction, the sections being connected so that one section can be moved out of alignment with another section.

3. In a device of the character described, a casing having communicating liquid and measuring chambers, said casing also having a bore in endwise alignment with the measuring chamber with an outlet leading therefrom, said outlet being positioned a predetermined distance from the measuring chamber, a plunger rod slidably mounted in said bore and having a reduced portion of a length approximately equal to the length of the stroke of the rod for intermittent registration with said outlet and further having a communicating passageway between its inner end and the reduced portion, and a plunger on the inner end of said rod for projection into the measuring chamber prior to the plunger closing the outlet whereby during the whole time the plunger is in the measuring chamber the reduced portion of the rod is in registration with the outlet.

4. A dispenser comprising a casing having communicating liquid and measuring chambers, the latter being in a vertical position, a removable screw threaded plug forming the bottom wall of said measuring chamber, said casing also having a vertical bore in endwise alignment with said measuring chamber and an outlet leading from the bore to the exterior of the casing, a sectional plunger rod having the sections connected by a ball and socket joint, one of said sections slidably mounted in the bore and normally covering the outlet and having a reduced portion to uncover said outlet and further having a passageway from the inner end thereof to the reduced portion, a plunger on the inner end of said rod section for projection into the measuring chamber to force liquid therefrom through the outlet and assist in creating a suction action to withdraw fluid from the outlet during the back stroke, a displaceable cover on the liquid chamber, the other section of the plunger rod extending through said cover, and a spring between said cover and a portion of the plunger rod to urge said rod outward and the cover inward.

5. A dispenser comprising a casing having communicating liquid and measuring chambers, the latter being in an oblique position, a removable screw threaded plug forming the outer end wall of said measuring chamber, said casing also having an oblique bore in endwise alignment with

5 said measuring chamber and an outlet opening
leading from the bore to the exterior of the cas-
ing, a bushing mounted in said bore and hav-
ing a hole through one wall and registering with
10 the outlet opening in the casing, a nozzle tube
in the outlet opening and the hole in the bush-
ing, a spring retracted plunger rod slidably
mounted in said bushing and normally covering
the nozzle tube and having a reduced portion to
15 uncover said nozzle tube when the plunger is
moved inwardly, said plunger further having a
passageway from its inner end to the reduced
portion thereof, and a plunger on the inner end
of said rod for projection into the measuring
20 chamber to force liquid therefrom through the
nozzle tube and assist in creating a suction ac-
tion to withdraw any fluid from said nozzle tube
during the retraction of the plunger rod.

6. A dispenser including a casing having a
25 liquid chamber and a measuring chamber therein
in communication with each other, said casing
provided with a bore in endwise alignment with
the measuring chamber and further having an
outlet leading from a point intermediate the ends
of the bore to the exterior of the casing and said

outlet positioned a predetermined distance from
the measuring chamber, a plunger rod slidably
mounted in said bore and normally covering said
outlet, said rod having a reduced portion of a
5 length approximately equal to the length of the
stroke of the rod to uncover said outlet when the
plunger rod is in said measuring chamber, said
rod also having a passageway from its inner end
to the reduced portion, and a plunger having an
10 operating face area equal to the cross sectional
area of the measuring chamber mounted on the
inner end of the rod and substantially the same
distance from the inner end of the reduced por-
tion as the outlet is from the measuring cham-
15 ber for projection into the measuring chamber
whereby the entire amount of liquid in said meas-
uring chamber will be ejected and thus dispense
a positively predetermined quantity during a dis-
pensing operation and the back stroke of said
20 plunger causing a suction action in the measur-
ing chamber prior to the plunger rod closing the out-
let to withdraw any liquid from the outlet after
said dispensing operation.

EDWARD K. MORLOK. 25