

(No Model.)

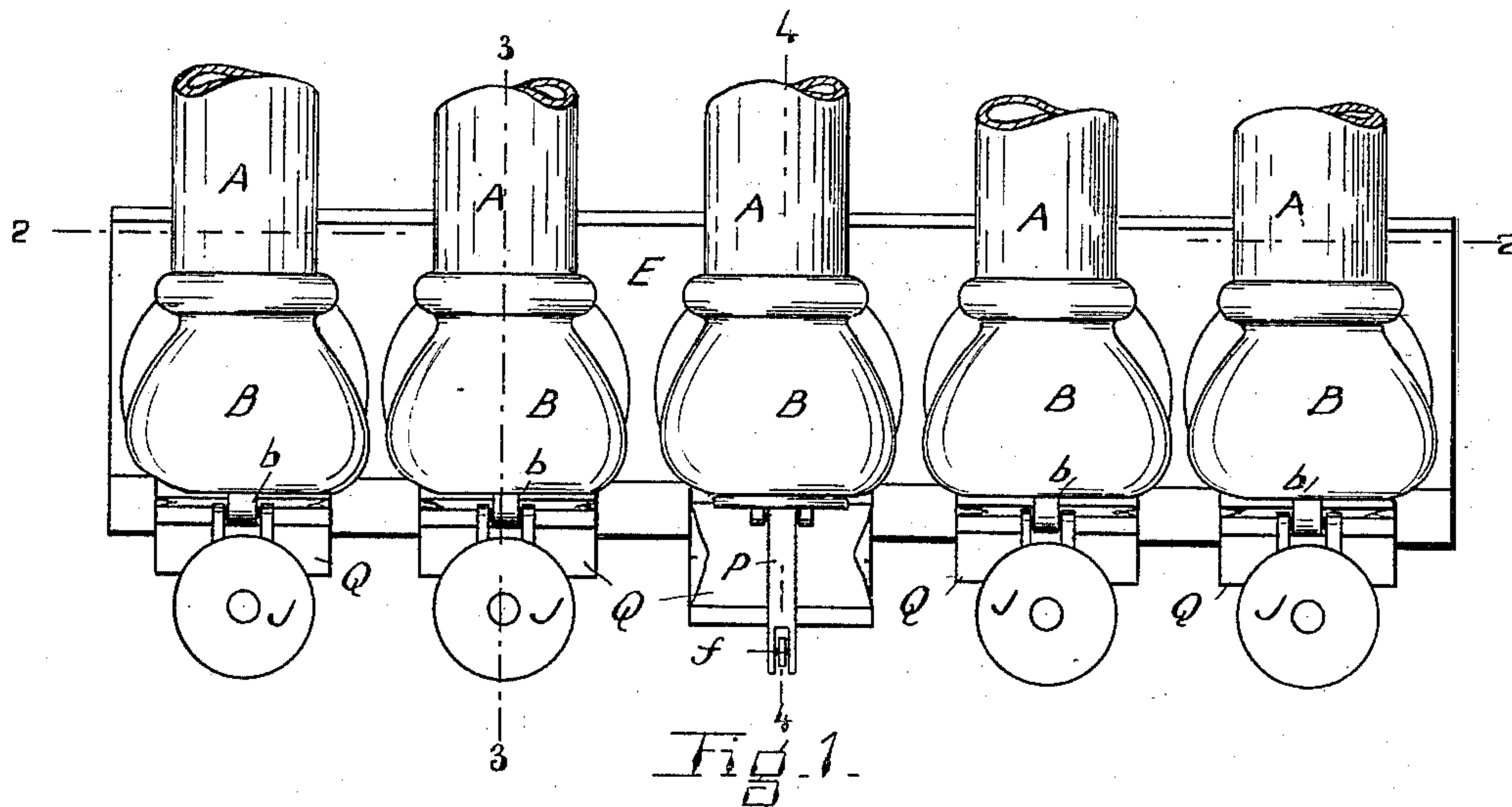
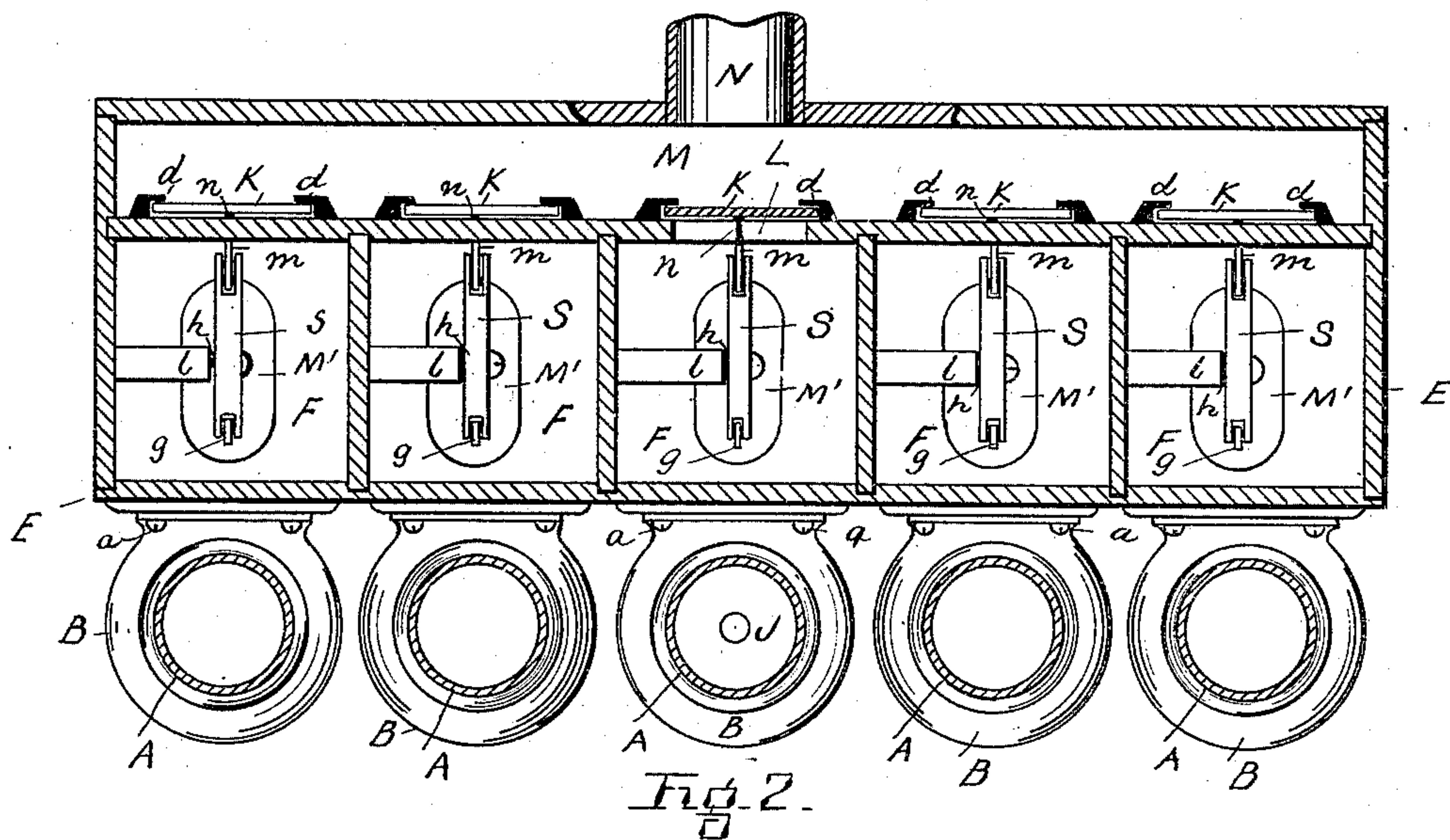
2 Sheets—Sheet 1.

G. B. KELLY.

PNEUMATIC CASH CARRIER APPARATUS.

No. 378,792.

Patented Feb. 28, 1888.



WITNESSES.

Percy Bryant.

Carrie E. Nichols

INVENTOR.

George B. Kelly.

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Attorney

(No Model.)

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Fig. 3.

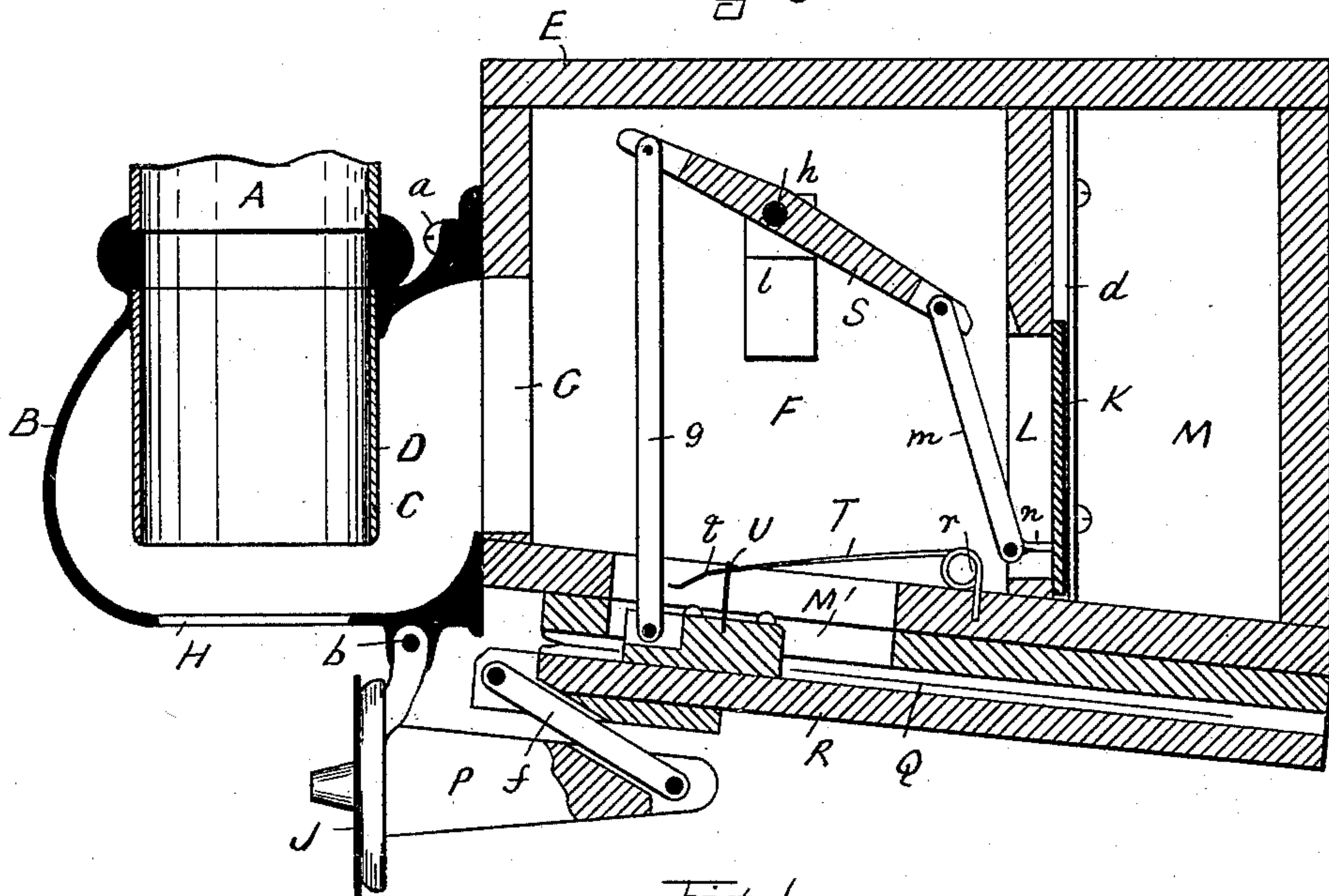
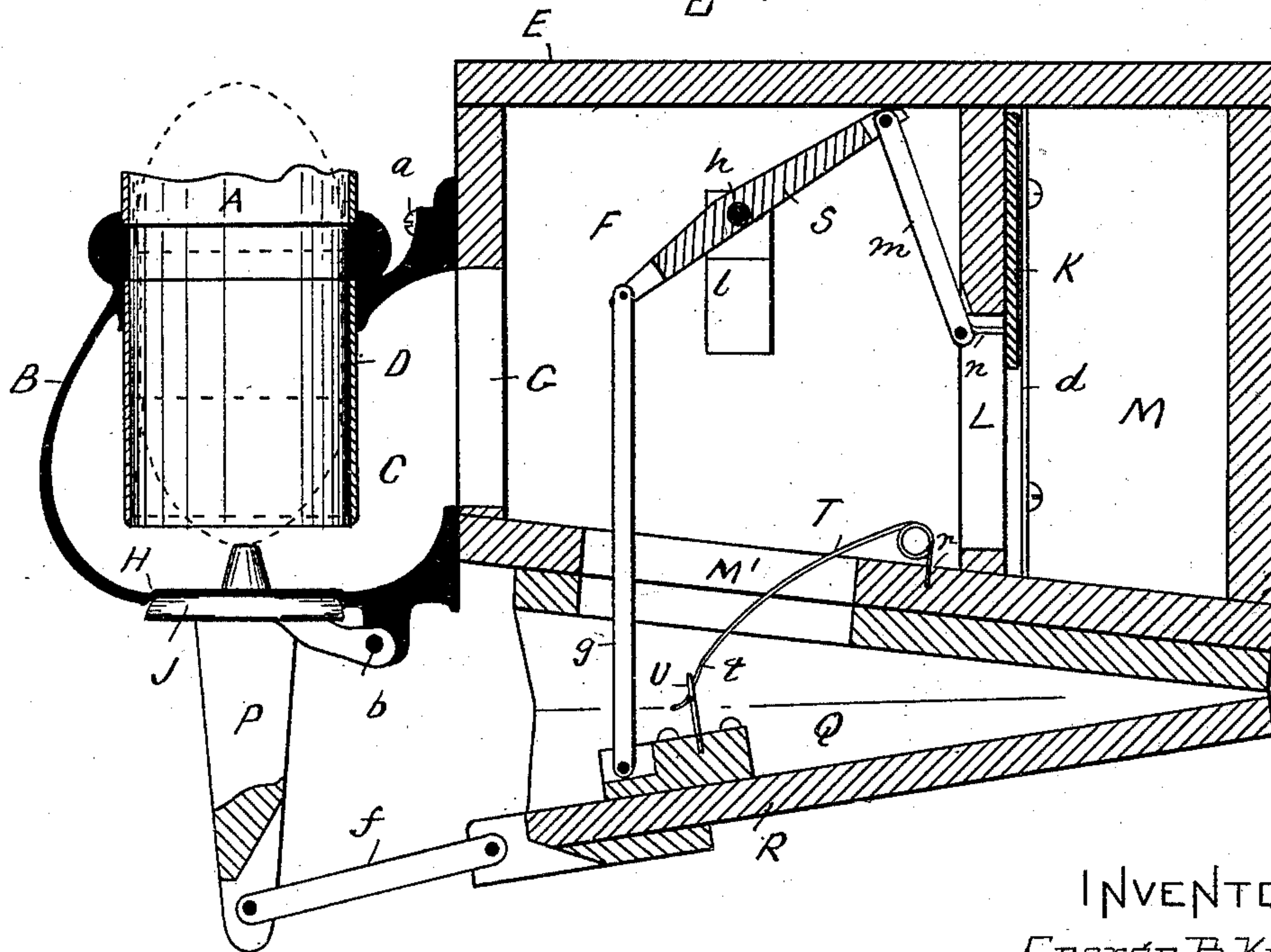


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE B. KELLY, OF BOSTON, MASSACHUSETTS.

PNEUMATIC CASH-CARRIER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 378,792, dated February 28, 1888.

Application filed April 1, 1887. Serial No. 233,294. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. KELLY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Pneumatic Cash-Carrier Apparatus, of which the following is a full, clear, and exact description.

This invention relates to improvements in pneumatic-tube dispatch apparatus more particularly for use in the transmission of cash-carriers or small parcels, &c., through the tube from the operation of a bellows or other air-motor; and the invention consists in the combination, with a pneumatic tube provided with a valve for closing the receiving end or opening in such tube where the carrier, &c., is inserted for transmission therethrough, and either with or without a valve adapted to open and close communication between such tube and the operating-bellows or other air-motor, of means connected to either one or both of said valves and having air communication with the bellows or other air-motor, all arranged for operation on either one or both of said valves, all substantially as hereinafter fully described.

In the accompanying sheet of drawings is illustrated the present invention.

Figure 1 is a front view of a series of receiving ends of pneumatic tubes for transmission therethrough of a carrier, &c., at a cashier's desk or central station. Fig. 2 is a horizontal section on line 2 2, Fig. 1. Figs. 3 and 4 are vertical cross sections on lines 3 3 and 4 4, respectively, Fig. 1 being enlarged, Fig. 3 representing the parts in their normal position, and Fig. 4 in their position when the bellows or other air-motor is being operated for the transmission of a cash-carrier, &c., through the tube.

In the drawings, A A represent the ends of a number of pneumatic tubes for transmission therethrough of cash-carriers or other articles, and each is secured in the top of its respective head or receiver B, which receiver has a chamber, C, and a tube, D, forming a continuation of the pneumatic tube A, the receiver being open at its lower end. These heads or receivers B are secured in proper position by screws *a* in front of a box or case, E, and the chamber C of each receiver has communication with a separate chamber, F, of the case E by

an opening, G, through the front of the case. The opening H in the bottom of the head has a valve, J, pivoted at *b* to the head, the swinging up of which valve closes and swinging it down opens said opening H. The carrier, &c., to be transmitted through the tube is inserted at this opening H into the tube A, and the valve J then swung up, closing said opening.

K is a valve adapted to move up and down in guideways *d* at and over an opening, L, in the rear side of the case E, one to each chamber F, and when down to close and when moved up to open said opening L. The several openings to the chambers F open into a common or conducting chamber or pipe, M, back of the said openings, which is connected by a pipe, N, to a suitable operating-bellows or other air-motor (not shown in the drawings) in such manner that air from such bellows, when operated, will pass to said conducting-chamber M, and thence to whichever chamber F is in communication therewith by having its valve K raised or open.

Each valve J has an arm, P, which is connected by a link, *f*, to the moving or under side, R, of a bellows or other exhaustible and collapsible chamber, Q, attached and secured to the under side of the bottom board of the case E, one bellows to each valve, the chamber Q communicating with its respective chamber F by a passage or opening, M'. Pivoted by one end to the inner side of the bottom or movable board R of the bellows Q is a link or pitman rod, *g*, which at its other end is pivoted to one end of a horizontal lever, S, adapted to swing on a pivot, *h*, on an arm, *l*, of a partition of the case, the other end of which lever is connected by a link or pitman rod, *m*, to an arm, *n*, on the back side of the valve K, near its lower edge or end. Swinging up the valve J, through its link *f*, connecting it with the bellows, opens it, which in turn, through the link *g* and lever F connection to the valve K, raises and opens the same. A spring, T, secured to the bottom of the box at *r*, its free end *t* extending into and pressing upward against an eye, U, secured to the movable board R of the bellows, helps to force back and hold the bellows closed, ready for operation again after the valve J is lowered or opened.

Heretofore in transmitting a cash-carrier, &c., through a pneumatic tube, after it was inserted therein, the valve J was closed by hand, and so held until the carrier had been transmitted and delivered at the other end of the tube, whether the valve K was opened independently or by and through the movement of the valve J, which is objectionable; and the object of the present invention is to provide means to hold automatically the two valves closed and opened, respectively, independent of the operator, which is accomplished by the combination of the small bellows or expanding chamber Q, as will be explained. Operating the bellows or other air-motor to propel the carrier, &c., through the tube, air in passing through the chamber F to its pneumatic tube A also passes down through the opening M into the bellows Q, and opens it and so holds it open, and by their connection therewith the valve J is held closed and the valve K opened, and so held so long as the bellows or other air-motor is operated, and as soon as the operating-bellows ceases the bellows Q closes and the valves return to their normal positions shown in Fig. 1.

The link *f* is connected to the valve J and bellows Q in such manner that when the bellows is opened out, as shown in Fig. 4, the link will be straight, or substantially so, with the movable board R, acting as a toggle-lever and exerting the most pressure at the time the most pressure is desired upon the valve J, to hold it closed and the valve K opened.

This invention is more particularly adapted for use at the cashier's desk or central station, where the several pneumatic tubes meet which lead from the several sales counters or stations, for in such case the conducting-chamber M has communication with the several chambers F and is closed to the passage of air to the same by the valves K, so that the air from the operating-bellows, &c., only passes to the pneumatic tube having its valve K opened and desired to be used for the transmission of the carrier, &c.

When used at the sales-counter or single station, the valve K can be dispensed with, as the chamber F would then communicate directly with the air-motor, needing no valve; but it is preferable to use the small bellows Q in connection with the valve J, as described; or, if desired, only valve K can be connected to the bellows Q.

With the operating-bellows or other air-motor in operation and the valve J closed, there is more or less pressure from such bellows to open such valve, and therefore, to hold it firmly closed by the bellows Q, the area of the movable board of the bellows must be larger than the area of the valve J for it to overcome the pressure on the valve.

The bellows Q can be constructed in any suitable manner, so that it will open and close for operation, substantially as described.

The valve K can be connected directly to the movable board R of the bellows Q, dispensing with the lever S and its connection, which, perhaps, might be preferable, being simpler in its construction.

Having thus described my invention, what I claim is—

1. The combination, with a pneumatic tube for the transmission of a carrier, &c., there-through, provided with a valve arranged to close and open the receiving end or opening for the carrier, &c., of means connected to said valve and adapted to be operated by air from the operating-bellows or other air-motor, by which said valve is held closed, for the purpose specified.

2. The combination, with a pneumatic tube for the transmission of a carrier, &c., there-through, provided with a valve for opening and closing communication between said tube and the operating-bellows or other air-motor, of means connected to said valve and adapted to be operated by air from the operating-bellows or other air-motor, by which said valve is held open, for the purpose specified.

3. The combination, with a pneumatic tube for the transmission of a carrier, &c., there-through, provided with a valve arranged to close and open its receiving end or opening for the carrier, &c., and a valve for opening and closing communication between said receiving-tube and the operating-bellows or other air-motor, of means connected to the two valves and adapted to be operated by air from the operating-bellows or other air-motor, by which said valves are held respectively closed and opened, for the purpose specified.

4. The combination, with a pneumatic tube for the transmission of a carrier, &c., there-through, provided with a valve arranged to close and open its receiving end or opening for the carrier, &c., and a valve for opening and closing communication between said tube and the operating-bellows or other air-motor, of a bellows or expanding and collapsible chamber connected to said valves and adapted to be operated by air from the operating-bellows or other air-motor for operation on said valves, substantially as and for the purpose specified.

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

GEO. B. KELLY.

Witnesses:

EDWIN W. BROWN,
FRED M. SMITH.