

(No Model.)

W. C. YOUNG.

MEASURING AND REGISTERING APPARATUS.

No. 492,453.

Patented Feb. 28, 1893.

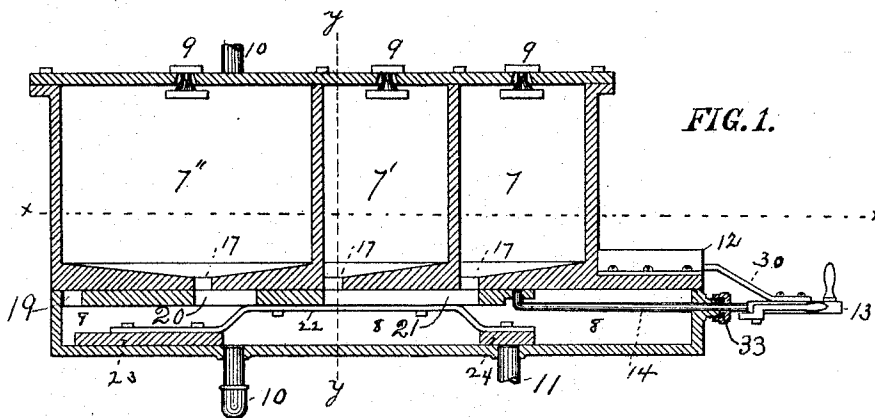


FIG. 1.

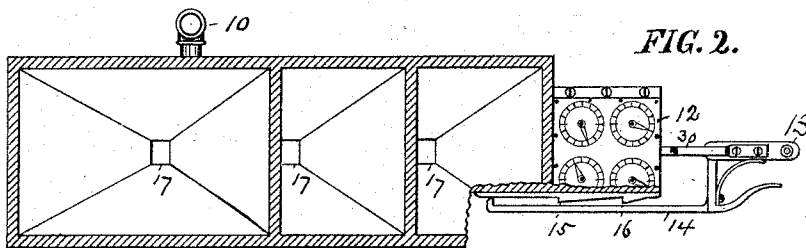


FIG. 2.

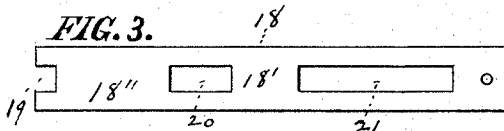


FIG. 3.

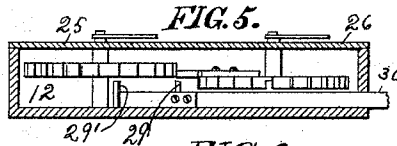


FIG. 5.

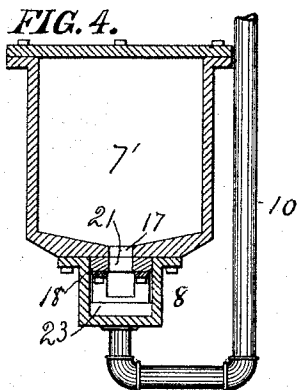


FIG. 4.

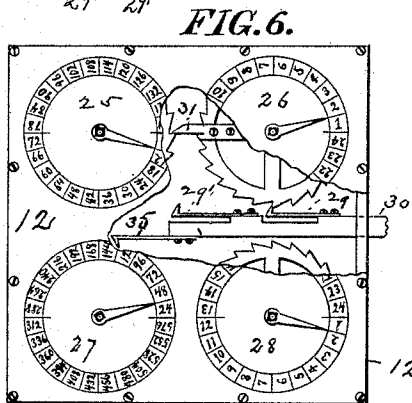


FIG. 6.

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MEASURING AND REGISTERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 492,453, dated February 28, 1893.

Application filed July 13, 1892. Serial No. 439,924. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. YOUNG, a citizen of the United States, residing at the city of Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Measuring and Registering Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in devices for measuring liquids, or semi-liquids, and its objects are to provide an improved measuring and registering device which can be readily attached to a barrel or other vessel. I attain these objects by the mechanism illustrated in the accompanying drawings in which:—

Figure 1 is a vertical section of my device. Fig. 2 is a horizontal section through the line $x-x$ of Fig. 1. Fig. 3 is a top view of the valve or slide plate. Fig. 4 is a vertical cross section of Fig. 1 taken through the line $y-y$. Fig. 5 is a vertical section of the registering device. Fig. 6 is a top view of Fig. 5 with part broken away to show the interior mechanism.

Similar numerals refer to similar parts throughout the several views.

The measuring device or case, Fig. 1, is constructed in two main compartments. The upper one is sub-divided into the chambers 7, 7' and 7'' and may, if desired, be further subdivided, the number of the chambers corresponding to the number of different measures required. The lower chamber 8 extends preferably beyond the upper portion of the case for the purpose of giving room for the operation of the valve or slide plate 18, and also to form a seat for the measuring device Figs. 5 and 6. Each of the chambers 7, 7' and 7'' communicate with the chamber 8 through openings 17, which are closed by valves under control of the operator. A preferable form of valve is shown in Fig. 3. It consists of a plate 18 having ports 19, 20 and 21, between which are the valves 18' and 18''. The location of the openings 17 between the upper and lower main compartments, and the length

of the ports 19, 20 and 21, are such that when the plate 18 is in normal position, that is, when it is pushed inward by the handle 13 attached to it, as far as it will go, all of the openings 17, 17' and 17'' of the upper compartment are in communication with the lower chamber 8. When the plate 18 is moved outward the distance of the opening 17 the openings 17 to the second and third chambers 7' and 7'' are closed by the valves 18' and 18'', while the one to the first chamber 7 remains open through the port 21. Moving the slide 18 still farther outward, the valve 18' passes the opening 17 to the second chamber 7' and both the first and second chambers then communicate through the ports 20 and 21 with the lower main compartment, while the opening 17 to the third chamber is still closed by the valve 18''. Moving the plate 18 outward to its full extent, all the chambers of the upper compartment are in full communication with the chamber 8.

The chamber 8 is provided with two pipes entering it from the bottom; one of them is the inlet pipe which is attached to and communicates with any source of supply, such as a barrel or tank placed above the apparatus; the other, or exit pipe 11, may be attached to a curved spout, or discharge directly into a receiving vessel. The openings to these pipes in the bottom of the chamber 8 are closed by valves under control of the operator. A preferable construction therefor is shown in the drawings. It consists of two valves 23 and 24 connected with each other by a spring bar 22 which is also attached to the sliding plate 18 in such manner that the plate 18 and the valves 23 and 24 are held firmly against their respective valve seats. The valve 24 is of such length that it will pass the opening to the exit pipe 11 as soon as the opening to the entrance pipe 10 is closed by the valve 23. The valve 23 is of such length that it will keep the entrance opening closed during the outward movement of the plate 8, to which it is attached. The plate 18 and the valves 23 and 24 being attached to each other as described, are moved simultaneously by the handle 13, which is attached to the plate 8 pivotally as shown, its entrance into the chamber 8 being closed to prevent leakage by a stuffing box 33, or other suitable device. The size of

the chamber 8 and the chambers of the upper compartment is such that when they are full of liquid the chamber 7 and the chamber 8 will contain an exact measure of liquid, say one quart. The chamber 7' will contain one quart and the chamber 7'' will contain one half gallon and if other chambers are used in like combination, they will contain exact quantities of larger measures. The chambers may be made smaller if desired, so that chamber 7 and chamber 8 together shall contain only one pint, and the other chambers correspondingly large. Each of the chambers of the upper main compartment is provided with float valves 9, for the purpose of an air vent while the chambers are being filled and exhausted, and also for the purpose of closing the openings, in which they play, to prevent leakage of any liquid when the chambers are full.

The operation is as follows: The valves being in normal conditions as shown in Fig. 1, and the pipe 10 being connected with a source of supply, the liquid flows down through pipe 10 into the chamber 8, up through the openings 17, filling all the chambers of the upper compartment until the float valves being pressed up against the under surface of the compartment prevent the entrance of any more liquid and prevent any leakage. Then by drawing the plate 18 out by the handle 13, so that the openings 17 into the second and third chambers 7' and 7'' are closed, the opening to the exit pipe 11 is then by a still further movement of the operating rod of the handle 13 unclosed and all of the liquid in the chamber 8 and in the first chamber 7 passes out into the receiving vessel, measuring, in the case given, one quart of fluid. By drawing the handles still farther out, the opening to the second chamber 7' is unclosed and the amount of liquid in that chamber is discharged thereby into the receiving vessel through the exit pipe 11. By withdrawing the plate 18 out to its full extent the opening to the third chamber 7'' is unclosed and the liquid permitted to flow into the chamber 8 and out through the exit pipe 11. In the case given this will let all of the liquid out, measuring one gallon of fluid into the receiving vessel. During this operation the entrance pipe 10 is kept closed by the valve 23. Upon pushing the plate 18 back to its full extent, it carries with it by its connections the valves 23 and 24, which thereupon close the exhaust pipe and open the entrance pipe 10, which immediately fills all the other chambers as before.

To this measuring device I attach a registering apparatus, illustrated in Figs. 5 and 6. It consists of dial plates upon the upper exposed surface, with pointers to each of them attached to rods which are operated by serrated wheels within the case. On the dial plates so shown, 26 represents quarts, 28 half gallons, 27 half gallons and 25 gallons. These numerals on the dial plates 26 and 28 corre-

spond to the capacities of the different measures of the device. The serrated wheels 26 and 28 are operated by catches 29 29' and 35, and all of the serrated wheels beneath are held in place by spring ratchets, not shown, but common in such construction. These catches 29 29' and 35 are attached to a rod 30, which is attached to the handle 13 and is operated by it. They are so adjusted upon the rod 30 that when the chamber 7 is discharged, the catch 29 moves the serrated wheel to the dial 26 one notch. When the chamber 7' is discharged, the catch 29' engages the same serrated wheel and moves it just one notch. When the handle 13 is drawn out to its fullest extent, discharging the chamber 7'', the serrated wheel to the dial 28 is moved just one notch. These wheels 26 and 28 are provided with projections or notches 31, adapted to engage the serrated wheels attached to the dials 25 and 27, and in such relation thereto that they will move those dials one notch upon every revolution, so that when the dial 26 has its serrated wheel moved around one revolution marking 24 quarts, it will move the serrated wheel attached to dial plate 25 one notch, and the pointer will then indicate six gallons. Upon two revolutions it will move the same pointer two points, marking the twelve gallons measured out through the apparatus. A similar result is obtained when the serrated wheel to dial plate 28 is revolved, which moves the serrated wheel attached to dial 27 in the same manner. The numbers on dial 27 are arranged to represent half gallons, but they could be arranged to represent gallons as well by changing the numerals, and in case the apparatus is designed to register different quantities from those named and shown in the drawings, the dial plates are numbered correspondingly.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a measuring and registering apparatus for liquids, the combination of a case provided with two main compartments placed vertically over each other, the upper compartment subdivided into two or more chambers provided with orifices connecting with a lower compartment, the first chamber of the lower compartment having with the first chamber a combined capacity of one unit of measure, and the other chambers having a capacity of one or more units of measure: an entrance pipe connected with a source of supply placed above the apparatus and connected with the lower compartment: an exit or discharge pipe connected with the lower compartment and adapted to permit the discharge of all the fluid entering the said compartment: valves placed in the lower compartment adapted to open and close the orifices to said chambers and the entrance and discharge pipes as required, connected and held in place by a spring bar: a handle provided with a rod entering the lower compartment and adapted to operate said valves:

a series of serrated wheels arranged within a box attached to said case, provided with pinions extending through the top of the box and having pointers mounted on their outer ends: spring catches corresponding in number to the number of said chambers and adapted to operate a like number of serrated wheels separately: a rod or bar attached to said spring catches and also to said handle operating said valves: projections attached to each serrated wheel operated by said spring catches and adapted to operate other serrated wheels at each revolution: dial plates placed upon the top of said box and underneath said pointers, sub-divided and numbered to register the movements of the wheels in combination with the pointers.

2. In a measuring and registering apparatus for liquids, the combination of a case provided with two main compartments placed vertically over each other, the upper compartment subdivided into two or more chambers provided with orifices connecting with a lower compartment, the first chamber and the lower compartment having a combined capacity of one unit of measure, and the other chamber or chambers having a capacity of one or more units of measure: an entrance pipe connected with a source of supply placed above the apparatus and connected with the lower compartment: an exit or discharge pipe connected with the lower compartment and adapted to permit the discharge of all the fluid entering the said compartment: valves placed in the lower compartment adapted to open and close the orifices to said chambers and means to operate the valves.

3. In a measuring and registering apparatus for liquids, the combination of a measuring device adapted to measure one or more units of measure: the combination of a series of serrated wheels arranged within a box attached to the measuring device and provided with pinions extending through the top of the box and having pointers mounted on their outer ends: spring catches corresponding in number to the number of units of measure of the measuring device and adapted to operate

a like number of the serrated wheels separately: a rod or bar attached to said spring catches and also to the handle operating the measuring device: dial plates placed upon the top of said box and underneath said pointers, sub-divided to register the movements of the wheels in combination with the pointers.

4. In a measuring and registering apparatus for liquids, the combination of a case provided with two main compartments placed vertically over each other, the upper compartment subdivided into two or more chambers provided with orifices connecting with a lower compartment, the first chamber and the lower compartment having a combined capacity of one unit of measure, and the other chamber or chambers having a capacity of one or more units of measure: an entrance pipe connected with a source of supply placed above the apparatus and connected with the lower compartment: an exit or discharge pipe connected with the lower compartment and adapted to permit the discharge of all fluid entering the said compartment: valves placed in the lower compartment adapted to open and close the orifices to said chambers and means to operate the valves: the combination of a series of serrated wheels arranged within a box attached to the measuring device and provided with pinions extending through the top of the box and having pointers mounted on their outer ends: spring catches corresponding in number to the number of units of measure of the measuring device and adapted to operate a like number of the serrated wheels separately: a rod or bar attached to said spring catches and also to the handle operating the measuring device: dial plates placed upon the top of said box and underneath said pointers, subdivided to register the movements of the wheels in combination with the pointers.

In testimony whereof I hereunto subscribe my name, in the presence of two witnesses, this 2d day of July, A. D. 1892.

WILLIAM C. YOUNG.

Witnesses:

H. C. HARTMAN,
ALBERT BAKER.