

E. A. FORDYCE & C. S. JENNINGS.  
 AUTOMATIC POWER CONTROL FOR PNEUMATIC DESPATCH APPARATUS.  
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1,009,400.

Patented Nov. 21, 1911.

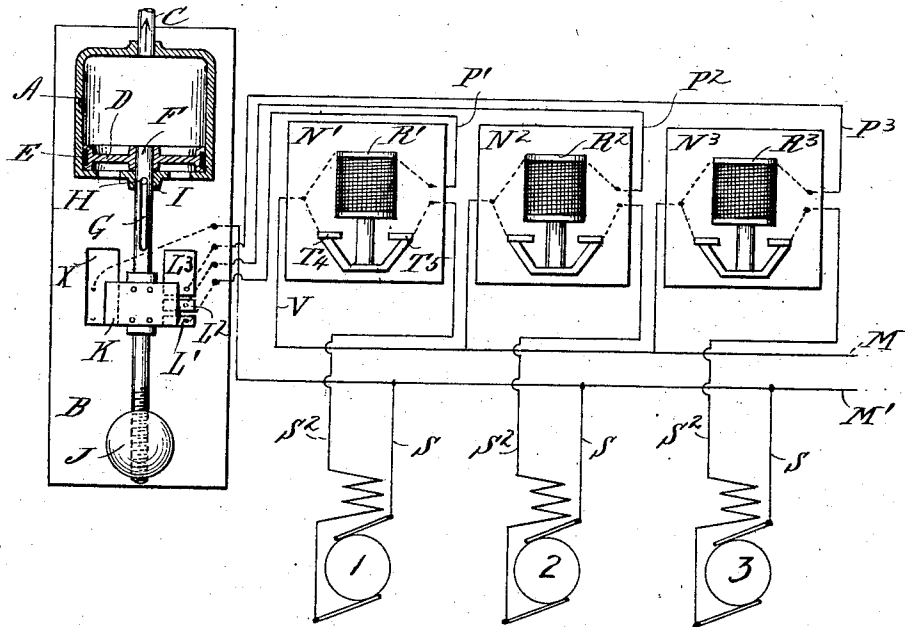


Fig. 1.

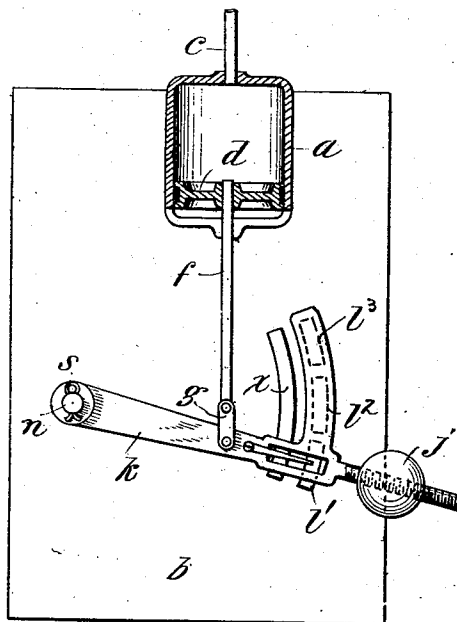


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC POWER CONTROL FOR PNEUMATIC-DESPATCH APPARATUS.

1,009,406.

Specification of Letters Patent.

Patented Nov. 21, 1911.

Application filed March 9, 1906. Serial No. 305,112.

*To all whom it may concern:*

Be it known that we, EDMOND A. FORDYCE, of Boston, Suffolk county, State of Massachusetts, and CHESTER S. JENNINGS, of Brookline, Norfolk county, State of Massachusetts, have invented certain new and useful Improvements in Automatic Power Control for Pneumatic-Despatch Apparatus, of which the following is a specification.

Our invention relates to improvements in automatic power control particularly adapted to use in pneumatic despatch tube systems.

The principal object of our invention is to provide means for controlling and maintaining a predetermined working vacuum in said systems by increasing or decreasing the power in proportion to the working demands upon said systems thereby securing economy of power. This object is accomplished by utilizing any variation in the vacuum, to operate upon a piston, which simultaneously throws in or out of operation any or all of a plurality of pressure maintaining members furnishing power to the system.

In the accompanying drawings which illustrate two forms of construction embodying our invention, Figure 1 is a diagrammatic view of the device partly in section, in electrical connection with pressure maintaining motors. Fig. 2 is a modification, plan view partly in section, of the device showing means for regulating the pressure-controlled switch.

Like letters of reference refer to like parts in the two views.

The pressure-controlled switch comprises the cylinder A mounted on the base B having mounted therein the piston D attached to the piston rod F. The piston D is made fluid tight by snap ring E fitted therein. The rod F is adapted to reciprocate in bearing I and is prevented from turning therein by the pin H mounted in the slot G and fixed to said bearing I. On the lower threaded end of the piston rod F is screwed the weight J. Inserted in the opposite end of the cylinder A is the vacuum pipe C which supplies pressure to the cylinder. Fixed to the piston rod F is the bridge strip K which is adapted to slide or recip-

rocate upon the contacts X, L', L<sup>2</sup> and L<sup>3</sup> which are attached to the base B. The contact X is connected with the line wire M'; the contact L' is connected by the wire P' with one end of the coil of the solenoid R', the other end of the coil being connected with the line wire M. The contacts L<sup>2</sup> and L<sup>3</sup> are connected respectively by wires P<sup>2</sup> and P<sup>3</sup> with the ends of the coils of the solenoid switches R<sup>2</sup> and R<sup>3</sup>, the other ends of said coils being connected with line wire M also. The pressure maintaining motors 1, 2 and 3, are each connected directly with the line wire M' by the wire S, and with line wire M through one of the switches or solenoids N', N<sup>2</sup> N<sup>3</sup>, that is, in motor 1 for example, one brush connects directly with the wire M' while the other brush is connected by the wire S<sup>2</sup> with a contact T<sup>5</sup> of the switch N'. The other contact T<sup>4</sup> of switch N is connected by the wire V with line wire M; it will thus be seen that the motors 1, 2 and 3, together with their switches N', N<sup>2</sup> and N<sup>3</sup> are in multiple and that with all of these switches closed, the predetermined working vacuum is maintained for the maximum demands upon the system. When the vacuum in the system increases, due to a diminution of the load, thereby lifting the piston D, causing the lower bridge piece K to be moved away from contact L', the motor #1 is cut out. As will be obvious, a further variation of vacuum in the same direction will cut out first motor #2 and finally motor #3. When the piston D descends from its highest position due to a decrease in vacuum caused by an increase in the load, the motors are restored to operation progressively in reverse order until the vacuum is normal.

In the modification, Fig. 2, the piston rod f is connected with the controller k by link g; controller k is pivoted to the base b at r and held in position by cotter pin s. The weight j is mounted on the threaded end of the controller k permitting adjustment of the same. The contact X is connected with the main wire M' and contacts L', L<sup>2</sup> and L<sup>3</sup> are connected respectively with switches N', N<sup>2</sup> and N<sup>3</sup> by wires P', P<sup>2</sup> and P<sup>3</sup>, the operation being identical with the device shown in Fig. 1.

Having thus described the nature of our

invention and set forth a construction embodying the same, what we claim as new and desire to secure by Letters Patent of the United States is:

- 5 1. In an automatic pressure controller, an electric circuit including a switch actuated by fluctuations of pressure in the system, a plurality of pressure-maintaining motors in multiple connection with said circuit, and  
10 switches in the different motor circuits in multiple connection with the switch actuated by fluctuations of pressure operating to cut in or out progressively the motors to maintain a constant pressure in the system.
- 15 2. In an automatic pressure controller, an electric circuit including a pressure-controlled switch, a plurality of pressure-maintaining motors in multiple connection with said circuit, solenoid switches in the different motor circuits with their solenoids  
20 in multiple connection with the pressure-controlled switch, the latter operating through fluctuations of pressure in the system to cut in or out progressively the solenoid circuits to actuate the motor circuit switches to cut in or out successively  
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the motors to maintain a constant pressure in the system.

3. In an automatic pressure controller, a pressure-controlled switch, a plurality of  
30 pressure-maintaining motors operating to generate and supply pressure to operate said pressure-controlled switch, a plurality of switches with each one controlling one of said motors, and means connecting the  
35 motor-controlling switches with said pressure-controlled switch whereby said pressure-controlled switch actuated by fluctuations in the pressure generated by said motors operates said motor-controlling  
40 switches to cut in or out progressively the motors to maintain a constant pressure at the pressure-controlled switch.

In testimony whereof, we have signed our names to this specification in the presence  
45 of two subscribing witnesses, this 27th day of February A. D. 1906.

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CHESTER S. JENNINGS.

Witnesses:

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