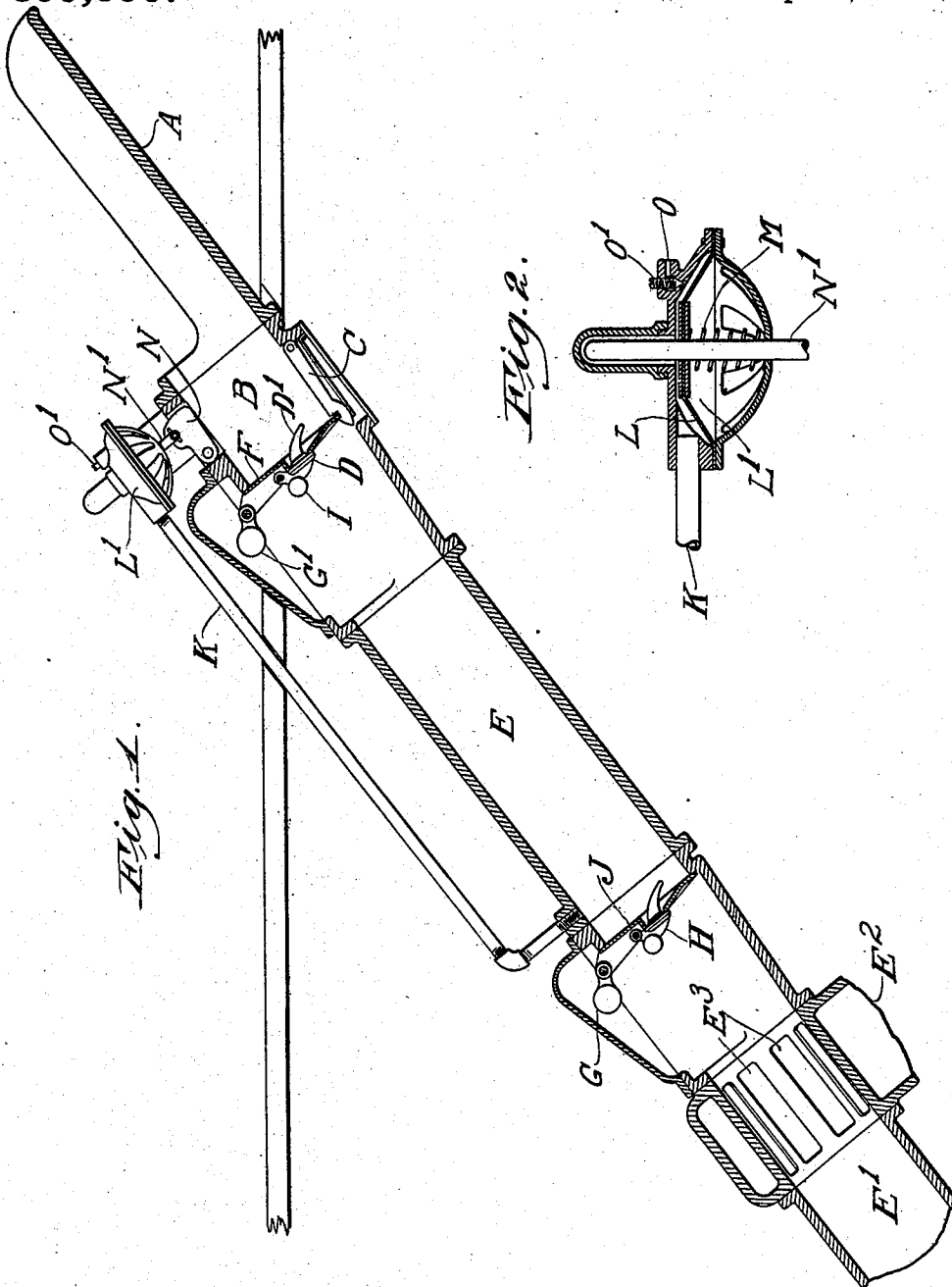


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 SENDING MECHANISM FOR PNEUMATIC DESPATCH SYSTEMS.
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SENDING MECHANISM FOR PNEUMATIC-DESPATCH SYSTEMS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHESTER S. JENNINGS, citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sending Mechanism for Pneumatic - Despatch Systems; and I do hereby 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.

The invention relates to pneumatic despatch systems, and more especially to sending mechanism through which carriers are introduced into the transmission tubes.

The object of the invention is to provide a construction and arrangement which shall be simple and efficient, and which will enable carriers to be despatched in rapid succession and at proper intervals.

The apparatus embodying the various features of the invention comprises a sending chamber which is in line or adapted to be brought into alinement with a transmission tube and is provided with inner and outer gates which are normally closed. When a carrier is inserted it opens the outer gate and passes into the inner chamber, the pressure on the opposite sides of the gate having first been equalized in case there is pressure in the sending chamber. The outer gate then closes, and the pressure on the opposite sides of the inner gate is equalized so that the carrier opens the inner gate and passes into the transmission tube, the inner gate immediately closing behind it.

One feature of the invention consists in providing means actuated by the insertion of the carrier for equalizing the pressure on opposite sides of the outer gate and means actuated by the insertion of the carrier for equalizing the pressure on opposite sides of the inner gate after the outer gate has closed. By providing means actuated by the insertion of the carrier for equalizing the pressure on the opposite sides of each gate in succession, carriers may be inserted and transmitted without regard to the presence or absence of pressure within the sending chamber, and the gates may be opened in rapid succession by the carrier and without the delay incident to the equalizing of the pressure on the opposite sides of either gate by the flow of air through a restricted by-pass.

This feature of the invention may be embodied in constructions in which a pressure substantially equal to the pressure of the transmission tube is normally maintained within the sending chamber, or in constructions in which the sending chamber is normally open to the atmosphere.

A further feature of the invention consists in providing one or both of the gates which close the sending chamber with equalizing valves which are actuated by the carrier. By thus mounting the equalizing valve in the gate an extremely simple construction is provided, and one which does not require for its operation devices projecting laterally through the side wall of the sending chamber or supporting tube which tend to cramp the carrier in the tube.

A further feature of the invention consists in providing a carrier stop arranged beyond the outer gate and controlled by a timing mechanism which is in turn controlled from the pressure within the sending chamber. This stop prevents a carrier from engaging the outer gate until a certain time has elapsed after the preceding carrier has passed the inner gate, and then releases the carrier so that it will slide down against the outer gate, the momentum of the carrier insuring the opening of the gate.

These features, as well as the further features of invention which will be pointed out in the claims, will be readily understood from an inspection of the accompanying drawing in which Figure 1 is a vertical sectional view of a transmitting mechanism embodying the features of the invention in the forms in which I prefer to employ them, and Fig. 2 is a detail of the timing mechanism.

In the construction shown the sending chamber E is arranged in line with the transmission tube E¹ which is in communication with the supply pipe E² through the slots E³ in the usual manner.

The sending chamber E is closed by an inner gate J and an outer gate F which are pivoted in such a manner that they may swing open under the weight of the carrier, and are normally held closed by the action of the weights G G¹. The outer gate is provided with an equalizing valve D pivoted upon the gate and held normally in position to close the port through the gate by a weight I. The valve D is provided with a projecting finger D¹ which extends through the port in

the gate F and projects beyond the front face of the gate so that it may be struck by the advancing carrier. The gate F is latched in closed position by a spring-pressed latch C which is pivoted to one side of the receiving chute A and is so arranged that it will be pressed to one side and release the gate F by the carrier as it slides down the chute A.

The inner gate J is provided with an equalizing valve H similar in construction and arrangement to the equalizing valve D on the outer gate F.

A carrier stop N is pivotally mounted above the chute A some distance beyond or above the outer gate F. This stop is connected by a rod N¹ to a diaphragm L mounted within a diaphragm chamber L¹ and is held normally out of the path of the carrier by a spring M acting against the under side of the diaphragm. The chamber above the diaphragm L communicates through a pipe K with the sending chamber E and communicates with the atmosphere through a vent O which may be adjusted by a needle valve O¹.

When a carrier is to be transmitted it is placed upon the chute A and slides down this chute, first pressing the latch C to one side and then engaging the equalizing valve D and opening it so that the pressure on opposite sides of the gate F is equalized in case there is any pressure within the chamber E. The carrier then strikes the gate F swinging it to one side against the influence of the weight G and enters the chamber E, the gate F immediately closing behind the carrier. The equalizing valve D also closes under the influence of the weight I so that communication between the entrance end of the chamber E and the atmosphere is cut off. The carrier sliding down through the chamber E first strikes the equalizing valve H and opens it, so that the pressure on opposite sides of the inner gate J is quickly equalized, and then the carrier swings the gate J to one side and passes down into the transmission tube E¹. The gate J and valve H immediately close, cutting off communication between the transmission tube and the sending chamber. When the pressure on opposite sides of the inner gate J is equalized, the pressure within the sending chamber E is transmitted through the pipe K to the upper side of the diaphragm L, forcing the carrier stop N forward into the path of the carrier, so that the entrance of a second carrier into the sending chamber is prevented until the carrier stop is removed from the path of the carrier. The compressed air within the chamber E gradually leaks out into the atmosphere through the vent O. As the volume of air decreases the spring M forces back the diaphragm L, withdrawing the carrier stop. The pressure within the chamber E will remain very nearly the same, however, until the diaphragm has reached its

limit of movement by reason of the pressure exerted by the spring M. After the diaphragm has reached the limit of its movement, and the carrier stop has been withdrawn, the pressure within the chamber E will gradually fall to atmospheric pressure. As soon as the stop N has been withdrawn, however, a second carrier may be transmitted, since the carrier will open the equalizing valve D and cause the pressure within the chamber E to quickly fall to atmospheric pressure.

While it is preferred to connect the timing mechanism and the stop N with the sending chamber, and to provide a vent from the sending chamber to the atmosphere, so that the pressure within the sending chamber E will be normally atmospheric, this construction is not essential to the broader features of the invention, and this construction as well as the specific construction and arrangement of the various parts may be varied without departing from the broad scope of the invention.

Having explained the nature and object of the invention, and specifically described one form of apparatus in which it may be embodied, what I claim is:—

1. In a pneumatic despatch system, a sending chamber, outer and inner gates for normally closing the chamber, means actuated by the insertion of a carrier for equalizing the pressure on opposite sides of the outer gate, and means actuated by the insertion of the carrier for equalizing the pressure on opposite sides of the inner gate after the outer gate is closed, substantially as described.

2. In a pneumatic despatch system, a transmission tube, a sending chamber, outer and inner gates for closing said chamber, means actuated by the insertion of a carrier for connecting the sending chamber with the atmosphere to equalize the pressure on opposite sides of the outer gate, and means actuated by the introduction of the carrier into the sending chamber for connecting the sending chamber with a chamber having the pressure of the transmission tube to equalize the pressure on opposite sides of the inner gate, substantially as described.

3. In a pneumatic despatch system, a transmission tube, a sending chamber, outer and inner gates for closing said chamber, and a normally closed equalizing valve mounted in the outer gate and arranged to be opened by the carrier, substantially as described.

4. In a pneumatic despatch system, a transmission tube, a sending chamber, outer and inner gates for closing said chamber, and a normally closed equalizing valve mounted in the inner gate and arranged to be operated by the carrier, substantially as described.

5. In a pneumatic despatch system, a transmission tube, a sending chamber normally in communication with the atmosphere, outer

and inner gates for closing the chamber, and a normally closed equalizing valve in the inner gate arranged to be operated by the carrier, substantially as described.

5 6. In a pneumatic despatch system, a transmission tube, a sending chamber, outer and inner gates for closing said chamber, a stop for preventing the insertion of the carrier into the chamber, a diaphragm for controlling said stop, and means for subjecting said diaphragm to the pressure within the sending chamber, and a regulated vent for relieving the pressure on the diaphragm, substantially as described.

15 7. In a pneumatic despatch system, a sender, a transmission tube, a gate closing communication between said sender and

transmission tube, and an equalizing valve mounted in said gate and arranged to be operated by the carrier, substantially as described. 20

8. In a pneumatic despatch system, a transmission tube, a sender, a gate closing communication between the sender and transmission tube, an equalizing valve pivoted on said gate and provided with a finger projecting beyond the outer face of the gate, substantially as described. 25

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

CHESTER S. JENNINGS.

Witnesses:

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