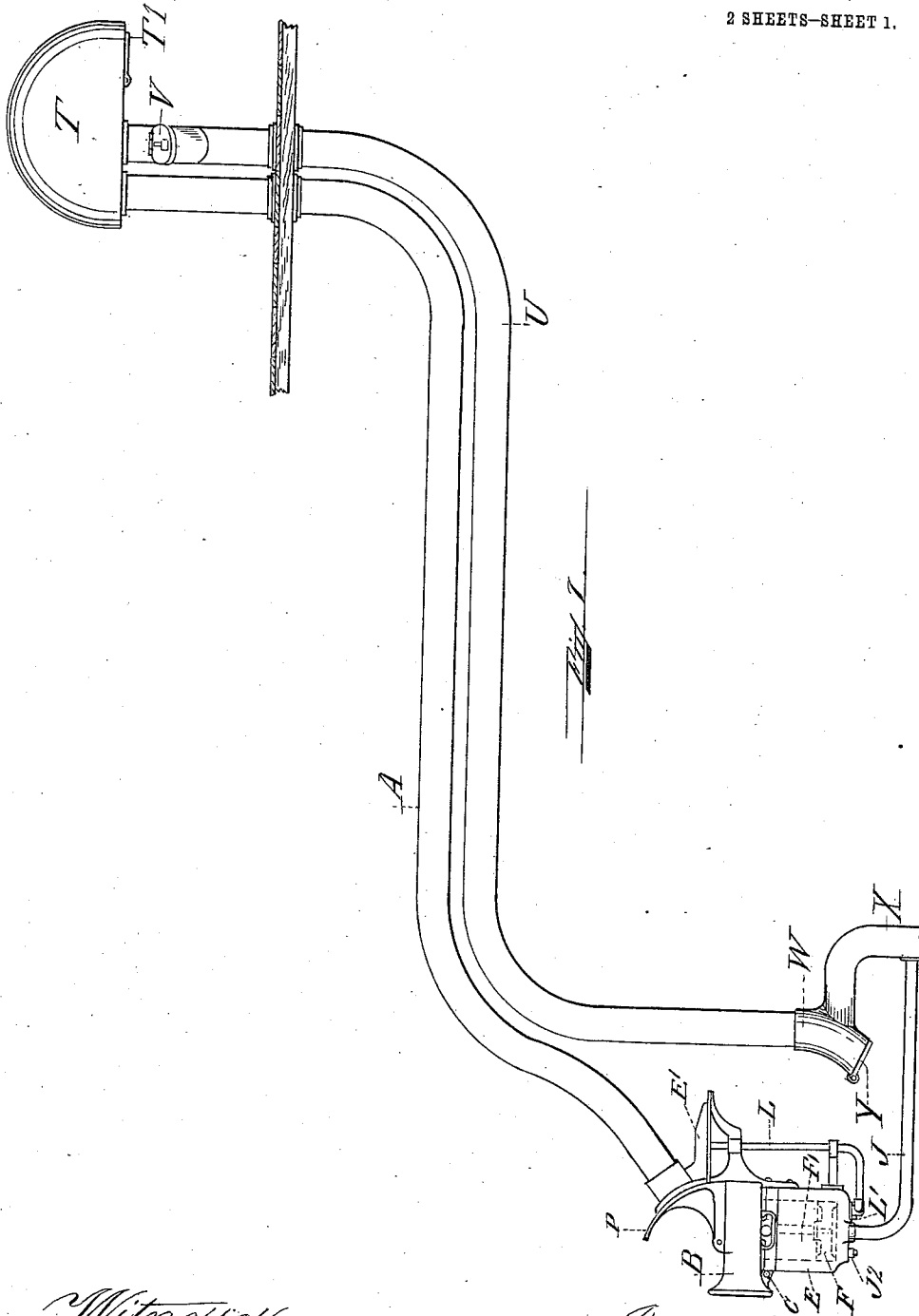


E. A. FORDYCE.
PNEUMATIC DESPATCH TUBE APPARATUS.
APPLICATION FILED OCT. 29, 1906.

1,044,876.

Patented Nov. 19, 1912.

2 SHEETS—SHEET 1.



Witnesses:
A. X. Nussner
L. G. Bartlett

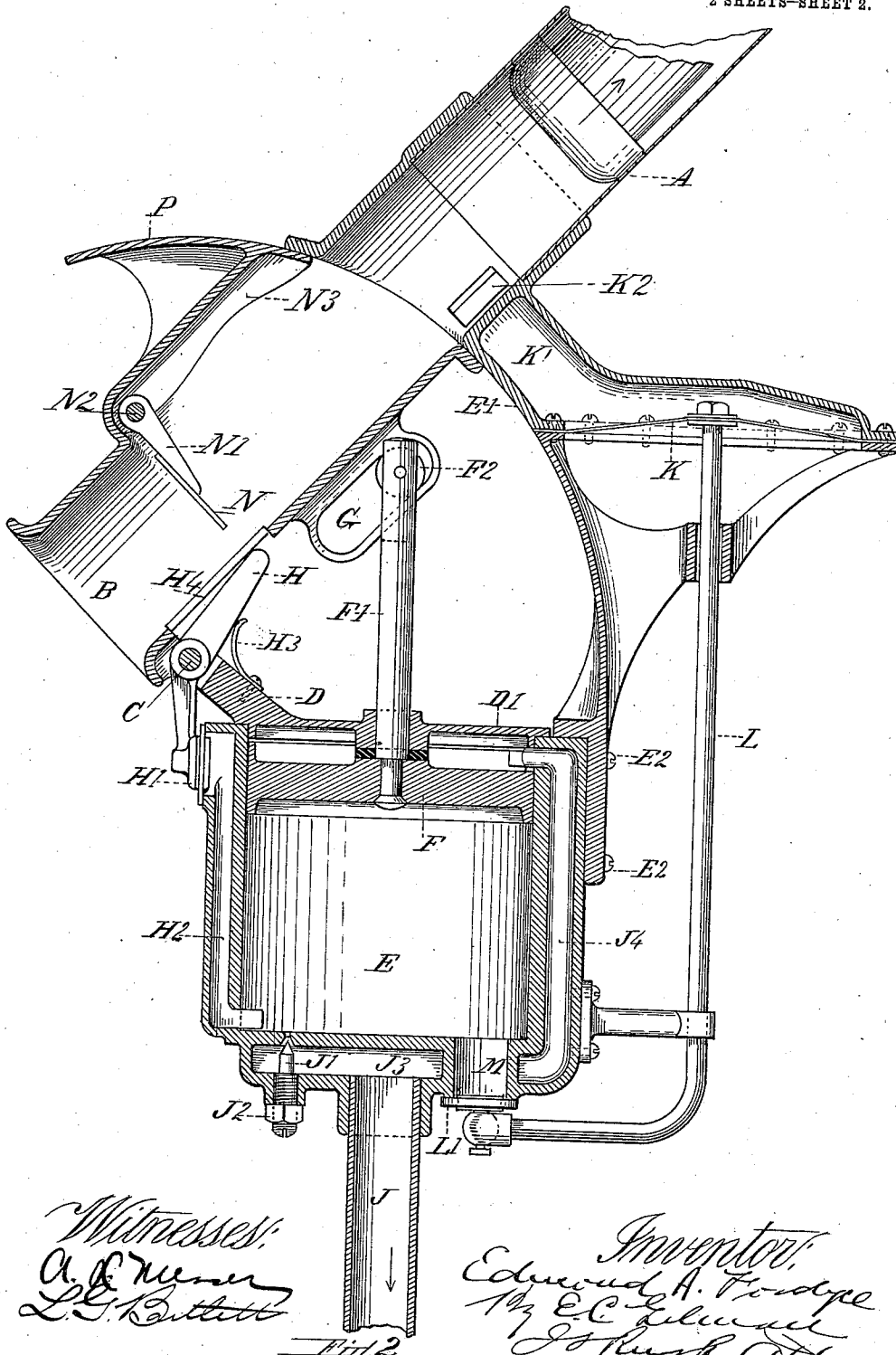
Inventor:
Edmund A. Fordyce
By E. C. Lilman
J. Rusk Attor

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Witnesses:
A. E. Turner
L. G. Bartlett

Inventor:
Edward A. Fordyce
By E. C. Gilman
J. H. Kunk, City

UNITED STATES PATENT OFFICE.

EDMOND A. FORDYCE, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AMERICAN PNEUMATIC SERVICE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF DELAWARE.

PNEUMATIC-DESPATCH-TUBE APPARATUS.

1,044,876.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed October 29, 1906. Serial No. 340,952.

To all whom it may concern:

Be it known that I, EDMOND A. FORDYCE, of Boston, in the county of Suffolk 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 and particularly relates to those systems wherein a vacuum is maintained and the carriers are propelled through the system by the admission of atmospheric pressure through an air inlet provided for the purpose.

The object of this invention is to automatically control and time the inflow of air to the interval necessary for the proper transmission and delivery of the carriers thereby securing economy of power.

In the accompanying drawings which illustrate a construction embodying my invention, Figure 1 is a diagram of an ordinary vacuum pneumatic system showing a movable bell mouth in normal or closed position for controlling the inflow of atmosphere to the system. Fig. 2 is an enlarged vertical section of the bell mouth controlling mechanism showing a carrier being despatched by the admission of air through the bell mouth.

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

A is a tube for the transmission of carriers and connects the swinging bell mouth or despatching inlet device which in the construction shown consists of a tube B with the receiving terminal T controlled by the ordinary discharge valve T'. The return transmission tube U connects the terminal T with the receiving terminal Y and carries the despatching inlet valve V at its upper end. The terminal W is connected with a vacuum drum by the pipe X.

Referring to Fig. 2—the bell mouth B is pivoted on the pin C in the yoke D mounted on the cylinder head D' of the cylinder E which is secured by screws E² to the casing E' which is attached to the transmission tube A. Mounted within the cylinder E is the piston F adapted to swing the bell mouth B through the medium of the piston rod F' and the roll F² mounted within the slot G on the lower side of the bell mouth. H is a trip lever pivoted on the pin C and carrying the pilot valve H' which controls

the air passage H² communicating with the lower part of the cylinder E below the piston F. The pilot valve H' is normally held closed by a spring H³ and the trip lever H projects through a slot H⁴ into the bell mouth B when the bell mouth is in closed position as shown in Fig. 1. J is a pipe connecting a suction drum with the lower part of the cylinder E through the chamber J³ and the suction is controlled by the timing valve J' held in proper adjustment by the nut J². The passage J⁴ connects the chamber J³ with the upper part of the cylinder E above the piston F. The diaphragm K which is mounted in the casing E', has its lower side exposed to the atmosphere, and the upper side in communication with the transmission tube A through the chamber K' and ports K² and is adapted to be operated by fluctuation of the vacuum in the tube A. The rod L connected with the diaphragm K carries on the lower end thereof the pilot valve L' controlling the port M connecting the lower part of the cylinder E with the atmosphere. N is a plate attached to the arm N' pivoted at N² in a chamber N³ of the bell mouth and is adapted to partially resist the flow of air through the bell mouth B for the purpose of making the diaphragm K operative when the bell mouth is in the position shown in Fig. 2.

P is a flange or valve carried on the upper side of the bell mouth and adapted to close the transmission tube A when in normal position as shown in Fig. 1.

To despatch a carrier from the bell mouth B to the terminal T, the carrier is inserted in the bell mouth B where it immediately strikes the trip H and depresses it, opening the pilot valve H', destroying the vacuum below the piston F but not above the said piston and causing the piston to rise quickly and through the medium of the rod F' and roll F² acting in the slot G raises the bell mouth to the position shown in Fig. 2, and air being admitted, forces the carrier into the transmission tube A. In the meantime, the resistance plate N has been merely pushed out of the way by the carrier. After the carrier has passed the trip H, the valve H' is closed by means of the spring H³, and the suction acting through the tube J, chamber J³ and valve J', causes the piston F to descend within the cylinder, the speed of the descent being regulated by

the timing valve J'. As the piston descends carrying with it the bell mouth B, the flange or valve P slowly closes the end of the transmission tube A, and by the time the tube is entirely closed, the carrier has been delivered at the terminal T. If it is desired to return a carrier, the bell mouth B being in normal closed position, the carrier is inserted in the valve V into the tube U causing the vacuum to drop in the tube A, and as the diaphragm K is held in position by the vacuum, the diaphragm must drop when the vacuum drops thereby opening the valve L' admitting the air, causing the piston F to rise, and from now on the operation is as heretofore described until the carrier discharges from the terminal W.

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 system, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered carrier-inlet device normally out of communication with said transit tube and closing said tube, said carrier-inlet device adapted to be moved into communication with said transit tube upon a fluctuation of pressure within said tube to admit air therefor driving carriers, means normally actuating said movable carrier-inlet device out of communication with and closing said transmission tube to the atmosphere, and means for timing the closure of said inlet.

2. In a pneumatic despatch tube apparatus, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered air-inlet device at an end of the transit tube and normally out of communication with said tube, means on said air-inlet device adapted to normally close said transit tube, a plurality of stations through which carriers may be inserted into said transit tube and of which stations said air-inlet device forms one, and mechanism for moving said air-inlet device into communication with and opening said transit tube to the atmosphere to admit air for driving a carrier through said tube when a carrier is inserted at any of said stations.

3. In a pneumatic despatch tube apparatus, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered air-inlet device at an end of said transit tube and normally out of communication with said tube, means on said air-inlet device adapted to normally close said transit tube, a plurality of stations through which carriers may be inserted into said transit tube and of which stations said

air-inlet device forms one, and pneumatic means for moving said air-inlet device into communication with and opening said transit tube to the atmosphere to admit air for driving a carrier through said tube when a carrier is inserted at any of said stations.

4. In a pneumatic despatch tube system, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered carrier-inlet device normally out of communication with and closing said tube to the atmosphere, means adapted to be operated by the insertion of a carrier into said carrier-inlet device for moving said device into communication with and admitting air to said transmission tube for driving said carrier, and means normally actuating said carrier-inlet device out of communication with and closing said transmission tube to the atmosphere.

5. In a pneumatic despatch tube system, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered air-inlet device at an end of said transit tube and normally out of communication with said transit tube, means on said air-inlet device to normally close said transit tube, a plurality of stations through which carriers may be inserted into said transit tube and of which stations said air-inlet device forms one, mechanism adapted to be operated by the admission of atmospheric pressure to said mechanism to move said air-inlet device into communication with and admitting air to said tube for driving a carrier, and means adapted to be operated by the insertion of a carrier at any of said stations for admitting air to said mechanism whereby said air-inlet device is moved into communication with said transit tube.

6. In a pneumatic despatch tube system, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered air-inlet device normally out of communication with and closing said transit tube to the atmosphere, mechanism adapted to be pneumatically operated for moving said air-inlet device into communication with said transit tube to admit air for driving carriers through said tube, and means adapted to be operated by the fluctuations of pressure within said transit tube for pneumatically setting said mechanism in operation.

7. In a pneumatic despatch tube system, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered air-inlet device normally out of communication with and closing said transit tube to the atmosphere, mechanism adapted to be pneumatically operated for moving

said air-inlet device into communication with said transit tube to admit air for driving carriers through said tube, means adapted to be operated by the fluctuations of pressure within said transit tube for pneumatically setting said mechanism in operation, and means for normally actuating said movable air-inlet device out of communication with and closing said transit tube to the atmosphere.

8. In a pneumatic despatch tube system, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered air-inlet device normally out of communication with and closing said transit tube to the atmosphere, mechanism adapted to be pneumatically operated for moving said air-inlet device into communication with said transit tube to admit air for driving carriers through said tube, means adapted to be operated by the fluctuations of pressure within said transit tube for pneumatically setting said mechanism in operation, means for normally actuating said movable air-inlet device out of communication with and closing said transit tube to the atmosphere, and means for timing the closing of said movable air-inlet device.

9. In a pneumatic despatch tube system, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said transit tube, a movable chambered air-inlet device normally out of communication with and closing said transit tube to the atmosphere, mechanism adapted to be pneumatically operated for moving said air-inlet device into communication with said tube to admit air for driving carriers through said tube, means adapted to be operated by a fluctuation of pressure in said transit tube for admitting air to and operating said mechanism, and means for normally closing the admission of air to said mechanism.

10. In a pneumatic despatch tube apparatus, a normally closed transit tube for the transmission of carriers, means whereby air is exhausted from said tube, and, a movable tubular member provided with a valve to control the admission of air into the tube for driving carriers, and mechanism actuated by a fluctuation of pressure in the transit tube to operate said member to register the tubular part of the member with the transit tube to admit air to the transit tube to drive a carrier inserted in the transit tube.

11. In a pneumatic despatch tube apparatus, a tube for the transmission of carriers, swinging means located on the exterior of the mouth of said tube for controlling the

passage of air through said tube constructed to receive a carrier and normally closing said tube, and mechanism adapted to be operated by the insertion of a carrier into said swinging means for operating the same to permit the free passage of the carrier.

12. In a pneumatic despatch tube system, a tube for the transmission of carriers, swinging means located on the exterior of the mouth of said tube for controlling the passage of air through said tube constructed to receive a carrier and normally closing said tube, and mechanism adapted to be pneumatically operated by the insertion of a carrier into said swinging means for moving said swinging means into alinement with the transmission tube for permitting the free passage of the carrier.

13. In a pneumatic despatch tube system, a tube for the transmission of carriers, a movable tubular member provided with a valve for controlling the passage of air through said transmission tube and normally closing said tube, mechanism for moving said member to bring the tubular portion thereof into communication with said transmission tube to admit air for driving said carriers through said tube, and a device extending into the tubular portion of said member when said valve is in its normal closed position and adapted to be operated upon the insertion of a carrier to actuate said mechanism to cause the movement of said member whereby the tubular portion thereof is brought into alinement with the transmission tube.

14. In a pneumatic despatch tube apparatus, a tube for the transmission of carriers, a movable tubular member provided with a valve for controlling the passage of air through said transmission tube and normally closing said tube, pneumatically operated mechanism for moving said valve to bring the tubular portion thereof into communication with said transmission tube to admit air for driving said carriers through said tube, and a device extending into the tubular portion of said member when said valve is in its normal closed position and adapted to be operated upon the insertion of a carrier to admit air to actuate said mechanism to cause the movement of said member whereby the tubular portion thereof is brought into alinement with said transmission tube.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 17th day of October, A. D. 1906.

EDMOND A. FORDYCE.

Witnesses:

H. D. WATERHOUSE,
C. C. JENNINGS.