No. 685,824. Patented Nov. 5, 1901.

J. T. COWLEY.

TERMINAL FOR PNEUMATIC DESPATCH TUBE APPARATUS.

(Application filed Aug. 11, 1900.)

(No Model.) 2 Sheets—Sheet 1.

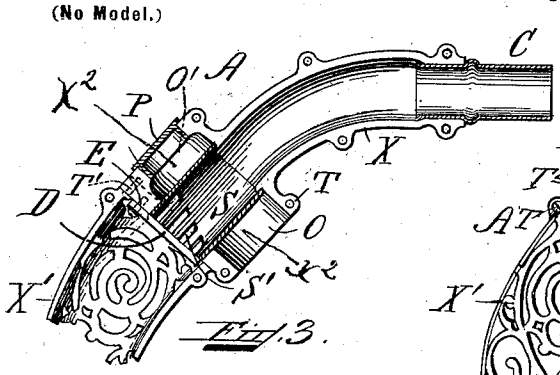


Fig. 3.

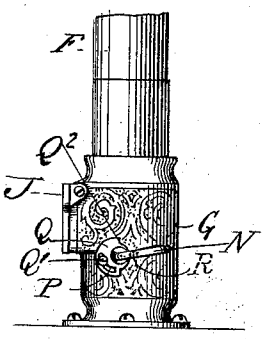


Fig. 4.

Fig. 1.

Fig. 5.

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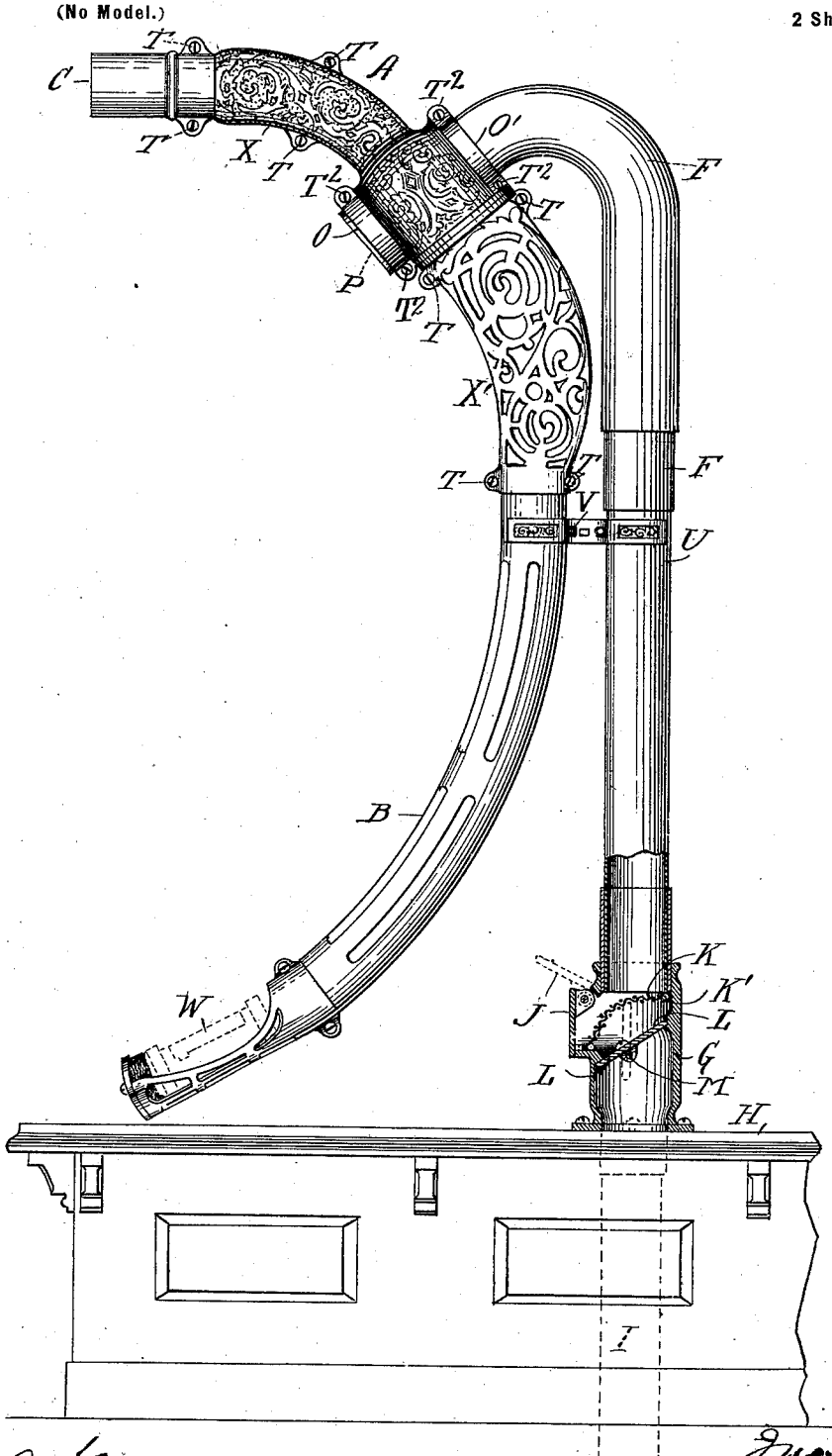


Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES T. COWLEY, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE LAMSON CONSOLIDATED STORE SERVICE COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TERMINAL FOR PNEUMATIC-DESPATCH-TUBE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 685,824, dated November 5, 1901.

Application filed August 11, 1900. Serial No. 26,584. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. COWLEY, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Terminals for Pneumatic-Despatch-Tube Apparatus, of which the following is a specification.

My invention relates to an improved terminal for pneumatic-despatch-tube apparatus.

One object of my invention is to regulate the air-pressure in the apparatus.

Another object is to provide an improved terminal which is adapted for connection with transmission-tubes coming in either direction.

A further object is to decrease the friction between the carrier and the tube as the carrier passes from the terminal.

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 is a side elevation, partly in section, of a terminal and coöperating parts embodying my invention. Fig. 2 is a similar view showing the transmitting-tube coming from the opposite direction from that shown in Fig. 1. Fig. 3 is a detail sectional view of the terminal in which carriers are received from the transmitting-tube and pass to the delivery-chute in front of the cashier. Fig. 4 is a detail view showing mechanism for regulating the wind-gate. Fig. 5 is a detail front view showing a screen for discharging onto the cashier's desk coin or other articles which may accidentally leave the carrier during transmission.

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

The transmission-tube C is clamped by the upper bolts T to the terminal A, composed of two sections X and X', to the latter of which is clamped the delivery-chute B by the lower bolts T' and into which the carriers W are received and pass to the cashier. At the entrance of the section X' of the terminal A is pivoted at E the valve D and normally held closed by atmospheric pressure due to the partial vacuum formed by the suction through the return suction-tube F. This valve opens under the impact of the carriers, which pass over the mouth of the tube F at right angles thereto, and after they have passed the valve is closed by the suction of the air through said tube F, which leads from the terminal A transversely to the line of travel of the carriers, while the carriers are guided to the chute B by the section X', which thus forms a guideway for the carriers to said chute B. On the lower end of the return-tube F is secured a casting G, fast to the desk H, and on the front end of said casting is located a pivoted door J, normally closed by the suction of the air passing down through the pipes F and I. Within this casting is located the screen K, which rests at its upper part K' against the under side of the tube F and the lower part bears against the pin K^2. This screen is inserted by pressing the upper part into the position shown in Fig. 1 and then springing the lower part over the pin K^2, and the screen is held in this manner, as shown in Fig. 1. This screen directs any coins or other articles which may have accidentally left the carrier during transmission onto the desk H upon the opening of the door J. Located across the casting G is a valve L, secured on the shaft M, which extends across the casting and is journaled thereon, and one end is provided with a nut M^2 and a flat spring M', and upon tightening up the nut M^2 the friction thus formed holds the valve in the position at which it is set. On the other end of the shaft M is secured the handle N, provided with a pin R, which is adapted to contact with a shoulder Q^3 on the plate Q when turned to its open position, as shown in dotted lines, Fig. 1. This plate Q is provided with a slot P and a set-screw Q', and by loosening said screw and shifting the plate Q the position of the shoulder Q^3 may be changed, and upon tightening the screw Q' the valve will be opened to the desired point—as, for instance, on a long line the valve would be opened more than on a short line—and also in case another line is added to the system the plate is adjusted so that the valve may be opened further in order to allow the proper volume of air to transmit the carrier.

The opposite halves of the sections X and X′ are joined together by suitable bolts T, passing through lugs, and the sections are joined to one another by suitable bolts T′. The section X is provided with a chamber X^2, having an opening O on one side, to which is secured the pipe F, and the opposite side of said section is provided with a suitable opening O′, closed by a cap P, clamped in its position by the bolts T^2, which also clamp the upper end of the tube F. A sleeve S is located between said openings O O′ in the chamber X^2 of the section X and is provided with an opening S′, through which air is drawn into the chamber X^2 and the return-tube F. The parts shown in Fig. 2 are substantially the same as those shown in Fig. 1, excepting the arrangement, and that consists in locating the terminal A in a reversed position to that shown in Fig. 1, so as to connect the transmission-tubes coming in the direction opposite to that indicated in Fig. 1. By this arrangement all the tubes entering the cashier's station from either direction pass into the chutes B in front of the cashiers who are stationed at the left of the desk H. In the terminal A (shown in Fig. 2) the cap P is on the under side of the terminal and the opening O on the top of the terminal, whereas in Fig. 1 the opening O is on the under side of the terminal and the cap P is on the top side of the terminal. The chute B is held in position by the clamp U, secured by bolts on the return-tube F and said delivery-chute B.

It frequently happens that a number of carriers are in the terminal at the same time, and the valve D, allowing the discharge of the carriers, is held open for some time. When this occurs, the rear carriers are held back by the suction of the air passing in through the open valve and down through the tube F, and the carriers are stopped owing to this suction. When this happens and the valve D is held open, it is necessary to shut off the air through the tube F in order that the carrier may be allowed to deliver. This is accomplished by closing the valve L, and after the carrier is delivered the valve L is opened again. The pin R on the handle N will regulate the distance the valve will open, as previously described. The chamber G is located on the top of the desk H in easy reach of the operator, so that the valve L will be readily closed and also so that the adjustment may be easy and convenient, and the location of this chamber on top of the desk guides the coin or other articles which may have been dropped from the carrier within reach of the cashier.

The openings O O′ on the opposite sides of the terminal-section X are arranged as shown in order that the tube F may be connected to either side, as desired, and the connection may be made by the workman when the system is installed and the tube F connected with either opening, as desired, and the cap inserted in the unused opening, thus simplifying the arrangement by requiring less parts to the device and requiring but one pattern for the terminal without regard to the connection with tubes coming from either direction. The openings S′ in the sleeve S vary, as shown in Fig. 3, for the following reason: The air passing through the terminal X and down through the tube F tends to direct the carrier toward the tube F. In order to overcome this tendency, the openings S′ are larger at the upper side than they are at the lower side in order that a greater volume of air may pass through the upper part of the openings than through the lower part, and the effect of this construction is to lift the carrier and decrease friction as it passes over the openings S′ into the section X′.

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 an apparatus of the character described, a transmission-tube, a terminal connected to said tube and having two openings, a suction-tube connected to one of said openings, and a cap closing the other opening.

2. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube and having two openings, a suction-tube connected to one of said openings, a removable cap closing the other opening, and means for holding said cap in place.

3. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal, and means in said terminal for decreasing the friction of the carrier traveling through said terminal.

4. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal, and a series of graduated openings in said terminal through which air is drawn into the suction-tube for decreasing the friction of the carrier traveling through said terminal.

5. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal, a valve in said terminal normally closed and adapted to be opened by the impact of the carriers, a chute connected to said terminal and into which the carriers pass after opening said valve, and stationary means located beyond said valve for guiding the carriers into said chute after they have opened and passed said valve.

6. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube connected to said terminal and leading therefrom transversely to the line of travel of the carriers through the terminal, a valve located in said suction-tube, a handle for operating said valve, adjustable means for regulating the opening to said valve and controlling the extent of movement of said handle, and a chute

into which the carriers pass from said terminal.

7. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube connected to said terminal, a valve located in said suction-tube, a handle for operating said valve, a pin on said handle, and means consisting of an adjustable plate having a shoulder with which said pin engages for varying the extent to which the valve may be opened.

8. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal, a valve in said terminal normally closed and adapted to be opened by the impact of the carriers, a sleeve located in said terminal over the mouth of said suction-tube and provided with a series of graduated openings through which the air passes to said suction-tube, a chute secured to said terminal and into which the carriers pass after opening said valve, and stationary means located beyond said valve for guiding the carriers into said chute after they have opened and passed said valve.

9. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal, and a sleeve located in said terminal over the mouth of said suction-tube and provided with a series of graduated openings increasing in size from the bottom to the top and through which the air passes to said suction-tube.

10. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal and leading therefrom transversely to the line of travel of the carriers through the terminal, means for establishing communication between said suction-tube and said terminal, means for guiding the carriers past said suction-tube, a valve in said terminal normally closed and adapted to be opened by the impact of the carriers, a chute secured to said terminal and into which the carriers pass after opening said valve, and stationary means located beyond said valve for guiding the carriers into said chute after they have passed said valve.

11. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal and leading therefrom transversely to the line of travel of the carriers through the terminal, means for establishing communication between said suction-tube and said terminal, means for guiding the carriers past said suction-tube, a pivoted valve in said terminal normally closed and adapted to be opened by the impact of the carriers, and a chute secured to said terminal and into which the carriers pass after opening said valve, and stationary means located beyond said valve for guiding the carriers into said chute.

12. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal and leading therefrom transversely to the line of travel of the carriers through the terminal, a chamber in said terminal establishing communication between the transmission-tube and the suction-tube through a series of openings, means for guiding the carrier past said suction-tube, a valve in said terminal normally closed and adapted to be opened by the impact of the carriers, a chute secured to said terminal and into which the carriers pass after opening said valve, and stationary means located beyond said valve for guiding the carriers into said chute after they have opened and passed said valve.

13. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal and leading therefrom transversely to the line of travel of the carriers whose travel by the mouth of said suction-tube is at right angles thereto, a valve in said terminal normally closed and adapted to be opened by the impact of the carriers, a chute secured to said terminal and into which the carriers pass after opening said valve, and stationary means located beyond said valve for guiding the carriers into said chute after they have opened and passed said valve.

14. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube and having two opposite openings, a suction-tube connected to one of said openings and leading from said terminal transversely to the line of travel of the carriers through the terminal, a removable cap closing the other opening, and means for holding said cap in place.

15. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube connected to said terminal and leading therefrom transversely to the line of travel of the carriers through the terminal, a valve in said terminal normally closed and adapted to be opened by the impact of the carriers, a chute secured to said terminal and into which the discharged carriers pass after opening said valve, and stationary means located beyond said valve for guiding the carriers into said chute after they have opened and passed said valve.

16. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube and having two openings, a suction-tube connected to one of said openings, a cap closing the other opening, and a chute secured to said terminal and into which the carriers pass from said terminal.

17. In an apparatus of the character described, a transmission-tube, a terminal connected to said tube, a suction-tube communicating with said terminal, a pivoted valve in said terminal normally closed and adapted

to be opened by the impact of the carriers, a chute connected to said terminal and into which the carriers pass after opening said valve, and stationary means located beyond said valve for guiding the carriers into said chute after they have opened and passed said valve.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 9th day of August, A. D. 1900.

JAMES T. COWLEY.

Witnesses:
A. L. MESSER,
C. A. STEWART.