(No Model.)

J. L. GIVEN.

PNEUMATIC CASH CARRIER.

No. 367,386. Patented Aug. 2, 1887.

Fig. 1.

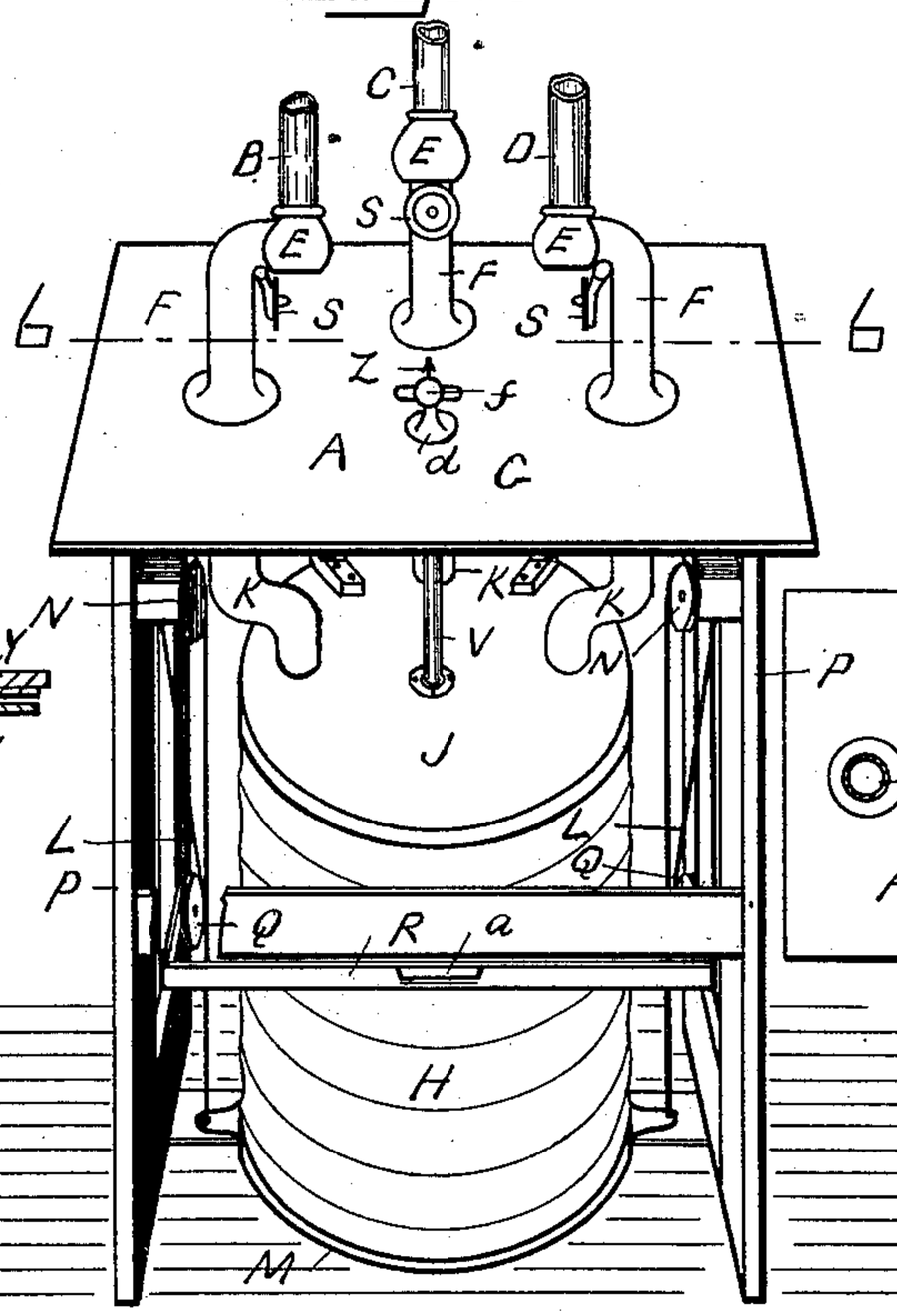


Fig. 5.

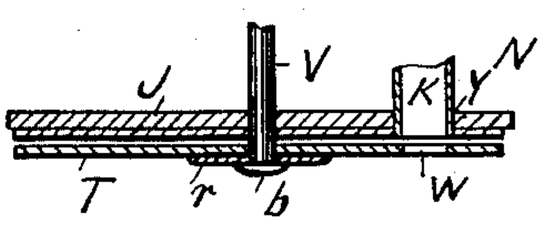


Fig. 6.

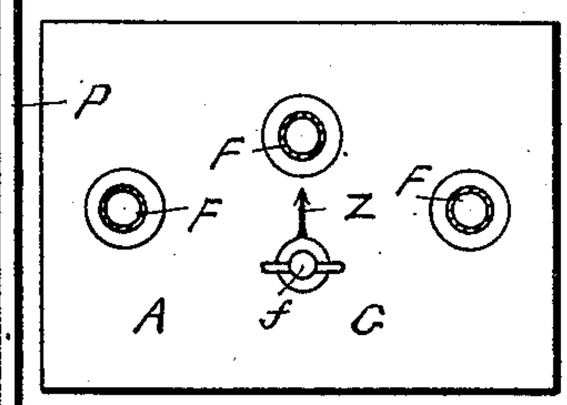


Fig. 2.

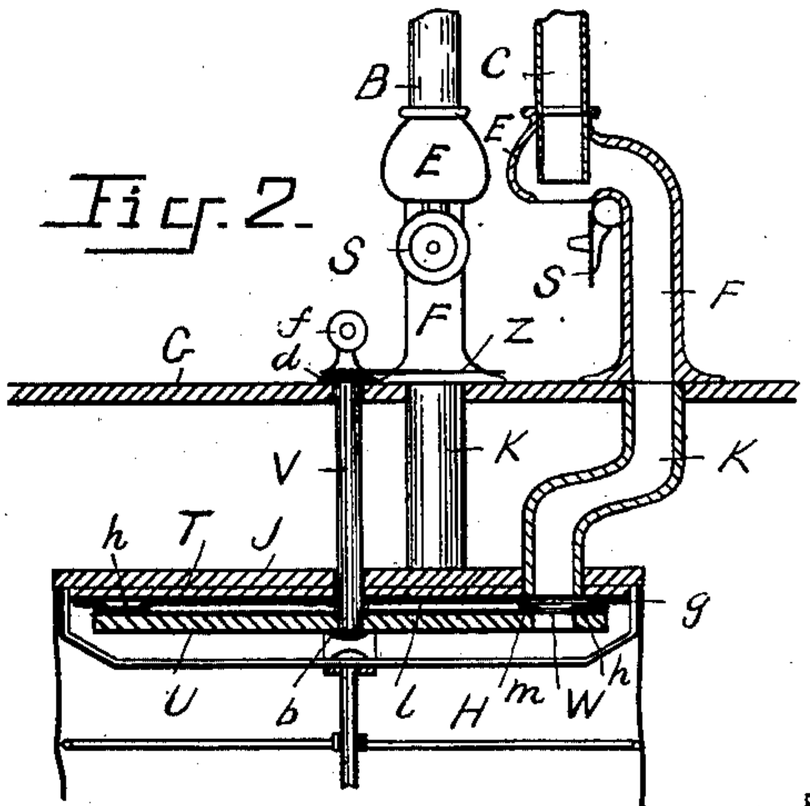


Fig. 3.

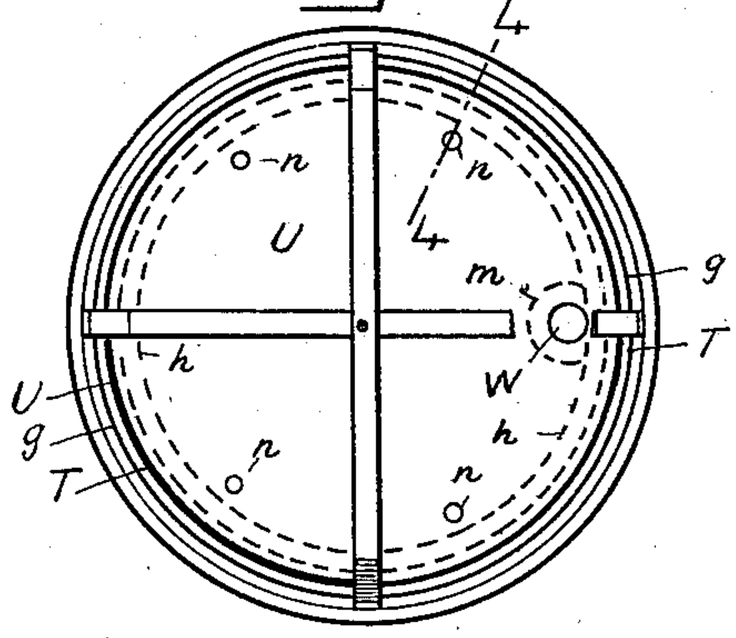
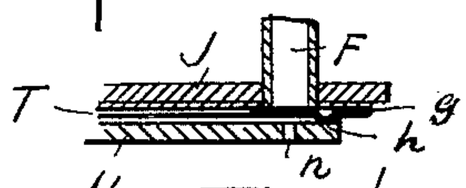


Fig. 4.



WITNESSES
Percy Bryant
Elbridge Harris

INVENTOR
J. L. Given
per
Edwin W. Brown.
Attorney

UNITED STATES PATENT OFFICE.

JOHN L. GIVEN, OF BOSTON, MASSACHUSETTS.

PNEUMATIC CASH-CARRIER.

SPECIFICATION forming part of Letters Patent No. 367,386, dated August 2, 1887.

Application filed October 28, 1886. Serial No. 217,434. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. GIVEN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Pneumatic Cash-Carriers, of which the following is a full, clear, and exact description.

This invention relates to improvements in apparatus for pneumatic cash-carriers, and more particularly to that described and shown in Letters Patent of the United States dated December 29, 1885, No. 333,397; and the invention consists of a novel construction and arrangement of a valve or valves to a series of pneumatic tubes leading from the bellows or other air-motor at the cashier's desk or central station to the different sales-counters or single stations, so that all the tubes in the series, except the one desired to be used for the transmission of the cash-carrier therethrough, can be shut off or closed from communication with the bellows or other air-motor in a simple and convenient manner and by one operation, for the air from the bellows or other air-motor to pass only to and through the tube desired to be used for the transmission of the cash-carrier to the sales counter or station, and as easily and conveniently shut off or close from communication with the bellows or other air-motor such tube and the others when desirous of putting another tube in communication with the bellows or other air-motor for the transmission of the carrier through such other tube to another station, and so on, all substantially as hereinafter fully described.

In the accompanying plate of drawings this invention is illustrated in connection with the pneumatic cash-carrier apparatus described in said patent—

Figure 1 being a view in perspective of a cashier's desk or table or central station, showing a bellows and its connection with the pneumatic tubes leading therefrom. Fig. 2 is a detail vertical cross-section of Fig. 1 through the central tube and bellows. Fig. 3 is a detail plan view; Figs. 4 and 5, detail sectional views, to be hereinafter referred to; and Fig. 6, a plan view of the table below sectional line 6 6, Fig. 1.

In the drawings, A represents a cashier's desk or table or central station, from which the three pneumatic tubes B, C, and D lead to their respective sales counters or stations, (not shown in the drawings,) each tube being secured in and to the head E of its transmitting-standard F, secured to the top G of the table.

H is the bellows, secured by its top board, J, to the under side of the board G, and each transmitting-standard F has communication therewith by a separate pipe, K, secured to the bellows-board J and the table-board G. Cords L are attached by their ends to the bottom board, M, of the bellows—one each side—which respectively extend around pulleys N on the side uprights, P, and pulleys Q on a treadle, R, and secured by their other ends to the uprights, the treadle R being pivoted to the uprights and arranged to be operated at *a* at the front of the table.

The lower open ends of each head E of the transmitting-standards F, where the carrier is inserted, is arranged to be closed by its valve S when the carrier is placed therein for transmission through its tube. Pressing down the treadle raises, through the cords and pulley-connection, the bottom of the bellows, closing it and compressing the air therein, and forcing air into the desired tube in communication therewith, causing the cash-carrier, if placed therein, to travel along said tube to the sales counter or station, all substantially as described and shown in said Letters Patent, and needing no more particular description herein, except so far as relates to the present invention. In the apparatus described in said patent each of the pipes K, forming communication with the bellows, its transmitting standard and tube B, C, or D, has a valve which is operated by a separate rod extending up through and above the table, and there having a handle by which to operate it, by which the valves to all the tubes are closed as desired, one in the pipe connected to the tube in which the carrier is being transmitted to a sales counter or station being left open. Such an arrangement is objectionable, in that it is quite expensive in its manufacture and inconvenient in use, as each valve has to be closed by a separate operation, and the purpose of the present invention is to obviate these objections, which is accomplished as will be now fully described.

Below the bellows top board, J, within the bellows is a valve, T, made of leather and cir-

cular in outline, and suitably secured to a circular board or disk, U, and held a short distance from the board J, to leave a small space between the leather valve and the board J, by a central vertical rod, V, to which it is secured by a nut or head, *b*, of said rod, the rod extending up through the board J and table-top G, having shoulder *d* on the table-top, which holds the leather valve and its disk in proper position, the rod having a handle, *f*, by which to turn or rotate the leather valve by its disk, the rod serving as a pivot therefor.

The leather, T, extends over the whole surface of the upper side of the disk and a short distance beyond its periphery, as shown at *g*, and it is secured to the disk by glue or paste or other suitable adhesive material in a circular line a short distance back from the periphery of the disk, as shown in dotted lines at *h* in Fig. 3 and at *h* in section in Figs. 2 and 4, so that the edge *g*, as well as the central portion, *l*, of said leather, is free from the disk to be raised therefrom slightly, for the purpose to be described.

At or near the edge of the leather valve and its disk is an opening, W, extending through both, the leather around the edge of this opening being secured to the surface of the board by glue, &c., as shown in dotted lines at *m* in Fig. 3 and at *m* in section in Fig. 2.

The three pipes K are secured to the bellows top board in a line concentric with the center rod, V, each in an opening, Y, in said board, by which they communicate with the bellows.

The valve-opening W is the same distance from the center rod, V, as the several openings Y are, and it is of the same diameter as the openings Y, so that, turning the valve on its axis, the opening W can be brought under and in communication with any one of the openings Y desired, and its pipe K will then be in communication with the bellows.

In the disk there are small openings *n* through it at distances from the opening W and each other in a circular line as the openings Y are in the board J from each other, as shown more particularly in Fig. 3, which is a plan view of the under side of the disk or board U; but these openings *n* do not extend through the leather. When the leather valve and disk are rotated so that the opening W is under or coincident with one of the openings Y, an opening *n* will be under each of the other openings Y.

In the drawings the leather and disk are in position for the opening W to be coincident with the opening Y to pipe K and standard of the middle tube, C. In such position, if the bellows is operated, air will be forced up through the opening W, pipe, and standard into the tube C, and with the valve S closed and a carrier within the tube C it (the carrier) will be forced through such tube and deposited at the sales counter or station to which such tube leads. At the same time air is forced through the small openings *n* in the disk into the space between it and the leather valve, which raises the leather at its central portion, *l*, and edge *g*, where not secured to the disk, and presses such portions firmly against the under side of the bellows-board J, around and about the openings Y not in communication with the opening W, and closing such to the passage of air thereto and to their respective tubes, and also preventing air at the edges passing to and between the leather and the board J, and thus to the pipes not in communication with the opening W, the leather thus acting as a valve or valves to the several tubes.

Turning the leather valve to the left or right will place the tube B or the tube D, respectively, in communication with the bellows in the same manner as described for the tube C and shut off or close the other tubes from communication therewith. By this simple arrangement either one of the pneumatic tubes can be put in communication with the bellows and all the others shut off or closed from such communication by simply turning the leather valve to bring its opening W in communication with the tube desired.

As the valve cannot be seen by the operator, an index-pointer, Z, is secured to the handle *f* just above the table-top, and extending horizontally therefrom in the same vertical plane with the radial line of the opening W, which will point to the tube which is in communication by the opening W with the bellows, so that simply turning the handle until its index Z points to the tube through which it is desired to transmit the carrier places the opening W of the valve in communication with such tube for such purpose.

A greater or less number of tubes can be used and have communication with the bellows, as desired, and if more are used the necessary openings Y can be made in the bellows-board J, according to the area of the valve and its disk, and where only a few are used a portion of the leather and disk can be cut away, leaving a segment thereof sufficient, however, for the leather to be properly secured thereto, and to leave the necessary portion of it free to close the openings leading to the tubes desired to be closed.

In lieu of leather, any suitable flexible sheet material can be used, and it can be secured to the disk in other ways than as shown, or in any suitable manner, it being only essential that the leather, where not secured to the disk, is free enough to close the openings Y, as described.

The leather can be secured to the whole upper surface of the disk, making it as one, as it were, the disk and its leather being so arranged that the air-pressure in the bellows will force it up to and close the several openings.

The disk can be dispensed with and the valve used alone; but when so used it should be of sufficient firmness to turn with the center rod, and yet flexible and yielding enough for it to fully close the openings Y. It can be se-

cured to the central rod by a small circular plate, *r*, as shown in detail in cross-section in Fig. 5, which plate should be of small or somewhat less diameter than the diameter of the circle on which the openings Y are arranged in the board J for the leather to be free outside thereof to properly close such openings. It is preferable, however, to use the disk or board in connection with the leather, so that the small openings *n* can be used as such, allow the air from the bellows to press against the leather directly under each opening, and thus insure the closing of the same to the air for the better working of the apparatus.

In lieu of force-bellows, as shown, an exhaust-bellows can be used; but in such case the flexible valve should be on the opposite side of the bellows-board, its operation being reversed, and in lieu of a bellows any suitable means for creating air-pressure for forcing air through the tubes or for exhausting them can be used, the valve being arranged for operation accordingly; also, more than one opening W can be arranged in the valve if desirous of operating more than one tube at a time.

In lieu of rotating the valve, it can be arranged to move or slide forward and backward or sidewise in either direction over the openings, the communicating openings with the bellows being arranged accordingly. It is preferable, however, to rotate or turn the valve and to arrange the openings in a circular line.

Although this invention is described in connection with the apparatus described and shown in said patent, it is obvious it can be applied to any other form of apparatus for operating cash-carriers in connection with pneumatic tubes.

Having thus described my invention, what I claim is—

1. The combination, with a bellows or other air-motor and a series of tubes for transmission of carriers, &c., therethrough, having communication through openings in and with said bellows or air-motor, of a valve constructed and arranged to be operated to shut off or close from communication with said bellows or air-motor all of said openings communicating with said tubes except the one through which it is desired to transmit the carrier.

2. The combination, with a bellows or other air-motor and a series of tubes for transmission of carriers, &c., therethrough, having communication through openings in and with said bellows or air-motor, of a valve constructed and arranged to be rotated to shut off or close from communication with said bellows or air-motor all of said openings communicating with said tubes except the one through which it is desired to transmit the carrier.

3. The combination, with a bellows or other air-motor and a series of tubes for the transmission of carriers, &c., therethrough, having communication through openings in and with said bellows or air-motor, of a valve constructed and arranged to be operated by a handle outside of said bellows or air-motor and suitably connected to said valve to shut off or close from communication with said bellows or air-motor all of said openings communicating with said tubes except the one through which it is desired to transmit the carrier.

4. The combination, with a bellows or other air-motor and a series of tubes for transmission of carriers, &c., therethrough, having communication through openings in and with said bellows or air-motor, of a valve having an opening through it and a handle for operation thereof outside of said bellows or other motor, by which any one of said tubes can be put in communication with said bellows or air-motor through said opening and the others shut off or closed from such communication, for the purpose specified.

5. The combination, with a bellows or other air-motor and a series of tubes for transmission of carriers, &c., therethrough, having communication through openings in and with said bellows or air-motor, of a flexible valve secured to a board having an opening in each coincident with each other, said board having a handle for operation thereof outside of said bellows or air-motor, whereby any one of said tubes can be put in communication with said bellows or air-motor through said opening and the others shut off or closed from such communication, for the purpose specified.

6. The combination, with a bellows or other air-motor and a series of tubes for transmission of carriers, &c., therethrough, having communication through openings in and with said bellows or air-motor, of a valve made of flexible sheet material and having an opening through it, and secured to a board having an opening through it coincident with said valve-opening, and a handle for operation thereof, and openings *n*, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN L. GIVEN.

Witnesses:
EDWIN W. BROWN,
PERCY BRYANT.