G. MOORE.

LIQUID MEASURING APPARATUS.

APPLICATION FILED MAY 17, 1917.

1,308,855. Patented July 8, 1919.

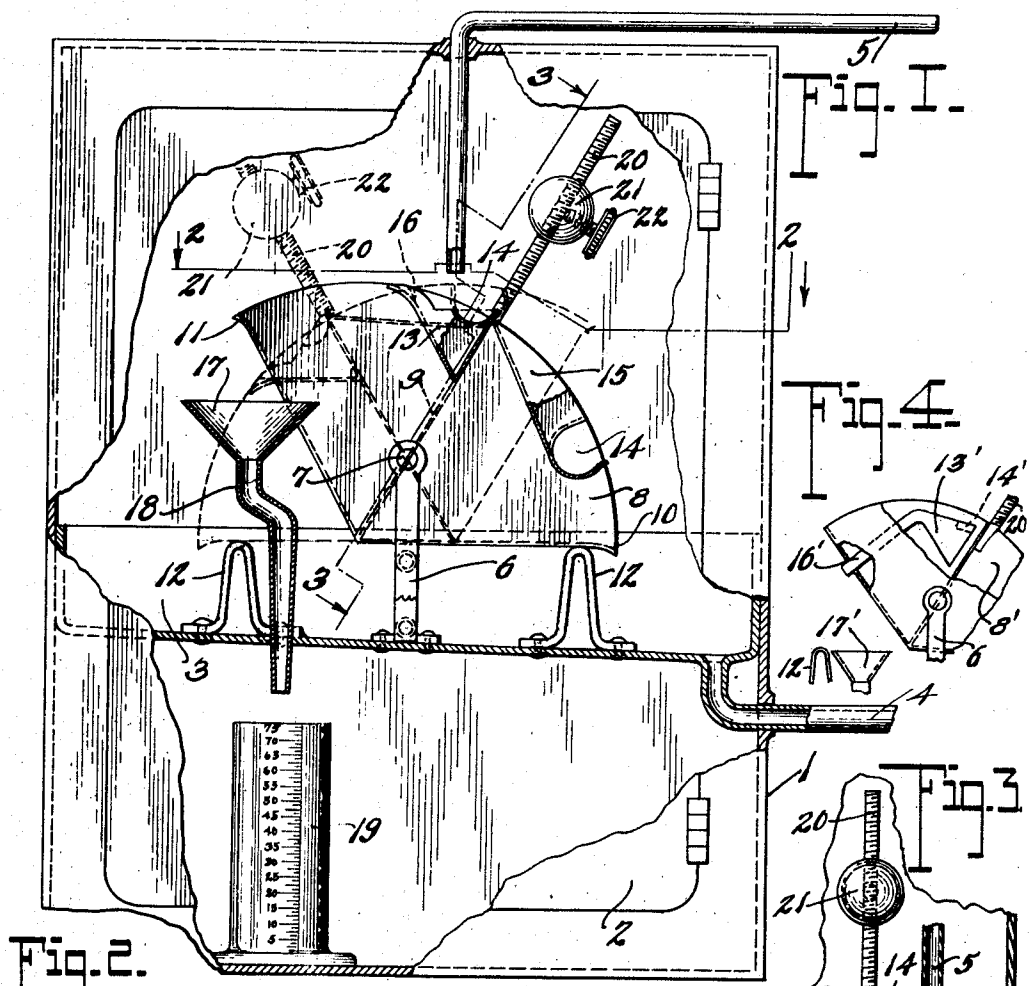


Fig. 1.

Fig. 4.

Fig. 3.

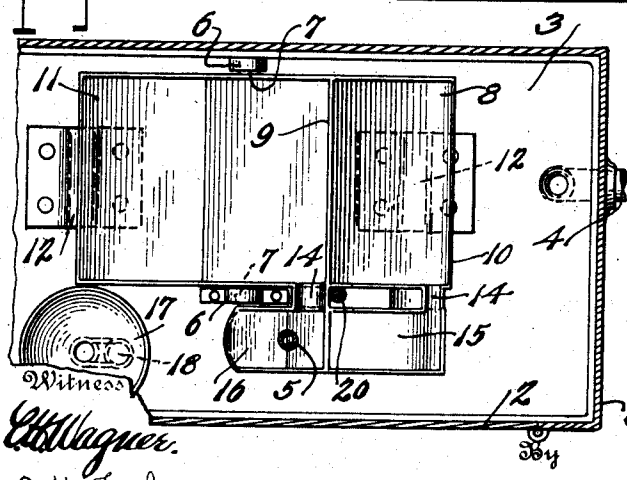


Fig. 2.

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LIQUID-MEASURING APPARATUS.

1,308,855. Specification of Letters Patent. Patented July 8, 1919.

Application filed May 17, 1917. Serial No. 169,368.

To all whom it may concern:

Be it known that I, GEORGE MOORE, a citizen of the United States, residing at Joplin, in the county of Jasper and State of Missouri, have invented certain new and useful Improvements in Liquid-Measuring Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in liquid measuring apparatus and has as its object the production of apparatus of this type characterized by its simplicity and comparative cheapness of production.

With this and further objects as will hereinafter in part become apparent and in part be stated, the invention comprises certain novel constructions, combinations and arrangements of parts as subsequently specified and claimed.

In the accompanying drawing,—

Figure 1 is a view in side elevation of an apparatus embodying the features of the present invention, parts being broken away and other parts shown in vertical section for facility of disclosure.

Fig. 2 is a sectional view taken approximately on the planes indicated by line 2—2 of Fig. 1.

Fig. 3 is a substantially vertical section taken on the planes indicated by line 3—3 of Fig. 1, fragments being broken away.

Fig. 4 is a fragmentary, outline view of a slightly modified embodiment of the invention.

Referring to the drawing by numerals, 1 indicates a housing having a door 2 for facility of access to the inclosed parts.

Arranged within the housing 1 and fixed to the walls thereof is a receptacle 3 having a discharge pipe 4 leading to any appropriate point for consumption or distribution of the measured liquid. A supply pipe 5 is adapted to deliver liquid within the housing 1.

Standards 6 are fixed to the receptacle 3 and at their outer ends provide bearings for the journals or trunnions 7 of a measuring receptacle 8. The receptacle 8 is divided into two substantially equal compartments by a partition 9. The receptacle 8 is formed with a lip or discharge spout 10 at one edge for one compartment and a similar lip 11 at the other edge for the other compartment. The receptacle 8 is pivoted to swing from a position where one compartment discharges, as shown in full lines in Fig. 1, to the relatively opposed position where the other compartment discharges, as indicated in dotted lines in Fig. 1. To prevent the receptacle 8 from tilting too far in either direction, supports 12, 12 are provided, and preferably fixed to the bottom of the receptacle 3 in position for sustaining the receptacle 8 in either of its two discharging positions.

Spaced laterally from the receptacle 8 near the line of the partition 9 is a container 13 communicating by a passageway 14 with one of the compartments of receptacle 8, and adjacent the container 13 is arranged a trough 15 draining into the other compartment of receptacle 8, the trough 15 being disposed laterally of the respective compartment after the manner of location of the container 13. The capacity of container 13 bears a fixed ratio to the capacity of the complete receptacle 8, as, for example, the container 13 may be constructed to hold 1 per cent. of the amount of liquid which may be contained in the two compartments of the receptacle 8. The discharge end of the pipe 5 is arranged above the container 13 when that compartment of receptacle 8 with which container 13 communicates is being filled, that is, when the other receptacle is in the discharging position, as seen in full lines in Fig. 1.

When the parts are in this position, the liquid supplied through pipe 5 discharges into container 13 as will be apparent from the relative location of the parts seen in Fig. 3. As soon as the container 13 is filled it overflows through the trough 14 into the respective compartment of receptacle 8. This continues until the weight of the liquid causes the receptacle 8 to swing upon its pivot to the dotted line position seen in Fig. 1. Thereupon, the liquid in the compartment supplied through trough 14 discharges into the receptacle 3 and is delivered therefrom through pipe 4. The contents of container 13, however, is intended to be used as a tallying and the said container is, therefore, provided with an elongated spout or lip 16 adapted to deliver the contained liquid into a funnel 17 which is provided with a pipe 18 extending through the bottom of receptacle 3 and discharging into a con-

tainer 19. The container 19 is preferably transparent and graduated. It may be provided with any desired indications such, for instance, as digits representing gallons, so that the mere observation of the liquid level in the receptacle 19 will indicate the number of gallons of liquid delivered from the receptacle 8. The receptacle 8 having assumed the position indicated in dotted lines in Fig. 1, will be so located that the trough or drain 15 is beneath the discharge end of pipe 5, and the discharge from said pipe is, therefore, delivered directly to the compartment of receptacle 8 which is then uppermost and this discharge continues until the compartment is sufficiently filled to overbalance the receptacle and cause it to swing over and discharge at the other side, as indicated in full lines in Fig. 1. Thus the receptacle 8 continues to oscillate so long as liquid is supplied through pipe 5, and the tallying receptacle 13 continues to deliver successive charges of liquid to the receptacle 19. Obviously, since the container 13 bears a ratio proportionate to the whole containing capacity of receptacle 8, it is desirable only to have the container 13 filled and discharged once with each alternate discharge from the receptacle 8. In other words, there is no discharge of liquid from the tallying receptacle when the contents of that compartment of receptacle 8 supplied from trough 15 occurs.

To enable adjustment in the matter of the quantity of liquid necessary to effect discharge from the compartments of receptacle 8, I provide a rod 20 which is fixed to the receptacle 8 and extends outward along the line of partition 9. A ball or other appropriate weight 21 is mounted to be adjusted along the rod 20 as by being threaded thereon. A set screw 22 is adapted to be tightened against the rod 20 for retaining weight 21 in any adjusted position. By adjusting the weight 21 downward toward the receptacle 8 the receptacle will tilt with greater ease one way or the other, and, therefore, a smaller quantity of liquid will effect the tilting. Adjustment of the weight 21 outward will accomplish the reverse effect. Thus the quantity of liquid to be discharged with each oscillation of receptacle 8 may be adjusted to conform with the desired multiple of the quantity discharged by receptacle 13.

In Fig. 4 I have illustrated substantially the same structure as that above described with the exception that the container 8′ has the tallying receptacle 13′ arranged within one of its compartments and provided with a discharge tube 16′ extending through the wall of the receptacle in position to deliver the tallying liquid to the funnel 17′. The tallying container 13′ is disposed in position to receive the discharge from the supply pipe and to deliver the liquid to the respective compartment of receptacle 8′ after the tallying container has been filled, the liquid overflowing through a lateral notch 14′ formed in the container 13′. The operation of the structure is substantially identical to that above described and will be readily understood from the foregoing description. This construction obviates the necessity for any element corresponding with trough 15.

What I claim is:—

1. In liquid measuring apparatus, the combination of an oscillating container adapted to be moved to and from discharging and filling positions by the weight of liquid supplied to the container, a tallying container communicating with the measuring container and having a capacity bearing a definite ratio with respect to the capacity of the measuring container, and means for delivering liquid from the tallying container at a separate point from the discharge from the measuring container.

2. In liquid measuring apparatus, the combination of a measuring container movable from a charging to a discharging position, a tallying container movable therewith and adapted to deliver at a point separate from the delivery of liquid discharged from the container, the tallying container being adapted to deliver liquid in quantities bearing a fixed ratio to the quantity of liquid discharged from the measuring container, and means for receiving the discharge from the tallying container and indicating the quantity of liquid delivered from the measuring container.

3. In liquid measuring apparatus, the combination of an oscillating container adapted to be moved to and from discharging and filling positions by the weight of liquid supplied to the container, a tallying container communicating with the measuring container and having a capacity bearing a definite ratio with respect to the capacity of the measuring container, the measuring container being adapted to discharge liquid into a receptacle, and means extending above the liquid level of the receptacle for receiving the liquid discharged from the tallying container for delivering such liquid independently of the liquid in the receptacle.

4. In liquid measuring apparatus, the combination of an oscillating container adapted to be moved to and from discharging and filling positions by the weight of liquid supplied to the container, a tallying container communicating with the measuring container and having a capacity bearing a definite ratio with respect to the capacity of the measuring container, the measuring container being adapted to discharge liquid into a receptacle, means ex-

tending above the liquid level of the receptacle for receiving the liquid discharged from the tallying container for delivering such liquid independently of the liquid in the receptacle, and a tube extending from the tallying container to a point for effecting delivery to the receiving means.

5. In liquid measuring apparatus, the combination of a pivotally mounted measuring container adapted to oscillate between a charging and a discharging position and located to have such oscillations effected by the weight of the liquid being measured, and a tallying container spaced laterally therefrom and movable therewith for delivering at a point separate from delivery of liquid from the measuring container, the tallying container being adapted to deliver liquid in quantities bearing a fixed ratio to the quantitv of liquid discharged from the measuring container.

6. In liquid measuring apparatus, the combination of a measuring container movable from a charging to a discharging position, and a tallying container movable therewith and adapted to deliver at a point separate from the delivery of liquid discharged from the container, the tallying container being adapted to deliver liquid in quantities bearing a fixed ratio to the quantitiy of liquid discharged from the measuring container, and a receptacle for receiving the discharge from the tallying container and having means controlled by the quantity of liquid from the tallying container for indicating the whole quantity of liquid measured.

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

GEORGE MOORE.

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