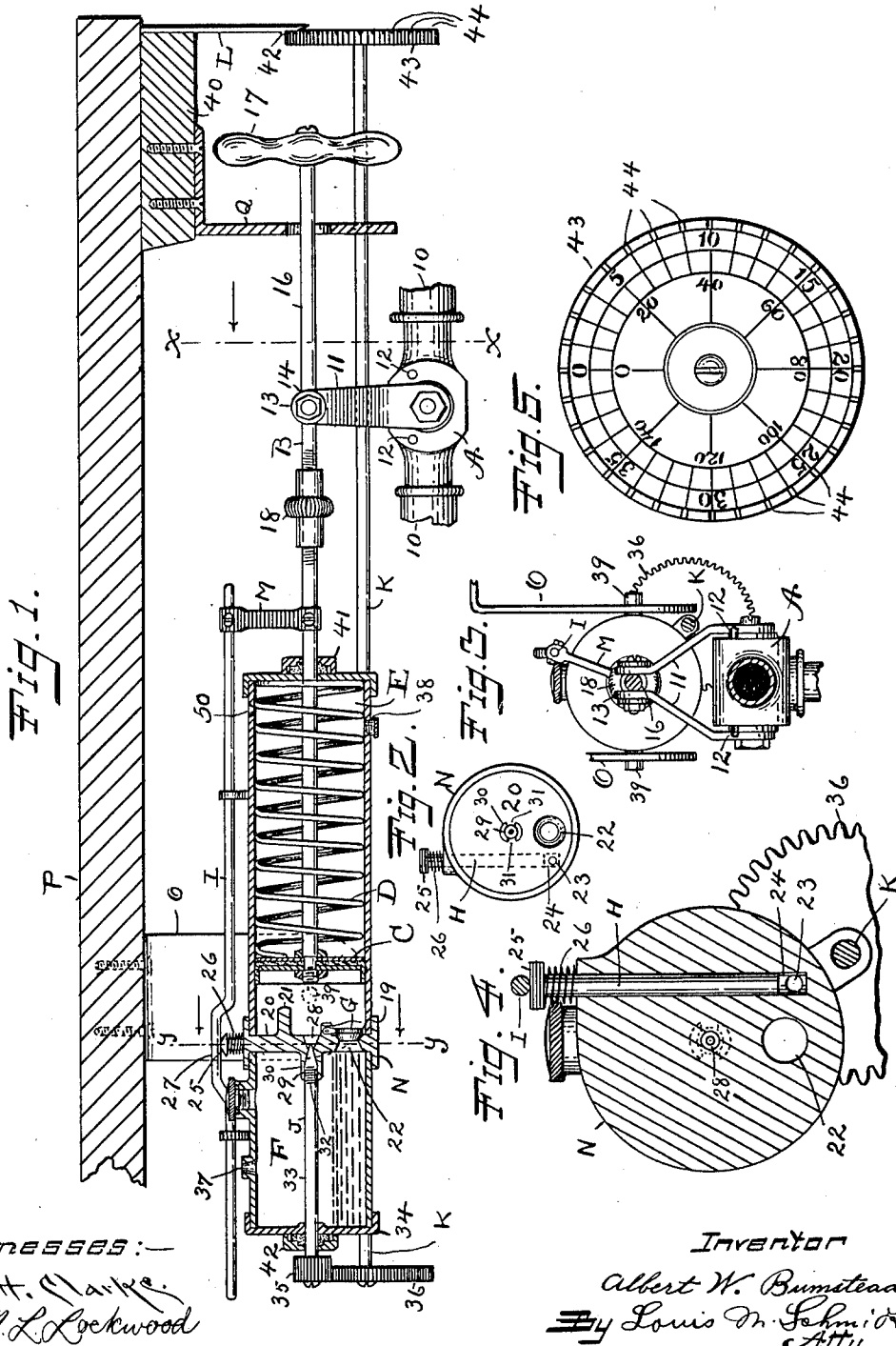


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LIQUID MEASURE.
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Witnesses:—
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UNITED STATES PATENT OFFICE.

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LIQUID-MEASURE.

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To all whom it may concern:

Be it known that I, ALBERT W. BUMSTEAD, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Liquid-Measures, of which the following is a specification.

My invention relates to improvements in liquid measures and the objects of my improvements are convenience and efficiency in use.

In the accompanying drawing:—Figure 1 is a longitudinal sectional view of my liquid measure, parts being shown in side elevation. Fig. 2 is a rear elevation of the body part. Fig. 3 is a sectional view on the line *x x* of Fig. 1. Fig. 4 is a sectional view on the line *y y* of Fig. 1, on an enlarged scale. Fig. 5 is a front view of the dial also on an enlarged scale.

A is a valve controlling a supply of liquid from a general source through a supply pipe 10 and is operated by an upwardly directed lever 11, which lever has an oscillating motion limited by a pair of stops 12. During part of the rotation of the moving element of the valve A, limited as mentioned by the lever 11 coming into abutment with the stops 12, the said valve A is full open. The upper end 13 of the said lever 11 is secured to a piston rod B by means of which the valve is closed. Joined to the junction 14 of the said lever 11 and rod B is a rod 16, which extends forward and has on the outer end a handle 17 by means of which the reciprocating parts described and the piston C at the back end of the rod B may be brought to the forward limiting position, in opposition to a coil spring D surrounding the rod B in the cylinder E. Upon the release of the pressure of the hand on said handle the said spring brings the said piston, rod and valve back to the normal closed position. The rod B may have a means for adjustment of the length, as an adjustable joint 18, and may pass through a stuffing box 41 in the front wall of the cylinder. The said cylinder E is made of tubing, the rear end of which is screwed into an overhanging neck 19 on the body N which may be a casting as shown. An oil chamber F is screwed to the said body N on the side remote from the said cylinder E, so that the said body con-

stitutes a vertical wall 20 between the said cylinder and chamber, and the same has on the front face projections 21 serving as stops to limit the backward motion of the said piston C. The said partition wall 20 comprises adjacent the lower end a port 22 opening from said oil chamber F into said cylinder E and normally closed by a clapper valve G on the cylinder side of said port. Adjacent said port 22 is another port 23 of smaller dimensions than port 22 opening likewise between said oil chamber and cylinder, and which port is opened and closed by means of a special valve in the form of a rod H reciprocating in a vertical hole 24 in said partition wall 20 and extending at the lower end past the said port 23 and upwardly above said partition wall and at the upper end provided with a head 25. A light spring 26 operating between said head 25 and the body N tends normally to lift said valve rod H and thereby open said port 23, but is prevented from so doing by the releasing rod I in contact with the said head 25, except when an upward offset 27 in said rod is in registering position with the said head, when the said valve is permitted to open and effects substantially direct connection between the said oil chamber and cylinder. The said releasing rod I comprises for the greater part of its length a straight rod and is provided with the said offset 27 and extends longitudinally along the top of the combined oil chamber F and cylinder E and overhangs the front of the cylinder sufficiently to be rigidly and adjustably connected to the said piston rod B by means of an offset bracket M, whereby the said rod I is reciprocated in conjunction with the said piston rod B in the manner already described. The said partition wall 20 comprises another port 28, which may be located substantially in the center and in line with the axis of the cylinder E and which has on the oil chamber side a seat 29 for a needle valve J in a rearwardly projecting neck 30, integral with the said partition wall 20. The said neck 30 has lateral slits 31 at the back end serving as passage ways or ports for the passage of oil driven from the cylinder space E by the piston C, through the port 28 into the said oil chamber F. The interior wall of said neck 30 is generally screw-threaded to fit and receive the screw thread

32 on the body portion of the stem 33 of the said needle valve J and by means of which the amount of opening or closure of said port 28 may be adjusted by turning the said rod or stem 33 one way or the other.

5 The said stem 33 extends backwardly through a stuffing box 42 in the rear wall 34 of the oil chamber F and carries on the rear end a gear 35 through which the said adjustment is effected, the said gear meshing with a gear 36 which is mounted on an adjusting rod K which extends forwardly to a position convenient for adjustment, which is effected by turning the rod one way or the other. The position of adjustment may be indicated by means of a fixed finger or indicator L and a scale or chart carried on a dial 43 by the adjusting rod K, which dial may be calibrated and marked off to indicate quantity, or price, or both, as may be desired. The gear 35 overhangs the gear 36 so as to allow for longitudinal adjustment of the rod or stem 33 and insure engagement of the said gears. The said dial 43, as shown in Fig. 5, is provided with scale markings which may be arbitrarily placed, the values of the same corresponding to movements relatively to the pointer L being determined as stated by calibration. The notches or grooves 44 are adapted to engage with the tooth 42 on the index finger L so as to lock the index and dial in engagement.

An air inlet or vent 37 is provided in the top of the oil chamber F, and a vent 50 for the cylinder E. The bottom of the cylinder E may have a cleaning out hole 38.

A pair of brackets O engaging by their lower ends with pins 39 in the cylinder E and attached by their upper ends to the under side of a counter P or other similar structure serve as a general means of support for said body. A bracket Q engaging with the said extension rod 16 and also secured to the counter either directly or through a block 40 supports the front end of the apparatus.

A stuffing box 41 is provided in the front wall of the cylinder E for the piston rod B.

50 The said valve A is a plug valve of generally ordinary construction and is arranged in an ordinary manner to be closed when the lever 11 is in contacting relation with the left hand stop 12 as shown in Fig. 1, and is open when positioned as shown in the said Fig. 1. When the said lever 11 is in contacting relation with the right hand stop 12, the valve A may or may not be open to flow as my device is operative for either of these two conditions.

60 In operation, the said oil chamber is charged with oil and the said needle valve J adjusted to draw off a certain amount of liquid as determined by the time or the amount of opening of the liquid valve A in

a complete back and forth movement of the valve mechanism and the attached reciprocating parts, and the piston is normally at the rear of the cylinder E against the stops 21 and retained in such position by the spring D. In case it is desired to draw off the quantity of liquid for which the apparatus is set the handle 17 is drawn forward to the limit determined by the said main valve lever 11 coming into abutment with the said forward stop 12 and released. In its forward motion the handle 17 carries the rod B and piston C and the suction of the latter draws oil from the oil chamber F into the cylinder space E through the port 22 past the said clapper valve G. As the piston C is returned to the normal position by the spring D the clapper valve is first closed and as the port 23 is still held closed by the releasing rod I, the straight or axial portion of which is in engagement with the head 25 of the valve rod H the only return passage for the said oil to the oil chamber is by way of the restricted passage controlled by the said needle valve J. Near the end of the return stroke and corresponding to the period of weak action of the said spring D, the said offset 27 permits the said rod H to be raised by the spring 23, permitting the final bringing home of the piston C to its normal position practically without restriction or opposition. As a means for locking the said needle valve J positively at certain positions of adjustment, corresponding to such positions as may be frequently called into use, the said indicator L may comprise a flat spring, having at its lower back face a lug or tooth 42 which may be sprung into grooves 44 located at predetermined points in the front face, adjacent the outer periphery of the said dial.

I claim as my invention:—

1. In combination, a valve controlling a fluid supply, a lever operating the said valve, stops limiting the motion of the said lever, operating means connected to the said lever, normally holding the said lever in one of the extreme positions and tending to bring the same to such normal position when moved therefrom, the said valve closed when in such normal position, hand means for bringing the said lever to the other extreme position in opposition to the said operating means, means for retarding the return of the said lever, means for adjusting the said retarding means, and means for indicating the condition of retardation corresponding to the passage of a predetermined amount of fluid through the valve controlled by the said lever comprising a fixed index and a dial secured to the said adjusting means.

2. In combination, a valve and a controlling mechanism therefor comprising means for predetermining the period of opening of

the said valve, the said means comprising a piston and a piston rod connected thereto and a cylinder for said piston, a spring normally tending to keep said piston at one end of said cylinder, an oil chamber adjacent said cylinder and separated therefrom by a partition, passage ways in said partition comprising a restricted passage controlled by a needle valve, means for controlling said needle valve comprising a rod extending outside of and along the body of said cylinder, adjacent to and substantially parallel to the said piston rod, a dial on said rod and a fixed index adjacent thereto, an operating handle on said piston rod, the said dial serving as a handle to vary the retardation to the said piston, and the said operating handle and dial adjacent to each other and convenient of access for drawing off predetermined quantities of fluid through the said valve.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."