

J. W. Weller

Fluid Meter

No. 74778

Patented Feb. 25. 1868

Fig. 1

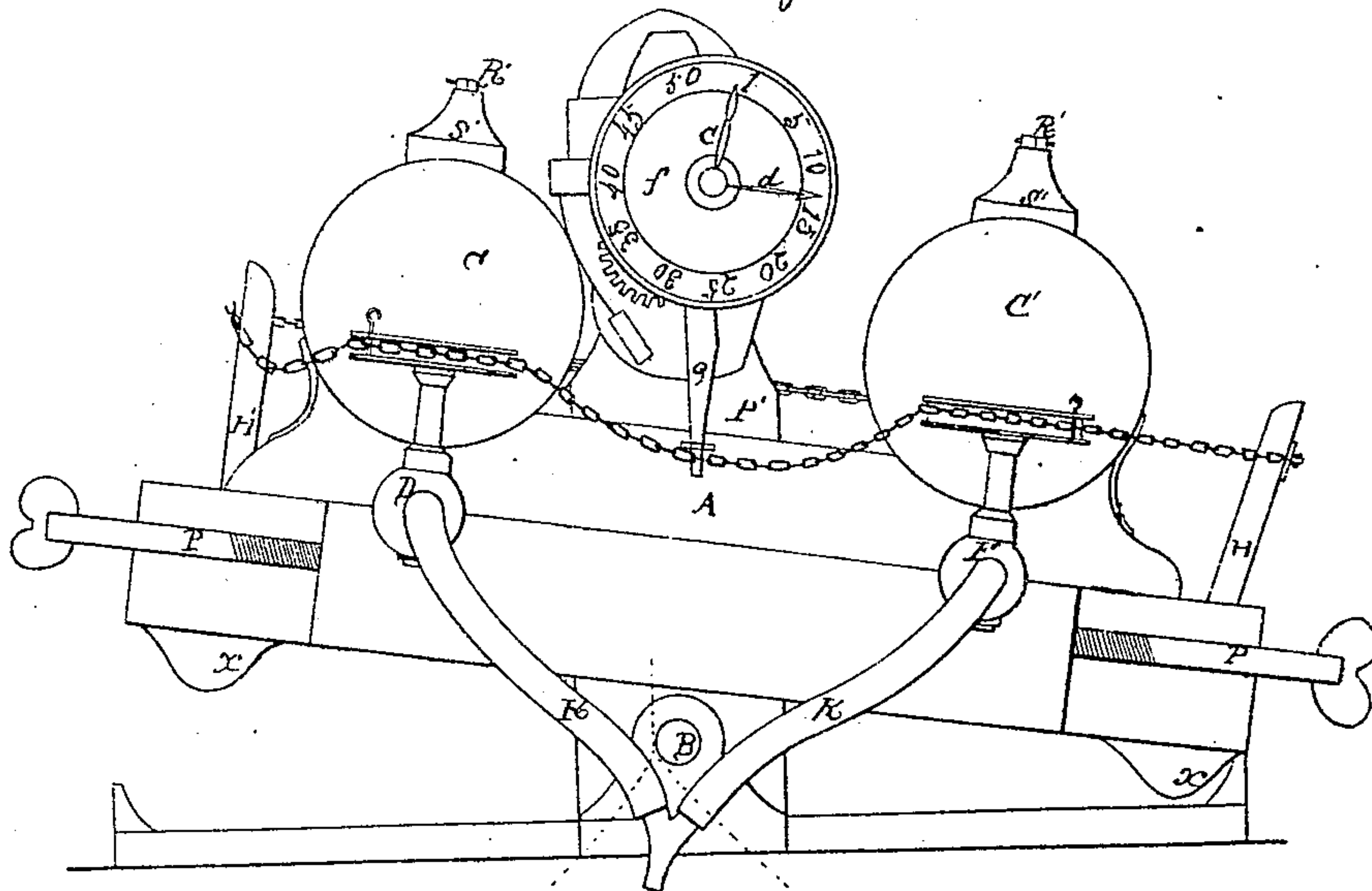
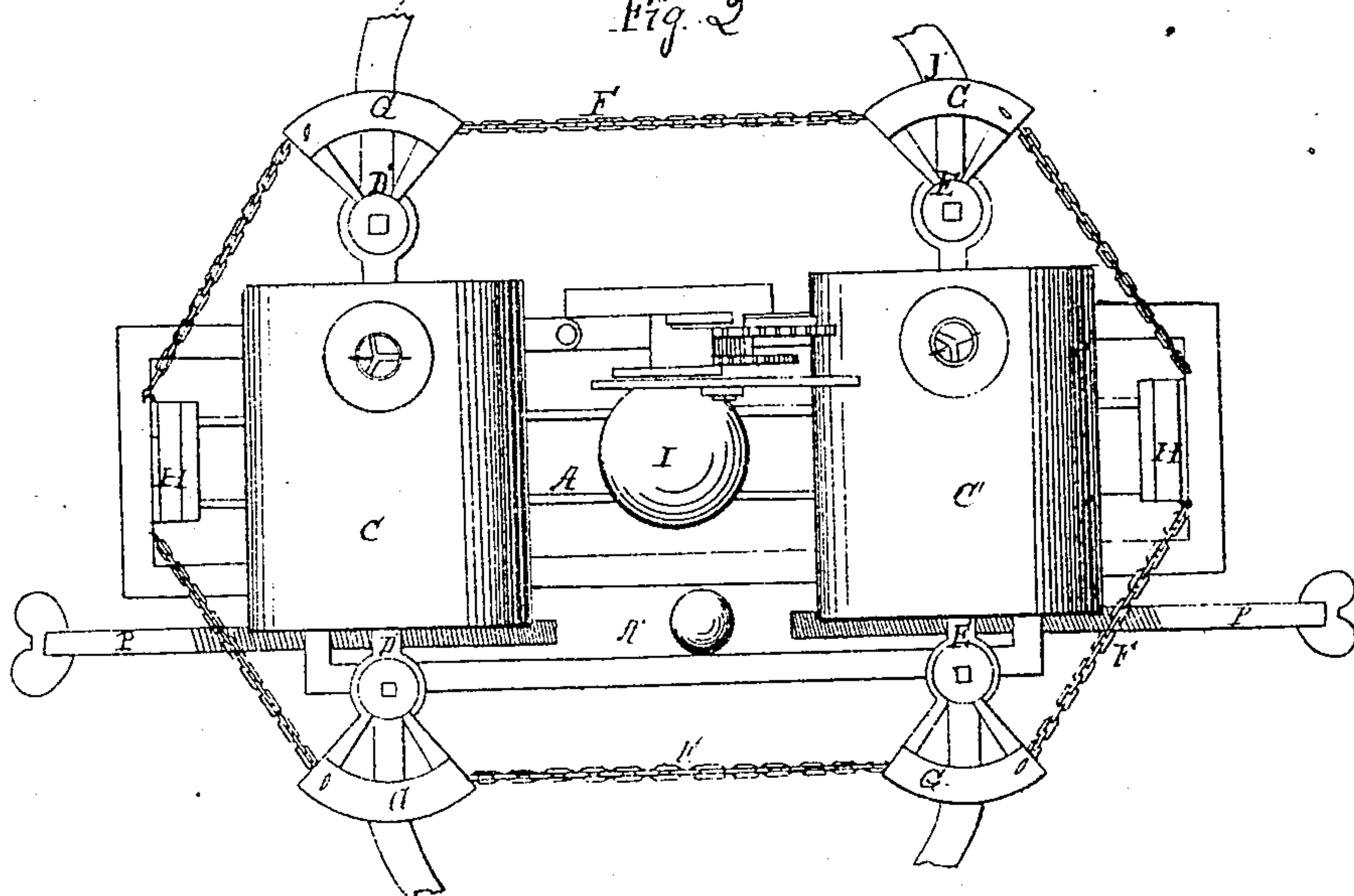


Fig. 2



Witnesses
E. R. Merriman
W. H. Berry

Inventor
J. W. Weller

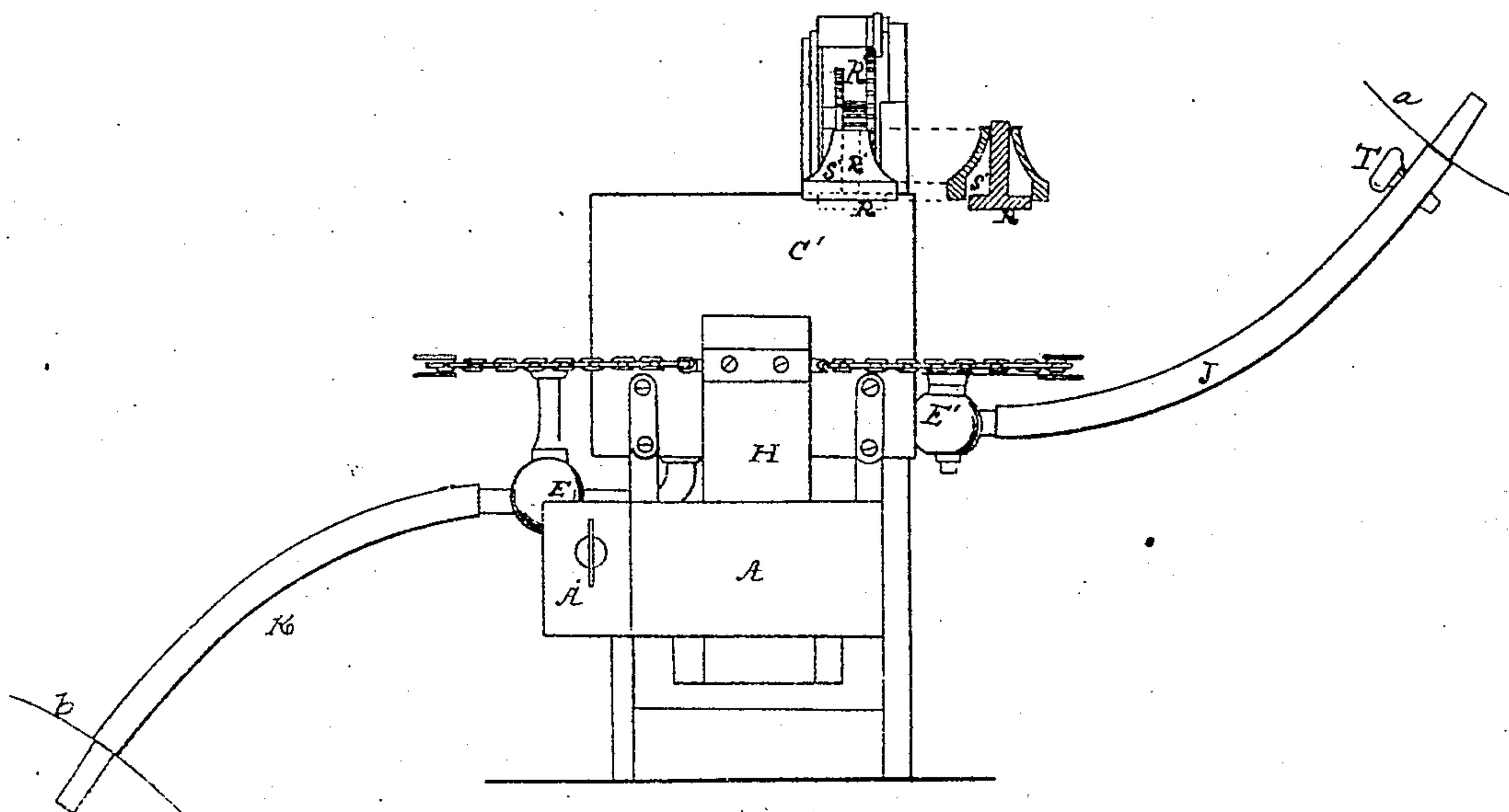
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Fig. 3



Witnesses

E. R. Merriman

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United States Patent Office.

J. W. WELLER, OF CLEVELAND, OHIO.

Letters Patent No. 74,778, dated February 25, 1868.

IMPROVEMENT IN FLUID-METERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. W. WELLER, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Fluid-Meters; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side view of the meter.

Figure 2 is a view of the top.

Figure 3 is an end view.

Like letters of reference refer to like parts in the different views presented.

In fig. 1, A represents an oblong square box, of which fig. 2 is a top view. This box is mounted upon a rock-shaft, B, projected across the middle of the bottom, and upon which it is made to oscillate, as and for a purpose hereafter shown. Placed across each end of the box, and secured thereto, are casks C C', each of which is furnished with tin faucets D D' and E E', one at each end. These faucets are connected to each other by a chain, F, attached to a quadrant-shaped handle, G, of the faucet-plug. The chain as it surrounds the casks and its attachments to the faucets, is shown in fig. 2. H, fig. 1, is a lever, the lower end of which is pivoted at the point x to the under side of the box. A lever of a like character, and for a similar purpose, is arranged at the opposite end of the box, as seen at H'. The upper or free ends of these levers are connected to the chain F, which, by means of the ball I, fig. 2, opens and closes the faucets, as will hereafter be shown. a, fig. 3, represents a section of an oil-tank, and which is put in connection with the casks C C', by means of the bifurcated tube or hose J, each branch of which is attached to the faucet of the cask. b, fig. 3, represents a section of a barrel or tank for receiving the oil, and which is also put in connection with the casks by a bifurcated tube or hose, K, shown also in fig. 1, each branch of which, as in the former case, is attached to a faucet of the cask, as shown in the drawing.

Having thus described the construction and arrangement of the apparatus, the practical operation of the same is as follows, viz: The two casks are supposed to be empty, in which case the box may be horizontal, or in the position shown in fig. 1. Now on opening a faucet, T', situated back of the junction of the two pipes, as indicated by the dotted lines J', fig. 2, for the purpose of running liquid through the apparatus, the cask C, which may be supposed to hold forty gallons, on being filled with oil or other fluid, will cause it and that end of the box to descend, and the apparatus to assume the position shown in fig. 1. The ball I, which during the filling of the cask was at the opposite end of the box, will now roll down the grade to the depressed end and strike against the lever H, and carry it to an inclined position, as shown in fig. 1. This action of the lever will draw upon the chain, the effect of which will be to stop the induction-faucet T', and thereby shut off a further inflowing of the oil into the cask from the tank a, at the same time it opens the faucet E in the opposite end of the cask, out of which the oil flows through the eduction-pipe K into the barrel or tank b. During this outflowing of the oil the cask C is filling, the faucet D' having been opened at the instant that faucet E' was closed. By the time that all the oil is discharged from the cask C', C will have become filled, which by its greater weight will overbalance that of the now empty cask and ball, which will cause a reversed position of the apparatus. The cask C will now descend and C' be elevated, on which the ball will now roll back or down to the opposite end of the box and strike against the lever H, the effect of which will be to close the faucet D', open D, also open faucet E', and stop E. At this time the cask C will discharge its contents through pipe K into the barrel or tank b, as did the cask C', which, by the time C is emptied, will be again filled, and the position of the apparatus again reversed, and so on, each time the cask receiving and discharging automatically forty gallons more or less into the tank or receiver b.

By means of the small ball and screws, the apparatus can be adjusted to measure fluids of a particular gravity. Thus, if the screws P are so adjusted as to give the greatest distance that the ball can traverse in the box; or, if the upper cask is full of fluid, and the lower one empty, and in this condition the full cask does not overbalance the empty and the two balls, the box will not vibrate, but remain stationary in consequence of the too great weight in opposition to the full cask. Now by turning the screw, and thereby forcing the

ball B' toward the centre to a point where the full cask will overbalance the empty one and ball I; this point found, that side of the machine is adjusted to the particular gravity of the fluid being run through. The other side is then adjusted in like manner, and the apparatus will then act by itself; hence, by this means, a fluid of any given gravity can be measured with the same facility and exactness of measurement.

The manner of tallying or registering the number of times that the casks may have received and discharged their contents, is as follows, viz: P', fig. 1, is a standard fixed to the side of the box A, to the upper end of which is an arrangement of clock-work or gearing R, which moves the pointers *c d* around the dial-plate *f*. Now, each time the box vibrates, the gearing is moved by the lever Q, which in turn moves the hands, indicating thereby the number of times that the casks have been filled; the long hand moving a space at the filling of each separate cask, and the short hand indicating every hundred casks filled.

The faucets D and E by which the casks are emptied, are of larger capacity than those used in receiving, in order to make it certain that the discharging-cask is entirely empty when the other cask is full, and the apparatus ready to vibrate.

On the top of each cask is a valve, R, fig. 3, which allows the air to escape while the cask is filling, and is closed by the fluid when the cask is full. To this valve is attached a stem, R'', which indicates when the cask is full by rising up into view. This valve, with the rounding collar S', can be detached, leaving a hole of sufficient size for the introduction of an arm, for the purpose of repairs, cleaning, &c., and to attach a piece of wood or anything that may be used to a hook on the inside of the cask, for the purpose of changing the capacity of the same.

Stretched horizontally across the cask, below the centre, is a wire gauze, for the purpose of breaking the bubbles or froth. Much froth, however, does not accumulate, for the reason that the induction-faucets are at the bottom of the cask, in consequence of which the fluid strikes the air only at first; hence little or no froth arises after the first inflowing of the fluid.

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

1. The casks C C', as arranged in combination with the vibrating-box A, in the manner and for the purpose substantially as set forth.
2. The faucets D D' and E E', handles G, and chain F, in combination with the casks C C', levers H, and box A, when arranged and operated in the manner and for the purpose set forth.
3. The supplementary box A', adjusting-screws P, and ball B', in combination with the vibrating-box A, for the purpose and in the manner as described.
4. The registering-apparatus, consisting of the gearing R', dial *f*, hands *c d*, and lever Q, when arranged and operated in combination with the box A, in the manner as and for the purpose set forth.
5. The vibrating-box A, in combination with the ball I and levers H H', substantially as and for the purpose set forth.

J. W. WELLER.

Witnesses:

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W. H. BURRIDGE.