

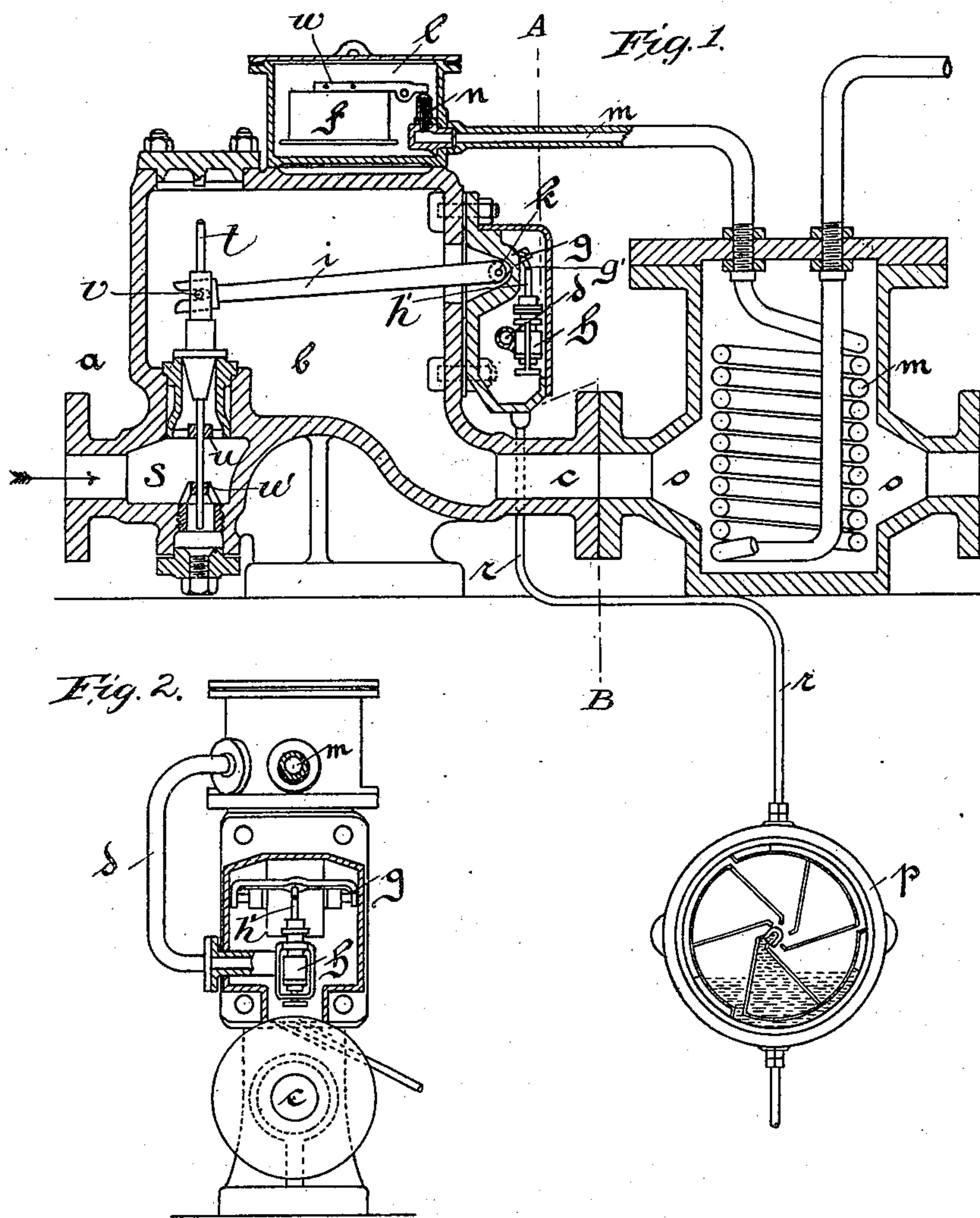
No. 648,054.

Patented Apr. 24, 1900.

H. REISERT.  
WATER METER.

(Application filed Oct. 16, 1899.)

(No Model.)



Witnesses.  
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# UNITED STATES PATENT OFFICE.

HANS REISERT, OF COLOGNE, GERMANY.

## WATER-METER.

SPECIFICATION forming part of Letters Patent No. 648,054, dated April 24, 1900.

Application filed October 16, 1899. Serial No. 733,778. (No model.)

*To all whom it may concern:*

Be it known that I, HANS REISERT, a subject of the King of Prussia, German Emperor, residing at Cologne, in the Province of the Rhine, Kingdom of Prussia, German Empire, have invented new and useful Improvements in Water-Meters, of which the following is a specification.

My invention relates to improvements in feed-water meters for boilers, and has for its object to provide an apparatus for indicating the quantity of water which has entered the boiler without measuring the quantity itself nor a proportion of it. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire machine. Fig. 2 is a vertical section of it on the line A B, Fig. 1.

Similar letters refer to similar parts throughout both sections.

The water to be measured enters the case *s* of the apparatus in the direction of the arrow. This case *s* is closed on its upper end by means of a conical valve *a*, which is provided with a spindle *t*, guided at *u* and *u'*. This spindle *t* is provided with a bolt *v*, situated in the fork of a lever *i*, so that the movement of the valve-spindle *t* is transferred to this lever. This lever *i* is inflexibly fastened to a turnable axle *k*. To both ends of this axle cheeks of a horseshoe-formed bow are fixed. In the middle of this bow *g* a small pin *g'* is provided, which operates the stem *h'* of the valve *h*. This valve *h* is constructed in such a way that on pressing the stem *h'* down the valve is opened, while as soon as the pressure ceases the valve is closed again by means of a spring. The room beneath this valve *h* is connected with a rotary meter *p* by means of the pipe *r*, so that the quantity of the water passing the valve *h* is measured by means of this rotary meter. Now the valve *h* is connected by means of a pipe *d* to a reservoir *l*, situated above the case *b*. In this reservoir *l* a float *f* is provided. This float *f* is attached to the longer arm of a double-armed lever *w*. The shorter arm of this lever is situated above the valve *n*. The valve *n* is constructed in such a way that as soon as the float *f* is raised to a certain extent the shorter arm of the lever *w* closes the mouth of the valve *n*, so that

no more water can enter the reservoir *l*. As soon as the level of the water in the reservoir *l* gets lower again the float *f* will sink and the shorter arm of the lever *w* will rise again, so that the mouth of the valve *n* is free and the water can enter again the reservoir *l*. The valve *n* is adapted to regulate the opening of the pipe *m*, forming the worm of a condenser *o*. This condenser *o* is connected by means of the pipe *c* to the case *b*, so that the water leaving this case *b* must pass this condenser before getting to its place of destination.

The operation of the apparatus is as follows: When no water enters the apparatus, the valves *a* and *h* are both closed and no fluid escapes from the reservoir *l* through the pipe *d*, so that the level of the water contained in this reservoir *l* has always the same height. The float *f* closes the mouth of the pipe *m* as soon as the level of the water rises beyond the prescribed height, while the mouth of the pipe *m* is opened at once when the level of the water is lower than the normal level. When any water enters the case *b*, the valve *a* is raised to a certain extent and held open for the passage of the water. This opening of valve *a* operates the valve *h* by means of the mechanism *i k g* and a certain quantity of the water contained in the reservoir *l* is allowed to escape through the pipe *r* into the rotary meter *p*, the rotations of which can be measured by means of a revolution-counter.

The quantity of water passing through the valve *h* is at any moment by means of the arrangement described directly proportional to the quantity of water passing the apparatus. By means of the arrangement of the condenser *o* it is attained that only perfectly-pure water enters the reservoir *l* and passes the valve *h* as soon as the valve *a* is opened. By this arrangement it is attained that even if the opening of the valve *h* is very small—that is to say, if only a small quantity of water passes the apparatus—the working of the apparatus is very precise. Former constructions of water-meters—so-called “proportional” meters—took the quantity of water passing the valve *h* from the water to be measured, by means of which arrangement this valve was very often choked up as soon as the water to be measured was not perfectly



clean; but by the arrangement of the condenser *o* it is attained that the chocking up of the valve *h* is impossible. A further advantage of the arrangement of the condenser is that the heat lost by condensing the steam of the boiler entering the worm *m* is not lost, but is used for warming the feed-water.

I am aware that water-meters which consisted chiefly of the combination of two valves were known already prior to my invention and described already, for instance, in Letters Patent No. 483,951 to H. B. Williams and Letters Patent No. 496,827 to W. D. Hawley and S. J. Hogan. That is why I do not claim this construction broadly; but

What I claim as my invention, and wish to secure by Letters Patent of the United States, is—

In a meter for measuring feed-water for boilers and the like the combination with a valve arranged in the conduit of the feed-water, a second valve arranged in the conduit of a reservoir with constant level, levers of different lengths connecting both valves, of a condenser, the worm of which connects the boiler with the reservoir with constant level and a rotary meter, connected with the second valve and adapted to measure the quantity of distilled water passing this valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HANS REISERT.

Witnesses:

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