W. Fischer,

Liquid Meter.

No. 107,769. Patented Sept. 27, 1870.

Fig. 2.

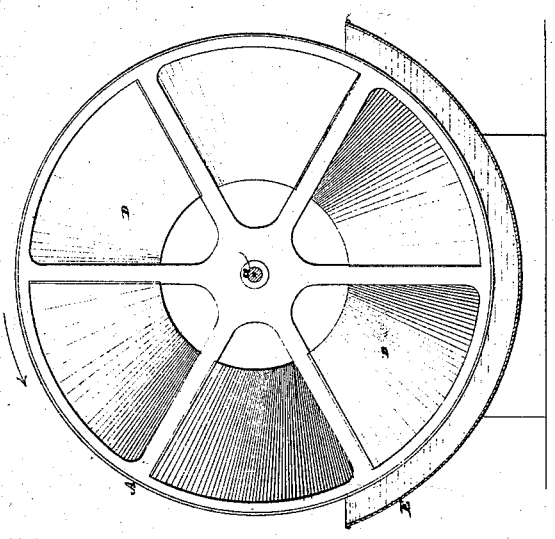
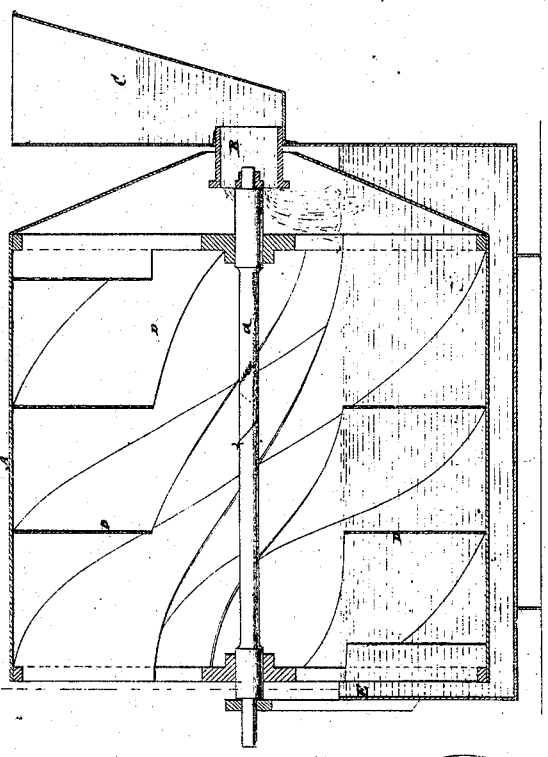


Fig. 1.



Witnesses:
Jno. Haynes
Fred Tuech

Wilhelm Fischer
per Brown Coombs & Thomas

United States Patent Office.

WILHELM FISCHER, OF ESSEN, PRUSSIA, ASSIGNOR TO FISCHER & STIEHL OF SAME PLACE.

Letters Patent No. 107,769, dated September 27, 1870.

IMPROVEMENT IN LIQUID-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, WILHELM FISCHER, of Essen, in the kingdom of Prussia, have invented a new and useful Improvement in Fluid-Meters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a longitudinal section of my improved meter, and

Figure 2, a transverse section of the same, taken as indicated by the line *x x* in fig. 1.

Similar letters of reference indicate corresponding parts.

The meter, which is the subject of this improvement, is mainly designed to be used for measuring the quantity of heated feed-water passing to a steam-boiler, for the purpose of ascertaining the amount of heat communicated to the boiler by the fire, such heat being represented by the amount required to warm the feed-water to the temperature of the steam in the boiler, and the amount of heat requisite to evaporate said water.

To this end it is necessary to connect the meter with apparatus for heating the feed water in its passage to the former, by steam from the boiler, to a like temperature with the steam, and to connect the meter with the boiler, so that the water in issuing from the meter is discharged as an overflow into the boiler, but as such apparatus is independent of the meter proper, and not shown in this application, the description will here be restricted to the meter, either as applicable for the purpose specified, or for any other to which it may be suitable as a fluid-measurer.

The invention relates to that description of meters in which the fluid, as it passes through the meter, is made to act upon a series of spiral blades secured to a cylinder hung so as to be capable of rotation; and

The invention consists in a certain arrangement and combination of a supply or inlet-spout, a revolving horizontal drum, having the spiral blades arranged peripherically within it, and of close construction at its inlet end, but of open construction at its opposite end, and a chamber or box, into which the fluid as it issues from the drum escapes, and within the fluid contained in which the drum for the lower portion of its travel revolves, the fluid contained in said box or chamber being kept at a uniform level, by causing all surplus to pass off as an overflow to the boiler, which gives steadiness and accuracy to the rotation of the drum.

Referring to the accompanying drawing—

A represents the horizontal revolving drum, hung upon a shaft, *a*, which is suported in suitable end bearings, and which is designed to be connected with registering mechanism of any proper description.

This drum is closed at its inlet, and, excepting at its center, where an inlet-branch, sleeve or spout, B, is made to enter the same, or project through it, and which may connect with a vertical trough, C, that acts as a primary receiver for the fluid to the meter, the outlet end of the drum is left open, and its interior peripherical surface provided with any desired number of spiral wings D, by which the fluid, as it passes through the drum, communicates rotary motion to the latter.

Said drum A is immersed for a considerable portion of its diameter, not, however, exceeding one-half thereof, in a fluid box or chamber, E, that is supplied with fluid from the outlet end of the drum, and which operates as an overflow to establish the necessary supply the meter is designed to effect. In this way, a steady and accurate motion is secured to the drum, by reason of the latter not only containing a fixed quantity of fluid in its lower portion, but also rotating in an external body of fluid maintained at a uniform level within the chamber E.

In the operation of the meter, the quantity of fluid passed is determined by the rotation of the drum, which may have any suitable registering mechanism connected with it, the fluid, as it is discharged from the drum, serving to steady the run of the latter, by first entering the box E, and maintaining at a fixed level or depth of fluid therein, and afterward passing off as an overflow from said box or chamber.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination and arrangement, substantially as specified, of the horizontal revolving drum A, of close construction at its inlet end, but open at its outlet end, and provided with internally-disposed spiral wings D, the inlet branch or spout B, and the overflow chamber E.

WILHELM FISCHER.

Witnesses:

GUSTAV RRENZER,

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