

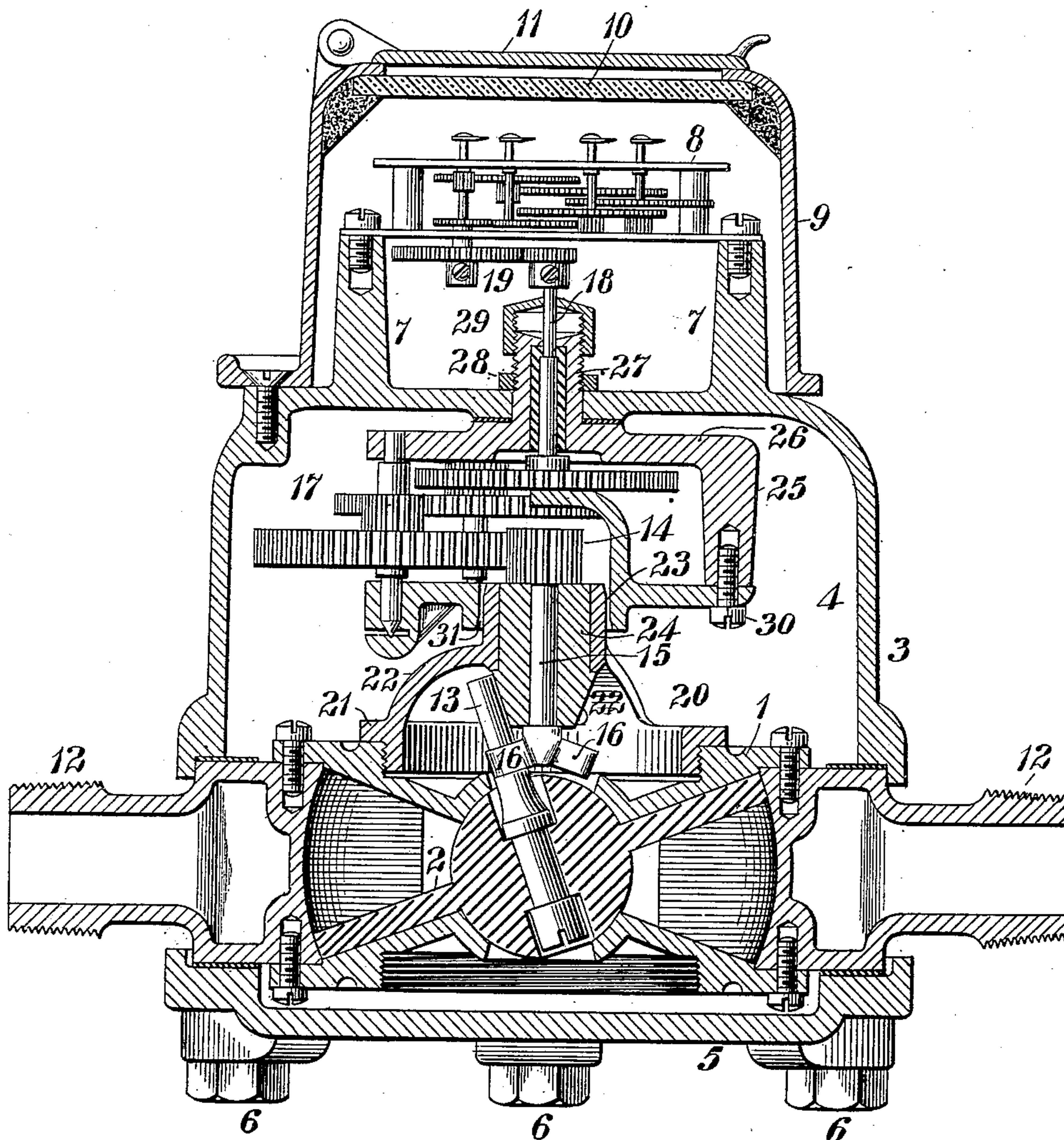
No. 677,558.

Patented July 2, 1901.

H. CHRISMAN.
FLUID METER.

(Application filed June 20, 1900.)

(No Model.)



WITNESSES:

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HORACE CHRISMAN, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO THE
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FLUID-METER.

SPECIFICATION forming part of Letters Patent No. 677,558, dated July 2, 1901.

Application filed June 20, 1900. Serial No. 20,952. (No model.)

To all whom it may concern:

Be it known that I, HORACE CHRISMAN, a citizen of the United States, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Fluid-Meters, of which the following is a specification.

My invention relates to fluid-meters; and it has for its object to provide an improved construction whereby the gearing for operating the registering and indicating mechanism may be readily assembled and whereby the several parts of such mechanism may be maintained in proper coöperative relations.

With these ends in view I have devised the means shown in the accompanying drawing, the single figure of which is a central sectional view of a complete instrument.

The measuring-chamber 1, in which the disk piston 2 is located and operates, may be of usual construction and may be supported by a casing 3, between the two parts 4 and 5 of which it is clamped by means of bolts or screws 6. The top of the part 4 of the casing 3 is provided with studs or pillars 7, on which is supported the registering mechanism 8, this mechanism being inclosed in a supplemental casing 9, having a sight-pane in its top, and a hinged protecting-cover 11. The main outlet-passages for the water to be measured are connected with suitable pipes by means of spuds 12.

All of the parts thus far described are or may be of usual construction and may be modified from what is shown in any way desired so long as an operative relation of parts is maintained.

The motion of the piston 2 caused by the flow of water through the measuring-chamber is imparted to the registering mechanism by means of a pin 13, carried by the piston, a power-transmitting device, here shown as a pinion 14, having a shaft 15, provided at its other end with arms 16, against one of which the pin 13 impinges, and a reducing-train 17, one of the gear-wheels of which meshes with the pinion 14 and the last gear-wheel of which is connected to the registering-train by means of a shaft 18 and gear-wheels 19.

The pinion 14 and its shaft 15 are supported by a frame 20, comprising a ring 21, that has a screw-threaded engagement with the top plate of the measuring-chamber, a plurality of curved arms 22, projecting upward from the ring, and a cylindrical outer end 23, in which is mounted a block 24, the lower end of which is frusto-conical in form, so as to constitute a bearing for the outer end of the pin 13. This block 24 constitutes a bearing for the pinion-shaft 15.

The open-work structure of the supporting-frame 20 enables the manufacturer and the user of the meter to readily inspect the moving parts located within it, and thus determine whether such parts are properly adjusted and in good working condition. The screw-threaded connection of this part with the measuring-chamber also permits of its ready removal in case repairs are necessary.

The reducing-train of gears 17 is mounted in a two-part framework 25, the upper part 26 of which is supported by the top of the part 4 of the casing 3. The means for supporting the part 26 consists of a tubular projection 27, which may be an integral part of the portion 26 and project through an opening in the top of the part 4, this tubular projection being screw-threaded and having a nut 28 for clamping it into position and a cap 29, the latter coöperating with the other parts to constitute a stuffing-box for the shaft 18. The lower portion of the supporting-frame 25 is fastened to the part 26 by means of screws 30 and has an opening or recess 31 of slightly greater diameter than the external diameter of the part 23, the relation of the parts when assembled being such that the part 23 projects into the recess or opening 31. This coöperative relation of the parts is such that the meshing of the pinion 14 with the coöperating gear-wheel of train 17 is assured, and at the same time the loose fit between the part 23 and the recess 31 provides for a ready assembling of the parts in case the parts 4 and 5 of the casing and the portion of the measuring-chamber clamped between them do not accurately fit, so as to bring the part 23 and the recess 31 into the exact concentric relation, and also permits of relative movement

of the parts both laterally and longitudinally when such movement is rendered necessary by changes in temperature or fluid-pressure.

While I have shown and described my invention as applied to a disk water-meter, I desire it to be understood that the invention may be utilized in connection with meters of other varieties whether employed for measuring liquids or gases and that the illustration and description of specific details of construction are not to be construed as limiting the invention to such details.

I claim as my invention—

1. In a fluid-meter, the combination with a power-transmitting member and fluid-actuated driving means therefor, of an outwardly-projecting bearing for the power-transmitting member, a train of gearing and a frame therefor that is supported independently of and without attachment to said bearing and has an opening into which the bearing projects to insure a proper coöperative relation between the power-transmitting member and the train of gearing.

2. In a fluid-meter, the combination with a power-transmitting member, and fluid-actuated driving means therefor, of a bearing-block for the power-transmitting member, a train of gearing receiving motion from the said power-transmitting member and a frame therefor that is supported independently of and without attachment to said bearing-block and has an opening of greater diameter than the bearing-block into which the latter projects.

3. In a fluid-meter, the combination with a power-transmitting member and a fluid-actuated driving means therefor, of an open-work frame having a cylindrical bearing-block for the power-transmitting member, a train of gearing receiving motion from said power-transmitting member and a frame therefor that is supported independently of and with-

out attachment to said bearing-block and has a centering-opening into which said bearing-block projects when the parts are assembled in operative relations.

4. In a fluid-meter, the combination with a two-part casing, a measuring-chamber located in said casing and removably supported by the lower part thereof, a piston in said measuring-chamber, a pinion operated by said piston and a train of gearing receiving motion from said pinion, of a bearing-block for the pinion-shaft that is supported by the measuring-chamber and a frame for the train of gearing that is supported by the upper part of the casing and has a centering recess or opening of larger diameter than the bearing-block into which said block projects when the parts are assembled in operative relations.

5. In a fluid-meter, the combination with a measuring-chamber, a two-part separable casing therefor, a piston and gearing operated thereby, of two independent frames for separable portions of said gearing which have a loose-fitting, centering relation to each other and which are respectively supported by the two parts of the casing, one being attached to the corresponding part of the casing and the other to the measuring-chamber.

6. In a fluid-meter, the combination with a fluid-actuated member, a chamber therefor, gearing operated by said member and a two-part casing for said chamber, member and gearing, of two frames for said gearing which have a loose-fitting, centering relation but are not attached to each other and are respectively supported by one part of the casing and by the measuring-chamber.

In testimony whereof I have hereunto subscribed my name this 16th day of June, 1900.

HORACE CHRISMAN.

Witnesses:

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