June 20, 1961 W. J. DOBKIN 2,989,002

LIQUID PUMP DISPENSER

Filed Oct. 3, 1955 2 Sheets-Sheet 1

Fig. 1.

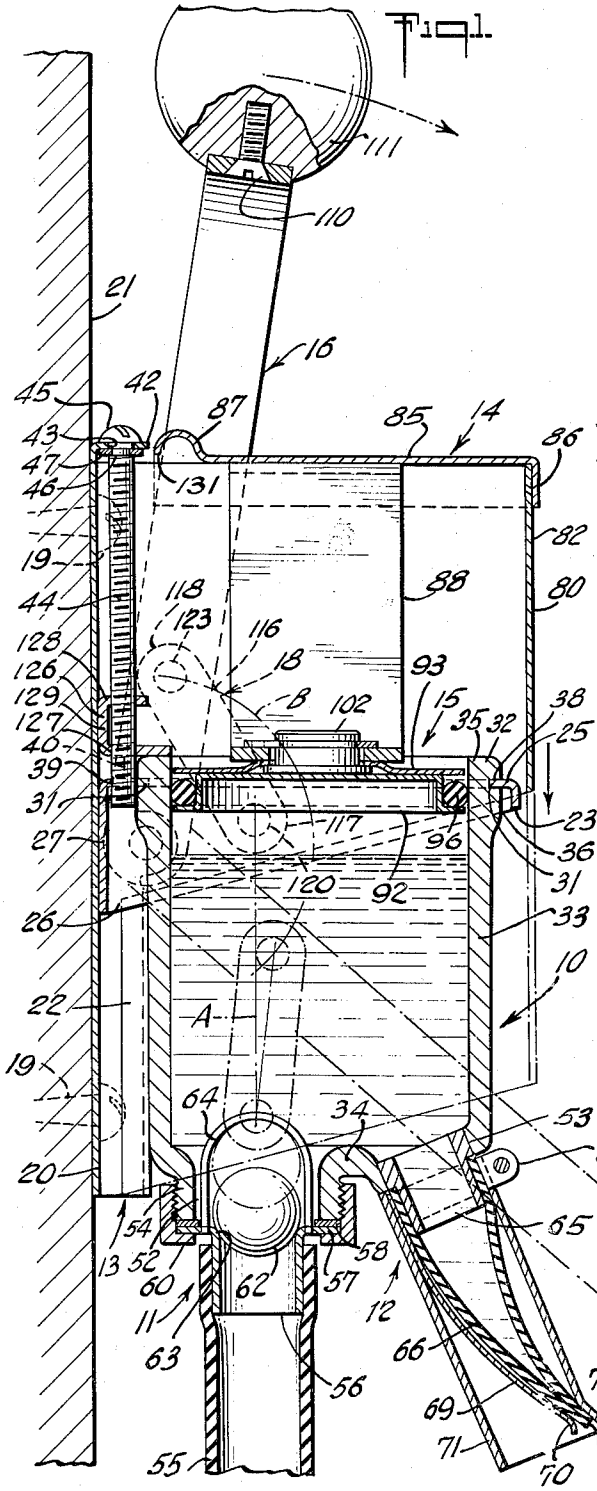


Fig. 3.

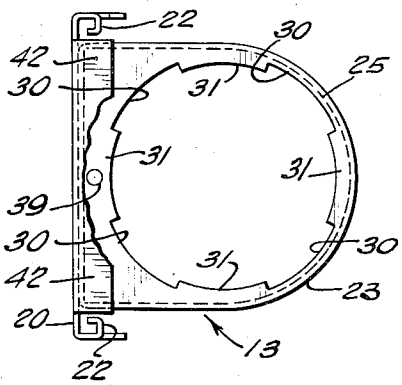
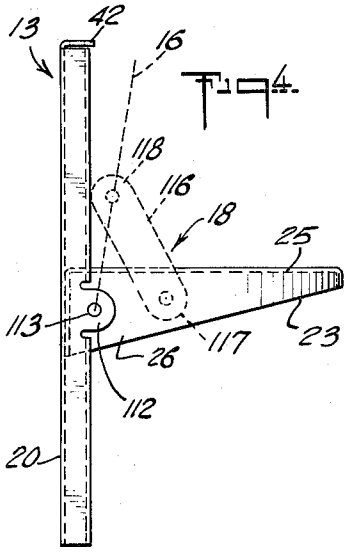


Fig. 4.



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LIQUID PUMP DISPENSER

Filed Oct. 3, 1955 2 Sheets-Sheet 2

Fig. 2.

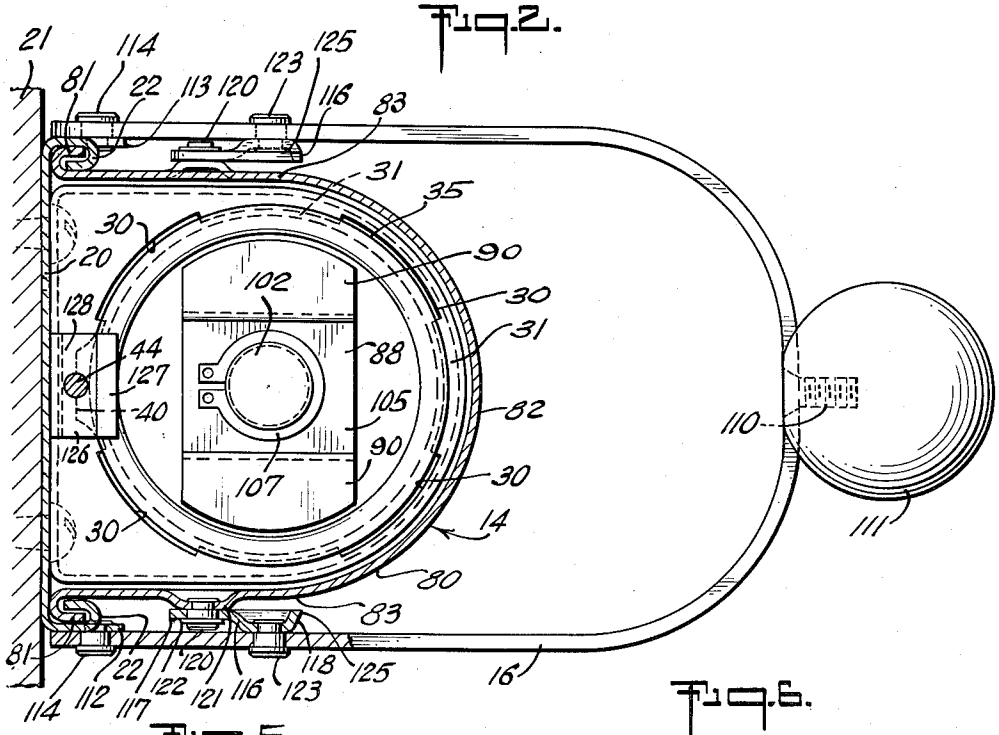


Fig. 5.

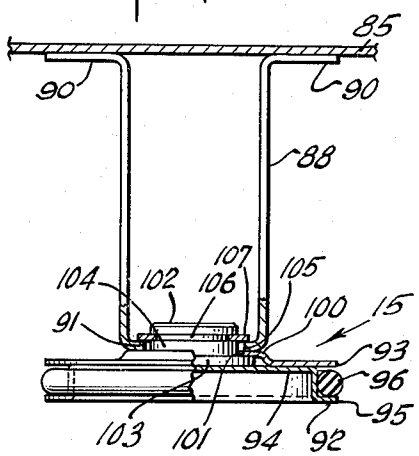
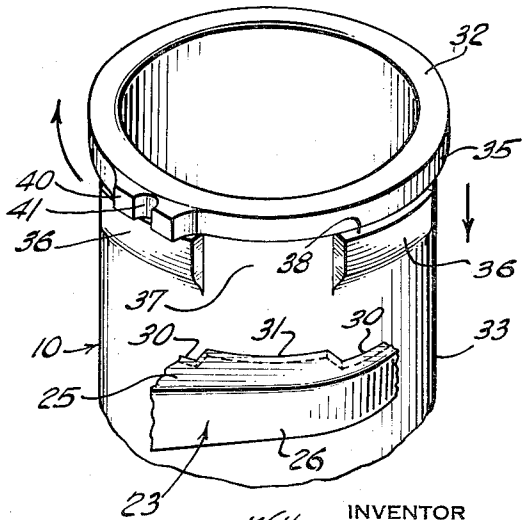


Fig. 6.



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2,989,002

LIQUID PUMP DISPENSER

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8 Claims. (Cl. 103—38)

The present invention relates to a hand pump of the type, which is employed to dispense a predetermined amount of liquid from a supply source, such as a drum. Such a pump, may for example, be employed to dispense syrups or flavoring concentrates in soda fountains, to dispense detergents for dishwashing, floor washing or other cleaning operations, to dispense shampoos, oils or other beauty or toilet preparations in beauty or barber shops, to fill small containers with lubricants, medicine, or other liquids from drums or other supply source, etc.

One object of the present invention is to provide a new and improved hand pump of the general type described, having a comparatively short operating handle compactly arranged with respect to the pump unit and connected to the piston of the pump with a linkage system, designed to operate the piston through a comparatively long stroke with a maximum of mechanical advantage, to permit the handle to be operated with ease.

Another object of the present invention is to provide a new and improved hand pump of the general type described, which is operable to dispense a measured amount of liquid in response to a single manipulation of the handle and which can be easily and readily adjusted to vary selectively this amount.

A further object of the present invention is to provide a pump of the general type described, designed to prevent contact of the liquid being pumped with those movable parts of the pump, which might contaminate said liquid, thereby meeting the sanitary requirements of such industries as the food or medical industry.

Another object of the present invention is to provide a pump of the general type described, constructed to permit visible observation of the entire body of liquid in the pump chamber before it is discharged, so that the observer may inspect the conditions of the liquid and may gauge by eye, the amount of liquid discharged at every handle manipulation.

Another object of the present invention is to provide a new and improved pump of the general type described, which can be easily supported on a wall or other supporting structure, which is compact, easy to assemble or disassemble and economical to manufacture, and in which the design and construction of the different features which impart the desirable utility to the pump, also lend decorative and ornamental appeal to the pump unit.

Various other objects, features and advantages of the invention are apparent from the following particular description and from the accompanying drawings, in which:

FIG. 1 is a vertical section through the pump embodying the present invention and shown at the end of the suction stroke or at the beginning of the pumping stroke with the handle in raised position;

FIG. 2 is a top plan view partly in section of the pump but shown with the handle in intermediate horizontal position in the process of completing the pumping stroke;

FIG. 3 is a top plan view of the bracket by which the pump is supported on a wall and the pump cylinder is supported in position, said bracket being shown on a smaller scale than that of FIGS. 1 and 2;

FIG. 4 is a side elevation of the bracket of FIG. 3 and of part of the handle linkage, by which the pump piston may be moved up and down;

FIG. 5 is the side view partly in section of the pump piston assembly; and

FIG. 6 is a perspective of the pump cylinder in the process of being lowered into a cylinder holder forming part of the bracket of FIG. 3.

Referring to the drawings, the pump embodying the present invention comprises in general a vessel **10** in the form of a cylinder defining a pump chamber and having an inlet **11** and an outlet **12**, a bracket **13** for supporting said cylinder on a wall, a piston carrier **14** shown in the form of a hood, disposed over said cylinder and adapted to be telescoped over said cylinder during the pumping stroke, a pumping piston **15** carried by the hood **14** and reciprocable in said cylinder, a handle **16** and linkage **18** between said handle and said hood to reciprocate said hood and in turn the piston in the cylinder.

The bracket assembly **13** comprises a supporting frame in the form of a back wall plate **20** of generally rectangular form adapted to be secured to a wall **21** at the operating station by screws **19**. This wall plate **20** which is preferably of metal, has side edges **22** turned inwardly to form rails or tracks for the hood **14**, as will be more fully described. Also forming part of the bracket assembly **13** is a cylinder holder **23**, preferably of metal, having a flat ring **25** through which the pump cylinder **10** extends and on which it is directly supported, and a forwardly tapering flange **26** extending around said ring and depending therefrom to impart structural strength to said ring, the rear deeper section **27** of said flange being flat and being disposed in face contact with the wall plate **20**, this rear flange section **27** being rigidly secured to said wall plate preferably by spot welding or brazing.

To lock removably the pump cylinder **10** to the cylinder holder **23** against axial withdrawal, the ring **25** has a generally circular opening with a serrated catch formation around its peripheral edge defining alternate peripheral notches **30** and tongues **31** of substantially equal lengths.

The pump cylinder **10** is molded from transparent plastic to permit clear visual observation of the contents of said cylinder and comprises an upper head **32**, a cylindrical wall **33** depending therefrom and a bottom wall **34** with the inlet **11** and outlet **12**. The upper cylinder head **32** has a catch formation to engage the ring **25** on the cylinder holder **23**, and to that end, this cylinder head comprises a continuous rim flange **35**, which is circular except for the rear side, as will be more fully described, and which seats on the bracket ring **25**, and a series of arcuate lugs **36** circumferentially spaced by spaces **37** defining notches, said lugs and notches being of substantially equal lengths and being dimensioned to mate with the tongues **31** and notches **30** of the ring **25**, to permit the lugs **36** on the cylinder **10** to pass freely down through the notches **30** respectively of the ring and the notches **37** on the cylinder to move freely downwardly over the tongues **31** respectively of the ring, in the process of assembling. These lugs **36** are spaced from the flange **35** by grooves **38**, dimensioned to permit the tongues **31** in the bracket ring **25** to slide freely edgewise therein, after the cylinder **10** has been lowered through the ring until the rim flange **35** on said cylinder seats on said ring and while the cylinder so seated is being turned. Since there are four notches **30** and four tongues **31** on the bracket ring **25**, quadrantly arranged, and there are corresponding lugs **36** and notches **37** on the cylinder **10**, the turning of the cylinder 45° in the ring, after being lowered therein and seated thereon, as described, will lock the cylinder to the ring against axial withdrawal.

To fasten the pump cylinder **10** to its support **23** against rotation in the axially locked position indicated, the ring **25** has a hole **39** on its rear side and the cylinder head **32**

has a lug extension 40 on its rear side with a semi-circular notch 41 conforming in radius to the radius of the hole 39 and registering with said hole when the cylinder 10 is turned into proper position to lock it against axial withdrawal. The upper end of the back wall plate 20 has a forwardly turned lip 42 with a hole 43 in registry with the hole 39 in the ring 25, and a rod 44 passes through said hole 43, through the notch 41 in the cylinder head 32 and through the hole 39 in the ring 25, to lock the pump cylinder 10 against turning. The rod 44 is in the form of a screw for the purpose to be described, and has a head 45 heated on the back wall lip 42 and a groove 46 under the head in which a snap ring 47 fits, preventing the rod from being withdrawn lengthwise out of locking position, while permitting it to be rotated, for the purpose to be described.

The bottom wall 34 of the cylinder 10 is provided with two openings 52 and 53 to define the inlet 11 and outlet 12. The inlet opening 52 is at the rear of the bottom cylinder wall 33 and is provided with a threaded neck 54 for the purpose of attaching a supply tube 55 thereto. To effect this attachment, there is provided a fitting 56 in the form of a nipple having an end flange 57 on which is seated a soft gasket 58, and a gland or stuffing nut 60 threaded onto the neck 54 of the cylinder 10 for holding the fitting 56 in position and for compressing the gasket 58 to seal the connection between the neck 54 and the nipple 56. The supply tube 55 preferably made of rubber or of a suitable elastomeric plastic is forced on to the nipple 56 and extends down into the supply reservoir (not shown), as for example, a drum containing the liquid to be dispensed.

A check valve at the mouth of the intake 11 comprises a ball 62 resting on a seat 63 on the upper end of the nipple 56 and an inverted U-shaped wire 64 having its ends welded to the flange 57 of said nipple and straddling said ball, localizes the ball within the neck 54 at the bottom of the pump cylinder 10, while permitting the ball to be lifted away from its seat during the suction stroke of the pump.

The outlet opening 53 in the bottom wall 34 of the cylinder 10 near the front has a cylindrical collar or nipple 65 sloping downwardly and forwardly therefrom and rigidly secured thereto, as for example, by molding it in position and embracing said nipple is the upper end of a tube 66 made of resilient plastic material and serving as a spout for the pump. The upper end of the spout tube 66 where it embraces the nipple 65 is round, while the lower end 67 is inherently flat to seal said tube, and a clamp 68 secures this upper end of the spout tube to the nipple 65. A metal leaf spring 69 made in the form of an inverted T, has its upper end anchored in position to the nipple 65 by the clamp 68 and at its lower crosshead end 70 yieldably presses against the lower flat end 67 of the spout tube 66 and thereby aids in sealably closing this end of the spout tube. A tubular metal guard 71 having the spout tube 66 and the spring 69 is secured at its upper end to the nipple 65 by the clamp 68. This guard 71 may be made from flat metal stock, bent at its upper end into round shape to embrace the upper end of the spout tube 66 and rectangularly shaped at its lower end to present a flat wall 72 against which the lower end 67 of said spout tube is pressed into closed position by the spring 69. The clamp 68 may simply consist of wing extensions on the upper end of the guard 71.

The hood 14 is designed to carry the pump piston 15 as described and to slide down and then up to move said piston in the pump cylinder 10 correspondingly. For guiding the hood 14 in this down and up movement, the hood has a peripheral U-shaped wall 80 with its outer ends 81 turned outward and wound around the inwardly turned rail edges 22 to serve as runners by which said hood may guidably slide along said rail edges. This peripheral hood wall 80 has a front circular section 82 concentric with the cylinder wall 33 and flat parallel side sections 83, and is sufficiently larger than the cylinder holder 23 to permit said hood wall 80 to pass with clearance freely over said holder and the cylinder 10 supported thereon, during the down and up slide movement of the hood 14.

The U-shaped peripheral wall 80 of the hood 14 is cut square at the top and at the bottom is cut on a bias to conform with the lower edge of the bracket flange 26, and its outer runner ends 81 extend the full height of the hood 14, thereby affording a relatively long slide bearing for the hood. Closing the top of the hood 14 is a cover plate 85 having a peripheral flange 86 overlapping the upper margin of the peripheral hood wall 80 and rigidly secured thereto, as for example, by spot welding. Across the rear wider section of this cover plate 85 is a stiffening bead 87, the more specific purpose of which, will be described more fully.

For securing the pump piston 15 to the hood 14, there is attached to the cover plate 85 of said hood a U-shaped metal bracket 88 having upper side flanges 90 secured to the underside of said cover plate, as for example, by spot welding, and having a base cross-piece 91 carrying the pump piston.

The piston assembly 15 carried by the bracket 88 comprises two superposed, axially aligned circular metal discs 92 and 93 of equal outside diameters. The lower disc 92 is dished to define a cylindrical crown 94 extending to the underside of the upper disc 93 and secured thereto, as for example, by spot welding to form a permanent assembly therewith, and a brim 95 axially spaced from the upper disc 93 to form a recess to receive an O ring or gasket 96 of suitable resilient material, such as neoprene (chloroprene). This O ring 96 extends beyond the aligned peripheries of the two discs 92 and 93 and is dimensioned to engage the inner periphery of the cylinder wall 33 with a slide sealing fit.

For attaching the pump piston 15 to the bracket 88, the disc 93 has an extruded or spun center section 100 with a center hole 101 to receive a stud 102. This stud 102 has a base 103 seated on the crown 94 of the disc 92 and abutting the lower face of the disc 93 around the margin of its hole 101, this stud base being too large to pass through the hole 101. This stud 102 also has a shank 104 passing freely through the hole 101 in the upper disc 93 with peripheral clearance to permit the stud to float from side to side freely in relation to the piston discs 92 and 93 and passing through a hole 105 in the bottom cross-piece 91 of the bracket 88 with peripheral clearance to permit the stud to float from side to side freely in relation to said bracket, for the purpose to be described. Below the head of the stud 102 is a groove 106 to receive a snap ring 107 by which the stud is attached to the piston 15 and to the bracket 88.

With the construction described, the pump piston 15 is carried by the hood 14 through the bracket 88 and sufficient freedom is afforded to the stud 102 to float sideways both within the assembly of the two piston discs 92 and 93 and additionally within the bracket 88, so that the piston assembly comprising said discs and the gasket ring 96 may be free to float sideways in relation to the bracket and adjust itself automatically to the confining action of the wall of the cylinder 10, as said piston assembly is moved down and up in said cylinder.

The means for moving the hood 14 and in turn the piston 15 up and down comprises the handle 16. This handle 16 is U-shaped in the form of a yoke and is preferably made of metal, and attached to the center of the bend of said handle by means of a screw 110 is a ball 111, which is preferably of plastic material and which serves as a knob to be held in the hand in the manipulation of the handle.

The handle 16 straddles the hood 14 and is pivotally connected to the sides of the wall plate 20. To provide such a pivotal connection, the sides of the wall plate 20 are provided with ears 112 respectively having respective

holes **113** for receiving shoulder rivets **114** passing through the ends of the side arms of the handle **16** and serving as pivot pins for said handle.

For transmitting the angular movement of the handle **16** to the hood **14**, there is provided a pair of similar parallel links **116** on opposite sides of the handle, each of said links having free pivotal connections at its ends **117** and **118** to said hood and to said handle respectively. The pivotal connection between each link **116** at its lower end **117** and the corresponding side of the hood **14** comprises a pivot stud **120** passing through said link and through a raised section **121** of said hood defining a recess to receive the head of said stud. This pivot stud **120** has a groove to receive a snap ring **122** by which the stud is retained in link mounting position.

The pivotal connection between each link **116** at its upper end **118** and the corresponding side arm of the handle **16** comprises a pivot pin **123** in the form of a rivet passing through said link and said handle. This upper end **118** of the link **116** is offset from the body of the link to form a projection **125** at this end, which rests against the corresponding folded rail side **22** of the wall plate **20**, in uppermost position of the handle shown in FIG. 1, thus limiting the angular movement of the handle in its upward stroke.

On the downward stroke, the handle **16** is limited either by the engagement of the top of the hood **14** with the top of the cylinder **10** or by an adjustable stop device, according to the desired length of piston stroke. This stop device comprises a U-shaped stop member **126** preferably of metal having its lower leg **127** longer than its upper leg **128** to seat on the top of the pump cylinder **10** in lowermost position of said stop member and having its back cross-piece **129** slidably engaging the front face of the wall plate **20**, to hold said stop member against rotation, while permitting it to move up and down. The rod **44** serving to lock the pump cylinder **10** against rotative movement is a screw threaded through the two legs **127** and **128** of the stop member **126**. Thus, when the screw **44** is turned through its slotted head **45**, although the screw will be retained against axial movement by the snap ring **47**, it will move the stop member **126** up and down.

The bead **87** on the top plate **85** of the hood **14** presents an edge **131**, and the upper leg **128** of the stop member **126** is sufficiently short, so that said bead edge clears said leg during the downward stroke of the hood **14**, but the lower leg **127** of the stop member is sufficiently long, so that when said stop member is in elevated position, said lower leg is in the path of downward movement of said bead edge and thereby serves as a stop for said hood in limiting its downward stroke. If the stop member **126** is located at its bottom position, as shown in FIG. 1, the hood **14** will be free to move downward a full stroke, being limited by the engagement of the top plate **85** with the top of the cylinder flange **35**. If it is desired to discharge a less amount of liquid per stroke than the full capacity of the pump cylinder **10**, the screw **44** is turned to bring the stop member **126** up to the desired position, according to the desired amount of liquid to be discharged per pumping stroke.

The effective capacitive height of the pump cylinder **10** is greater than the length of the full stroke of the hood **14** and in turn of the piston **15**. Therefore, the suction created by the piston **15** in its upward movement, does not completely fill the cylinder **10** with liquid, but leaves an air space between the top of the liquid in the cylinder and the bottom of the piston, even when the stop member **126** controlling the length of the piston stroke is in its lowermost position shown in FIG. 1. As a result, an air cushion is interposed between the liquid and the piston **15** during the downward pumping stroke of the piston, this air barrier being maintained until the piston reaches the bottom of this stroke. At the bottom of the downward stroke of the piston **15**, although all

of the liquid in the cylinder **10** has been discharged through the outlet **12**, the piston is still spaced above the bottom of said cylinder, so that the liquid is drawn through the intake **11** and into the cylinder **10** during the upward suction stroke of the piston against the air barrier on the underside of the piston. The piston **15** is, therefore, never in contact with the liquid that may be in the cylinder, and therefore, there is no danger of the liquid coagulating on the piston, or escaping above the piston and over the sides of the cylinder **10**, or of being contaminated by the piston. This feature of maintaining the piston **15** out of contact with the liquid being pumped is useful in any case, since liquids adhering to the piston for prolonged periods of time become thick and cause the piston to stick and the effect of this feature in preventing contamination of the liquid is particularly useful in cases where the liquid to be dispensed is a food or a medicine which must be handled under the strictest of sanitary requirements.

The pump of the present invention may be employed for dispensing a shot of liquid of measured predetermined amount by a single handle operation. The pump is particularly useful, for example, in cases where a single shot of detergent is to be dumped into a batch of water for washing dishes or clothes, or in a soda fountain, where a single measured shot of syrup is to be discharged into a glass or dish for a single set-up, or in a barber shop or beauty parlor, where a single batch of shampoo is employed for a single hair washing, or in cases where it is desired to fill small containers with individual portions of liquid foods, such as sauces and cream, or individual portions of lubricants, liquid medicine, etc.

Although the operation of the pump is believed apparent from the foregoing description, it is herein summarized briefly.

At the end of an upward suction stroke of the piston **15**, the handle **16** will be in the upper upright position shown in FIG. 1, with the ends **118** of the links **116** abutting the rail sides **22** of the wall plate **20**. In this limiting position, which is the position assumed, when the pump is inactive, the handle **16** with its knob **111**, will be in rearward position near the supporting wall **21** and out of the way, so that no part of this handle projects forwardly of the hood **14** or of the cylinder **10**. Although the handle **16** under these conditions is in unobstrusive position, it is nevertheless in convenient position to be grasped for the next pumping operation. Also, although no springs are employed to hold the handle **16** in the upright position shown in FIG. 1, the linkage mechanism supporting the handle and the friction at the pivot mounting **114** for the handle are such, as to maintain the handle in this position, until manipulated for pumping action.

While the handle **16** is in upright position indicated in FIG. 1, the cylinder **10** has a charge of the liquid therein from the previous suction stroke of the piston **15** at a level spaced below the piston, the hood **14** is in elevated position, the cylinder **10** is exposed and the spout tube **66** is closed. Since the cylindrical wall **33** of the cylinder **10** is transparent, the charge of liquid in said cylinder is visible to the observer, so that he can gauge by eye the amount of this charge and can note the condition of the liquid.

Upon downward swinging operation of the handle **16** about its fixed pivot supports **114**, the links **116** transmit this downward movement to the hood **14**. Since the hood **14** is guided and restricted by the rail sides **22** of the wall plate **20** to straight up and down movement, the lower ends **117** of the links **116** move along straight lines A (FIG. 1) while the upper ends **118** of the links swing with the handle **16** in an arc B.

During the downward swinging movement of the handle **16**, as described, the hood **14** is moved downward thereby, and since the piston **15** is carried by said hood through the bracket **88**, the piston moves downward in

the cylinder **10**, forcing the liquid out through the outlet **12** by the pressure of said piston on the air cushion between said piston and the top surface of the liquid. During this downward pumping action, the ball **62** of the intake valve is forced down on its seat **63**, while the liquid is forced through the resilient spout tube **66**, opening up the flat discharge end **67** of said tube against the action of the spring **69**. As the piston **15** moves downward in the cylinder **10**, it is free to center itself automatically in the cylinder due to the float mounting of said piston on the bracket **88**.

As the handle **16** is moved downward, the hood **14** telescopes over the cylinder **10** and this handle continues its downward movement, until the top of the hood reaches the top of the cylinder or the bead edge **131** on the top plate **85** of the hood reaches the leg **127** of the stop member **126**, if the stop member be adjusted to so limit the downward movement of the handle. In either case, at the end of the downward stroke of the handle **16**, although all of the liquid has been discharged from the cylinder **10**, the piston **15** is still spaced above the bottom of said cylinder to maintain the air cushion underneath the piston. When the handle **16** is moved upward about its pivot mounting, the suction in the cylinder **15** created by this action, closes the discharge end of the spout tube **66**, aided by the spring **69** and lifts the ball **62** of the intake valve off its seat **63**, thereby causing the liquid to be sucked in from the supply reservoir (not shown) through the intake **11** and into the cylinder. The liquid drawn into the cylinder by this suction action is still prevented from reaching the level of the piston by the intervening air cushion. The upward movement of the handle **16** is continued, until said handle reaches the limiting position indicated in FIG. 1, in preparation for the next pumping stroke.

If it is desired to alter the stroke of the piston, so that the amount of each charge dispensed for every operation of the handle **16** is correspondingly varied, the screw **44** is turned through its slotted head **45** to move the stop member **126** up or down, until the desired limiting position is reached. The extent of adjustment of this stop member **126** in terms of the amount of liquid dispensed at each handle operation, may be gauged by eye, by observing the contents of the cylinder **10** through its transparent wall **33** at the end of the suction stroke, or a scale may be provided in connection with the stop member **126** calibrated to translate the position of said stop member into the amount of liquid dispensed at each handle operation.

While the invention has been described with particular reference to a specific embodiment, it is to be understood that it is not to be limited thereto, but is to be construed broadly and restricted solely by the scope of the appended claims.

What is claimed is:

1. A liquid pump comprising a frame structure adapted to be supported on a wall and having side rails extending upright in wall supported position of said frame structure, a pump vessel on said frame structure adapted to extend in upright position in wall supported position of said frame structure, and having an inlet and an outlet, a hood for said vessel having side runners slidably engaging said rails, said hood being adapted to move along said rails in telescopic relationship to said vessel, handle means supported on said frame structure for so moving said hood, and a piston carried by said hood and extending into said pump vessel for movement therein.

2. A liquid pump as described in claim 1, wherein said hood has a wall on the end thereof remote from said pump vessel, said pump comprising a bracket connected to the inner side of said hood wall and depending therefrom in wall supported position of said frame structure, said piston being mounted on said bracket.

3. A liquid pump as described in claim 1, wherein said handle means comprises a U-shaped handle straddling said hood and having its ends pivotally secured to the sides of said frame structure, and a pair of similar parallel links, each having one end pivotally secured to a corresponding arm of said handle and the other end pivotally secured to the corresponding side of said hood.

4. A liquid pump comprising a bracket adapted to be supported on a wall and having a guide, said bracket including a ring, a pump vessel located in said ring and supported therefrom, catch means between the head of said vessel and said ring, permitting said vessel to be dropped in said ring and turned to lock said vessel to said ring against axial withdrawal from said ring, a locking screw extending through a hole in said bracket and through an opening in the head of said pump vessel when turned into axially locked position, to lock said vessel against turning in said axially locked position, said screw being held against axial movement but being permitted to turn, a piston carrier supported for movement along said guide, a piston on said carrier and in said vessel, a handle supported on said bracket for movement, connecting means between said handle and said piston carrier to move said piston in said vessel upon movement of said handle, and a stop device for limiting the stroke of said piston in said vessel, threaded on said screw and disposed in the path of guided movement of said piston carrier, said screw extending in the general direction of guided movement of said piston carrier to vary selectively the stroke of said piston upon the turning of said screw.

5. In a liquid pump, the combination comprising a pump vessel having an inlet and an outlet near one end and open to the atmosphere at its other end, a hood fitted in one extreme position over the open end of the pump vessel in telescopic relationship thereto, means supporting said hood for slide movement along said vessel in telescopic relationship thereto, a piston carried by said hood and extending into said pump vessel for reciprocating movement therein with said hood, said piston in said extreme position of the hood being at the end of its intake stroke, a handle, means supporting said handle for movement, and connecting means between said handle and said hood for slidably moving said hood from said extreme position telescopically over and along said vessel and for simultaneously moving said piston through its discharging stroke upon actuation of said handle.

6. A liquid pump comprising a pump cylinder having a transparent peripheral wall permitting visual observation of the liquid contents of said cylinder, a piston in said cylinder movable therein through intake and discharge strokes, a hood with an opaque peripheral wall disposed over said cylinder and carrying said piston, means mounting said hood for movement along said cylinder from one extreme position in which said cylinder is almost completely exposed and said piston is at the end of its intake stroke and is encircled by said hood to another extreme position at the end of the discharge stroke, in which said hood covers a substantial length of said cylinder and encircles said piston, a handle, and connecting means between said handle and said hood for moving said hood between said extreme positions upon actuation of said handle.

7. In a liquid pump, the combination comprising a pump vessel having an inlet and an outlet, a hood, a piston carried by said hood and extending in said pump vessel for reciprocating movement therewith, handle means for moving said hood over and along said vessel in telescopic relationship therewith, a stop device in the interior of said hood and in the path of movement of a part rigid with said hood for limiting the stroke of said piston in said vessel, and means for adjusting the position of said stop device to vary selectively the stroke of said piston.

8. A liquid pump comprising a bracket adapted to be supported on a wall and having a guide, a pump vessel mounted on said bracket, a hood provided with a cover plate at one end and supported for movement along said

bracket, a piston carried by said hood and in said vessel, a handle supported on said bracket for movement, connecting means between said handle and said hood for moving said hood over and along said vessel in telescopic relationship therewith, a stop device in the interior of said hood and in the path of said cover plate for limiting the stroke of said piston in said vessel, and a screw supported on said bracket against endwise movement and having a head accessible for operation in the vicinity of said cover plate, said screw having a threaded engagement with said stop device for adjusting the position of said stop device upon rotation of said screw to vary selectively the stroke of said piston.

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2,494,653	Geffroy	Jan. 17, 1950
2,557,374	Cripe	June 19, 1951
2,563,733	Meczelski	Aug. 7, 1951
2,605,021	Churchill et al.	July 29, 1952
2,657,833	Steczynski et al.	Nov. 3, 1953
2,723,052	Yuza	Nov. 8, 1955
2,725,267	Keiler	Nov. 29, 1955
2,730,274	Brown	Jan. 10, 1956
2,732,810	Simpson	Jan. 31, 1956
2,736,461	Dueringer et al.	Feb. 28, 1956