(No Model.)

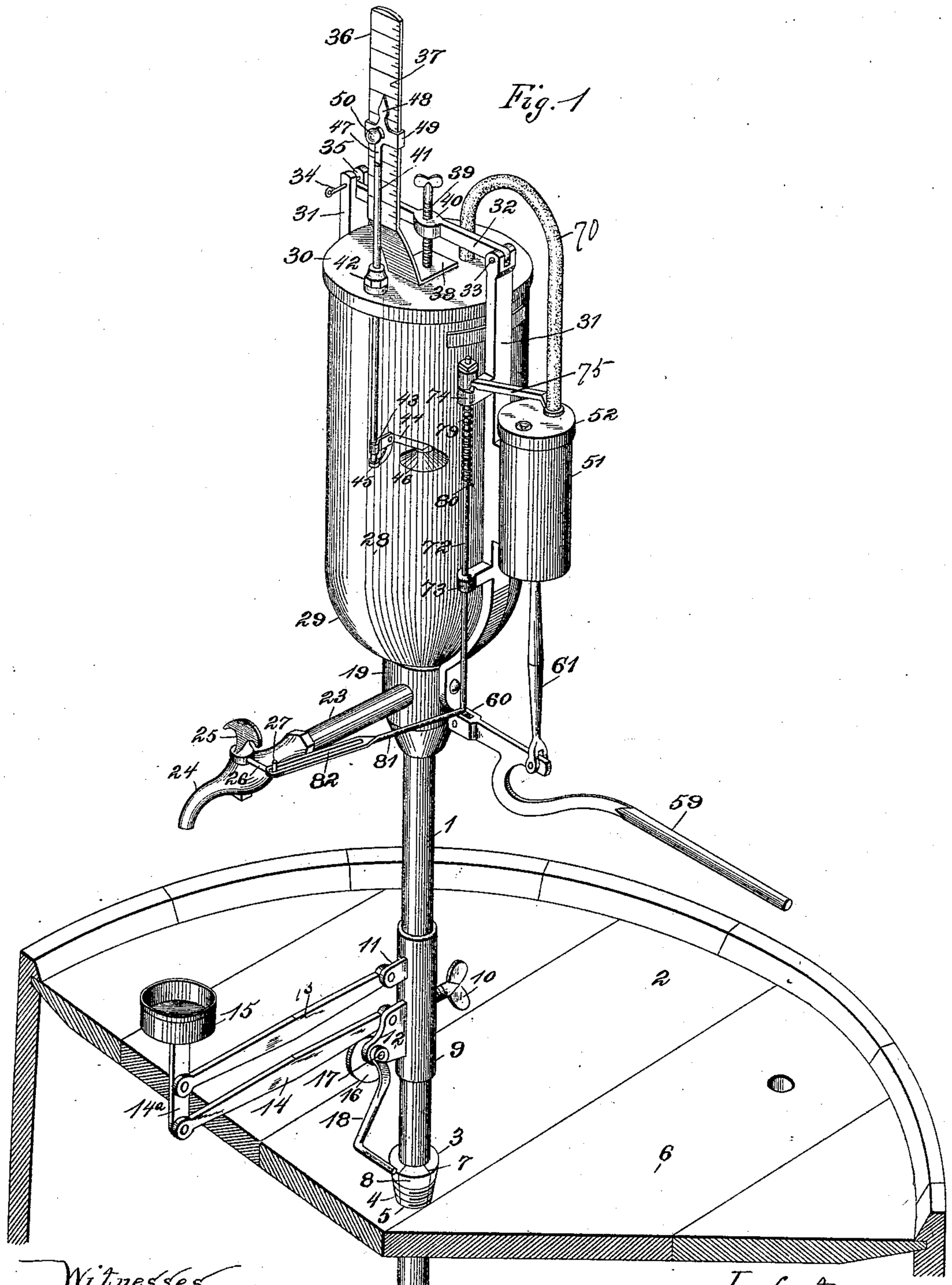
3 Sheets—Sheet 1.

T. G. McCONNELL.

MEASURING PUMP.

No. 512,587. Patented Jan. 9, 1894.

Fig. 1



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Atty's.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.)

3 Sheets—Sheet 2

T. G. McCONNELL.

MEASURING PUMP.

No. 512,587. Patented Jan. 9, 1894.

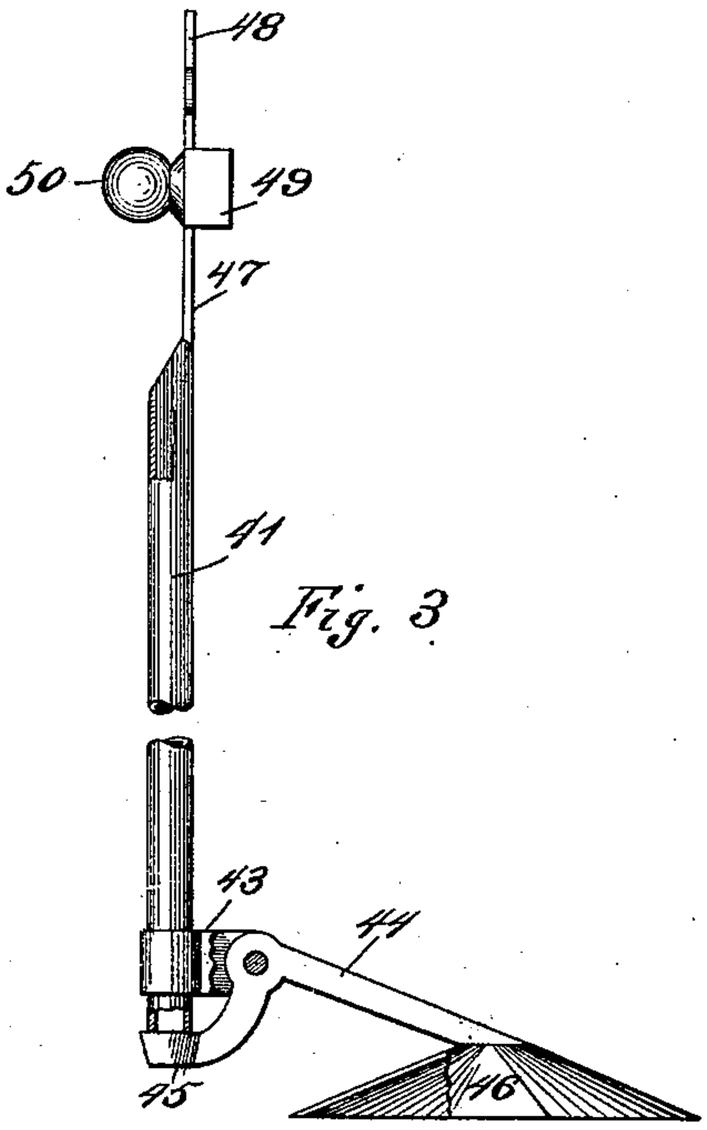


Fig. 3.

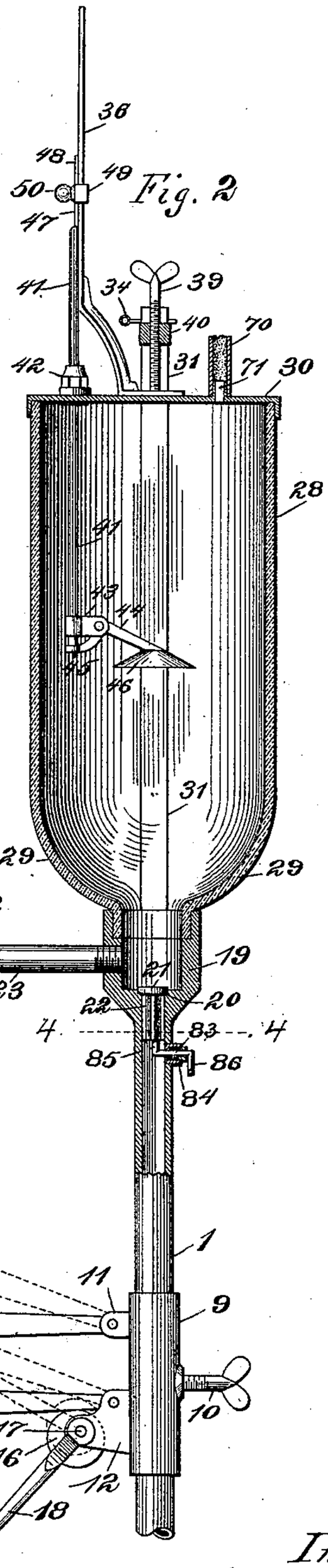
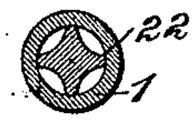


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

T. G. McCONNELL.

MEASURING PUMP.

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Fig. 5

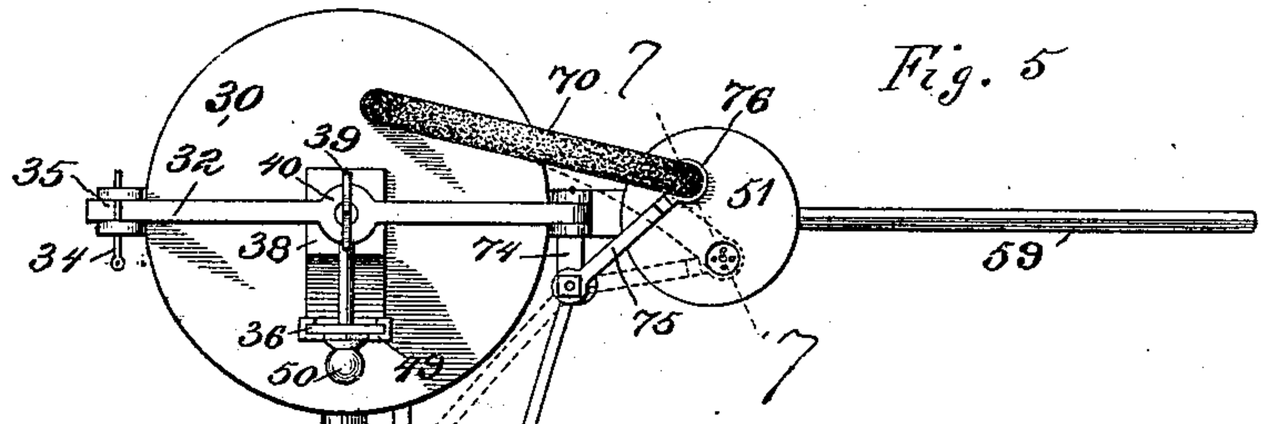


Fig. 6

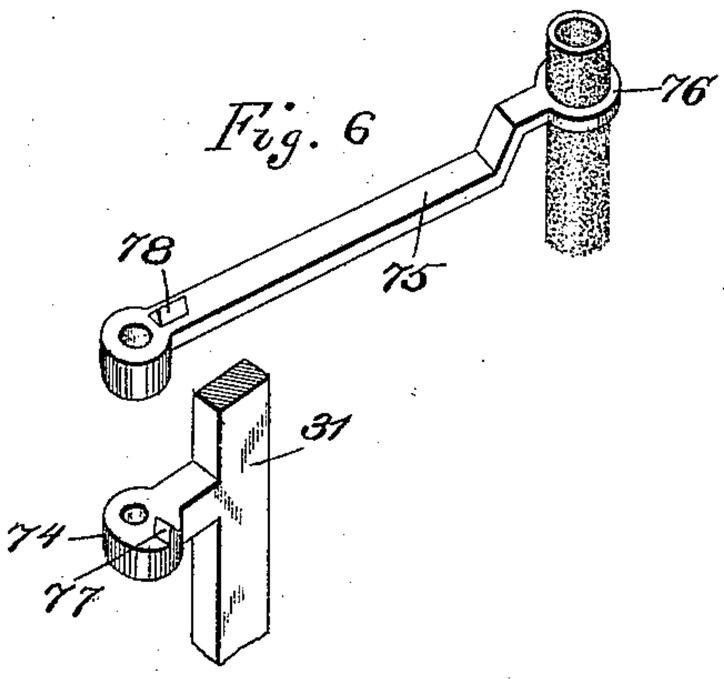


Fig. 7

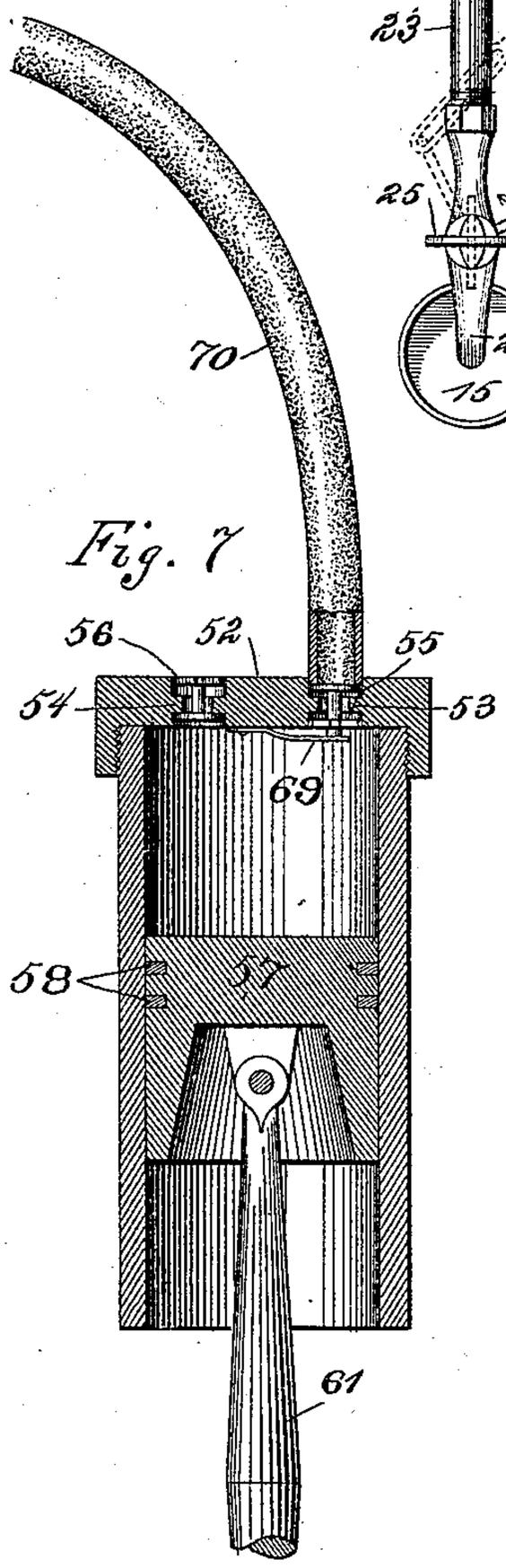


Fig. 8

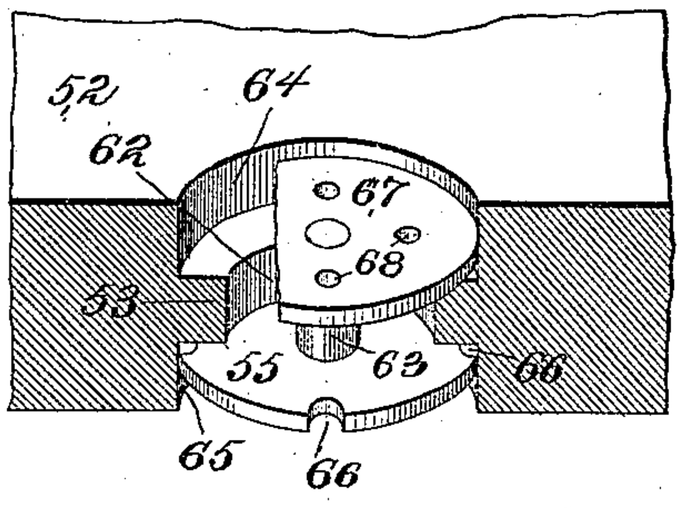


Fig. 9

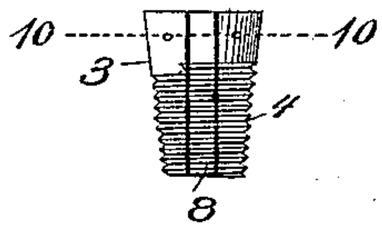
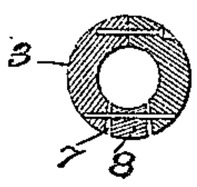


Fig. 10.



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UNITED STATES PATENT OFFICE.

THOMAS G. McCONNELL, OF COLLINSVILLE, ILLINOIS.

MEASURING-PUMP.

SPECIFICATION forming part of Letters Patent No. 512,587, dated January 9, 1894.

Application filed July 22, 1893. Serial No. 481,190. (No model.)

To all whom it may concern:

Be it known that I, THOMAS G. MCCONNELL, of the city of Collinsville, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Measuring-Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a new and improved "measuring-pump," for use in stores and other localities, whereby liquid contained in a larger storage-vessel may be quickly measured and dispensed without the loss of time consequent upon the use of common measuring-utensils, such as the usual pint, quart, and gallon hand-receptacles.

The object of my invention is to provide an improved device of this class, which shall be reasonable in cost, very efficient in action and not likely to get out of order during operation.

In the drawings, Figure 1 is a perspective-view of my invention, applied to the head of a barrel. Fig. 2 is a vertical transverse sectional-elevation of my invention. Fig. 3 is a detail sectional side view of the float and pointer mechanism, detached. Fig. 4 is a horizontal section on line 4—4 of Fig. 2. Fig. 5 is a top plan-view of my invention. Fig. 6 is a detail view, in perspective, of parts used in changing the position of the combined suction and vent tube, the arm which carries the lower end of said tube being inverted, to better exhibit its construction. Fig. 7 is a detail sectional elevation through the air-pump, taken on line 7—7 of Fig. 5. Fig. 8 is a detail view of a portion of the head of the air-pump, and a suction-valve seated therein. Fig. 9 is a detail side elevation of a clamping-bung, made use of in carrying out the invention. Fig. 10 is a horizontal section through the same, taken on line 10—10 of Fig. 9.

1 indicates a vertical stand pipe, having a length sufficient to extend to a point closely adjacent to the lower end of a barrel 2, or other large storage receptacle for liquids, so that its upper end will be located a distance above said storage receptacle. For securing this stand-pipe detachably in position, and for holding same firmly during operation, I locate thereon a clamping-bung 3 which has a vertical bore corresponding in size to the exterior diameter of said pipe, and said bung is loosely mounted upon said pipe. The exterior of this bung is conical or tapered and is arranged with its smaller end downward, and this tapered portion is provided with an exterior screw-thread 4 which engages a circular hole or aperture 5 in the head 6 of the barrel or other large receptacle. The body of the bung 3 is split upon a vertical line so as to provide an opening 7 in said body which has outwardly flaring vertical sides extending parallel and facing each other. A segment 8 which has vertical parallel edges which converge inward and form a wedge, is provided with an exterior screw thread corresponding to the threads upon the body of the bung and is located in the opening of said body with its converging sides in contact with the flaring sides of said opening, so that when said bung and said segment have their ends flush with each other, and when said bung is screwed firmly within said opening in the head of the said receptacle, (which may be done by means of suitable bung tongs or a bung wrench) said body will be contracted upon said stand pipe and the flaring sides of the opening in said body contacting with the converging edges of said segment will force said segment outward a corresponding distance, permitting the body of the bung to securely clamp and hold said stand pipe firmly in the desired position without other support.

Mounted to slide upon the stand-pipe above the bung 3 is a sleeve 9, in one side of which is threaded a thumb-screw 10, which latter is adapted to engage the stand-pipe and securely clamp said screw in the desired adjustment upon said pipe. Projecting in vertical alignment from the side of the sleeve 9 which is opposite the thumb-screw 10 are perforated ears 11 and 12. Pivotally connected to the ear 11 at its inner end is a bar 13, and pivotally connected to the ear 12 at its inner end is another bar 14 extending parallel to the first named bar, and pivotally connected to the free outer ends of both bars is a vertical standard 14^a carrying a cup 15 upon its upper end.

The relative arrangement of the sleeve 9, ears 11 and 12, bars 13 and standard 14 is such as to form an ordinary parallel motion,

that is, when said standard is moved vertically it retains at all times a position parallel to said sleeve.

For adjusting the cup 15 to and retaining the same in the desired position, I provide a circular disk 16 which is eccentrically mounted to turn upon the ear 12 by means of a pivot or journal 17, so that the lower bar 13 contacts with the periphery of said disk at all times and is supported thereby a distance from the point at which said bar is connected to said ear. One end of the pivot or journal 17 projects outward a distance, and a hand crank or lever 18 is fixed upon this projecting end at the side of the said ear which is opposite the side upon which said disk is mounted, so that when said hand crank or lever is moved, said disk will be moved or revolved a corresponding distance and elevate or lower the bar 13 which rests upon it, and this bar will elevate and lower the cup-standard 14, as indicated by dotted lines in Fig. 2, and for a purpose hereinafter mentioned.

Located upon the upper end of the standpipe 1 is an enlargement or chamber 19 which is in communication with the interior of said pipe, and in the lower end of which a seat 20 for a check-valve 21 is formed. This check-valve is normally located in contact with its seat and opens upward to permit upward passage of liquid to said chamber. This valve is provided with the usual stem 22 which is cross-shaped in transverse section, and which fits within the upper end of said pipe and guides said valve in vertical movement and also permits liquid to pass between the vertical wings of said stand. Connected with the interior of the chamber 19, by means of a horizontal pipe 23 is a discharge faucet 24 having a common turn-plug 25 upon one side of which projects an arm 26 having a vertical pin or hook 27 at its outer end for a purpose hereinafter mentioned.

Mounted upon the upper end of the chamber 19 and communicating therewith is a measuring receptacle 28, the vertical walls of which are preferably made of glass or other transparent material, and the bottom of which is provided with inwardly sloping or converging walls 29, which form a sort of funnel for directing liquid contained in said receptable to said chamber, and the upper end of which is preferably cut off square and provided with a horizontal head 30, which is fitted air-tight to said receptacle.

31 indicates standards or brackets, the lower ends of which are secured upon the exterior of the chamber 19, and which extend vertically and parallel, one upon each side of the measuring-receptacle 28 and have opposite upper bifurcated ends which project a distance above the upper surface of said head 30.

32 indicates a horizontal clamping-bar, one end of which is pivotally mounted in the bifurcation of one of the standards 31, by means of a suitable pin or screw 33, so that said bar normally extends transversely above said head 30 and has its opposite end detachably located in the bifurcation of the opposite standard 31. A suitable pin or bolt 34 is detachably located in an opening 35 in said last named standard above said clamping bar, so as to hold said bar in place in the bifurcation of said standard.

36 indicates a vertical gage composed of a strip of metal or other suitable material, and having graduation marks 37 upon one of its sides, to co-operate with a movable pointer hereinafter described and thereby indicate the quantity of liquid contained within said measuring receptacle, and this gage is fixed upon the upper surface of the head 30, by having its lower end provided with a horizontal flange 38 which extends at a right angle and is secured upon the upper surface of said head by means of solder or other common fastening.

39 indicates a thumb-screw or other common bolt or screw, which is threaded through an enlargement 40 formed centrally of the length of said clamping-bar, so that the lower end of said screw engages the upper surface of the flange 38, or some portion of the head 30, to hold said head securely in the position previously described.

41 indicates a vertical float tube passing loosely through an opening formed in the head 30 of the measuring receptacle, so that one of its ends projects within said receptacle while its upper end projects a distance above said head exterior of the receptacle. This tube works in a common stuffing-box 42, which is mounted upon said head, so that a pipe joint will always be maintained between said tube and said head. Fixed upon the lower portion of this tube within the measuring receptacle is a bracket 43, and pivotally mounted upon this bracket at a point intermediate of its ends is a float-lever 44, which carries a valve or stopper 45 at one of its ends and a float at its opposite end. The lever 44 is bent downward at a point adjacent the end which carries the vent valve 45, so that said valve is normally located beneath and closes the lower end of said tube.

The float above mentioned may be of any common form although I prefer the form here shown, which is that of an inverted conical cup 46, having its apex attached to said float-lever, so that said float and said valve are thus adjustably mounted within said measuring-receptacle, and may be adjusted up and down therein by sliding the tube 41 in said stuffing-box.

A pointer plate 47 is mounted upon the upper portion of the float tube 41 and extends in alignment with the rear surface of said tube and carries a pointer 48 at its upper end. The upper portion of said tube, also the pointer-plate and pointer, are adapted to be moved up and down closely adjacent the face of the gage 36, and these parts are held in this relation by means of a strap 49, which embraces the face and back of said gage so as

to slide loosely thereon, and is fixed to the pointer-plate to slide therewith.

50 indicates a knob or handle projecting from the pointer-plate, and by means of which said plate, pointer and the float tube may be moved up and down during the operation hereinafter mentioned.

Fixed upon one of the standards 31, preferably the one shown at the right hand in Fig. 1, is a vertical air-pump cylinder 51. This cylinder is preferably of the class known as "single" acting, that is, its lower end is open. Its upper end is closed by a head 52 having formed therein seats 53 and 54 for the suction and discharge valves 55 and 56 respectively. Mounted within the cylinder 51 to reciprocate is a common piston 57 having the usual packing-rings or other packing 58. This piston is reciprocated by means of a hand lever 59 having its inner end pivotally attached to a perforated ear 60 projecting from the chamber 19 beneath said cylinder, and a connecting-rod 61 has its upper end pivotally connected to said piston and its lower end pivotally attached to said hand lever at a point intermediate of the ends of said lever.

I will now proceed to describe the specific construction of the pump-valves 55 and 56 and their seats, although it is obvious that any common form of air-pump-valves may be substituted for the valves which I here show, providing such common valves have a suitable construction for the work required of them. A vertical opening 62 is formed in the head 52 of the cylinder 51, in which is located the vertical stem 63 of the suction-valve 55, and a similar opening is also formed in said head a distance from said first mentioned opening and in which is located the vertical stem of the discharge valve 56, the stems of both valves being identical in construction. Surrounding these openings are annular projections which form the valve-seats 53 and 54, so that the sockets 64 are formed in said head above each valve-seat and sockets 65 are formed in said head beneath said valve-seats. The suction-valve 55 is in the form of a circular disk having peripheral notches or recesses 66, and centrally mounted upon the lower end of the suction-valve stem 63 so as to reciprocate vertically in one of the sockets 65 beneath one of the annular projections, and close upward against the under side of the valve-seat 53.

67 indicates a circular guiding-disk for the suction valve, which is fixed upon the upper end of the valve-stem 63 just mentioned a greater distance from the valve 55 than the vertical thickness of the said valve-seat 53, so that said guiding-disk 67 is located to reciprocate in one of the sockets 64 above said seat, so as to rest upon the upper surface thereof when the valve is opened, and thereby support said valve when in an open position. (See Fig. 8.)

The disk 67 is provided with a series of vertical holes, apertures or passages 68, which are preferably located radially therein such a distance from the periphery of said disk as will leave said holes, apertures or passages free at all times; in other words they are located so as to never be covered by the valve-seat.

The discharge valve 56 is in construction identical with the suction-valve 55, with the exception that the position of said valve and its guiding-disk is just the reverse of that of said suction valve and its guiding disk, that is, said discharge-valve is located in the other one of the sockets 64 above its valve-seat 54 so as to close downward upon said seat while its guiding disk is located in the socket 65 just beneath said socket 64 just mentioned, so that said discharge valve gravitates into contact with its seat and normally retains such position so that its recesses or passages 66 are covered by said seat when said valve is in a closed position. The passages 66 of the suction-valve 55 are also closed by its seat 53 when said suction-valve is in a closed position. Said suction valve is normally retained in a closed position by means of a flat-spring 69 which has one of its ends fixed to the under side of the cylinder-head 52 within the cylinder so that its opposite end will be free, and so that said spring engages the lower projecting end of the valve-stem 63 and urges said spring and said valve upward. (See Fig. 7.)

70 indicates a combined flexible suction and vent tube, which is preferably composed of a piece of rubber hose of suitable construction for the purpose, and one of its ends is fixed upon a nipple 71 projecting from the upper surface of the head 30 of the measuring receptacle. This nipple is provided with a vertical passage which communicates with the interior of said receptacle and with the interior of said tube 70, and this tube is extended upward therefrom and curved outward so that its lower end is located above the head 52 of the pump cylinder 51.

72 indicates a rock-shaft mounted vertically in bearings or brackets 73 and 74 projecting from the standard 31 upon which the cylinder 51 is fixed. The upper end of the shaft 72 projects upward above the bearing 74, and upon this projecting portion an arm 75 is fixed at one of its ends, and this arm is provided at its outer end with a ring or socket 76 Fig. 6 which embraces or engages the flexible tube 70 at a point just above the head 52 of the pump cylinder. This shaft 72 is arranged to be rocked in its bearings and move the arm 75 and the ring 76 through the arc of a circle, so as to bring the projecting lower end of the said flexible tube in vertical alignment with either one of the upper sockets 64 in said head of the pump-cylinder, as indicated by dotted lines in Fig. 5 and for a purpose hereinafter mentioned.

For retaining the parts in either of the positions just described, I provide the bearing 74 with an upwardly projecting lug 77, and the adjacent under surface of the arm 75 is

provided with a similar downwardly projecting lug 78. These lugs each preferably have inclined opposite sides which contact, and said lugs are so relatively located that when the lug 78 of the arm 75 is located upon one side of and in engagement with the lug 77 of said bearing, said arm and said ring will be held against accidental movement toward the adjacent discharge-valve-socket 64 of the air pump-head, while when said lug 78 is located upon the opposite side of and in engagement with the fixed lug 77 of said bearing, said parts will be held against accidental movement in an opposite direction, thereby retaining said parts in such position that the ring 76 is directly above either one or the other of said sockets 64 in the head of the air-pump.

79 indicates a spring coiled around or placed in engagement with the rock shaft 72 so as to exert a downward pressure tending to always slide said shaft downward in its bearings and consequently hold the arm 75 yieldingly in contact with the upper surface of the upper bearings 74, and so prevent the accidental slipping of the lug 78 over the lug 77, to the above described end and purpose. The spring 79 is preferably coiled around said rock-shaft, with its lower end in engagement with a transverse pin or lug 80 projecting from said shaft at a point beneath said bearing 74, and with its upper end bearing against the under side of said bearing 74. The rock-shaft 72 projects a distance below the lower bearing 73 and has secured to it another arm 81. This arm 81 is provided with a longitudinal slot 82 which extends inward from a point adjacent its outer end, while its inner end is secured to said rock-shaft, or formed integral therewith. The arm 81 is preferably located in a horizontal plane, and its slot 82 is engaged by the upwardly projecting pin 27 of the arm 26 carried by the plug 25 of the discharge faucet 24. The relative location of the parts just mentioned is such that the said pin contacts with the outer end of the slot in the arm 81 and forms a stop to limit the revoluble movement of said plug, and also forms a stop to limit the rocking movement of the rock shaft 72. (See Fig. 5.)

I do not desire to limit myself to the exact construction of details herein shown, as it is obvious that the same may be changed within the limits of skill possessed by an ordinary mechanic, without departing from the scope and spirit of my invention.

83 indicates a short horizontal shaft mounted to rock in a common stuffing-box 84 fixed to the stand-pipe 1 at a point adjacent the lower end of the stem of the check valve 21, so that it passes through the horizontal opening in said stand-pipe and has a crank 85 fixed upon its inner end within said pipe. The outer end of this shaft is provided with a small hand crank or handle 86, for a purpose presently described.

The operation is as follows: The parts being located in the positions in which they are shown in Fig. 1 and the stand pipe 1 mounted to project within a barrel or other large vessel containing an indefinite quantity of liquid to be measured or withdrawn, the thumb screw 10 is loosened and the sleeve 9 is properly adjusted up or down upon the said stand-pipe, and fixed in position, and then a vessel such as a common drinking glass, or any common vessel into which it is desired to discharge the measured quantity of liquid is set within the cup or receptacle 15 carried by the standard 14 and is properly adjusted beneath the spout of the faucet 24 by operating the hand crank or handle 18, which rocks or rotates the eccentric disk 16 and thereby elevates said standard cup and receptacle for the measured liquid, or lowers the same as indicated by dotted and solid lines in Fig. 2. Then the lever 69 of the air pump is operated to reciprocate the piston 57 of said pump, which has the effect of withdrawing a portion of the air contained within the measuring receptacle 28, and causing said air to pass through the combined suction and vent tube 70 the interior of the pump cylinder above the piston thereof, at each downward stroke of said piston, thereby drawing the suction valve 55 and the guiding-disk 67 thereof downward against the power of the spring 69 and drawing said valve away from its seat and uncovering the passages 66 in the periphery of said valve, permitting said air to pass downward through the holes 68 in said disk, passage 62 in the head of said pump and through the said passages 66 and as soon as the downward strokes of said piston cease or terminate, the spring 69 acts to return said valve to its seat, preventing exit of the air by way of such passages. Upon the upward strokes of said piston the air contained within the said cylinder is forced out of same, through the passages or holes 68 in the guiding disk of the discharge valve 56, thence upward through the passage 62, and thence by way of the peripheral passages or recesses 66 in said discharge valve to the atmosphere. This exhaustion of air from the measuring receptacle causes the atmosphere to force a corresponding quantity of liquid from the barrel or receptacle 2 upward through the stand pipe 1 until it strikes the valves 21, which it raises from the seat 20, and thence passes into the chamber 19 and into said measuring receptacle, in which it rises to the desired point requisite for the quantity to be measured. In the meanwhile, the pointer 48 should be adjusted to the desired graduation mark upon the gage 36, so as to indicate a pint, quart, gallon, &c., and this adjustment of the pointer, which is done by grasping the knob or handle 50, moves the float tube 41 and the float 46 a corresponding distance up or down. For instance, say the pointer 48 is set at the one-gallon mark upon the gage 36, then the float 46 is necessarily set at such a height in the measuring receptacle that as soon as liquid in said receptacle reaches such a height that a gallon

of liquid is contained within said receptacle, said float rises immediately, and draws the valve or stopper 45 out of engagement with the lower end of the float tube 41, thereby uncovering said end and permitting entrance of air thereat to the said receptacle, almost instantaneously destroying the partial vacuum just previously located therein, thus instantaneously cutting off the upward passage of liquid from the barrel 2 through the stand pipe, and the liquid in the said measuring-receptacle is prevented from gravitating downward by the instantaneous closure of the check-valve 21, which takes place as soon as air is permitted to enter said receptacle by way of the float tube in the manner just described. To discharge the liquid which has thus been measured and is now contained within the measuring receptacle all that is necessary is to turn the plug 25 of the faucet 24 in the direction indicated by the arrow in Fig. 5, so that the common transverse passage through said plug registers with the common passage in said faucet, and so that the arm 75 is thrown to the position indicated by dotted lines in said Fig. 5. This operation opens the faucet for the passage of the said liquid to the glass of receptacle beneath the same, and throws the horizontal slotted arm 82 toward the left hand to the position in which it is indicated by dotted lines, and this moves the vertical rock-shaft 72 in its bearings in a corresponding direction, and also moves the said arm 75, ring 76 and the end of the flexible tube 70 carried thereby in a corresponding direction, until said parts occupy the position indicated by dotted lines in said last mentioned figure of the drawings, which removes the said end of said tube from the socket 64 above the suction-valve and places it in engagement with the socket 64 above the discharge valve of the air pump. The withdrawal and insertion of said end of said tube in this manner are brought about by the following described function. When the arm 75 moves from the position in which it is shown in Fig. 5, its depending lug 78 slides up on the inclined adjacent surface of the lug 77 of the adjacent bearing 74, as an inclined plane, and this elevates said arm and the rock shaft a sufficient distance to withdraw said end of said tube from said socket 64 above the suction valve, and as the movement continues in such direction said lug 78 passes over the lug 77 and engages the opposite inclined surface of said lug 77, and the spring 79 (also the gravity of the parts) acts to lower said parts and force the said end of said tube into the socket 64 above the discharge valve of the air pump, at the instant the parts reach the position in which they are indicated by dotted lines in said Fig. 5, thereby retaining the parts against accidental movement, in the manner previously described. It will thus be seen that the tube 70 really acts as a combined suction and vent-tube, as it is constructed to be shifted from the induction-passage of the air-pump to the eduction-passage thereof, and vice versa, depending upon whether it is desired to pass liquid into the measuring receptacle or discharge a measured quantity of liquid therefrom. This shifting of the said tube is automatically controlled and effected by means of the plug of the discharge faucet. When the said tube is shifted so that it engages the socket 64 above the discharge valve, there is a clear vent passage formed above the liquid in the measuring receptacle, and extending to the atmosphere, permitting the measured quantity of liquid in said receptacle to flow freely therefrom through the horizontal pipe 23 and the faucet. In other words, when the faucet is opened, air enters the socket 64 above the suction-valve, passes downward through the passages 62 and 66 to the interior of the pump cylinder (removing the valve 55 from its seat) and then this air passes upward by way of the socket 65 beneath the discharge-valve 66 through the holes 68 in the guiding disk 67 of said valve, thence through the adjacent passages 62 and 66 (raising said valve from its seat) thence into the said tube, and finally into said measuring receptacle. The arm 75 is shown inverted in Fig. 6, clearly exhibiting the lug 78 thereon.

When it is desired to gain access to the interior of the measuring-receptacle, the thumb-screw 39 is operated, then the pin 34 is withdrawn to release the adjacent end of the clamping-bar 32, and then said bar is thrown upward and outward, as indicated by dotted lines in Fig. 1, when the head 30 of said receptacle may be quickly detached, together with the parts supported thereby.

The apparatus above described is useful for various purposes, in grocery, liquor stores and the like.

To return liquid to the barrel or storage-receptacle 2, from the measuring-receptacle, the crank or handle 86 is operated to revolve the shaft 83 and cause the inner crank 85 to engage the adjacent lower end of the stem of the check-valve 21, thereby lifting said valve from its seat.

What I claim is—

1. The improved measuring-pump, constructed with a measuring-receptacle preferably having transparent sides, a stand-pipe communicating with the lower portion of this receptacle and arranged to discharge liquid from a barrel or storage receptacle into said measuring-receptacle, a check-valve for preventing return of liquid from said measuring-receptacle to said storage-receptacle except as intended by the operator, a discharge faucet or cock connected to the lower portion of the measuring-receptacle, a gage having graduation-marks indicating quantities of liquid to be measured and fixed adjacent said measuring-receptacle, a pointer movable adjacent said gage, a float located in said receptacle to be raised by liquid therein and connected to be simultaneously adjusted to different heights therein as said pointer is adjusted to

different positions with relation to the marks on said gage, a vent-valve controlling a vent-passage to the atmosphere and arranged to open said passage when the liquid in said measuring-receptacle raises said float and thereby permit entrance of air to the said measuring-receptacle above the liquid contained therein, and to close said passage when liquid in said receptacle drops to a point insufficient to buoy up said float, and a pump or equivalent means for exhausting a portion of air from the upper portion of said measuring-receptacle, substantially as herein-specified.

2. The improved measuring-pump, constructed with a measuring-receptacle, a stand-pipe communicating with the interior of said receptacle at the lower portion thereof to discharge liquid into said receptacle from a larger storage-receptacle, a faucet or cock connected to discharge liquid from said receptacle into drinking-glasses and the like, a gage having graduation-marks indicating quantities of liquid to be measured and fixed adjacent said receptacle first-mentioned, a pointer movable adjacent said marks, a float arranged in said measuring-receptacle to be raised by liquid flowing thereinto through said stand-pipe and to be simultaneously adjusted to different heights therein as said pointer is adjusted to different positions with relation to the marks of said gage, a vent-valve controlling a vent-passage to the atmosphere and arranged to open said passage when liquid in said measuring-receptacle raises said float and to close said passage when said liquid is too low to buoy said float, a pump for exhausting air from said measuring-receptacle above the liquid therein and having suction and discharge openings, a flexible combined suction and vent tube connecting said measuring receptacle and said pump, and means for shifting said tube to either the suction or discharge opening of the pump automatically upon movement of the plug of said valve or cock, substantially as herein-specified.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS G. McCONNELL.

Witnesses:
W. J. SANKEY,
JNO. C. HIGDON.