T. R. VESTAL.
Measuring-Pump.

No. 206,060. Patented July 16, 1878.

Fig: 1.

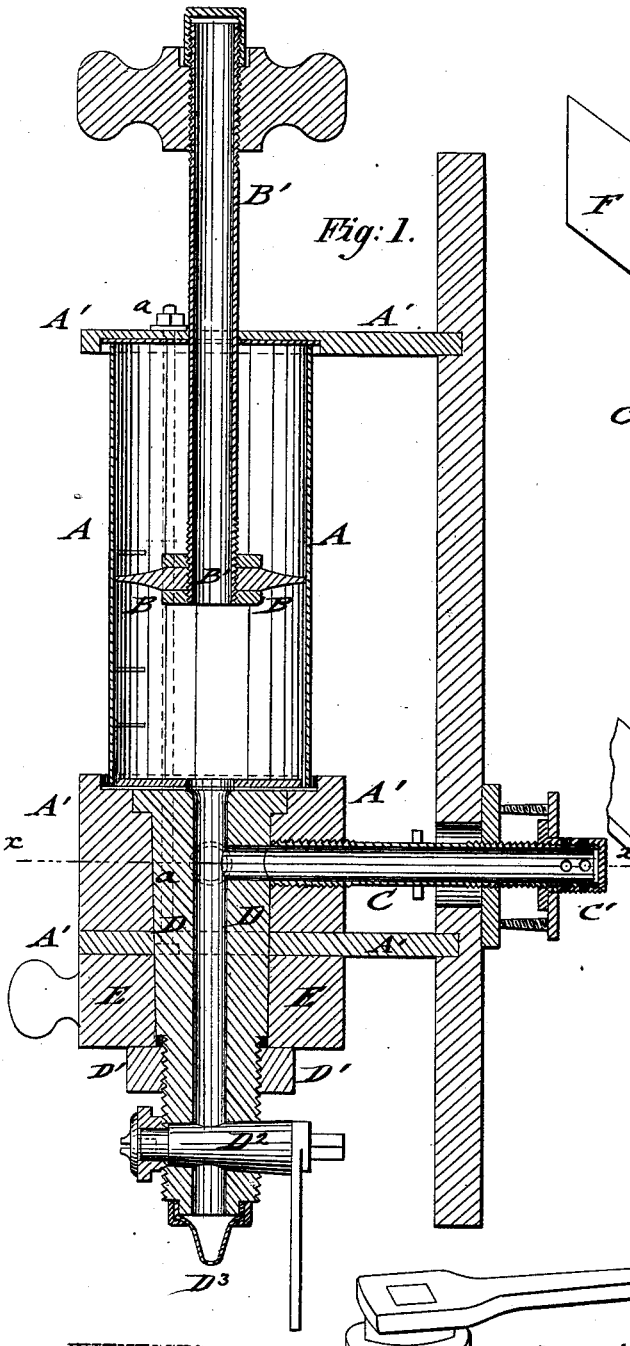


Fig: 2.

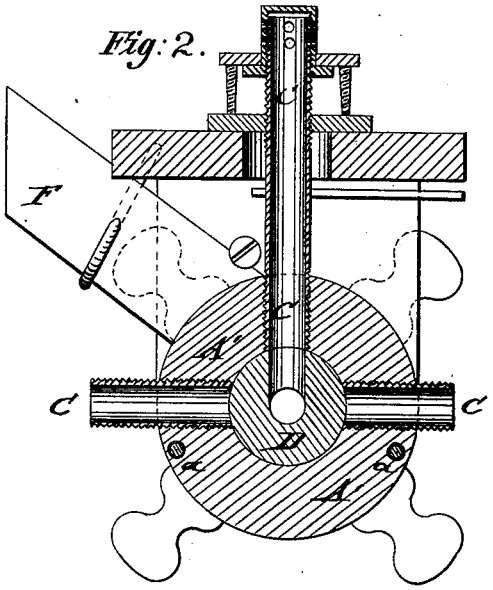


Fig: 3.

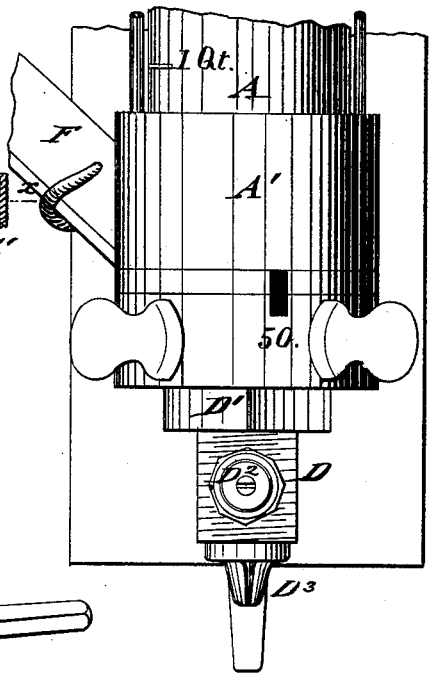
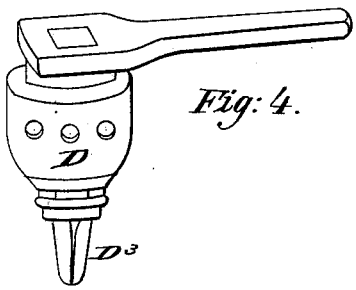


Fig: 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

TILGHMAN R. VESTAL, OF FALL RIVER, MASSACHUSETTS.

IMPROVEMENT IN MEASURING-PUMPS.

Specification forming part of Letters Patent No. **206,060**, dated July 16, 1878; application filed April 26, 1878.

To all whom it may concern:

Be it known that I, TILGHMAN R. VESTAL, of Fall River, in the county of Bristol and State of Massachusetts, have invented a new and Improved Measuring-Pump, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical central section of my improved measuring-pump; Fig. 2, a horizontal section of the same on line *x x*, Fig. 1; Fig. 3, a front view of the pump; and Fig. 4, a detail perspective view of a modified discharge-faucet.

Similar letters of reference indicate corresponding parts.

This invention relates to an instrument for drawing liquids or gases, either for measuring, bottling, or other purposes, which has the advantage that any desired quantity may be measured off quickly and in accurate manner by the use of one vessel only, without exposing the liquid to dirt and flies, the liquid being finally dropped directly into the receiving-receptacle.

The measuring-instrument may be connected to one or more reservoirs or sources of supply, and liquids be drawn from either one of the same at pleasure, and then dropped quickly into the receiving-vessel. The quantity is readily inspected and accurately determined in the measuring-vessel, so that in case the purchaser is not suited the liquid can be returned into the supply-receptacle without the least loss or trouble.

The invention consists of a graduated and air-tight cylinder, in combination with a piston, central faucet-plug, and connecting supply-tubes that extend into the different vessels or sources of supply, and are opened or closed as required, the liquid being drawn into the measuring-vessel by atmospheric pressure on raising the piston, and dropped from the cylinder by the piston on closing the supply-tube through a bottom spout of the plug.

Referring to the drawing, A represents the glass cylinder of my improved measuring-pump, which is supported by hermetically-closing bracket-heads A′ in vertical position. The top and bottom of the cylinder are tightly applied to the supporting bracket-heads A′ by longitudinal bolts *a*, which answer the purpose of tightening up the heads of the cylinder by drawing the rubber packing tightly thereon, and of preventing the cylinder from being broken. They also prevent the lower support, which forms at the same time the outer cup of the compound faucet, from revolving when the inner plug is turned to regulate the supply and discharge.

The lower support A′ of the glass cylinder is connected by a number of pipes C B, to the different vessels or sources of supply from which the liquids are to be drawn and measured off, it being hollowed out in the center to receive the slightly-tapering plug D, which is centrally perforated, and also laterally perforated at one point to connect with the different pipes leading from the vessel to the plug D. Below the lower fixed support is arranged a movable ring, E, that is provided with a square hole in the center, through which the plug D passes. The ring E is secured firmly in place in the plug by the nut D^1 turning on the threaded lower end of the plug. At the lower end of the plug D is arranged a two-way cock, D^2, and a soft-rubber spout, D^3, that is inserted into the vessel to be filled, said spout being attached by a screw-tap to the plug, and provided with a side crease to allow the air to escape from the vessel, the crease being clearly shown in Figs. 3 and 4. The revolving ring E is provided with knobs, which act also as set-screws, for preventing the ring turning independently of the plug. The knobs and suitable marks of the ring serve for the purpose of conveniently setting the valve to any one of the supply-tubes from which the liquid is to be drawn out, so as to be ready for the action of the drawing-piston B in the glass cylinder. The piston B is raised or lowered by means of a piston-rod, B′, and the height to which it is drawn in the graduated scale of the glass cylinder is readily observed by means of a reflecting mirror, F, that is supported at suitable inclination toward the cylinder, so that the position of the piston is conveniently noticed from above.

The piston-rod B′ is made hollow, and provided with a top screw-cap, that is used for allowing air to escape or enter the cylinder, a portion being required for driving out the liquid measured off by the faucet D^2, so that

it will not mix with the next liquid that may be measured off. The handle of the piston is to be long enough to be drawn up sufficiently to measure larger or smaller quantities, for which the cylinder is arranged. The piston-head is made of elastic material, and tightly but pliantly fitted to the interior surface of the glass cylinder, the elastic head being screwed to the piston-rod by means of taps on each side. A washer at the top of the plug D and a bottom nut of the same are designed to keep the plug snugly in the lower support, so that the liquids will not mix or leak out through the apparatus. The supply-pipes are cut with screw-threads at both ends, and the ends in the barrels or vessels provided with holes, and arranged to turn in a sleeve or bushing, C', closed at the inner end, the bushing being provided with holes, which, by turning the supply-pipe, will be brought in connection with the holes of the pipe, so that the liquid may flow into the supply-pipe and into the upper part of the plug D, and then into the cylinder as it is drawn by the action of the piston. The supply may also be shut off by turning the supply-pipe by means of a wrench, so that the holes of the pipe will not register with the holes in the sleeve. The sleeve-valve should be kept closed as much as possible, when the supply has been recently replenished, until all foreign substances, dregs, and sediments shall have settled, so as to prevent its accumulation in the pipes and cause their stopping up by the same. The cylinder is wiped clean every time by the piston, which has to be freely lubricated with the same liquid which the device is used to measure.

The plug may also be made in one piece with the lower support of the pump without being turned at all, and the pipes then extended into holes of the central part of the lower support, and there directly connected with the discharge-faucet and with the cylinder, the supply depending entirely on the sleeve-valves in the receptacles or vessels. This arrangement dispenses with the movable ring and knobs. The measuring-pump should not be used for measuring liquids of a dissimilar nature in succession, such as molasses or kerosene; but it should be applied to measure off different grades of some liquid or gas.

By drawing off liquids which are not desired to be measured—as, for instance, hot and cold water—the lower support and the interior plug D are closed at the top, and the latter provided with a handle at the upper end without requiring a bottom dischange-faucet, as shown in Fig. 4, they being then sufficient for drawing off the necessary water, the supply-pipes forming then a sufficient support for the apparatus. By turning the horizontal orifices of the plug D so as to form, partly, a connection with two adjoining supply-pipes of several grades of liquids, a mixture of the same may be drawn off at the same time, and this mixture graduated by diminishing one of the supply-holes and increasing the other according as the handle is turned to one side or the other. This is very convenient for drawing hot or cold water through the same faucet at the same moment, so as to render the mixture moderately cold or hot, as desired.

By this instrument the number of faucets that are usually used for drawing off different kinds of liquids are dispensed with, and liquids of different grades may be mixed and drawn off in quick and convenient manner from several sources of supply, and dropped into the receiving-vessel, the entire measuring device being inclosed, and not liable to dust or injury.

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

1. The combination of a graduated cylinder, having tightly-closing supports or heads and interior piston, with a bottom plug, connecting with one or more supply-pipes, and having a fixed adjusting-ring, and a discharge faucet and spout, substantially as specified.

2. In a measuring-pump, the combination of a graduated cylinder and interior elastic piston, having hollow piston-rod and top cap, with tightly-closing supports or heads, adjustable center plug, and discharge-faucet and one or more supply-pipes, substantially as and for the purpose described.

3. The combination of a faucet-plug, having radial perforations, with one or more supply-pipes, having valves inside of the vessels, and with means for turning the pipes for opening or closing the valves, substantially as specified.

TILGHMAN ROSS VESTAL.

Witnesses:

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HENRY A. DEXTER.