

No. 640,020.

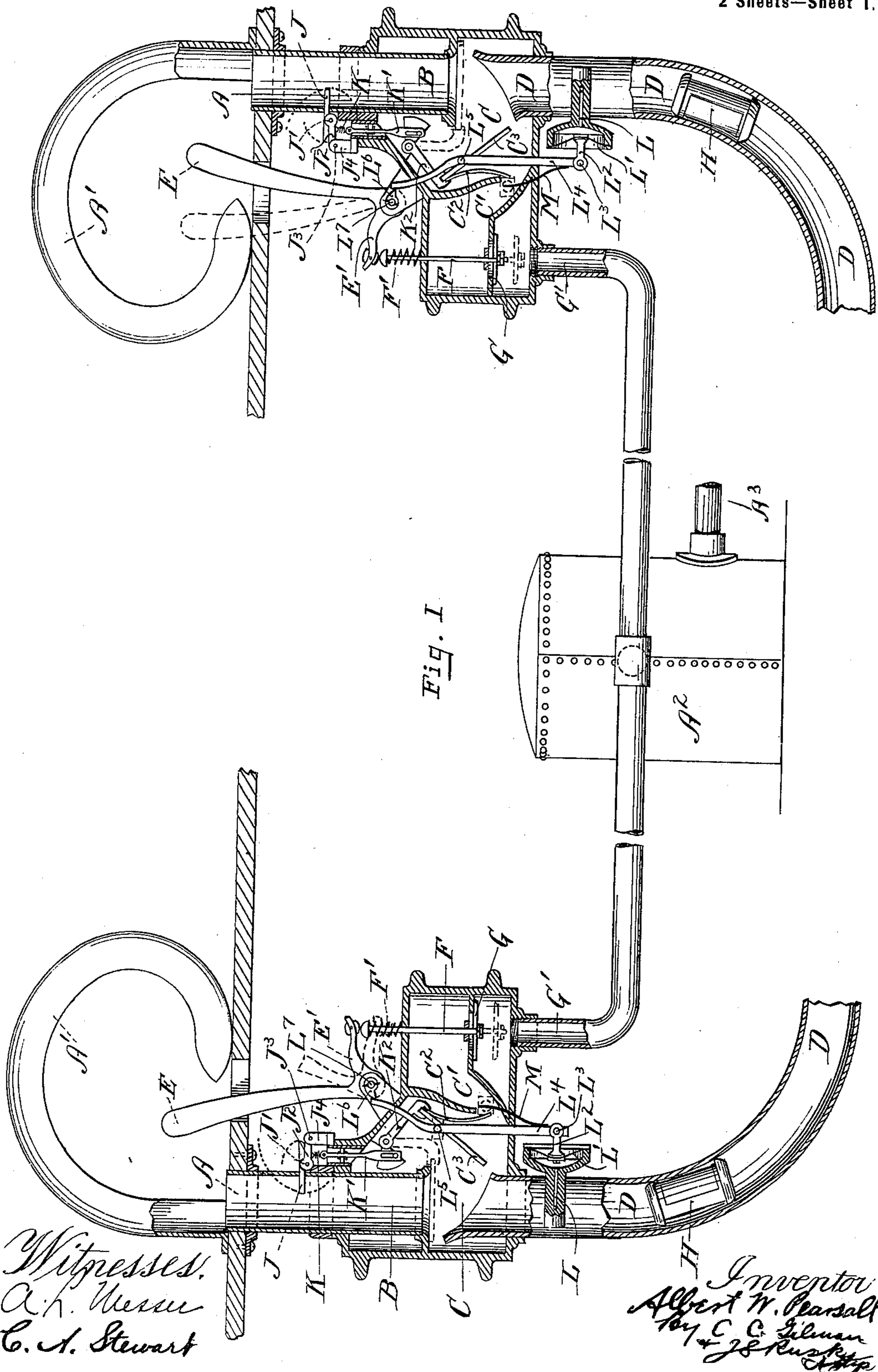
Patented Dec. 26, 1899.

A. W. PEARSALL.
PNEUMATIC DESPATCH TUBE APPARATUS.

(Application filed May 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.
A. H. Vassar
C. A. Stewart

Inventor
Albert W. Pearsall
by C. C. Gilman
+ J. B. Ruston

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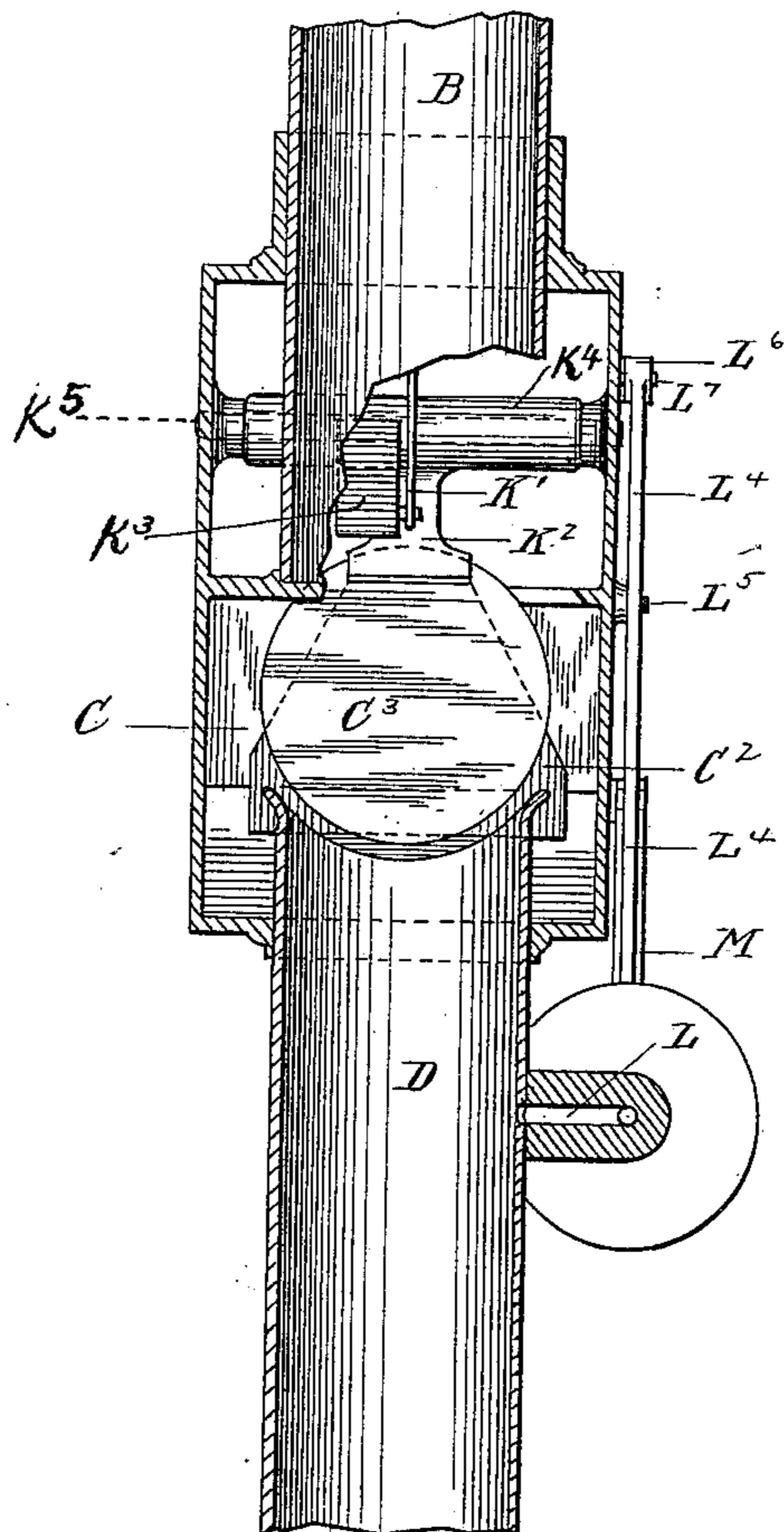


Fig. 2.

Witnesses
A. A. Nussner
C. A. Stewart

Inventor
Albert W. Pearsall
By E. C. Gilman
Attorney

UNITED STATES PATENT OFFICE.

ALBERT W. PEARSALL, OF NEW YORK, N. Y., ASSIGNOR TO THE LAMSON CONSOLIDATED STORE SERVICE COMPANY, OF NEWARK, NEW JERSEY.

PNEUMATIC-DESPATCH-TUBE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 640,020, dated December 26, 1899.

Application filed May 8, 1899. Serial No. 715,927. (No model.)

To all whom it may concern:

Be it known that I, ALBERT W. PEARSALL, of New York, in the county of New York and State of New York, 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 in which the carriers are propelled by air-pressure through a single tube in both directions.

My invention consists of certain novel features hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 represents in section a terminal at each end of the line, with the connecting-pipes between the terminals broken away. Fig. 2 is a cross-sectional view showing in rear elevation parts of the interior mechanism.

To despatch a carrier from the right-hand to the left-hand end of the line, it is dropped into the mouth A and passes down the tube B, across the valve-box C, into the despatch-tube D. Then the lever E is pulled toward the left, as shown in dotted lines, and the arm E' of said lever pushes down the valve-rod F against the tension of the spring F' and opens the valve G and allows the compressed air to flow in through the pipe G' and passes by the valve G and through the narrow passage C' against the rearward extension C² of the valve C³. This pressure causes the valve C³ to move to the position shown in dotted lines, closing the tube B, so that the air-pressure passes down the despatch-tube D and drives the carrier H to the opposite end of the line. The carrier passing up, as shown on the left hand of the figure, will pass up through the tube D, valve-box C, and tube B, and will strike the finger J, pivoted at J' to the arm J², pivoted at J³ to the lug J⁴ on the valve-casing. As the carrier strikes the finger J said finger moves upwardly, and through the medium of the spring K and link K', connected to the main balance-arm K², the valve C³ is closed, and the carrier after passing out of the tube B enters the left-hand terminal A', where it is stopped, the valves C³ being closed, and the

left-hand valve G is closed while the right-hand valve G is open. Under these conditions it will be noted that the pressure in the transmitting-tube D will rise to the pressure in the air-supply tank A², to which the pipes G' are connected. Said tank is connected to a suitable air-pump by the pipe A³. Communicating with the pipe D, which is below the valve-box C at both ends of the line, is the pipe L, leading to one side of the diaphragm L'. Bearing against the outer side of this diaphragm is the link L², pivoted at L³ to the lower end of the lever L⁴. This lever L⁴ is pivoted at L⁵ and extends forwardly in position to engage with the catch L⁶ on the shaft L⁷, upon which the lever E is mounted. By reason of this catch L⁶ engaging with the upper end of the lever L⁴ the lever E is held forwardly to the position shown in dotted lines when pulled forward to despatch a carrier, and in this position holds the valve G open, as shown in dotted lines. The lever L⁴ is held in this position by the action of the spring M. In the apparatus the diaphragm and levers are off at one side of the machine and in no way interfere with the interior mechanisms of the valve-box.

It will be seen from the above description that when the pressure in the tube D rises to the pressure of the supply-tank A² the diaphragm L' is forced out by the increased pressure and the lever L⁴ is forced out of engagement with the catch L⁶, allowing the lever E to return to its normal position and also allowing the spring F' to close the valve G, shutting off the flow of the air into the valve-box C through the pipe G'.

Upon the insertion of the carrier at the right-hand end of the terminal to be sent to the left-hand end, or vice versa, the finger J yields downwardly and allows the carrier to pass without affecting the mechanism.

After the air-pressure is cut off by the closing of the valve G the air-pressure will be relieved from the under side of the valve C³, allowing the valve C³ to open, and said valve is held open by the weight K³ on the hub K⁴, which is mounted loosely on the pin K⁵, fast in the opposite sides of the valve-box C.

When a carrier is to be despatched at the

left-hand end of the line for transmission to the right-hand terminal, the lever E is moved (as partly shown in dotted lines) to open the valve G, and the spring M, acting on the lever L⁴, will pass under the catch L⁶ and hold the valve G open. As said carrier moves up the right-hand end of the line it will strike the finger J and, through the connecting mechanism, as previously described, will close the valve C³.
 10 When the pressure in the tube D rises to the pressure of the supply-tank A², the diaphragm L' at the left-hand end of the line will be forced out and release the lever E, and thereby allow the spring F' to close the valve G, thus cutting off the flow of the air from the pipe G' into the valve-box C.

It will be understood that after a carrier is inserted in the despatch-tube and the valve C³ is closed another carrier cannot be despatched until the carrier first despatched has arrived at its destination and the air-pressure shut off and the valve C³ opens, as above described. From the above it will be understood that a carrier cannot be inserted into the despatch-tube while a carrier is in transit.

From the above it will be seen that the construction and operation of the mechanisms at each end of the line are similar.

I do not limit myself to the arrangement and construction shown, as the same may be varied without departing from the spirit of my invention.

Having thus ascertained 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 a pneumatic-despatch-tube apparatus, a carrier-transmitting tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet, a source of compressed air, an air-inlet for said compressed air to the transmitting-tube, a valve normally closing said air-inlet, mechanism for opening said air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve after a carrier has passed said valve, means for holding said air-inlet valve open at the despatch end of the tube, and means for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of said air-inlet valve.

2. In a pneumatic-despatch-tube apparatus, a carrier-transmitting tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet, a source of compressed air, an air-inlet for said compressed air to the transmitting-tube, a valve normally closing said air-inlet, mechanism for opening said air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve after a carrier has passed said valve, means for holding said air-inlet valve open at the despatch end of the tube, and means

operated by the pressure in the tube for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of the air-inlet valve.

3. In a pneumatic-despatch-tube apparatus, a carrier-transmitting tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet respectively after the insertion and discharge of the carriers, a source of compressed air, an air-inlet for said compressed air to the transmitting-tube, a valve normally closing said air-inlet, a lever for opening said air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve after a carrier has passed said valve, a lever for holding said air-inlet valve open at the despatching end of the tube, a flexible diaphragm to which said lever is connected on one side and having its opposite side exposed to the pressure in the tube and adapted when actuated by the pressure in the tube to operate said lever and thereby release and permit the closing of the air-inlet valve.

4. In a pneumatic-despatch-tube apparatus, a carrier-transmitting tube having an inlet and an outlet for the carriers, a source of compressed air, an air-inlet for said compressed air to the transmitting-tube, a valve located in the path of the compressed air from the air-inlet to the transmitting-tube and adapted to be operated by said air-pressure to close the inlet to the transmitting-tube, a valve normally closing said air-inlet, mechanism for opening said air-inlet valve, a valve for closing the outlet of the transmitting-tube, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve after a carrier has passed said valve, means for holding said air-inlet valve open at the despatch end of the tube, and means for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of said air-inlet valve.

5. In a pneumatic-despatch-tube apparatus, a carrier-transmitting tube having an inlet and an outlet for the carriers, valves for said inlet and outlet, a source of compressed air, an air-inlet for said compressed air to the transmitting-tube, a valve normally closing said air-inlet, mechanism for opening said air-inlet valve, mechanism connected to said valves controlling said inlet and outlet and adapted to allow the insertion of carriers at the inlet end without closing the valve and to be operated by the traveling carriers at the outlet end of the line to close the valve controlling said outlet, means for holding said air-inlet valve open at the despatch end of the tube, and means for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of said air-inlet valve.

6. In a pneumatic-despatch-tube apparatus,

tus, a carrier-transmitting tube having an inlet and an outlet for the carriers, valves for said inlet and outlet, a source of compressed air, an air-inlet for said compressed air to the transmitting-tube, a valve normally closing said air-inlet, mechanism for opening said air-inlet valve, mechanism connected to the valves controlling said carrier inlet and outlet and adapted to allow the insertion of carriers at the inlet end and to be operated by the traveling carriers at the outlet end of the line to close the valve controlling said outlet, means for holding said air-inlet valve open at the despatch end of the tube, and means operated by the pressure in the tube for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of the air-inlet valve.

7. In a pneumatic-despatch-tube apparatus, a carrier-transmitting tube having an inlet and an outlet for the carriers, a source of compressed air, an air-inlet for said compressed air to the transmitting-tube, a valve located in the path of the compressed air

from the air-inlet to the transmitting-tube and adapted to be operated by said air-pressure to close the inlet to the transmitting-tube, a valve normally closing said air-inlet, mechanism for opening said air-inlet valve, a valve for closing the outlet of the transmitting-tube, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve after a carrier has passed said valve, means for holding said air-inlet valve open at the despatch end of the tube, and means operated by the pressure in the tube for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of the air-inlet valve.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 2d day of May, A. D. 1899.

ALBERT W. PEARSALL.

Witnesses:

EMMETT R. CLARKE,
J. T. RYAN.