No. 667,185. Patented Feb. 5, 1901.

C. H. BURTON.

TERMINAL FOR PNEUMATIC DESPATCH TUBES.

(Application filed June 20, 1900.)

(No Model.)

FIG. 1.

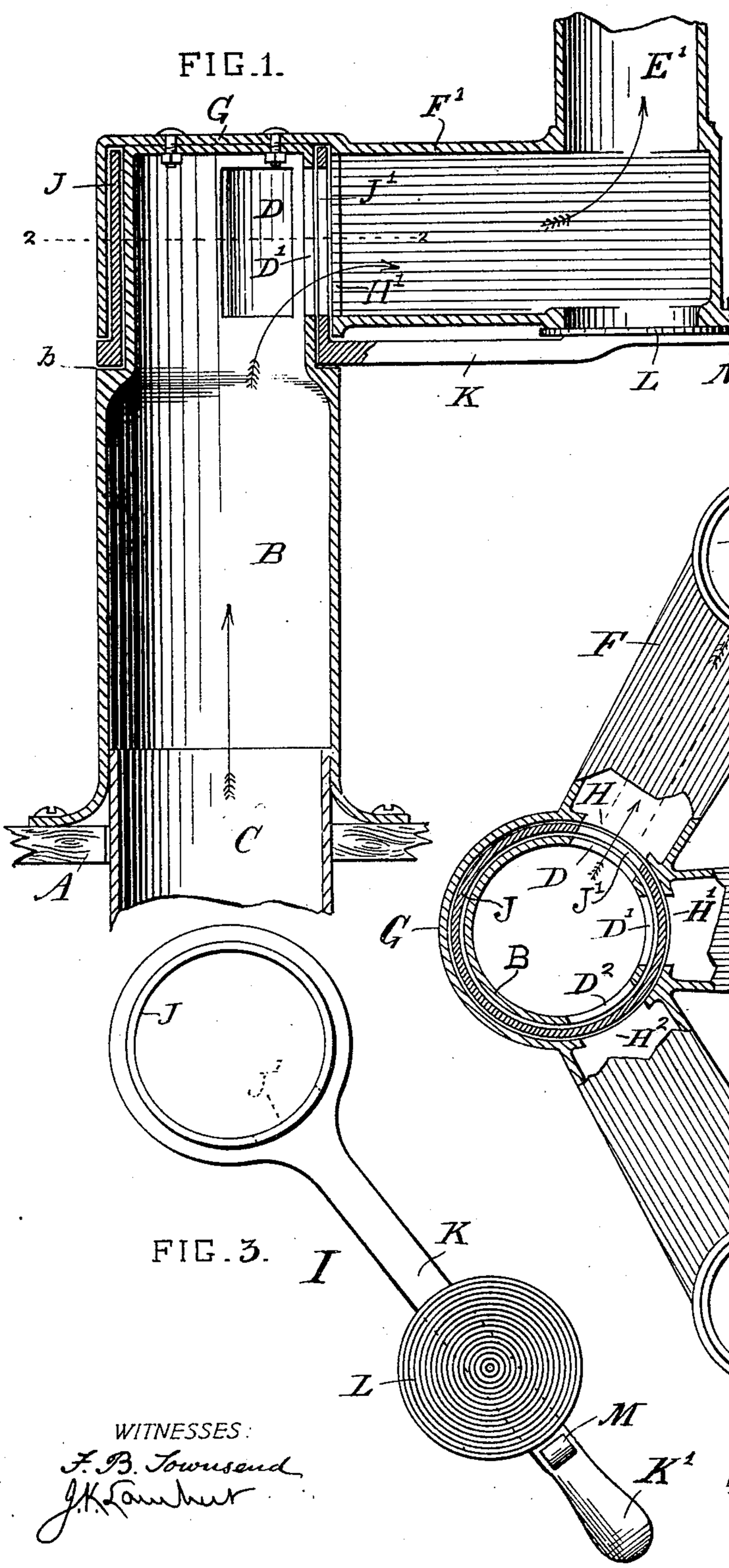

FIG. 2.

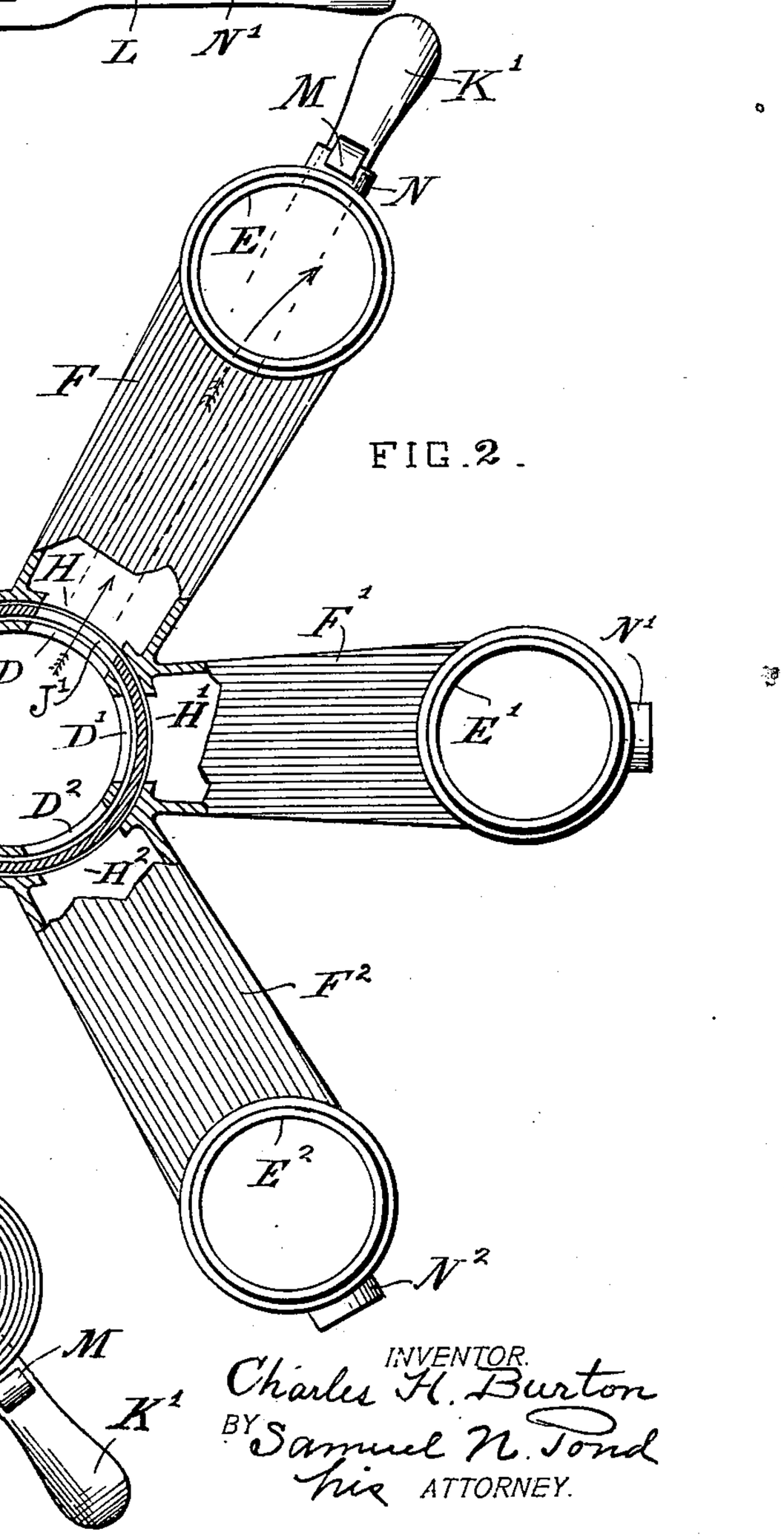

FIG. 3.

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UNITED STATES PATENT OFFICE.

CHARLES H. BURTON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE NATIONAL PNEUMATIC SERVICE COMPANY, OF SAME PLACE.

TERMINAL FOR PNEUMATIC-DESPATCH TUBES.

SPECIFICATION forming part of Letters Patent No. 667,185, dated February 5, 1901.

Application filed June 20, 1900. Serial No. 20,925. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BURTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Terminals for Pneumatic-Despatch Tubes, of which the following is a specification.

My invention relates to terminal devices for use in connection with pneumatic-despatch-tube apparatus, such as is commonly employed in stores and large office-buildings for conveying cash and messages from station to station; and my invention has to do more particularly with that class of pneumatic-despatch apparatus known as "pressure" systems, in which the carrier is caused to travel under the positive impulse of air-pressure in its rear, in distinction to that class known as "suction" or "exhaust" systems, in which the carrier is impelled solely by atmospheric pressure in its rear, made effective by exhausting the air in front of it. In the smaller stores and offices, where the pressure of business is not excessive, the required communication and exchange of cash and messages between a central office or cashier's station and a number of outlying stations can be adequately maintained by the employment of a single tube between the central station and each outlying station, through which tube carriers are alternately sent back and forth. In such a single-tube system the maintenance of a continuously-flowing air-current to impel the carriers is not only impossible in the absence of some return-conduit for the air, but would represent an unnecessary expenditure of power and expense during the frequent intervals of greater or less length when no carriers were being exchanged. In such single-tube systems therefore the central office or station and each of the outlying stations is commonly provided with a foot-power bellows or other equivalent air-forcing device, which may at will be connected to the adjacent end of the tube in order to transmit a carrier to the other end of the line or may be disconnected therefrom, so as to permit the free discharge of an incoming carrier. My present invention is designed for use in connection with such a single-tube-pressure system; and it consists in a novel mechanism for use at the central or cashier's station, whereby the bellows or other air-forcing device may be brought into communication with and operative relation to any one of a series of despatch-tubes leading out from such station, its communication with all the others of the series being at the same time closed and the closing door or valve of such tube being brought into closed position simultaneously with the admission of the air-pressure.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section through my improved terminal. Fig. 2 is a plan, partly in horizontal section, on the line 2 2 of Fig. 1; and Fig. 3 is a detail in plan view of one element of my invention.

Similar letters of reference refer to similar parts throughout the several views.

A designates a counter, table, or desk at the central station on which my improved terminal may be supported.

B represents a short section of tube secured at its base to the counter A and adapted to be entered at its lower end, which is open, by a pipe or tube C, leading from the discharging end of an air-bellows or other air-forcing apparatus, (not shown,) which may conveniently be located beneath the counter. The upper end of the tube B is closed, as shown, and is of a contracted diameter, thus forming an annular shoulder *b*, and such contracted end of the tube has formed through its side walls a series of ports D, D′, and D^2.

Grouped about the tube B in the arc of a circle of which said tube is the center is a series of transmission-tubes E, E′, and E^2, through which the carriers are sent to and fro between the central and the outlying stations. These tubes are connected at their lower ends with the upper contracted end of the tube B through a series of horizontal air-conductors F, F′, and F^2, respectively, which extend radially from a cap or cover G, which latter is adapted to fit down over the upper closed end of the tube B and may be secured thereon and in rigid relation thereto by any suitable means, as shown. This cap or cover G may be cast integral with its radial arms F, F′, and F^2 and communicates with the latter

through a series of ports H, H′, and H², which are adapted to be controlled by a valve mechanism next to be described.

I, Fig. 3, designates a radially-operated valve member which is adapted to perform the double function of controlling the flow of compressed air from the central air-tube B through the air-conductors F, F′, and F² to the transmission-tubes E, E′, and E², respectively, and of closing the ends of said tubes after the insertion therein of a carrier to be transmitted. This valve mechanism consists, essentially, of a ported sleeve J, an arm K, terminating in a handle K′, and a disk L, all of which parts may be formed integral, if desired. The sleeve J fits down snugly over the upper contracted end of the tube B, yet with sufficient freedom to turn thereon, its lower end resting on the shoulder *b*, and it has a single port J′ formed through its walls immediately above the point of attachment of the arm K thereto. The disk L is located on the upper face of the arm K near the end of the latter, as shown, and is adapted to close the lower ends of the tubes E, E′, and E² successively as the arm K is swung into a position beneath them. A curved finger M on the arm K, which is adapted to ride over a convex lug N N′ N², as the case may be, on the lower end of the tubes E E′ E², respectively, draws the disk L into close and practically air-tight engagement with the lower end of the tube.

The operation of my improved terminal will be readily understood from the foregoing description. Supposing the parts to be in the position shown in Fig. 2 and it is desired to send a carrier to the station with which the tube E′ communicates, the carrier is inserted in the lower end of tube E′. Then by means of the handle K′ the valve member I is swung radially until the disk L engages the lower end of tube E′, as shown in Fig. 1, which movement of the valve member I not only thus closes the lower end of tube E′, but at the same time cuts off the communication between the air-tube B and the air-conductor F, Fig. 2, and opens communication between the former and the air-conductor F′, as shown in Fig. 1. The bellows or other air-forcing mechanism connected with tube C is then operated, and under the impulse of the air-pressure thus created and directed the carrier is transmitted through tube E′ to its destination. In the same manner carriers may be transmitted through any other tube of the series. When a carrier is to be received at the central station, the end of the tube through which it arrives will be left open, and the incoming carrier simply drops from the lower end of its respective tube onto the counter A or into a suitable basket, hopper, or other receptacle placed thereunder to receive it.

I am aware that a single central air-tube or similar air-conduit adapted to be successively brought into engagement with a series of sending-tubes grouped about it by means of a pivoted or flexible air-switch is old, and I make no claim to such an apparatus; but so far as I am aware I am the first to combine with a single central air-tube and a series of radially-disposed air-conductors branching therefrom and communicating with a corresponding series of sending-tubes grouped thereabout a single pivoted valve member which performs the double function of simultaneously establishing communication between the central air-tube and one of the radially-disposed air-conductors and closing the lower end of the respective sending-tube in communication with said air-conductor.

What I claim, therefore, and desire to secure by Letters Patent, is—

1. In a positive-pressure terminal, in combination a centrally-disposed air-tube communicating at one end with a source of compressed air and having a series of valve-controlled ports at its other end, a series of transmission-tubes grouped around said central tube and communicating with the latter through said ports, and a radially-operated valve member mounted on said central air-tube and adapted to simultaneously close the open end of a transmission-tube and open the port between the latter and the central air-tube, substantially as described.

2. In a positive-pressure terminal, in combination a centrally-disposed air-tube in communication with a source of compressed air, a series of radially-disposed air-conductors branching therefrom and communicating therewith through suitable ports, a corresponding series of transmission-tubes grouped thereabout and communicating with said air-conductors, and a single pivoted radially-operated valve member which simultaneously closes the end of a transmission-tube and opens communication between the central tube and the appropriate air-conductor leading to said transmission-tube, substantially as described.

3. In a device of the character described, the combination with a centrally-disposed air-tube communicating at one end with a source of compressed air and provided with a series of ports at its other end, of a series of air-conductors arranged radially with respect to said central tube and at their inner ends having ports registering with the ports in the latter, a corresponding series of transmission-tubes communicating with the outer ends of said air-conductors, and a ported sleeve, constituting an annular valve, interposed between said central tube and the radially-branching air-conductors, and means for turning said sleeve, substantially as described.

4. In a device of the character described, the combination with a centrally-disposed air-tube communicating at its open end with a source of compressed air and having its closed end provided with a series of lateral ports, of a correspondingly-ported cap secured over and covering said closed end of the air-tube, a series of radially-disposed air-conductors

branching outwardly from said cap, a corresponding series of transmission-tubes communicating with the outer ends of said air-conductors, and a radially-operated valve member mounted on the closed end of the air-tube between the latter and the cap, and adapted to place any one of the transmission-tubes into operative relation to the source of compressed air for the sending of a carrier, at the same time cutting out all the other tubes, substantially as described.

5. A terminal of the character described, comprising a centrally-disposed air-tube communicating at its open end with a source of compressed air and having its closed end contracted and provided with a series of lateral ports, a correspondingly-ported cap secured over and covering said contracted end of the air-tube, a series of radially-disposed air-conductors branching outwardly from said cap, a corresponding series of transmission-tubes communicating laterally with the outer ends of said air-conductors, a ported sleeve, constituting an annular valve, mounted on said contracted end of the central air-tube, an arm for turning said sleeve, a disk mounted on the upper face of said arm for closing the open ends of the transmission-tubes, and means for automatically locking said disk in air-tight engagement with said tubes, all combined and operating substantially as described.

In testimony that I claim the foregoing as my invention I have hereto subscribed my name before two witnesses.

CHARLES H. BURTON.

Witnesses:

SAMUEL N. POND,

GEORGE E. HALEY.