

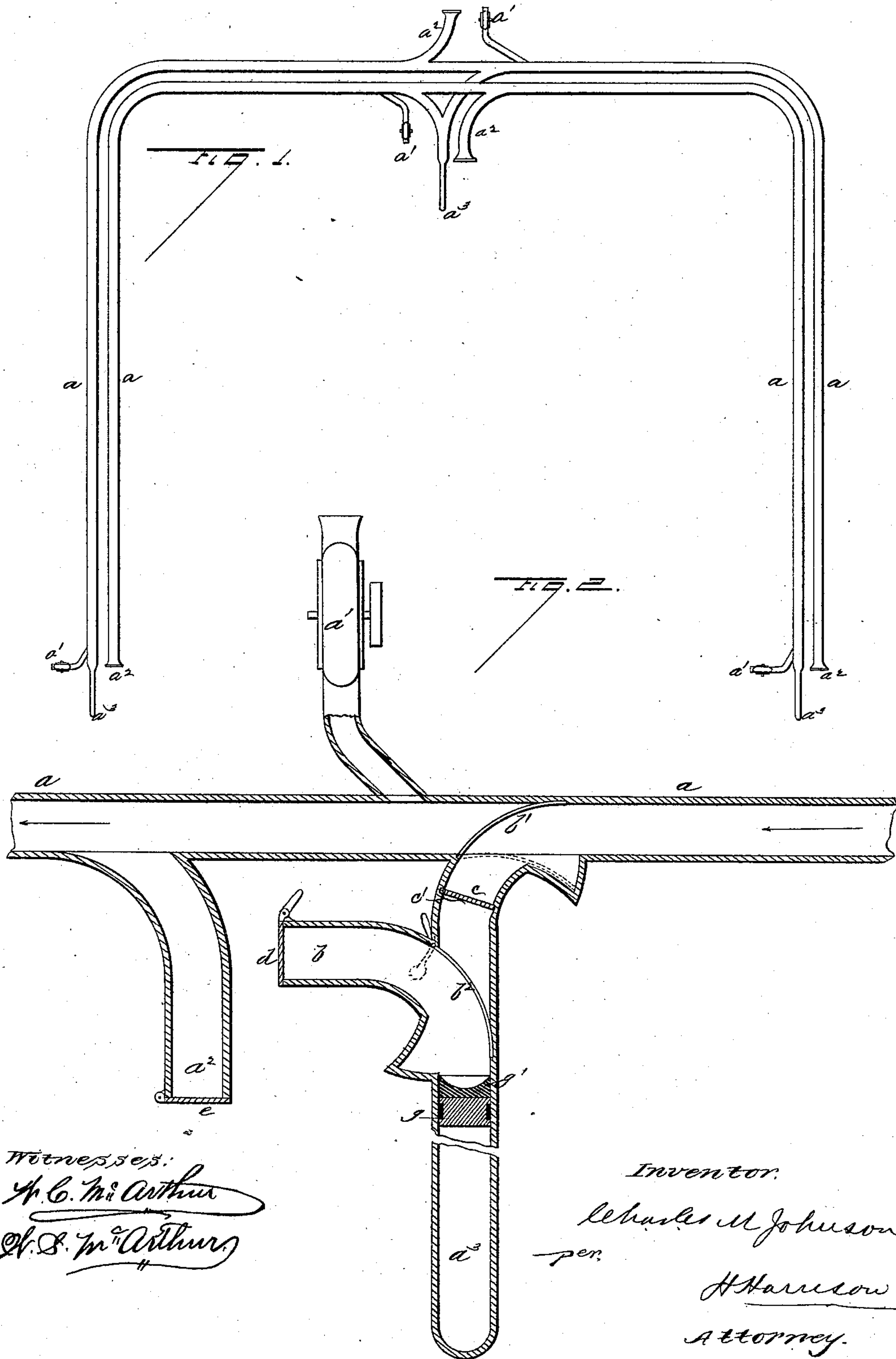
(No Model.)

C. M. JOHNSON.

PNEUMATIC DISPATCH TUBE SYSTEM.

No. 372,223.

Patented Oct. 25, 1887.



Witnesses:

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# UNITED STATES PATENT OFFICE.

CHARLES M. JOHNSON, OF CHICAGO, ILLINOIS.

## PNEUMATIC DISPATCH-TUBE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 372,223, dated October 25, 1887.

Application filed November 16, 1886. Serial No. 219,065. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES M. JOHNSON, 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 Pneumatic Dispatch-Tube Systems, of which the following is a specification, to wit:

This invention relates to pneumatic dispatch-tube systems; and it consists in certain peculiarities of the construction and arrangement of the same, substantially as will be hereinafter more fully set forth and claimed.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe its construction and operation, referring to the accompanying drawings, in which—

Figure 1 is a diagram view of my system of dispatch-tubes, showing two terminal points and one intermediate station; and Fig. 2 is a sectional view of the same at the station, illustrating the improvements I have embodied herein.

The system of tubes, *a a*, which I have herein represented is in its main features the same as that illustrated in the patent granted to me December 22, 1885, No. 332,905, and consists of an outgoing and a return tube of suitable size and any desired length, laid either over or underground, as most convenient and suitable. To enable a very long line of these tubes to be readily operated, I described in my former patent referred to the division of the line into sections of suitable length, each section being provided with an exhaust-fan, *a'*, to withdraw the air in the section from in front of the carrier and allow that behind it to force the carrier forward to its destination. Each station along the route, as well as the terminals, is also provided with an entrance tube or pipe, *a''*, and a receiving or cushioning tube, *a'''*, into which the incoming carrier is received and its course stopped easily by the compression of the air that may be therein. This cushioning tube or terminal is also provided with an exit, *b*, upon one side, out of which the carrier is projected by the reaction or expansion of the air in the closed cushion after the headway of the carrier is stopped. A gate, *b'*, is provided at the junction of the main tube and the re-

ceiver to direct the carrier into the latter, and a gate, *b''*, at the exit-opening to direct the carrier out of the receiver. The first gate is operated by the attendant and normally closes the receiving-pipe and leaves the main line clear, while the second gate lies normally across the receiver and is readily pushed open by the incoming carrier, closing again automatically by a weight, as shown in dotted lines. All this portion of the device or system herein shown is arranged just as described in the former patent before mentioned, and need not be more specifically referred to herein.

In the present device I have placed in the receiving or cushioning pipe, at or near its connection with the main line, a valve, *c*, which opens inward toward the cushion by the pressure of the incoming carrier, and is automatically closed again by a spring, *c'*, placed upon its hinge, as in Fig. 2. The exit-opening of the cushioning-pipe is also provided with an outwardly-opening hinged valve, *d*, either arranged, as shown, to be closed by the operator, or provided with a spring for that purpose, as may be desirable. A similar hinged valve, *e*, is placed over the end of the inlet-tube. The purpose of these valves is at once clear. The fans are constantly at work exhausting the air from the section of tube with which they are connected, and it will be evident that when no valves are used air is drawn into the main line through its connections, and the effect on the carrier is thus lessened; also, the intruding air interferes with the entry of a carrier into the cushion or receiving-terminal. In the present arrangement, with the valves *c d* always closed, no air is allowed to pass by them to the main line and the entry of the carrier is greatly facilitated. By thus preventing the ingress of air it is possible to increase the length of the sections of the system operated by a single fan and cut out the dividing-valves of my former patent.

In Fig. 2 I have represented the air-chamber and cushion as provided with a piston-head, *g*, having an elastic cushion, *g'*, on its face. The incoming carrier, striking the elastic face of the piston, forces the latter forward and compresses the air in the chamber, thus easily stopping the carrier, which is ejected by the expansive force of the air returning



the piston-head to place. The use of this head prevents the escape of air, as it is made to fit tight and drives the air before it, as could not be done with the carrier itself.

5 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a terminal cushion for pneumatic dispatch systems, the combination, with the main-  
10 line tube, of a cushioning-tube connected therewith and having an exit on one side, and a valve in said tube between the exit and main line, substantially as and for the purpose set forth.

15 2. In a terminal cushion for pneumatic dispatch systems, the combination, with a closed

air-chamber for receiving the carrier, of a piston-head therein, substantially as and for the purpose set forth.

3. In a terminal cushion for pneumatic dispatch systems, the combination, with a closed  
20 air-chamber for receiving the carrier, of a piston-head therein, provided with an elastic face, substantially as and for the purpose set forth.

25 In testimony whereof I affix my signature in presence of two witnesses.

CHARLES M. JOHNSON.

Witnesses:

W. C. MCARTHUR,  
G. M. SWEETLAND.