

J. TATE.  
GOVERNOR VALVE.

No. 301,774.

Patented July 8, 1884.

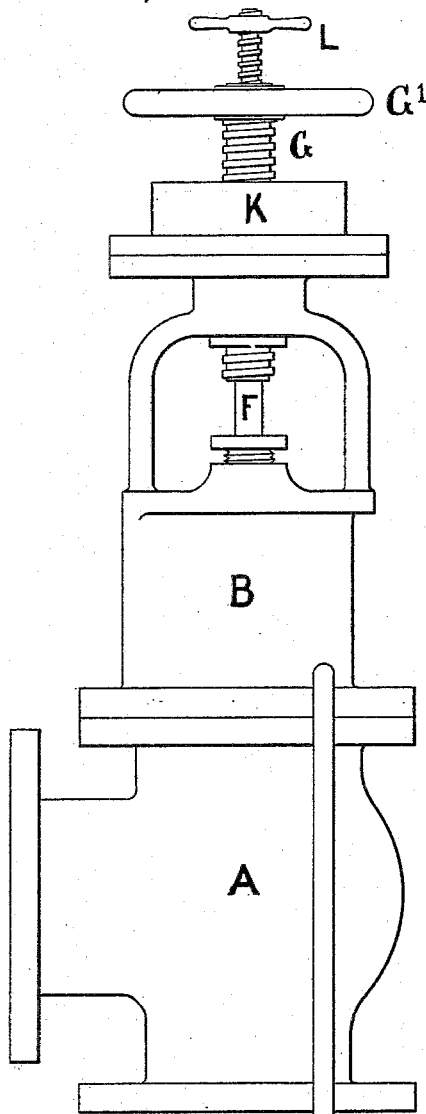


FIG. 1.

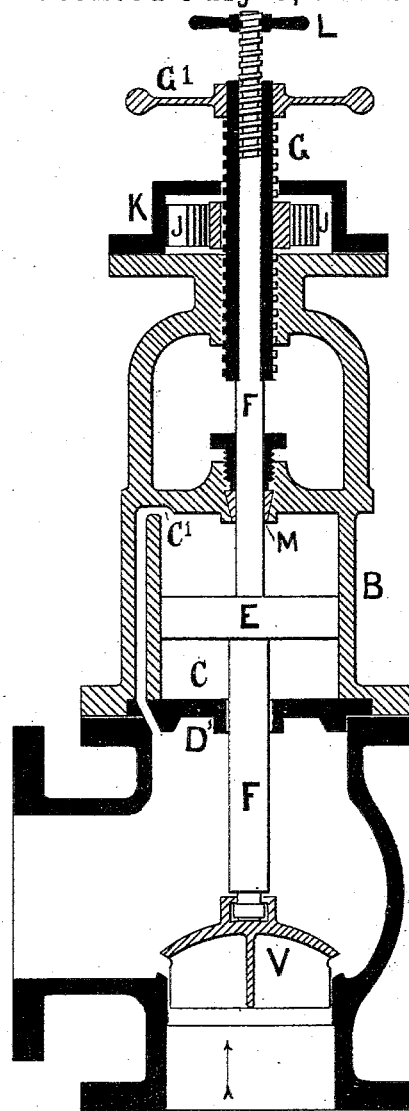
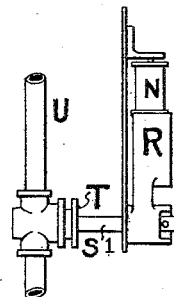
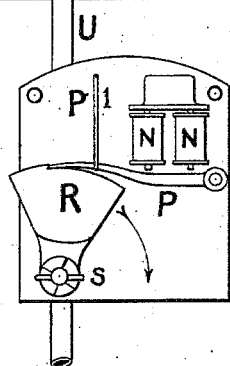


FIG. 2.



Witnesses  
James F. Johns  
Harry L. Ashenfelter

Inventor  
James Tate  
by his Atty.  
Houson & Sons

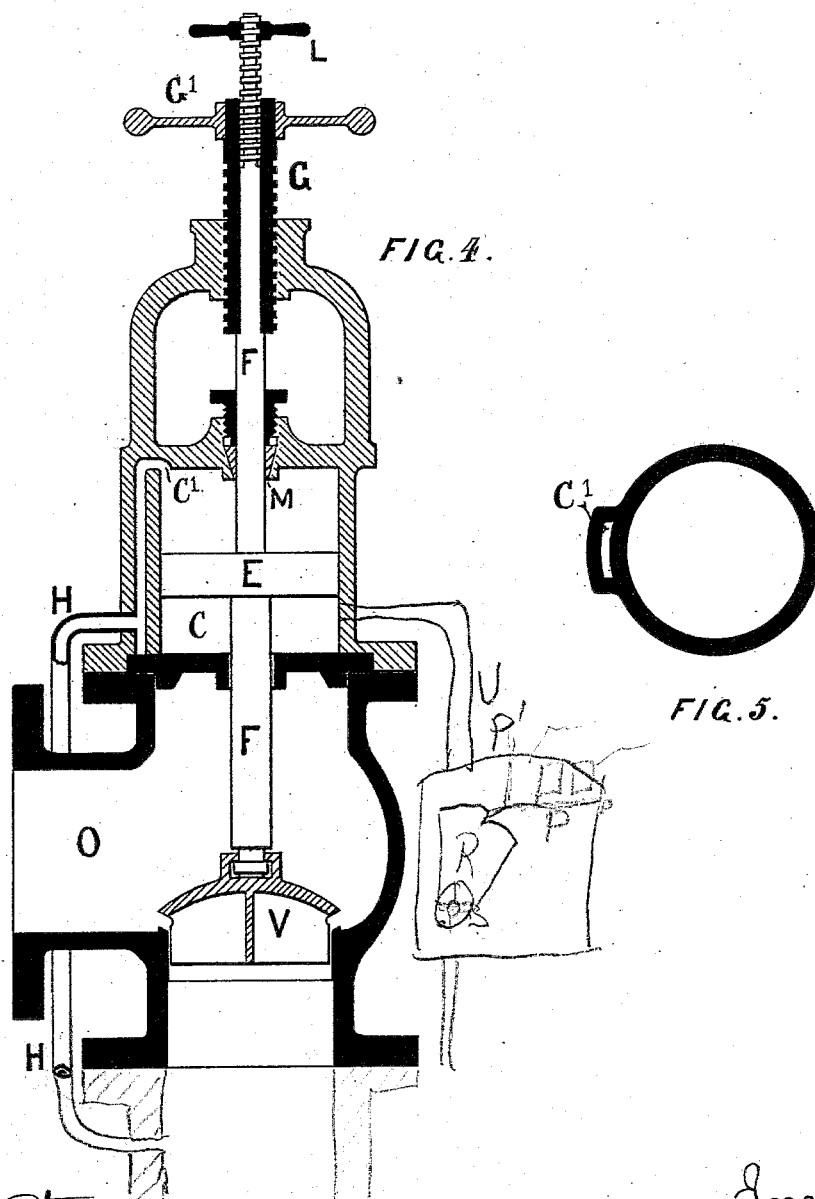
(No Model.)

2 Sheets—Sheet 2.

J. TATE.  
GOVERNOR VALVE.

No. 301,774.

Patented July 8, 1884.



Witnesses  
James F. Tobin  
Harry L. Ashenfelter.

Inventor  
James Tate  
by his Attorneys  
Howden & Sons

# UNITED STATES PATENT OFFICE.

JAMES TATE, OF BRADFORD, COUNTY OF YORK, ENGLAND.

## GOVERNOR-VALVE.

SPECIFICATION forming part of Letters Patent No. 301,774, dated July 8, 1884.

Application filed September 18, 1883. (No model.) Patented in England September 21, 1883, No. 4,509; in Belgium September 21, 1883, No. 62,659; in France September 21, 1883, No. 157,666, and in Germany September 25, 1883, No. 26,682.

*To all whom it may concern:*

Be it known that I, JAMES TATE, a subject of the Queen of Great Britain and Ireland, and residing at Bradford, in the county of York, England, have invented certain Improvements in the Construction of Governor-Valves, of which the following is a specification.

The object of my invention is to construct valves of steam-engines in such a manner that the same can be automatically closed, the apparatus being so arranged as to act direct upon the valve-seating cover; and it consists in securing to the valve-casing a cylinder in which is fitted a piston that is connected to the cover of the valve-seating by a spindle. The cylinder-piston, when the valve is open, has the pressure of steam on both sides of it, which, when the magnet is operated upon by electricity, or the weight liberated by a cord, as the case may be, in the manner hereinafter described, relieves the pressure on one side of the piston, the pressure on the other side closing the valve.

In the accompanying drawings, Figure 1 represents an elevation of a stop-valve fitted up according to my invention. Fig. 2 is a vertical section through the center of the same, except the valve-spindle and piston.

The apparatus illustrated by these figures shows the arrangement for closing the valve when the pressure is flowing from the under side of the seating in the direction indicated by the arrow; and Fig. 3 is a side view of the magnet-plate, showing the connections between the weight R and the spindle of the tap. Fig. 4 is a vertical section of a modification, and Fig. 5 is a sectional plan of the piston-cylinder.

To the top flange of the stop-valve casing A, I secure the cylinder-bracket B, which has the flange D recessed in the flange of the bracket B, so as to form a blank end to the cylinder C. This cylinder is fitted with a piston, E, which is secured on the valve-spindle F, the spindle being connected to the valve V, and continued in the opposite direction through the socketed screw G. Around the screw G is a collar having a feather-key se-

cured thereto, which fits into a groove cut longitudinally in the socketed screw G, and to the collar is also secured one end of a coiled spring, J, the other end of which is secured to the casing K.

In order to open the valve, the nut L is run down the thread on valve-spindle F against the boss of hand-wheel G'. The latter is then turned, the socketed screw G raising the valve V from the facing and coiling up the spring J, which is of similar construction to springs used in the chain-barrels of watches. When the valve has been opened in the manner described, the nut L is run back to the position shown on drawings and the pressure admitted onto both sides of the piston E—to the top side through the opening C' and to the bottom side through the clearance-space around the valve-spindle F—the piston and valve-seating cover V being retained in the position by the friction of the metallic packing M against the valve-spindle F. The electro-magnet N may be fixed in any convenient position and wires connected thereto extending to any place or places in the works, and when it is desired to close the valve the electric circuit is completed by any well-known method, which causes the magnet N to attract the armature P to the said magnet, thereby allowing the weight R to fall in the direction of the curved arrow. The projections of the boss on the weight coming in contact with the pin S, passing through the spindle in tap T, opens the same and allows the pressure to escape through the pipe U to the engine-condenser or the atmosphere. The pressure on the opposite side of the piston, being maintained through the opening C', overcomes the friction of the metallic packing M and forces the piston E toward the valve-seat. The socketed screw G being thus relieved, the spring J uncoils, and the feathered key in the collar causes the socketed screw G to revolve, which slides through the collar and follows up the spindle F, finally closing the valve V; or, in place of the magnet N, a cord may be secured to the armature P, as at P', and conducted to some distant place, which, when pulled, raises the armature P, thereby liberating the weight R, which acts upon the tap-

spindle S' in the manner as before described. When the pressure in the pipes is on the top side of the valve-seating cover V, flowing through the opening O, the apparatus is constructed, 5 as shown by Fig. 4 on Sheet 2, without the coiled spring J. The cylinder C and piston E are constructed and attached to the valve in the manner as before described, except there is no opening through the flange D, the pressure 10 to the top of the cylinder being conveyed from the pipes at the under side of the valve-seating through pipe H. The armature P and attachments to the under side of piston-block are arranged as before described.

15 The valve, when constructed as shown by Fig. 4, is opened in the manner as before described, and when it is desired to close the valve the electric circuit is completed or the cord pulled, as the case may be, and the weight 20 R operated upon, releasing the pressure from the under side of the piston E, as before mentioned, the pressure on the other side actuating the piston until the valve V is tight upon the seating.

25 By constructing valves in the manner described, and when used for supplying engines

with steam, the valve can be closed and the engine stopped from any part of the works to which the wires or cord is conducted; and in the case when the magnet N is used, should 30 the engine be running above or below the regulated speed, it can be stopped by arranging the circuit-wires, that when the connecting-lever or the socketed traversing collar on the governor come in contact with the wires 35 or metallic attachments thereto the electrical circuit is thereby completed, thus causing the weight R to fall and the valve to close in the manner as before described.

I claim as my invention— 40

The combination of a valve and a piston controlling the same, a steam-cylinder in which the piston works, steam-inlet and an outlet-pipe U, valve therefor, weight R, and armature P, all substantially as set forth. 45

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

JAMES TATE.

Witnesses:

JOHN GILL,  
R. B. GRINNELL.