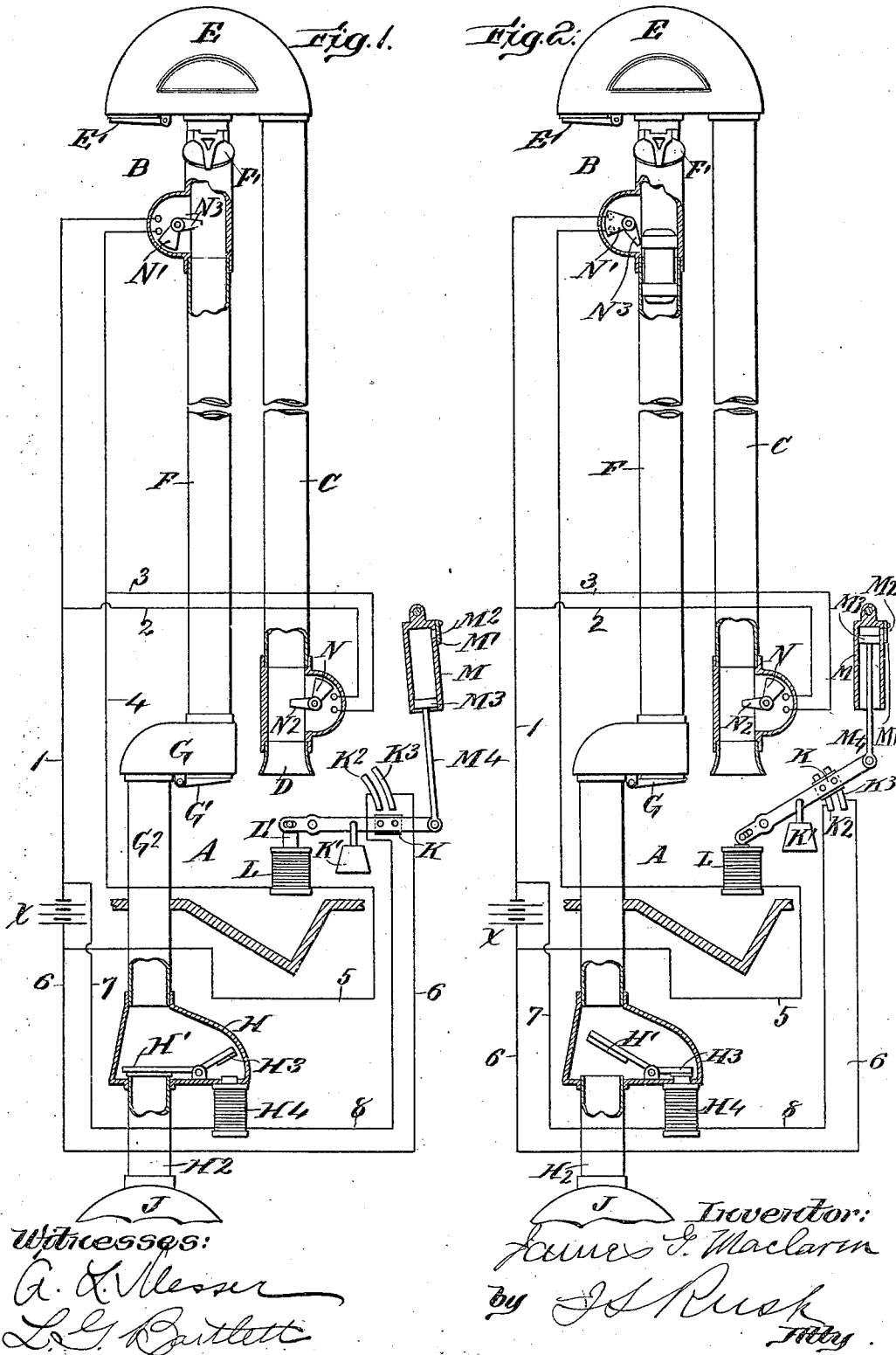


J. G. MACLAREN.
PNEUMATIC DESPATCH TUBE APPARATUS.
APPLICATION FILED SEPT. 25, 1907.

960,656.

Patented June 7, 1910.



UNITED STATES PATENT OFFICE.

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PNEUMATIC-DESPATCH-TUBE APPARATUS.

960,656.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed September 25, 1907. Serial No. 394,543.

To all whom it may concern:

Be it known that I, JAMES GAYTON MACLAREN, of Weehawken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Pneumatic-Despatch-Tube Apparatus, of which the following is a specification.

My invention relates to improvements in pneumatic despatch tube apparatus and its object is to devise a system wherein the valve controlling the admission of air to the tubes for driving carriers is electrically operated by the insertion of a carrier for transmission, said valve being held fully open by a timing device during the transmission of a carrier and which device causes the valve to close at the time of delivery of the carrier thereby cutting off the admission of air.

In the accompanying drawings is illustrated a form of construction embodying my invention in which,—

Figure 1 is a side elevation, partly in section, showing the apparatus in normal position with no carriers in transit. Fig. 2 is a side elevation partly in section showing the position of the parts upon the insertion of a carrier for despatch at the sub-station.

Referring to the drawings; C represents a tube for the transmission of carriers from the central or cashier's station A to the sub or clerk's station B.

D is a bell-mouth for the insertion of carriers into the transmission tube C, said tube being connected at its other end with the terminal E controlled by the ordinary discharge valve E'.

F is a transmission tube for the return of carriers connecting the terminal E at the sub-station B with the terminal G at the central station A.

F' is an ordinary inlet valve for the insertion of carriers into the transmission tube F and G' is an ordinary delivery valve controlling said terminal G.

G² is a pipe connecting the terminal G with a casing H in which is located a valve H' controlling the passage of pipe H² leading to the vacuum drum J, said valve normally closing said passage as shown in Fig. 1.

H³ is an arm connected with and adapted to operate said valve H', said arm forming an armature for a magnet H⁴ located in the lower part of the casing H.

K is a switch adapted to make or break the

circuit through the magnet H⁴. K' is a weight normally holding said switch open and L is a magnet adapted to operate and close said switch through an armature or core L' connected therewith.

M is a dash-pot or timing device to graduate the movement of the switch K in one direction. This timing device consists of the cylinder M having mounted therein the piston M³ connected by a rod M⁴ with one end of switch K.

M' is a flap valve permitting the free movement of the piston M³ in one direction and having a restricted orifice therein for graduating the movement of said piston in the opposite direction.

N is a normally open switch in circuit with the magnet L and adapted to be closed upon the insertion of a carrier into the bell-mouth D and N' is a similar switch normally open in circuit with the magnet L and adapted to be closed upon the insertion of a carrier into the transmission tube F.

The operation is as follows:—In despatching a carrier from station A to station B, the carrier is inserted into the bell-mouth D engaging the trip N², closing the switch N and energizing the magnet L, attracting the armature L' causing the switch K to rise engaging the contacts K² and K³ and closing the circuit through the magnet H⁴, energizing said magnet and through armature H³ causing the valve H' to be opened as shown in Fig. 2. The opening of the valve H' causes an inrush of air through the bell-mouth D which drives the carrier through the tube C toward station B. In the meantime the closing of the switch K acting through rod M⁴ causes the piston M³ to rise in the cylinder M, the air in the upper part of said cylinder escaping through the flap-valve M', permitting the unrestricted movement of said piston M³ and switch K. After the carrier has passed the trip N² the switch N opens, breaking the circuit and deenergizing the magnet L. The armature L' now being released, the weight K' moves the switch K and piston M³ gradually downward being restricted by the air entering the cylinder M through the vent M² in valve M' until, by the time the carrier has discharged through the valve E' at sub-station B, the switch K has passed away from contacts K² and K³ breaking the circuit and de-

energizing the magnet H^4 , releasing the armature H^3 causing the valve H' to close cutting off the flow of air to the drum J. The circuit through magnet L when switch N is closed is as follows:—from the battery X through wires 1 and 2 and switch N, thence through wires 3 and 4 through magnet L thence through wires 5 and 6 back to the battery. The circuit through magnet H^4 when closed by timing switch K is as follows:—from battery X through wires 1 and 7, magnet H^4 and wire 8 to contact K^2 , through switch K, contact K^3 and wire 6 back to the battery X. In despatching a carrier from sub-station B to central station A, the inlet valve F' is opened and the carrier inserted into the tube F when it engages the trip N^3 closing the switch N' (see Fig. 2) energizing the magnet L, closing the switch K and through magnet H^4 opening the valve H' as hereinbefore described. The air now entering the bell-mouth D drives the carrier through the tube F toward the station A. The carrier having passed the trip N^3 , the switch N' closes, deenergizing the magnet L, releasing the switch K and by the time the carrier has discharged through valve G' at station A, the switch K timed by the dash-pot M has opened deenergizing the magnet H^4 and permitting the valve H' to close. The circuit through magnet L and switch N' is in multiple with that through magnet L and switch N.

Having thus described 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 a pneumatic despatch tube apparatus, a tube for the transmission of carriers, a connection through which air may be exhausted from said tube, a normally closed air valve adapted to control the flow of air through said transmission tube, an electro-magnet adapted to be operated to open said valve to establish a flow of air through said transmission tube for driving carriers, and an electro-magnetically operated timing

switch adapted to be operated and closed by the insertion of a carrier into said tube to energize said magnet to open said valve, and means for timing the opening of said switch whereby said magnet is deenergized and the said air valve closed.

2. In a pneumatic despatch tube apparatus, a tube for the transmission of carriers, a connection through which air may be exhausted from said tube, a normally closed air valve adapted to control the flow of air through said transmission tube, an electro-magnet adapted to operate said valve, a normally open timing switch in circuit with and adapted to be closed to energize said magnet to open said valve to establish a flow of air through said tubes for driving carriers, an electro-magnet adapted to be operated by the insertion of the carrier into said tube to close said switch, and means for timing the opening of said switch whereby said valve controlling magnet is deenergized and said air valve is closed.

3. In a pneumatic despatch tube apparatus, a tube for the transmission of carriers, a connection through which air may be exhausted from said tube, a normally closed air valve adapted to control the flow of air through said transmission tube, an electro-magnet adapted to operate said valve, a normally open electro-magnetically operated switch in circuit with said magnet and adapted to be operated by the insertion of a carrier into said tube to energize said magnet and open said valve, means normally urging the opening of said switch, and means for timing the opening of said switch whereby said magnet is deenergized and said valve is closed.

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

JAMES GAYTON MACLAREN.

Witnesses:

ELSIE MACLAREN,
WILLIAM TURNAN.