

**No. 659,311.**

**Patented Oct. 9, 1900.**

**H. MASCHMEYER.**  
**PUMP GOVERNOR.**

(Application filed June 4, 1900.)

(No Model.)

**2 Sheets—Sheet 1.**

Fig. 2

Fig. 4.

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No. 659,311.

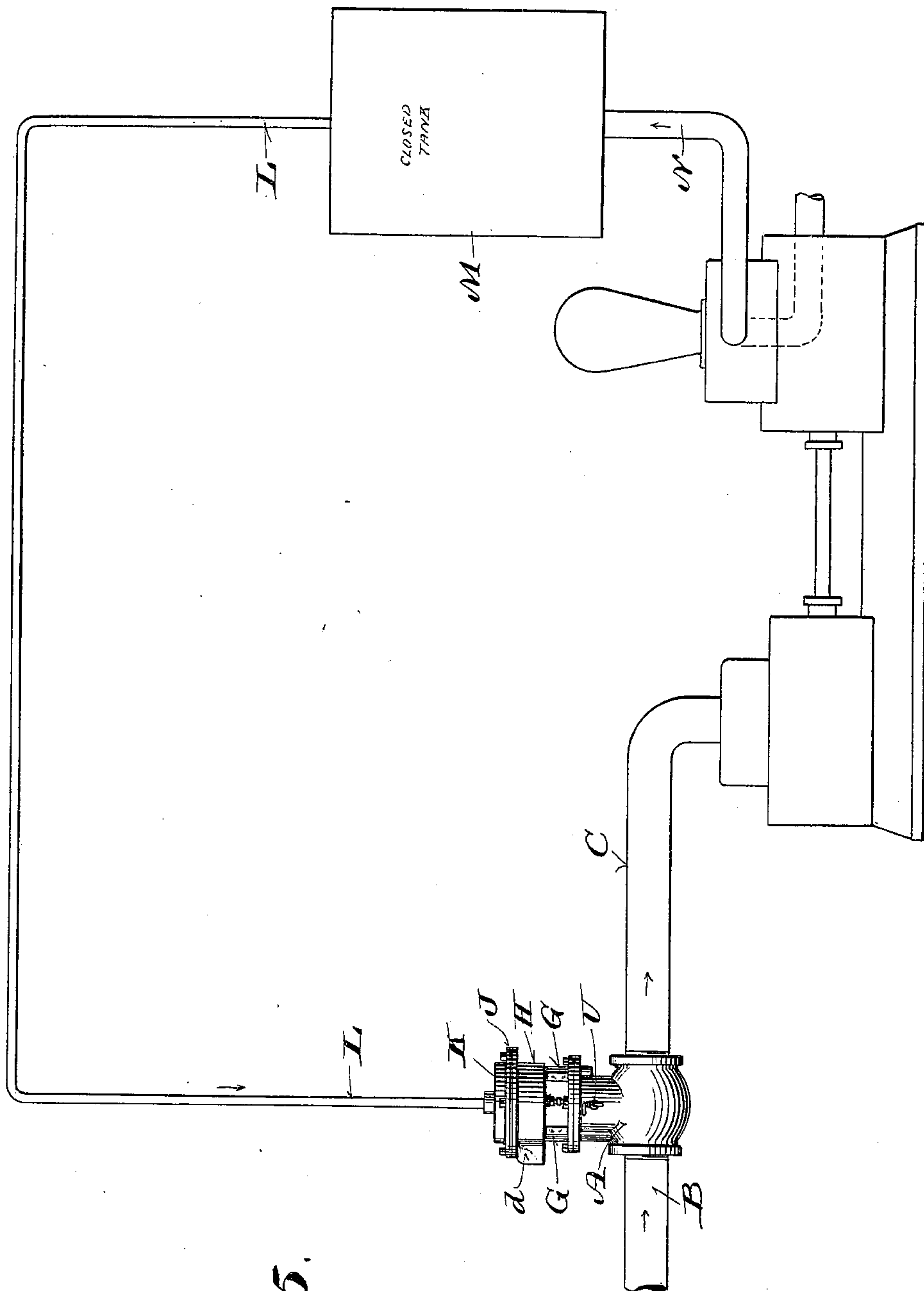
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Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## PUMP-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 659,311, dated October 9, 1900.

Application filed June 4, 1900. Serial No. 18,951. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN MASCHMEYER, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Pump-Governors; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide simple economical means for automatic control of a pump in connection with a fluid-circulating system; and it consists in the construction and arrangement of parts herein after particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a sectional view of an automatic pump-governor mechanism in accordance with my invention, the plane of the section being indicated by line 1 1 in the succeeding figures; Figs. 2, 3, and 4, detail sectional views of the mechanism respectively indicated by lines 2 2, 3 3, and 4 4 in the first figure; and Fig. 5, a diagram illustrating said mechanism in connection with a pump and reservoir-tank.

Referring by letter to the drawings, A indicates a casing in the form of a coupling connecting sections B C of a pipe, by which steam is supplied to a pump of ordinary construction, this pump being illustrated in the diagram, Fig. 5. The horizontal portion of a partition *b* in casing A, between the inlet and outlet of same, is provided with an aperture controlled by a valve D, the stem of which is crowned by a piston E, movable in an upper cylindrical portion of said casing. This upper portion of the casing is provided with an annular outer flange *c*, and a cover-plate F, bolted to the flange, is preferably made in one piece with a pair of standards G G' and a shell H, surmounting the standards. The shell is provided with an open lateral extension *d*, and a chambered block I is bolted or otherwise rigidly secured in said shell adjacent to said extension of same.

Bolted to an upper annular outer flange of shell H against an expansible diaphragm J thereon is a lower outer annular flange of a cap K, connected by a pipe L with a reser-

voir-tank M, that is also connected by a pipe N to the pump aforesaid.

A passage *e* leads from the interior of inlet portion of casing A through standard G into a chamber *f* of block I, and a partition *g*, separating this chamber from another chamber *h* in said block, is provided with a port controlled by a pin-valve P in connection with a bell-crank lever Q, fulcrumed in extension *d* of shell H and coupled to diaphragm J aforesaid.

The chamber *h* in block I communicates with a passage *i*, that is for the most part parallel to passage *e* and which leads into the cylindrical portion of the aforesaid casing.

A plate R on the under side of diaphragm J is provided with a depending central lug *j*, that engages the upper end of a spiral spring S, supported by a nut *k*, adjustable on a screw T, extending through an aperture in plate F to come in the upward path of piston-head E of valve D, above specified. The tension of spring S is regulated by adjustment of nut *k* on screw T, and the depth to which the screw depends in the cylindrical portion of casing A is regulated by the adjustment of a set-nut *m* on said screw in opposition to plate F aforesaid. To facilitate manipulation of screw T, the same is provided with a collar *n*, with which a spanner-wrench may be connected, and the amount of lift of valve D from its seat is regulated by the set of said screw.

In practice pressure of steam entering casing A will ordinarily unseat valve D as far as screw T will permit, and this steam passing onto the pump operates same to fill tank M and a circulating system, to which it may be connected, with water, air, or other fluid under pressure. When the pressure in the tank rises to a predetermined degree greater than the resisting tension of spring S, the diaphragm J yields to said pressure, and thereby causes a movement of lever Q to bring pin-valve P away from its seat, so that steam from the inlet portion of casing A may find its way through the then communicating passages *e i* to the cylindrical portion of said casing above piston E therein. By employment of lever Q, arranged as herein shown and described, it is impossible for the by-pass valve to stick,



owing to the power exerted by said lever upon the slightest movement of the diaphragm (with which it is connected) by fluid under pressure operating against the spring resistance. It also follows that when the fluid-pressure on the diaphragm is less than the spring-pressure the power of the lever insures positive tight seating of the by-pass valve. The area of the piston is considerably greater than that of valve D, so that the steam-pressure acting on said piston will operate to seat said valve and stop the pump until such time as the pressure in said tank falls below the predetermined degree aforesaid. The pressure in tank M being less than the expansive force of spring S, an operation reverse to that set forth in the foregoing takes place automatically and the pump is again set in motion.

The upper cylindrical portion of casing A is provided with a cock U, through which to draw off water of condensation that may accumulate therein.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a casing constituting a pipe-coupling and provided with an apertured partition between its inlet and outlet, a valve controlling the partition-aperture, a piston of greater area than the valve in union with same and movable in a cylindrical portion of the casing, a cover for the cylindrical portion of the aforesaid casing provided with standards, a shell surmounting the standards, a chambered block in the shell constituting part of a by-pass through which communica-

tion is established between the inlet portion of the casing and the piston-containing cylindrical portion of same, a pin-valve arranged in said block to control said by-pass, an expansible diaphragm arranged in said shell to be opposed by fluid under pressure, a spring opposed to movement of the diaphragm by fluid under pressure, means for regulating tension of the spring, and a lever connecting the pin-valve with the diaphragm.

2. The combination of a casing constituting a pipe-coupling and provided with an apertured partition between its inlet and outlet, a valve controlling the partition-aperture, a piston of greater area than the valve in union with same and movable in a cylindrical portion of the casing having by-pass communication with the inlet portion of said casing, a valve controlling the by-pass, an expansible diaphragm in a shell supported on the aforesaid casing open to a conductor of fluid under pressure, a spiral spring opposed to movement of the diaphragm by fluid under pressure, a screw having set-nut adjustment in opposition to the first of the aforesaid valves, a nut adjustable on the screw against said spring, and a lever connecting said diaphragm with the by-pass valve.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

HERMANN MASCHMEYER.

Witnesses:

N. E. OLIPHANT,  
B. C. ROLOFF.