

(No Model.)

M. M. DODD.

AUTOMATIC GOVERNOR FOR AIR BRAKES.

No. 462,966.

Patented Nov. 10, 1891.

Fig. 1.

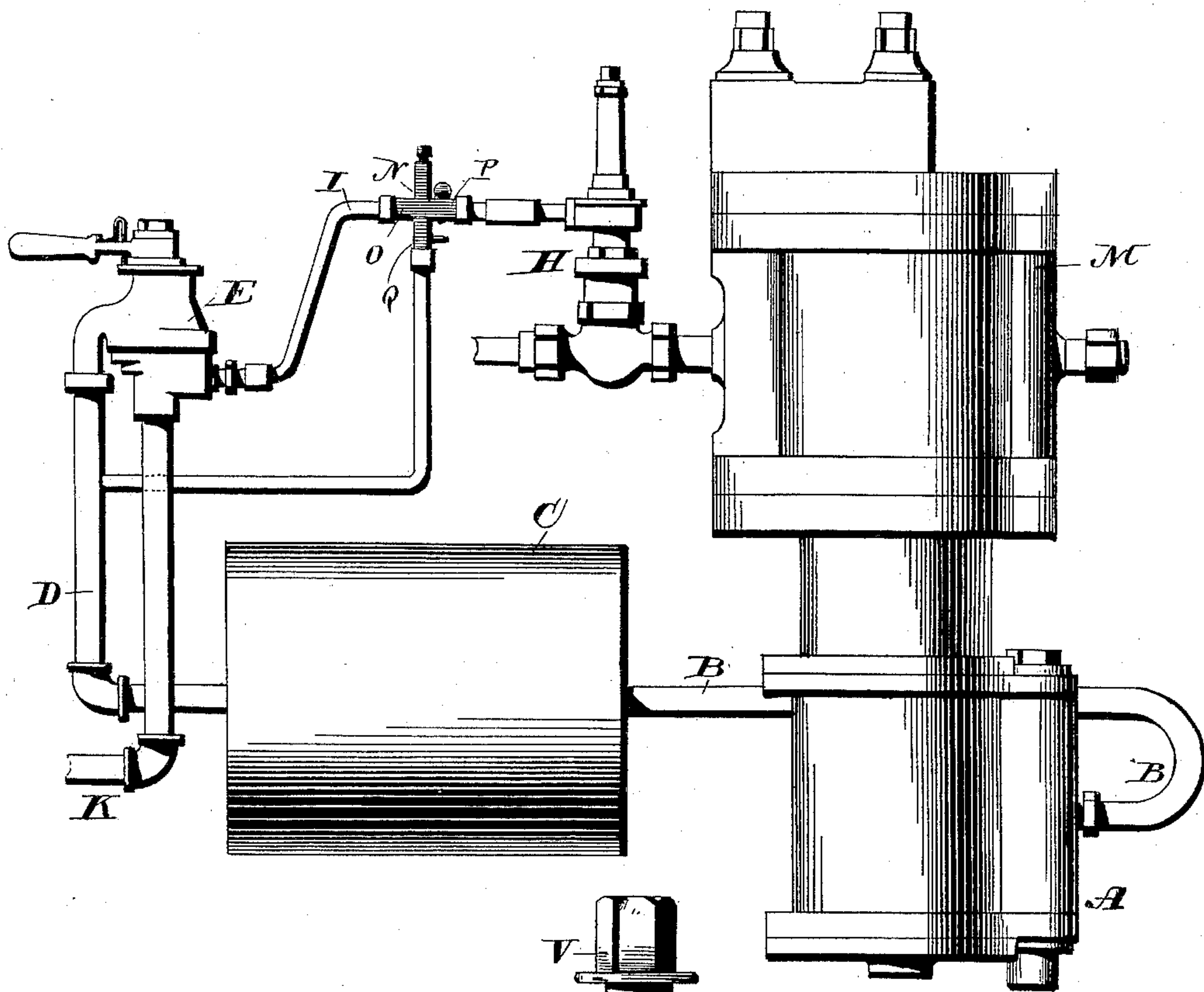
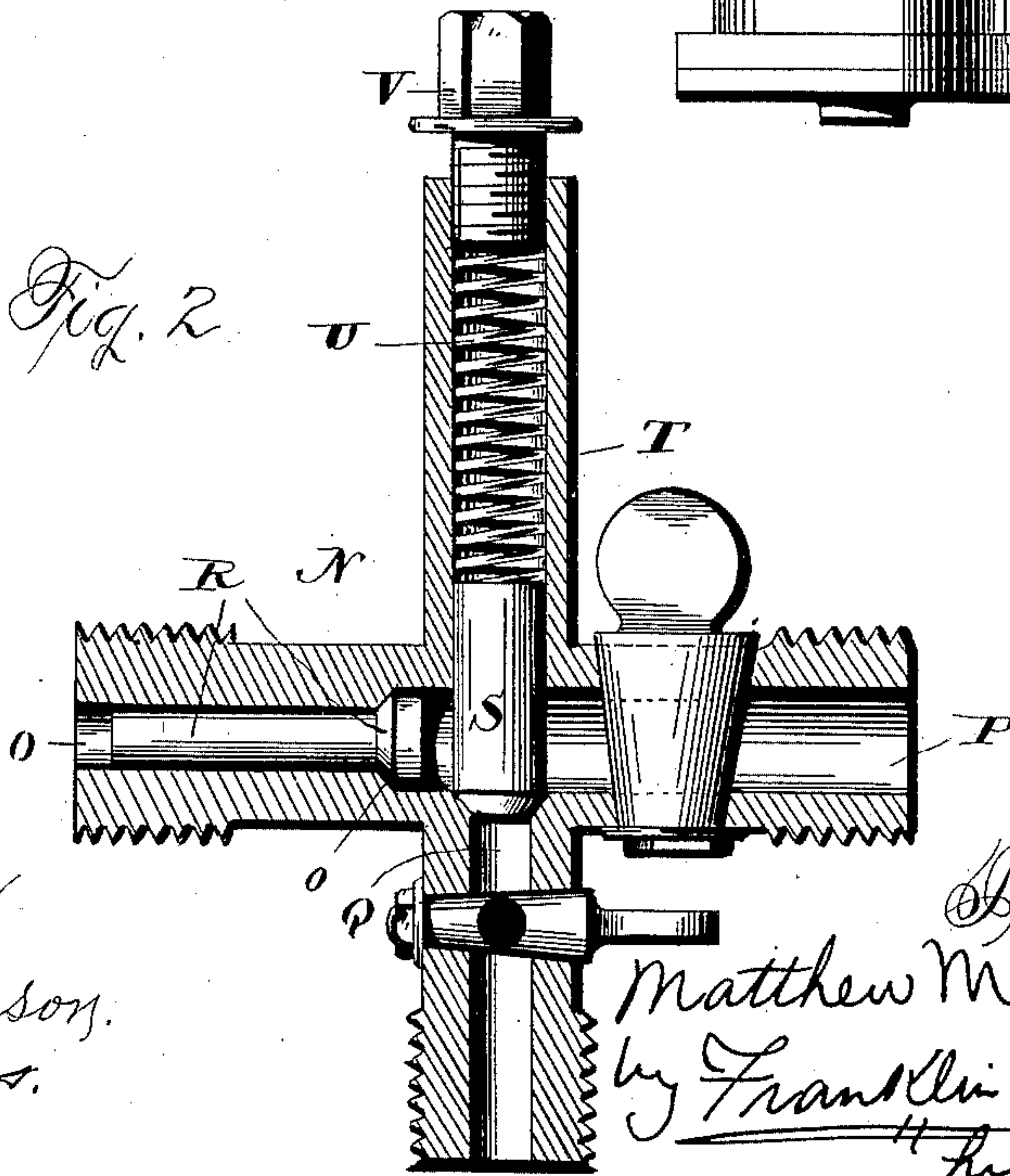


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

MATTHEW M. DODD, OF PORTSMOUTH, VIRGINIA.

AUTOMATIC GOVERNOR FOR AIR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 462,966, dated November 10, 1891.

Application filed August 6, 1891. Serial No. 401,893. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW M. DODD, a citizen of the United States, residing at Portsmouth, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Automatic Governors for Air-Brakes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to automatic regulators for air-brakes, which are extensively used at the present day on railroad systems.

The object of the invention is to prevent sliding of the wheels on the rails, which produces a "flat wheel," and to obviate injurious and excessive pressure on the brake-shoes, the brake-levers, and the pump, and to stop the latter when the maximum pressure in the main reservoir has been attained.

A further object of the invention is to establish communication between the main reservoir and the pump-governor, to bring the latter into efficient service to cut off communication between the pump and boiler, and to stop the pump when the prescribed pressure in the main reservoir has been attained.

The improvement consists of a regulator placed in the train-pipe between it and the pump-governor and having three passage-ways, which are respectively in direct connection with the pipes leading from the pump-governor, the main reservoir, and the train-pipe, a valve for closing the passage-way which communicates with the train-pipe against the main reservoir and the pump-governor passage-ways, and a spring-controlled valve or plunger for closing the main reservoir passage-way under normal conditions.

The improvement also consists in the novel features and the peculiar construction and combination of parts, which will be hereinafter more fully described, and pointed out in the claims, and which are shown in the annexed drawings, in which—

Figure 1 is a diagrammatical view of an air-brake system, such as the Westinghouse,

showing the related position of my invention. Fig. 2 is a central section of the regulator.

In the drawings, M is the engine, A the pump, H the pump-governor, E the three-way cock under the control of the engineer, C the main reservoir, K the train-pipe, D the pipe between the reservoir C and the three-way cock, B the pipe connecting the pump A with the reservoir C, and I the pipe between the pump-governor and the three-way cock, all of well-known construction and arrangement, being shown to illustrate the application of the present invention and its co-operative relation simply.

The regulator N comprises three passages O, P, and Q, and is cruciform (this being the preferable shape) to bring the passage Q at right angles to the passages O and P, which are in the same straight line. The passage O is smaller than the passage P and is provided with a valve-seat at its inner end. The valve R in the passage O closes the said passage when seated. The valve or plunger S closes the inner end of the passage Q and extends across the inner ends of the passages O and P and works in the tubular portion T, which is directly opposite the passage Q. The outer end of the tubular portion T is closed by the screw-plug V, and the coiled spring U between the plunger or valve B and the said screw-plug V holds the said plunger or valve B on its seat. The extension of the coiled spring U can be regulated by screwing or unscrewing the plug V.

In assembling the parts the regulator N is located in the train-pipe I between the said pipe and the governor H, the train-pipe connecting with the passage O and the governor-pipe with the passage P. The pipe D, leading from the reservoir, connects with the passage Q.

The operation of the invention is as follows: When the three-way cock is in position for running, with seventy pounds air-pressure in the train-pipe and ninety pounds air-pressure in the reservoir C, (this being the amount of air-pressure usually carried, but of course the proportions and the number of pounds pressure can be varied to suit the conditions,) and the plunger or valve S being held to its seat by the spring U, the valve R will be forced from

its seat by the pressure in the train-pipe, and the air passing around the valve S will act on the governor. The piston in the governor H is loose-fitting, thus permitting any air remaining in the pipe P after the valve S is closed to escape through the space surrounding the piston. A small opening may be provided in the governor, which will serve to permit the steam to escape to the open air. When the pressure is reduced in the train-pipe, the valve R will be seated and the pump will be set in operation and pump air into the main reservoir until the pressure therein is sufficient to unseat the valve or plunger S, when the air will pass to the governor H and cause the pump to cease working.

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

1. In an air-brake system, the combination of a regulator located between the train-pipe and the pump-governor and having a passage in communication with the main reservoir, a valve for cutting off communication between the train-pipe and the governor and main reservoir-pipes, and a second valve held under a yielding pressure to close the main reservoir-pipe and located between the pump-governor pipe and the train-pipe-controlling valve, substantially as shown and described.

2. In an air-brake system, the combination of a regulator having passages O, P, and Q, respectively, in connection with the train-

pipe, the pump-governor pipe, and the main reservoir-pipe, the plunger or valve S, projected across the inner ends of the passages O and P and held by yielding pressure against the inner end of the passage Q, and the valve R, adapted to close the inner end of the passage O, substantially as described, and for the purpose specified.

3. A regulator for controlling the admission of air to the pump-governor of an air-brake system, composed of a casting having passages O, P, and Q, the passage Q being at right angles to the passages O and P, the valve R for closing the inner end of the passage O, and the valve S for closing the passage Q, substantially as described, and for the purposes specified.

4. The hereinbefore-specified regulator for the purposes set forth, comprising a cruciform casting having the passages O, P, and Q and the tubular extension T, the valve R for closing the inner end of the passage O, the valve S, extending across the inner ends of the passages O and P and closing the inner end of the passage Q, the screw-plug, and the spring U, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

MATTHEW M. DODD.

Witnesses:

ROSCOE J. DODD,
GEORGE L. FOREMAN.