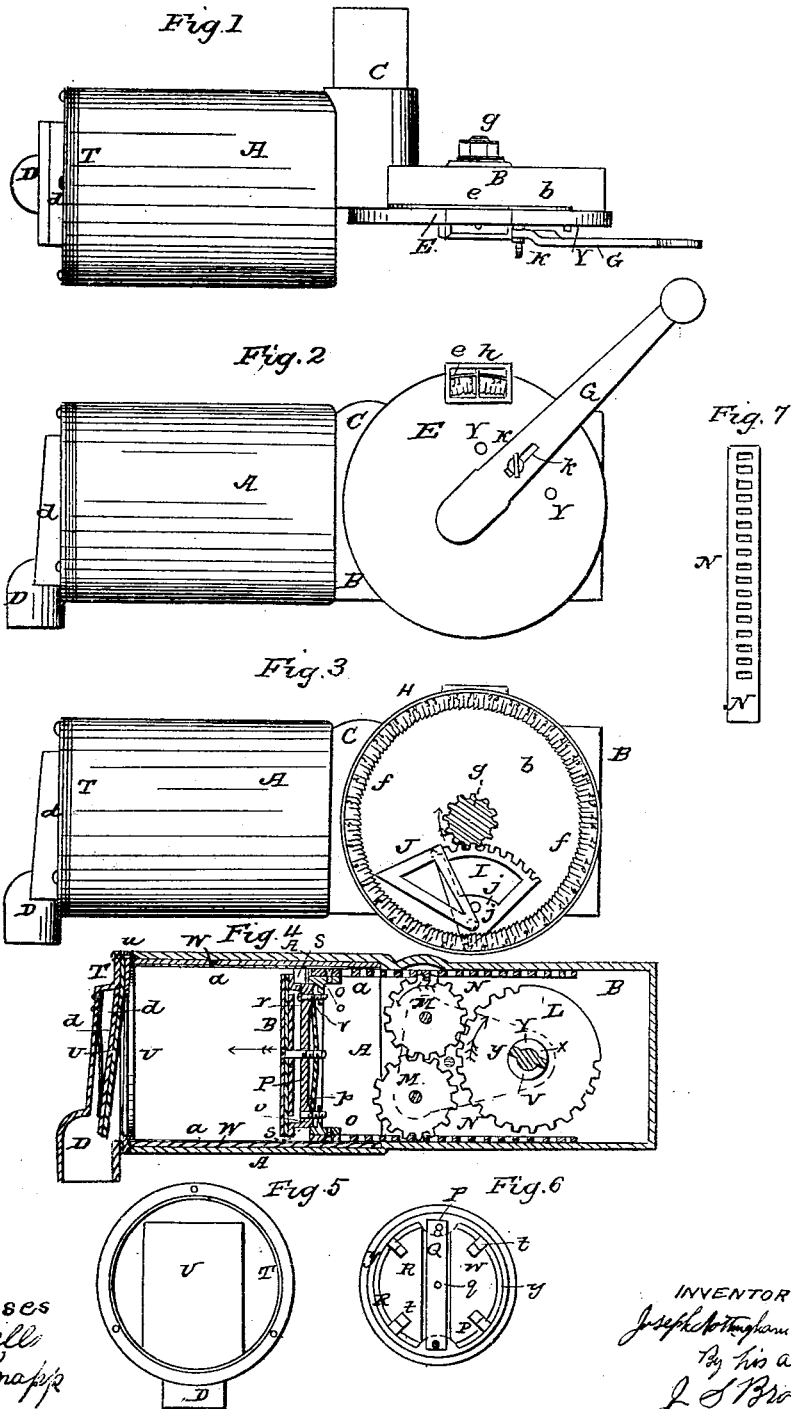


J. N. SMITH.

Measuring and Registering Faucet.

No. 48,318.

Patented June 20, 1865.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOSEPH NOTTINGHAM SMITH, OF JERSEY CITY, NEW JERSEY.

## IMPROVEMENT IN MEASURING-FAUCETS.

Specification forming part of Letters Patent No. 48,318, dated June 20, 1865.

*To all whom it may concern:*

Be it known that I, JOSEPH NOTTINGHAM SMITH, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Measuring and Registering Faucet; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of the faucet; Fig. 2, a front elevation thereof; Fig. 3, a front view, the handle and plate which covers the dial being removed; Fig. 4, a central longitudinal vertical section thereof; Fig. 5, an inner view of the removable head of the faucet, showing the outlet-valve; Fig. 6, a rear view of the plunger; Fig. 7, a side view of one of the operating-racks of the plunger.

Like letters designate corresponding parts in all of the figures.

The faucet has a body, A, (generally cylindrical,) of sufficient capacity to contain as much oil, sirup, or other liquid as it may be required to measure out at one drawing or operation; a thin inclosed extension part, B, in which the operating-gear is placed; an inlet-pipe, C, (at the back side,) which is to be screwed or otherwise secured in the head of a cask or side of a vessel containing the liquid, and an outlet-pipe, D, at one end projecting downward. These parts ordinarily may be made of cast-iron. On the front side of the extension B is a circular flange, b, through the center of which and through the whole extension a shaft, g, of an operating-handle, G, or its equivalent, passes. This shaft is suitably secured and packed at both ends, so as to make the extension B liquid-tight. Two vanes or projections, x x, Fig. 4, on the handle-shaft g enter corresponding notches in a hub, V, of a driving-wheel, L, inside of the extension B, substantially as shown. This cog-wheel gears into one of two pinions, M M, which contain an equal number of teeth, and gear into each other, as also gearing respectively into sliding racks N N, attached to the plunger, all substantially as represented in Fig. 4. The two pinions are held in proper position in relation to the driving-wheel to each other and to both of the racks by means of two face-plates, one of which is shown at m in dotted outlines, Fig. 4, the other one being on the other side of the gear-wheels. On turn-

ing the handle G, and revolving the cog-wheel L and pinions M M thereby in the direction shown by the arrows thereon, it will be seen that the racks N N, and consequently the plunger, will be moved forward in the body A of the faucet.

The plunger is composed of two rings or short cylinders, O P, and a head, R, which constitutes a valve for transmitting the liquid through the plunger. The rear ring, O, has the racks N N secured to it, and the forward ring, P, has the valve R mounted on it. A flange of the ring P fits and slides inside of the ring O, and a central or diametrical cross-bar, p, thereof serves to admit two screws, v v, which also screw into two inward projections, o o, of the ring O and fasten the two rings together; and not only this, but they tighten the packing s, which is situated between the two rings, as represented in Fig. 4. The valve R is a disk covering the whole interior space of the ring P and shutting against the front edge thereof, but, being of less diameter than the interior of the body A of the faucet, it allows the liquid to pass around its edge. It has a suitable packing-disk, r, and a guide-plate, w, which both holds the packing in place and shape and, by means of guide projections t t t t, Fig. 6, fitting inside of the ring P, keeps the whole valve in a central position. The valve is held to the ring P by a central screw, q, passing through the cross-bar p of the ring, and is closed, when the plunger is not moving backward, by a spring, Q, bearing against the rear side of the said ring, substantially as represented; but when the plunger is drawn back by reversing the handle G the pressure of the liquid from the cask or vessel and of the atmosphere overcomes the force of the spring Q and opens the valve, so that the liquid passes through the plunger and fills the body A of the faucet in front of the plunger, ready to be discharged at the next forward movement of the plunger. The pressure of the liquid behind the plunger-valve also has a tendency to separate the ring P from the ring O, (if play is allowed,) and thereby to loosen the packing, rendering the movement of the plunger more free; but in the forward movement of the plunger the pressure is the other way and tends to tighten the packing when it is required to have it tight. As the plunger moves forward its pressure on the liquid in front

causes the outlet-valve U, Figs. 4 and 5, to open and allow the liquid to run out through the outlet-pipe D. This valve U is a common clack-valve, the hinge and packing-face of which may be secured between two metallic disks of the head T of the faucet. The valve is kept closed tight, except when discharging the liquid, by a spring, z, located in a chamber, d, over the outlet-pipe, D, and into which the valve swings when opened. The plunger moves forward till it touches the head of the faucet and expels all the liquid in front of it. The amount of liquid drawn out at each stroke of the plunger is determined by the distance it moves back in the body A of the faucet, and this distance is determined and gaged by means of projections Y Y on the dial-disk cover E, against one of which a stop, K, on the handle G strikes, and prevents the handle's being moved farther in that direction. These projections are at different distances from the center of the handle's motion, and the stop K is adjustable to different distances from the same center in a slot, k, and held by a thumb-screw, so that the stop may strike either of the projections required. Thus, say, if the upper projection gages to a quart, the lower one may gage to a pint, and either a quart or a pint may then be drawn out at one movement of the handle backward and forward, according as the stop strikes one projection or the other. Not only is the amount drawn measured by this gage, but a dial, H, is arranged so as to register the aggregate amount drawn from the cask or vessel. This dial is in the form of a ring and revolves freely in the case concentrically with the handle G. It has a scale marked on its face and numbered to indicate the units of measure, (as gallons,) so as to be able to register the whole amount which the cask or vessel will hold at one time. The units are subdivided as required, and there is a set of ratchet-notches in the inner edge of the ring, one for each subdivision of the units. The ring is actuated the distance of one notch or more at each forward movement of the handle G by means of a suitable pawl, J, Fig. 3, which is moved by a cogged segment, I, gearing into a pinion, e, on the handle-shaft g, and turning on a central pivot, i. The center pin of the pawl J fits into a hole, j, in the segment I. There may be two or more holes, j j, at different distances from the center i of the segment's motion, so as to correspond inversely with the different gage-stops for the handle G, in order not to disturb the register by the change in the amount drawn at a time, or in order that the unit may be changed, if desired. The dial is read through an aperture, e, in the case E, where it comes in range with an index-rod, h, Fig. 2, or its

equivalent. As the liquid flows through the inlet-pipe C it enters the extension B of the faucet-body, filling around the operating-gear therein.

The body A is lined with a sheathing, a, Fig. 4, of tin, brass, or other soft metal or alloy, which is retained concentrically therein by a backing, W, of hydraulic lime, plaster-of-paris, or other suitable cement or substance, so that the plunger may run with little friction, and the lining may be removed and replaced at pleasure.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Introducing the liquid to be measured into the faucet behind a valved plunger, through which it is transmitted in the backward stroke thereof, and by which it is forced out from the faucet in the forward stroke, substantially as and for the purposes herein set forth.

2. The outlet-valve U, kept closed by a spring, in combination with the valved plunger of a measuring-faucet, substantially as and for the purpose herein specified.

3. Actuating the plunger by a handle, G, or its equivalent through the means of a gear-wheel, L, and two equal-sized pinions, M M, gearing respectively into the plunger-racks N N arranged and operating substantially as and for the purpose herein specified.

4. The adjustable stop K on the handle G, and stationary pins or projections Y Y, in combination with a measuring-faucet for gaging the amount of liquid drawn by each movement of the handle.

5. The registering-dial H and index h, arranged in combination with the actuating-handle, so as to indicate and register the whole amount of liquid drawn from the cask or vessel, substantially as herein specified.

6. The combination and arrangement of the plunger in relation to the operation of its valve and packing, substantially as and for the purposes herein specified.

7. In combination with a measuring and registering faucet, lining the body of the faucet with tin, brass, or other suitable soft metal or alloy, backed by a cement of hydraulic lime, plaster-of-paris, or equivalent substance, so that the lining may be removed and replaced when desired, substantially as herein specified.

The above specification of my improved measuring-faucet for oils, molasses, and other liquids signed by me this 21st day of December, 1863.

JOSEPH NOTTINGHAM SMITH.

Witnesses:

JAS. H. ADAMS,  
EDWARD KELLY.