UNITED STATES PATENT OFFICE.

HOWARD REGINALD DUNBAR, OF CANTON, MASSACHUSETTS, ASSIGNEE TO LAMSON CONSOLIDATED STORE SERVICE COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

AUTOMATIC PRESSURE-CONTROLLER.

977,079.

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To all whom it may concern:

Be it known that I, HOWARD REGINALD DUNBAR, of Canton, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Automatic Pressure-Controllers, of which the following is a specification.

My invention relates to improvements in power control for maintaining a normal pressure and is particularly adapted for use in connection with pneumatic despatch tube systems wherein a reserve air pressure or vacuum is maintained and where said reserve is irregularly drawn upon for the transmission of carriers causing varying fluctuations in the pressure.

The object of my invention is to provide mechanism for controlling the pressure-maintaining member to maintain a predetermined pressure and to provide means for preventing the fluctuations from acting suddenly upon said controlling mechanism.

In the accompanying drawings which illustrate a construction embodying my invention, the figure represents an elevation partly in section of the device in operating connection with a vacuum drum.

The device as shown is adapted to operate to maintain a constant or predetermined vacuum in the drum A to which is connected the main supply pipe A' a feeder for numerous pneumatic despatch tubes. The air may be exhausted from the drum A preferably by a blower or pump driven by a variable speed motor and controlled by a rheostat B.

C is an automatic controller for the rheostat B. The rheostat B has the two contact arms B' pivoted on the post B', the arm B' adapted to cooperate with a series of contacts B at controlling the resistance in the field of the motor and the arm B' adapted to cooperate with a series of contacts B which control the resistance in the armature of the motor.

B' is a handle attached to the arm B' to move the same to start the motor into operation. B represents the usual magnet for holding the arm B' at its highest point where the resistances in the armature circuit is at minimum.

The pressure controller or cylinder C carries mounted therein the piston C' secured to the piston rod C' by a pin C, the upper 55 end of the said rod being pivoted at C' to a lever C'. One end of the lever C' is pivoted to a link C' at C', the opposite end of said link being pivoted at C' to an extension C' on the cylinder C. A weight W is 60 adapted to be adjusted to any of the holes W' in the lever C' and secured thereto by a bolt W'. The upper part of the lever C' communicates through the port A' and pipe A' with the vacuum in the main supply pipe A'.

A' is a valve adapted to shut off the vacuum from the cylinder C. A smaller cylinder or dash pot D is secured to the lower part of the cylinder C and has mounted therein the piston D' secured to an extension of the piston rod C' by a pin D'. The orifices or holes D' are to permit the restricted flow of the oil contained in the dash pot D as the piston D' moves up or down.

D' is a port connecting the lower part of the cylinder C below the piston C' with the atmosphere, and D' is a plug permitting the filling of the dash pot D with oil.

Mounted on the arm B' is a plate B carrying a stud B' on which is mounted the fiber roll B' which is held normally against the upper edge of the lever C by the tension of the spring B', and through which the piston D' moves up or down on the contacts or resistance B'.

When the system is to be started up to create a normal working vacuum or pressure in the drum A, the operator starts the motor and pump connected with said drum A as hereinbefore explained by grasping the handle B' of the rheostat, lifting the arm B' which in the usual manner carries with it the arm B'. Both arms are moved to their 95 highest position where the magnet B' retains the arm B' and the resistance in both the armature and field circuits of the motor is reduced to a minimum. The motor now starts, the air gradually exhausts from the drum A, and the vacuum acting through the port A' exhausts the air above the piston C' causing the piston to rise until the lever C' has lifted sufficiently to engage the roll B' at a predetermined height. The amount of vacuum is predetermined by the adjustment of the weight W on the lever C'.

During the use of the system, the pressure
in the drum A and pipe A' fluctuates and therefore the piston C' is raised or lowered moving the arm B' and varying the resistance in the field of the motor, such variations operating to speed up the motor when the pressure varies in one direction and to slow down the motor when the pressure varies in the opposite direction. Thus it will be seen that a constant pressure will be maintained in the drum A. When the fluctuations in the pressure in the drum are great, a violent movement of the piston C' and the arm B' is prevented by the restricted action of the oil in the dash pot D in flowing through the orifices D' in the piston D' which steadies and graduates the velocity of the movement of the piston C'. When the system is shut down the arm B' is released and the motor stopped by throwing out the usual cut out or switch whereupon the parts assume the non-operating position shown in the figure.

Having thus described the nature of my invention and set forth a construction embodying the same, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In an automatic pressure controller, a source of air pressure, a supply pipe of a pneumatic despatch tube system communicating with said source of air-pressure, a cylinder communicating at one end with said supply pipe and opening at the other end to the outside air, a piston movable in said cylinder by the variation of pressure in the cylinder through the latter's communication with said supply pipe, a pivoted lever actuated by said piston, and the hinged contact-arm of a rheostat having sliding engagement with said lever and controlled by the movement of said lever.

2. In an automatic pressure controller, a source of air pressure, a supply pipe of a pneumatic despatch tube system communicating with said source of air-pressure, a cylinder communicating at one end with said supply pipe and opening at the other end to the outside air, a piston movable in said cylinder by the variation of pressure in the cylinder through the latter's communication with said supply pipe, a piston rod leading from said piston to the exterior of the cylinder, a lever having a movable fulcrum connected with the outer end of said piston rod, a weight adjustable on the free end of said lever, and the hinged contact-arm of a rheostat having a sliding engagement with said lever and controlled by the movement of said lever.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 25th day of June A.D. 1907.

HOWARD REGINALD DUNBAR.

Witnesses:

CLARENCE H. GREELEY,
WARREN B. ROBINSON.