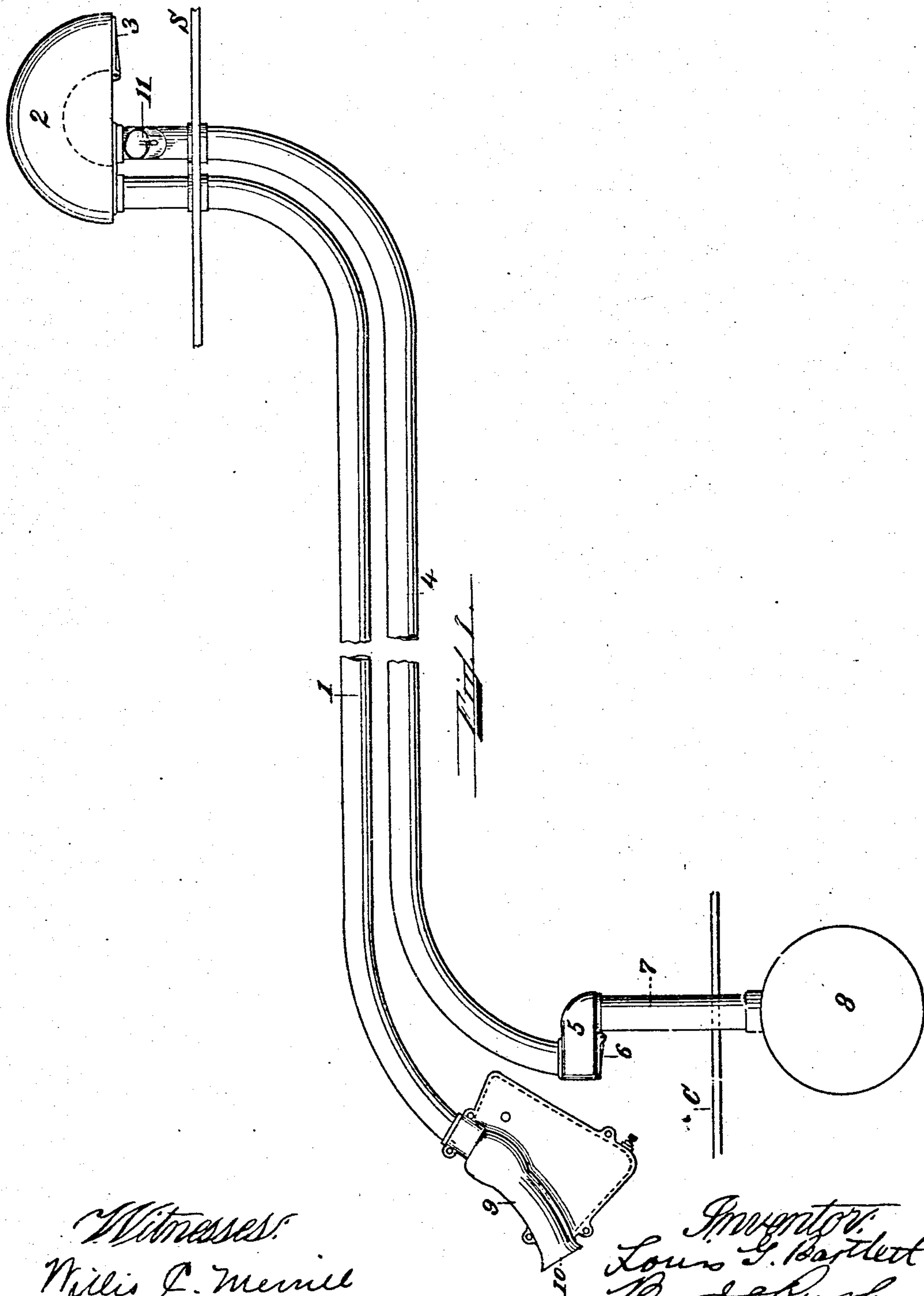


L. G. BARTLETT.
PNEUMATIC DESPATCH TUBE APPARATUS.
APPLICATION FILED APR. 16, 1908.

962,073.

Patented June 21, 1910.

4 SHEETS—SHEET 1.



Witnesses:
Willis F. Merrill
A. A. Messer

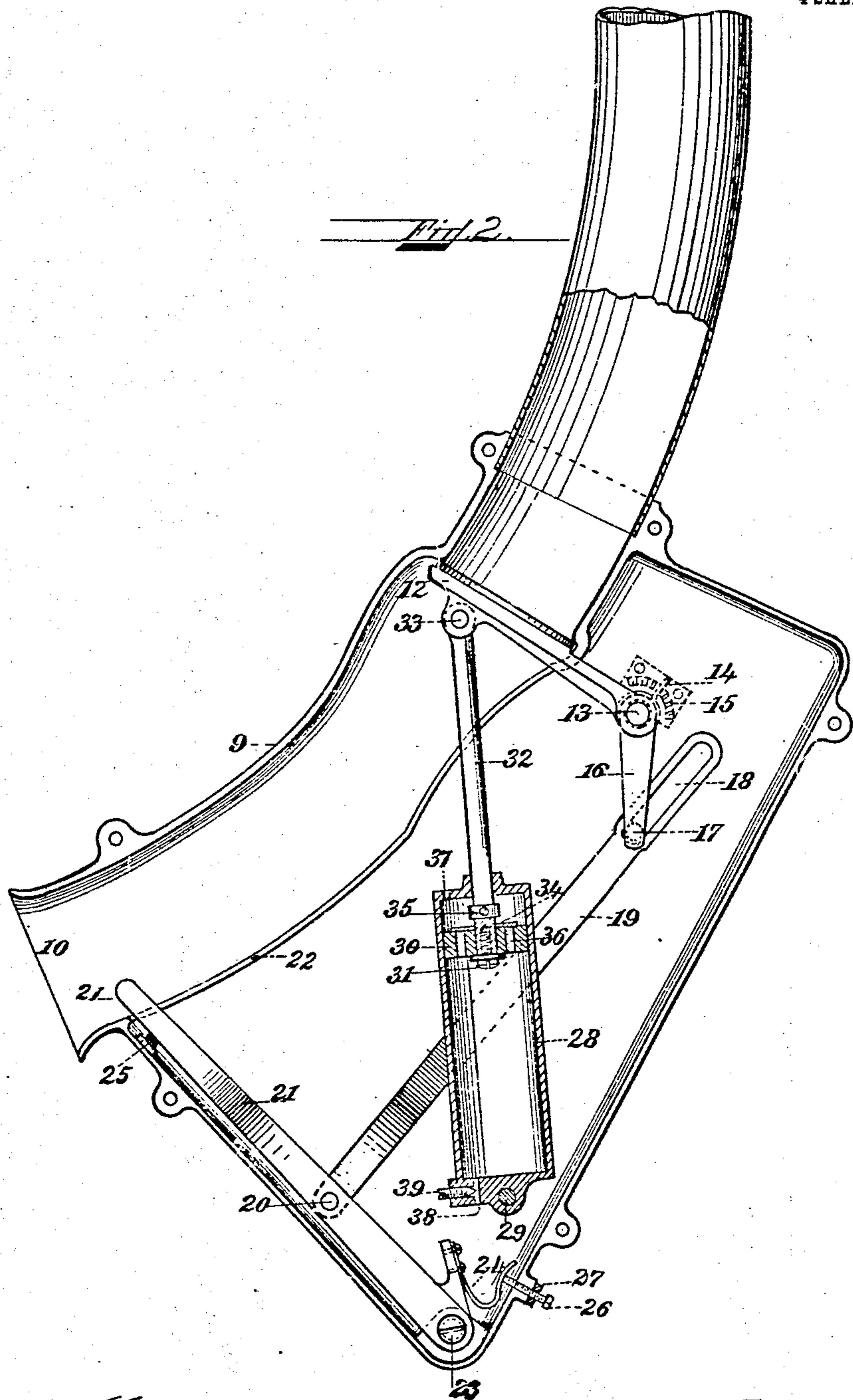
Inventor:
Louis G. Bartlett
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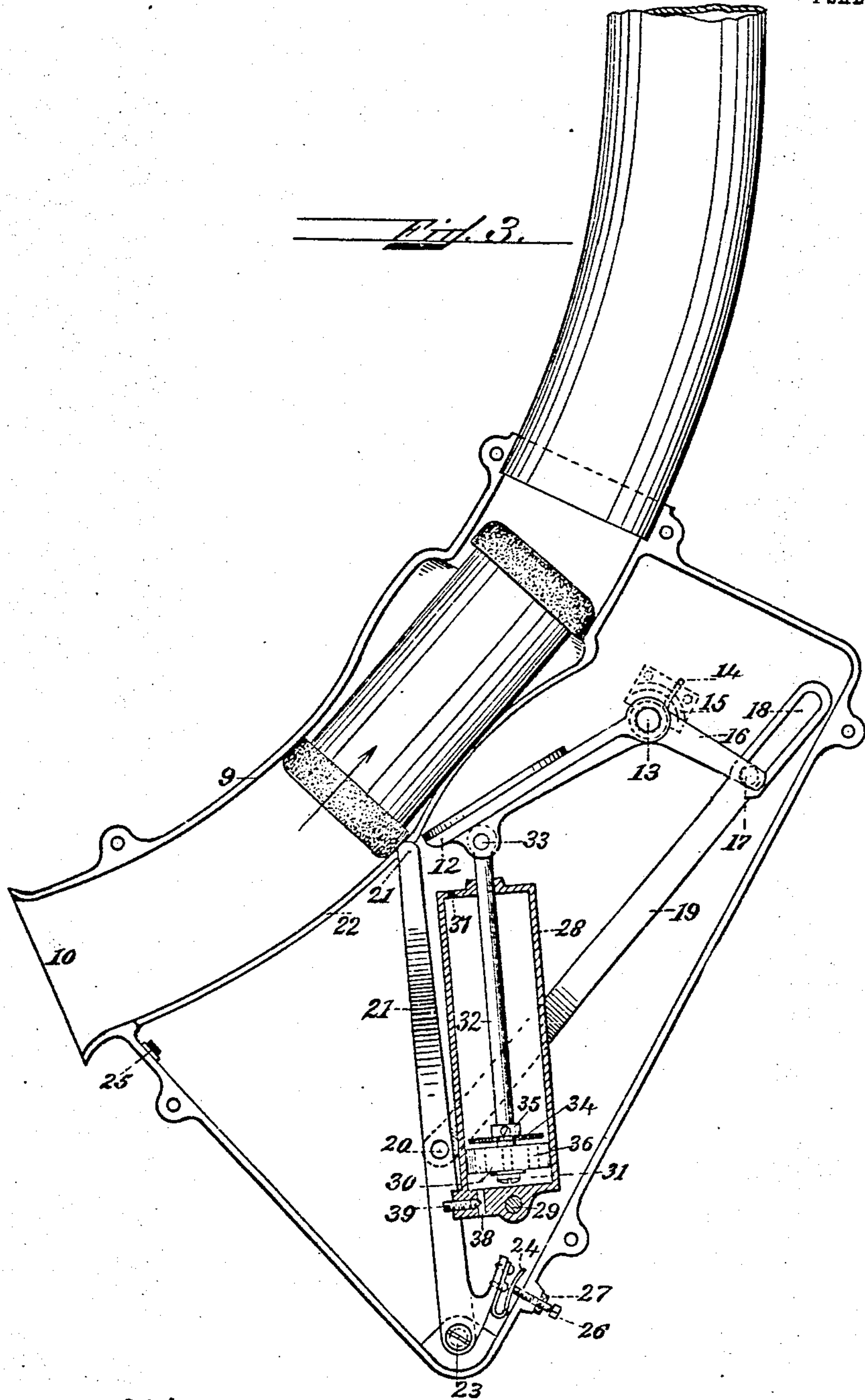
Inventor:
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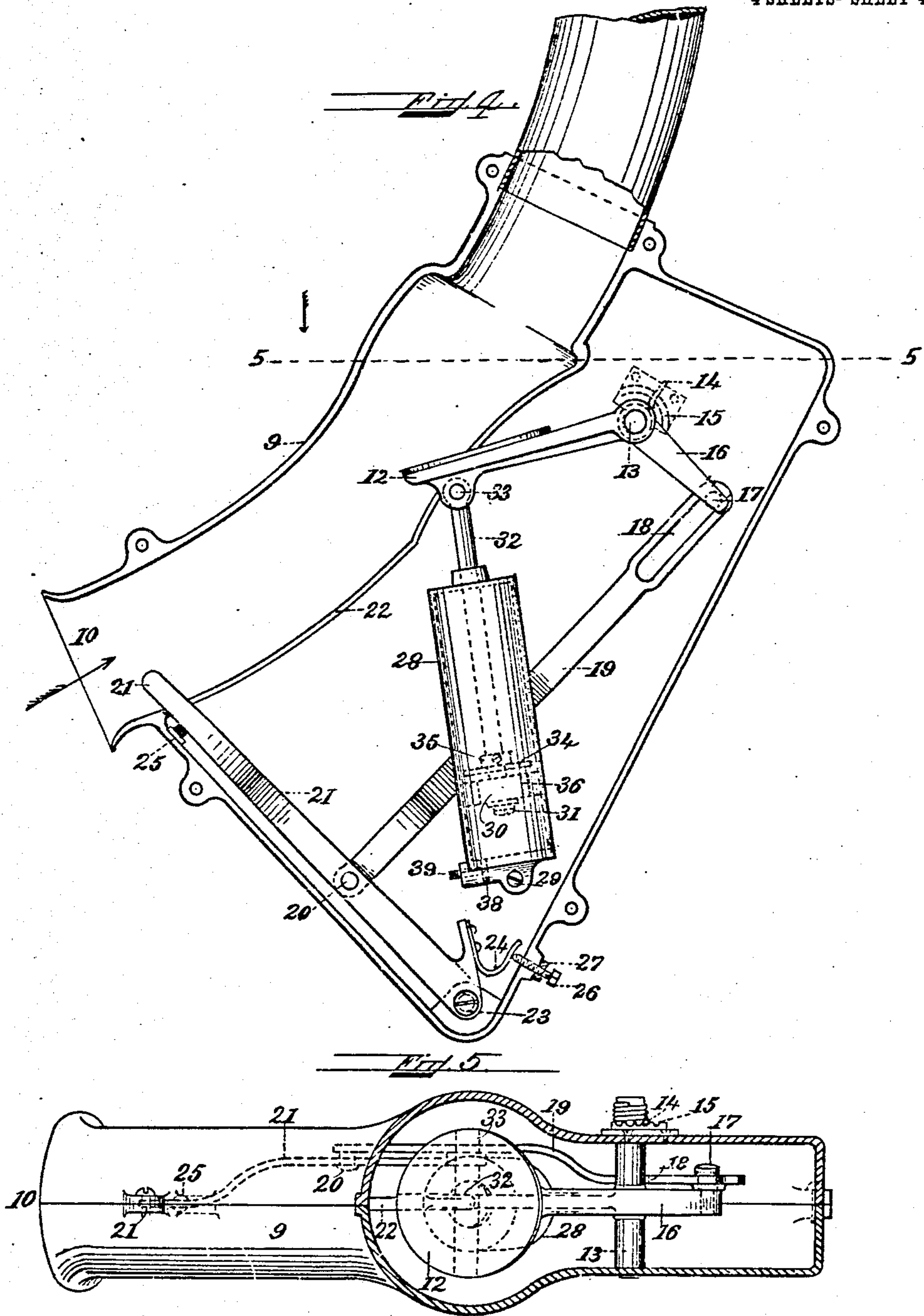
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4 SHEETS—SHEET 4.



Witnesses:
Wm. C. Merrick
A. A. Moser

Inventor:
Louis G. Bartlett
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UNITED STATES PATENT OFFICE.

LOUIS G. BARTLETT, OF SOMERVILLE, MASSACHUSETTS.

PNEUMATIC-DESPATCH-TUBE APPARATUS.

962,073.

Specification of Letters Patent. Patented June 21, 1910.

Application filed April 16, 1908. Serial No. 427,347.

To all whom it may concern:

Be it known that I, LOUIS G. BARTLETT, of Somerville, in the county of Middlesex and State of Massachusetts, 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 of the class known as the bell mouth control or all sealed vacuum systems, wherein air is admitted to the system only during the transmission of carriers.

The object of my invention is to provide a valve for controlling the admission of air to the system for driving carriers and which is adapted to be operated directly by the vacuum in the system to open and close when a carrier is despatched at the substation. This valve is adapted to be mechanically operated to open by the insertion of a carrier into the bell mouth at the central station, and means are provided for timing the closure of said valve.

In the accompanying drawing which illustrates a construction embodying my invention, Figure 1 is a diagrammatic view of a circuit of pneumatic transmission tubes showing the controlling mechanism located at the bell mouth. Fig. 2 is an enlarged sectional view of the bell mouth and controlling mechanism showing the normal position of the same. Fig. 3 is a similar view to Fig. 2 and shows the position of the mechanism when a carrier is despatched at the bell mouth. Fig. 4 shows the position of the parts when a carrier is despatched at the substation. Fig. 5 is a sectional view on the line 5-5 Fig. 4 looking in the direction indicated by the arrow.

Like characters of reference refer to like parts throughout the several views.

1 is a transmission tube connecting the central or cashier's station C with the usual delivery terminal 2 controlled by the valve 3 at the substation S.

4 is a return transmission tube connecting the terminal 2 with the terminal 5 controlled by the discharge valve 6 at the central station C.

7 is a tube connecting the terminal 5 with the vacuum drum 8.

9 is a casing connected with the end of the transmission tube 1 at the central station and has the bell mouth 10 therein for

despatching carriers and admitting atmospheric pressure for driving the same.

11 is the usual despatching inlet located at the substation S for inserting carriers into the tube 4.

12 is a normally closed valve controlling the end of the transmission tube 1 and which is pivoted on the shaft 13 in the casing 9.

14 is a spring mounted on the shaft 13 one end of said spring secured to said shaft, the other end being adjustable in the rack 15. The valve 12 is normally held closed by atmospheric pressure and the spring 14 is adapted to assist in opening said valve when the vacuum in the tube 1 is destroyed.

16 is an arm of the valve 12 carrying fixed to the outer end thereof the pin 17 which is mounted and adapted to operate in the slot 18 at one end of a link 19, the opposite end of said link being pivoted at 20 to a lever 21. The upper end of said lever projects through a slot 22 into the path of the carriers inserted into the bell mouth 10 and the lower end is pivoted at 23 and carries attached thereto a spring 24 which normally holds the lever 21 against the buffer 25.

26 is a screw for adjusting the tension of the spring 24 and 27 is a check nut for holding the adjustment.

28 is a dash pot or cylinder pivoted at 29 to the casing and 30 is a piston secured by a screw 31 to the piston rod 32 the upper end of said rod being pivoted at 33 to the valve 12.

34 is a washer mounted on the piston rod 32 between the piston 30 and an adjustable collar 35 and is adapted to permit the passage of the air in the cylinder 28 through openings 36 in the piston 30 when said piston drops and to prevent the passage of air when said piston rises.

37 is a vent in the top of cylinder 28 and 38 is an inlet in the bottom of said cylinder and restricted by the timing screw 39.

The operation is as follows: In despatching a carrier from the central station C to the substation S, the operator inserts the carrier into the bell mouth 10 where it engages the lever 21. The carrier is pushed inward a slight distance until the lever 21 acting through the link 19 and arm 16 partially opens the valve 12 when the atmospheric pressure now acting on the car-

rier pushes the lever 21 to the position shown in Fig 3 completely opening the valve 12 allowing the carrier to be driven through the tube 1 toward the substation S. In the meantime, the carrier has released the lever 21 and the said lever is thrown to normal position by means of spring 24 when the outer end of the slot 18 engages the pin 17 tripping the valve 12 through the arm 16 into the path of the air current entering the bell mouth 10. The air now forces the valve 12 gradually to its seat, the closing of said valve being regulated by the movement of the piston 30 in the cylinder 28 so that by the time the carrier has delivered at the substation S, the valve 12 has closed cutting off the flow of air through the bell mouth 10.

In despatching a carrier from the substation S to the central station C, the operator opens the inlet 11 and inserts the carrier into the transmission tube 4; the opening of this inlet 11 destroys the vacuum in the tube 1 permitting the valve 12 to open quickly assisted by the spring 14. The washer 34 permitting the air in the cylinder 28 to pass through passages 36 allows the valve 12 to drop quickly to the position shown in Fig. 4 so that when the operator closes the inlet 11 the air current will be established through the bell-mouth 10 in the direction indicated by the arrow and the carrier will be transmitted to the central station. The air current gradually closes the valve 12 as heretofore described, until by the time the carrier has delivered, the valve 12 will have closed, cutting off the flow of air through the bell mouth 10. The screw 39 may be adjusted to restrict the opening 38 and time the closure of the valve 12 to the interval necessary for the transmission and delivery of the carrier.

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 a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for maintaining a vacuum in said tube, a valve located in the path of the carriers adapted to control the admission of air to said tube for driving carriers and held normally closed by atmospheric pressure, said valve adapted to open upon a fluctuation of the vacuum in said tube and to be directly actuated and closed automatically by the current of air flowing into said tube, and means for timing the closure of said valve.

2. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for maintaining a vacuum in said tube, a normally closed valve adapted to control the admission of air to said tube for driving carriers, and mechanism con-

nected to said valve and adapted to be actuated by and transmit the pressure of a carrier inserted into said tube to manually open said valve.

3. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for maintaining a vacuum in said tube, a normally closed valve adapted to control the admission of air to said tube for driving carriers, mechanism connected to said valve and adapted to be actuated by and transmit the pressure of a carrier inserted into said tube to manually open said valve, and means for timing the closure of said valve.

4. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for maintaining a vacuum in said tube, a valve located in said tube in the path of traveling carriers and adapted to control the admission of air to said tube for driving carriers, and mechanism connected to said valve and adapted to be actuated by and transmit the pressure of a carrier inserted into said tube to manually open said valve and to prevent said carrier from impinging upon said valve before said valve has moved out of the path of said carrier.

5. In a pneumatic despatch tube apparatus a normally closed tube for the transmission of carriers, means for normally maintaining a vacuum in said tube, a valve located in said tube in the path of the carriers and adapted to control the admission of air to said tube for driving carriers and held normally closed by atmospheric pressure, said valve adapted to be manually actuated to open by the insertion of a carrier into said tube and to be directly actuated and closed automatically by the current of air flowing through said tube, and means for timing the closure of said valve.

6. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for maintaining a vacuum in said tube, a normally closed valve adapted to control and time the admission of air to said tube for driving carriers, and manually operated mechanism connected to said valve and adapted to be directly operated to open said valve.

7. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for normally maintaining a vacuum in said tube, an air valve located in said tube and held normally closed by atmospheric pressure, means adapted to operate upon a fluctuation of the vacuum in said tube to open said valve to admit air for driving carriers, said valve adapted upon a restoration of the vacuum in said tube to be directly actuated and closed by the current of air flowing therein, and means for timing the closure of said valve.

8. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for normally maintaining a vacuum in said tube, an air
5 valve located in said tube and held normally closed by atmospheric pressure, a spring connected with and adapted to open said valve upon a fluctuation of the vacuum in said tube to admit air for driving car-
10 riers, said valve adapted to be actuated by the atmospheric pressure exerted thereon to close against the action of said spring, and means for timing the closure of said valve.

9. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for normally maintaining a vacuum in said tube, an air
15 valve located in said tube and held normally closed by atmospheric pressure, a spring connected with and adapted to open said valve upon a fluctuation of the vacuum in said tube to admit air for driving carriers, said valve
20 adapted to be actuated by the atmospheric pressure exerted thereon to close against the action of said spring, means for adjusting the pressure of said spring, and means for
25 timing the closure of said valves.

10. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for normally
30 maintaining a vacuum in said tube, a pivoted

valve held normally closed by atmospheric pressure and adapted to control the passage of carriers and admit air to said tube for driving the same, said valve adapted to open
35 outwardly upon a fluctuation of the vacuum in said tube and to be directly actuated and closed automatically by the current of air flowing into said tube, and means for timing the admission of air to said tube. 40

11. In a pneumatic despatch tube apparatus, a normally closed tube for the transmission of carriers, means for normally maintaining a vacuum in said tube, a piv-
45 oted valve held normally closed by atmospheric pressure and adapted to be opened out of the path of the air current to permit the passage of a carrier and admit air to said tube for driving the same, and means
50 for tripping said valve into the path of the air current whereby said valve is directly actuated and closed automatically by said air current.

In testimony whereof, I have signed my name to this specification in the presence of
55 two subscribing witnesses, this fourteenth day of April A. D. 1908.

LOUIS G. BARTLETT.

Witnesses:

GEORGE W. ECKER,
WM. STINSON.