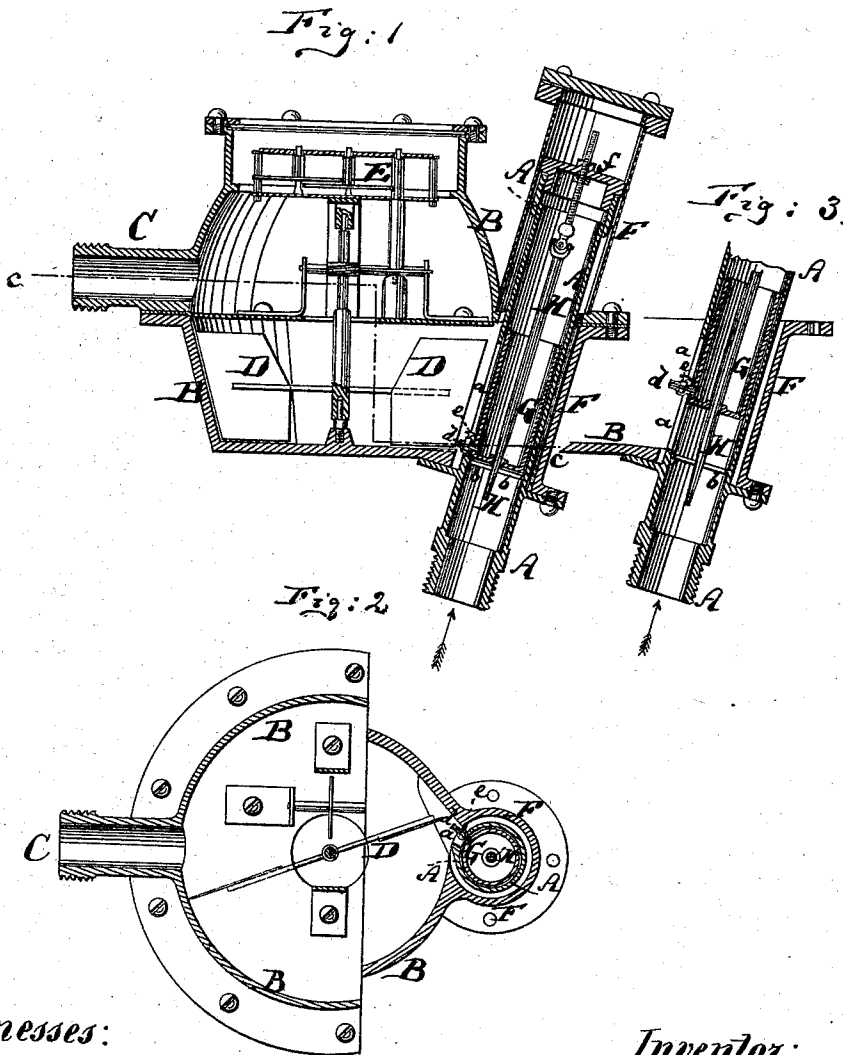


De W. C. TAYLOR.  
Water-Meters.

No. 156,960.

Patented Nov. 17, 1874.



Witnesses:

A. Moraga.  
F. v. Briesen

Inventor:

De Witt C. Taylor  
by his attorney  
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# UNITED STATES PATENT OFFICE.

DE WITT C. TAYLOR, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN WATER-METERS.

Specification forming part of Letters Patent No. 156,960, dated November 17, 1874; application filed September 4, 1874.

*To all whom it may concern:*

Be it known that I, DE WITT C. TAYLOR, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Water-Meters, of which the following is a specification:

Figure 1 is a vertical central section of a water-meter containing my improvement. Fig. 2 is a horizontal section of the same, taken on the plane of the line C C, Fig. 1. Fig. 3 is a detailed central section through the inlet-pipe, showing the valve in the same in a different position from what it is in Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

The object of this invention is to provide water-meters with a mechanism for regulating the size of the opening through which the water enters the meter in conformity with the pressure to which the water is subjected, and with the size of the outlet-opening on the cock or faucet.

My invention consists, principally, in the use of a hollow cylindrical valve, which is arranged to slide up and down in the inlet-pipe, to less or more close the opening through which the water enters the meter, the perforated end of said valve being pierced by a tapering rod, that is suspended from the closed end of the inlet-pipe. By adjusting this tapering rod so that it will more or less fill the opening in the end of the valve, the flow of water into said valve will be regulated, and thereby, also, the downward pressure of the water above the valve. I thus use a small flow of water to serve in place of the spring which was heretofore usually employed for holding down the valve, and more or less counterbalancing the upward pressure of the water below the valve. The rod aforementioned being adjusted from the outside, the meter can be adjusted without being taken apart. Another important feature of my invention is the application of a projecting vent-pipe to said hollow valve, the vent-pipe entering the inlet-opening, and serving to prevent the valve from turning around its axis, thus dispensing with separate devices for the same purpose. A cock in said vent-pipe gives further opportunity for regulating

the amount and pressure of water above or in the valve, by regulating the volume and speed of the water passing through the vent.

In the accompanying drawing, the letter A represents the inlet-pipe of the water-meter; B, the case or shell of the meter; C, the outlet-pipe from the meter; D, the recording wheel or mechanism within the meter, and E the registering-disks of the meter. All of these parts are of suitable construction. The inlet-pipe A is arranged in a guide tube or chamber, F, which is rigidly connected to the case B, and in which the inlet tube, carrying a slot, *a*, for the discharge of water into the meter, can be turned, to vary the angle at which the water may enter the wheel-chamber. Within the inlet-pipe A is arranged a cylindrical hollow valve, G, which is open at its upper end, and which has a central aperture in its lower, otherwise closed end, as indicated in Figs. 1 and 3. This valve G, when in its lowermost position, rests on a suitable seat, *b*, which is formed within the pipe A, as shown in Fig. 1, and closes then the whole length of the inlet-opening *a*; but when the valve G is more or less raised, as in Fig. 3, the opening *a* is proportionately opened. The opening *a*, as above stated, is a narrow slot. Into the same passes a vent-pipe, *d*, that extends outwardly from the lower part of the valve G. This vent-pipe discharges the water that passes into the valve from above into the meter, and serves thus as a convenient vent for relieving the valve from surplus water, and also as a guide for preventing the valve from turning in the inlet-pipe, and from bringing its vent-hole out of line with the slot *a*. There is a cock or similar device in the vent-pipe *d*, for regulating the size of its opening. The valve G can never be fitted so tight into the inlet-pipe A that it will prevent water from finding its way around it to the upper part of the inlet-pipe, as otherwise the valve would work too tight in said pipe. This overflow-water more or less fills the valve G, and presses upon it, tending to crowd it downward, and to reduce the size of the opening *a*.

Now, it is evident that by more or less opening or closing the cock *e* the discharge of wa-

ter which thus presses on the valve G can be more or less retarded, and the more it is retarded the smaller will be made the size of the opening *a*, while the more rapid the flow of water from the vent *d*, the more readily will the valve be apt to rise, and the larger will also become the opening *a*. If there were no vent for the water in or about the inlet-valve, the valve could not rise, because the water above would not admit of compression. In this manner I am enabled to regulate, by means of the cock *e*, the position and action of the valve.

The upper end of the inlet-pipe A is, by preference, closed by a screw-cap, *f*, and through this screw-cap is inserted a rod, H, which rod has its lower part made of tapering form, as shown in Figs. 1 and 3, and which rod, furthermore, is so long that its tapering end will pass through the opening in the lower end of the valve G.

By reference to the tapering form of the rod H, it becomes evident that the more said rod is let down in a given position of the valve G, the more it will close the opening in the lower end of said valve. This rod might be reversed, and, running from bottom of inlet-pipe, pierce the valve from below. By merely moving said rod, I can regulate the size of the opening in the lower end of the valve G, and the consequent influx of water into said valve, and the consequent weight or pressure of water on top of said valve. Thus I can regulate the position and working of the valve with great exactitude from the outside by screwing the rod H up or down. By thus providing means for regulating the position and working of the valve, and the consequent motion of the recording apparatus, I overcome a very serious difficulty which was heretofore experienced in water-meters, to wit: I can regulate the operation of the meter without taking it apart or stopping it, and I dispense with the usual spring, which is difficult to make, insert, and adjust, and, moreover, liable to wear out.

The vent-pipe *d* is shown to be applied to the valve G; but, as far as the application thereto of the cock *e* is concerned, my invention will also apply if said vent-pipe projects inwardly from the inlet-pipe, and is not directly connected with the valve G, or if said cock or stop be applied to the vent-hole itself in place of a vent-pipe.

I have stated that the opening of the valve G, through which the rod H extends, is arranged in the lower part of said valve; but if such opening is formed in a diaphragm placed at a suitable height in the valve, the operation will be the same as described. As to the rod H, it is shown to be screwed into the upper end of the cap *f* of the inlet-pipe; but it may, if desired, be secured in the said pipe in any other suitable manner, so long as it is adjustable lengthwise, for regulating the opening in the valve G, as specified.

I claim as my invention—

1. The hollow valve G, arranged to slide in the inlet-pipe A of the water-meter, to close more or less the opening *a*, and provided with an opening in its lower end or diaphragm, for the admission of the tapering rod H, as described.

2. The tapering rod H, applied to the inlet-pipe A of the water-meter, so that it can be adjusted from without, and combined with the perforated hollow valve G, substantially as specified.

3. The vent *d* of the water-meter, provided with the cock *e*, for the purpose of regulating the discharge of the water from the inlet-pipe above the valve, as specified.

4. The sliding valve G, connected with the vent *d*, which extends into the slot *a*, to prevent said valve from turning, as described.

DE WITT C. TAYLOR.

Witnesses:

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