(No Model.) 2 Sheets—Sheet 1.

M. S HOPKINS & C. H. DICKSON.

FLUID PRESSURE REGULATOR.

No. 526,320. Patented Sept. 18, 1894.

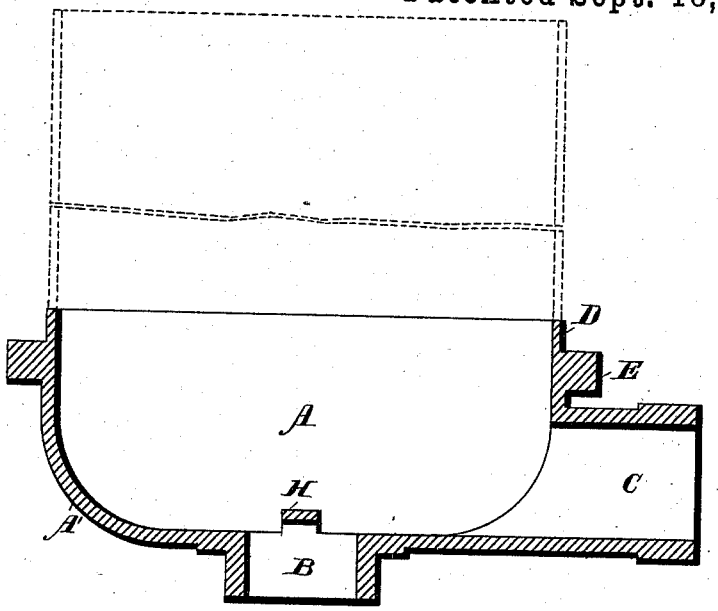

Fig. 1.

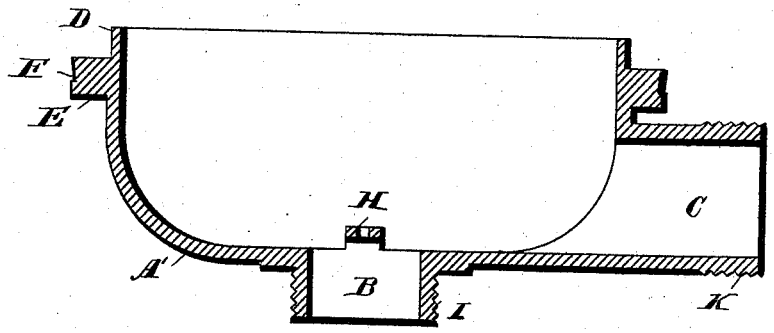

Fig. 2.

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Inventors
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(No Model.) 2 Sheets—Sheet 2.

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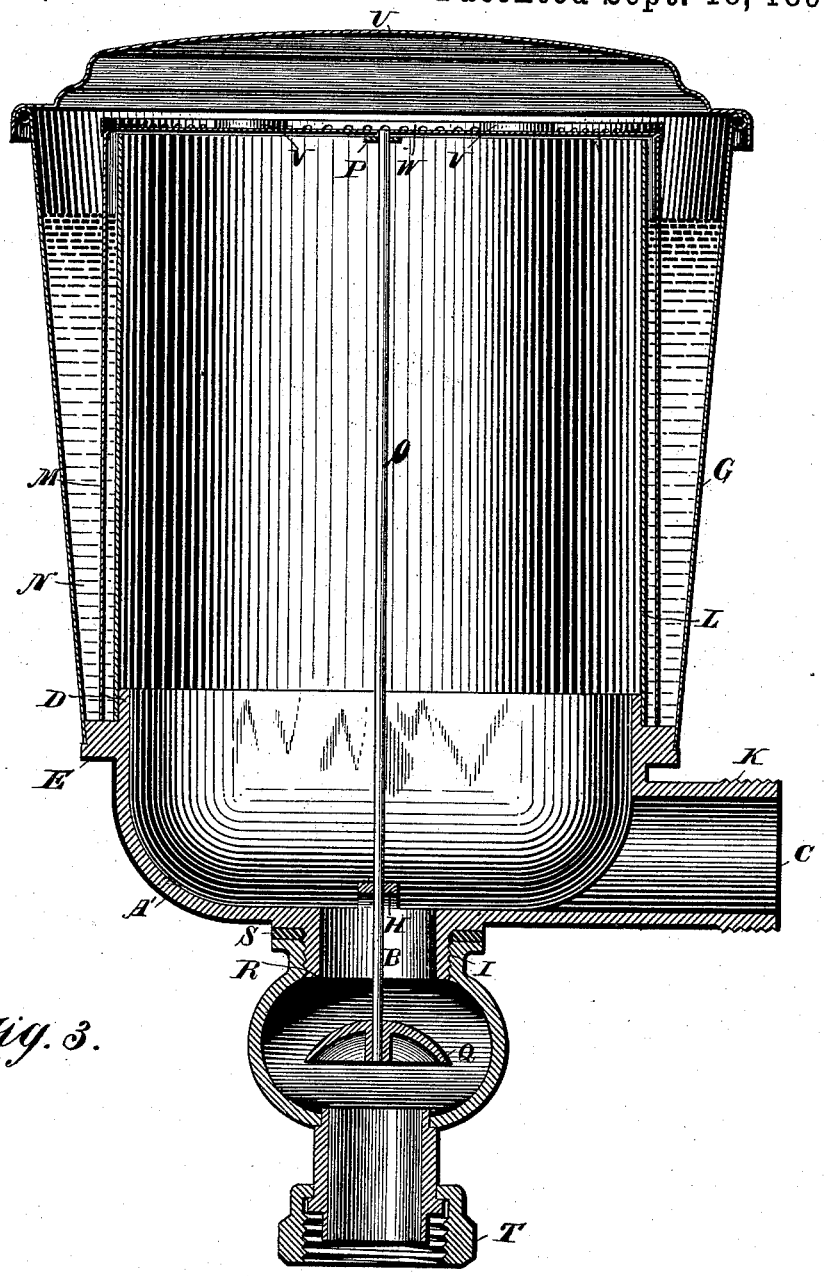

Fig. 3.

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UNITED STATES PATENT OFFICE.

MARCUS S. HOPKINS AND CHARLES H. DICKSON, OF WASHINGTON, DISTRICT OF COLUMBIA; SAID HOPKINS ASSIGNOR TO SAID DICKSON.

FLUID-PRESSURE REGULATOR.

SPECIFICATION forming part of Letters Patent No. 526,320, dated September 18, 1894.

Application filed November 21, 1891. Renewed March 17, 1894. Serial No. 504,101. (No model.)

To all whom it may concern:

Be it known that we, MARCUS S. HOPKINS and CHARLES H. DICKSON, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Fluid-Pressure Regulators, of which the following is a specification, reference being had to the accompanying drawings.

The object of our invention is to simplify the construction of gas governors, of the class in which an inverted cup or float and a liquid seal are used. It is desirable in this class of governors that they shall be strong in the parts where the pipe connections are to be made, and at the same time that they shall be as light as possible, and of a construction that will permit them to be readily and economically made gas tight and liquid tight. Accordingly by our plan we cast the base of the governor structure of peculiar form and make the upper part or superstructure preferably of sheet metal in a peculiar manner, as below set forth in detail.

Figure 1 of the drawings represents a vertical central section of a peculiar casting or blank for the base of a gas governor, of the kind above described. Fig. 2 represents a similar section of a cast base for a gas governor, threaded and otherwise finished, ready for the application of the other parts to complete the machine. Fig. 3 represents a vertical central section of a complete governor embodying our invention.

Referring to the letters upon the drawings, A, in Fig. 1, indicates a casting or blank from which to form the base of a gas governor. It consists of a body part A′ provided with an inlet gas opening B and an outlet gas opening C, such as are usual in governors of this class, a vertical annular projection D, and an annular side projection E extending from the body. When finished, as shown in Fig. 2, this side projection is preferably recessed annularly, or cut away at F to form a shoulder and receive and support a hollow cylinder G, preferably tapered as shown in Fig. 3, so as to be largest at its upper end.

H indicates a guide-bar, through which, when centrally perforated, as shown in Figs. 2 and 3, the valve-stem is to pass. This bar may be cast integral with, or may be secured to the body A′, as usual.

I and K, in Figs. 2 and 3, indicate screw-threads of the finished base for ordinary pipe connections.

L, in Fig. 3, indicates a hollow cylinder secured to the annular projection D. The cylinders, when in place as shown in Fig. 3, form an annular vessel for containing liquid to constitute a gas seal.

M indicates an inverted cup, and N the liquid seal.

O indicates the valve stem passing through the guide-bars P and H.

Q indicates a valve, and R a valve-seat, of usual construction.

S indicates the usual washer, and T the usual threaded nut for connecting a pipe.

U indicates a cover removable as usual, and V indicates usual adjusting weights to be placed upon the top of the inverted cup.

W indicates perforated or open work railing around the margin of the upper part of the inverted cup, the purpose of which is to prevent the weights from slipping off. The perforations in this guard or railing are for the purpose of allowing any liquid that may accidentally get upon the top of the cup to run off into the liquid containing vessel.

Referring to Fig. 3 it will be noticed that the annular projections D and E as there shown form the seats or fastening parts of the two cylinders G and L, the former being inclined and fitting in the annular recess F. This construction of a cast base for a gas governor gives all the rigidity and strength required for the upper parts of the governor, which are preferably all made of sheet metal, and for the pipe connections, without waste of material, or undue weight of metal. This construction of base enables us to form the cylindrical vessel for containing the liquid seal out of the two cylinders mainly outside of the main structure or body of the base. The practical advantage of this is that the body of the cast base may thereby be reduced to the minimum diameter and weight of metal. We thus get an increased area for gas pressure

on the float—in other words a float of greater diameter than the main part of the casting with the least metal.

In Fig. 1 we have shown in dotted lines an upward extension of the vertical annular projection D, intended to indicate that this projection may be cast in one with the base, without departing from the substance of our invention, to take the place of the sheet metal cylinder L, but in practice, as a rule, we prefer to employ the sheet metal cylinder.

By our invention it will be seen that we produce a solid base for a gas governor adapted to directly support two cylinders that form the walls of a vessel to contain a liquid seal mainly outside of the body of the casting.

Various formal modifications may be made in the embodiment of our invention, but we have illustrated that form of embodiment which we deem the best.

What we claim is—

A base for a fluid pressure regulator of cast metal, consisting of the body A′ having the inlet and outlet openings B and C, the annular vertical projection D, and the annular side projection E, the latter being cut away at F to form a shoulder for seating an external cylinder, substantially as set forth.

In testimony of all which we have hereunto subscribed our names.

MARCUS S. HOPKINS.
CHARLES H. DICKSON.

Witnesses:
C. P. ELWELL,
LOUIS G. JULIHU.