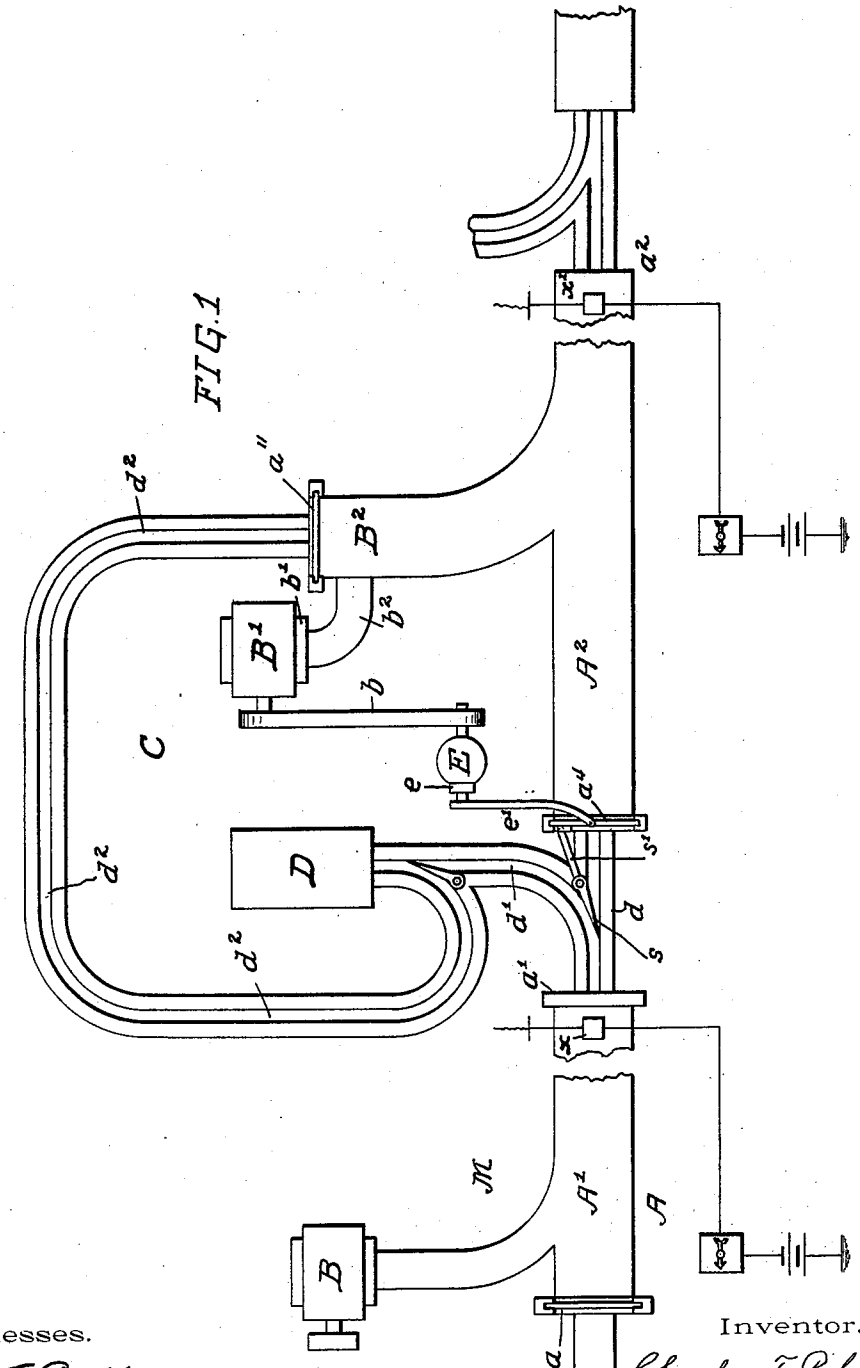
(No Model.) 2 Sheets—Sheet 1.

C. F. PIKE.

PNEUMATIC DESPATCH TUBE SYSTEM.

No. 568,490. Patented Sept. 29, 1896.

FIG. 1.



Witnesses.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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FIG. 2

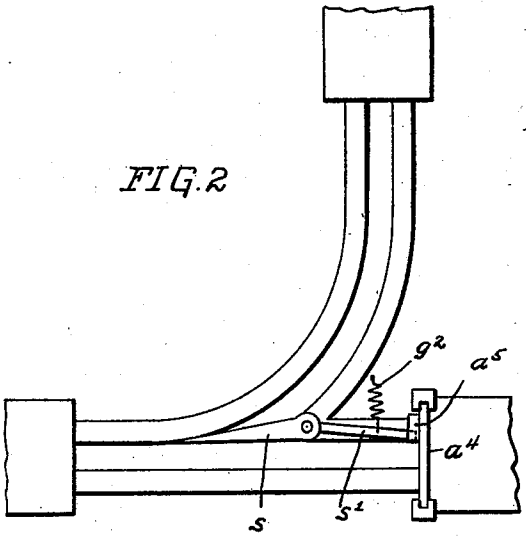


FIG. 3

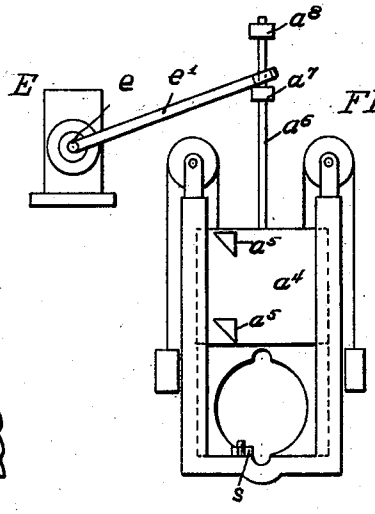


FIG. 5

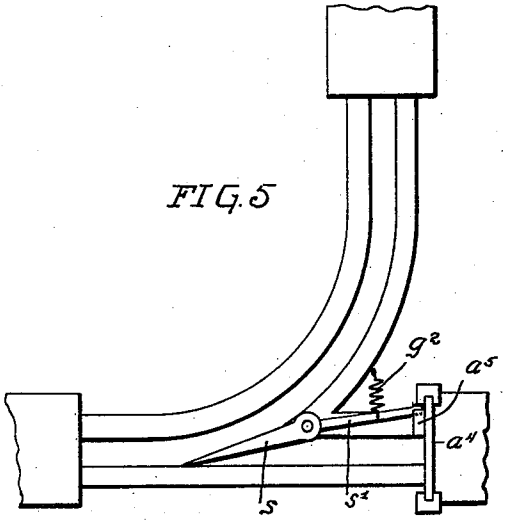


FIG. 6

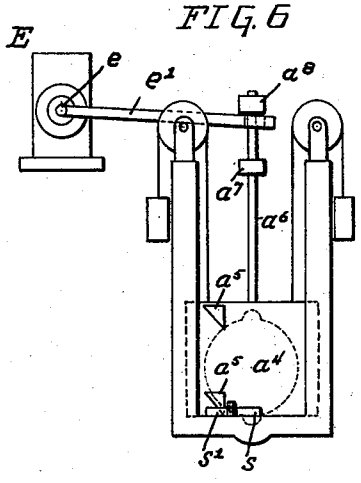
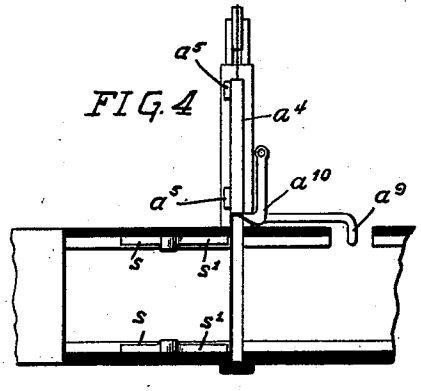


FIG. 4



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UNITED STATES PATENT OFFICE.

CHARLES F. PIKE, OF PHILADELPHIA, PENNSYLVANIA.

PNEUMATIC-DESPATCH-TUBE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 568,490, dated September 29, 1896.

Application filed May 31, 1895. Serial No. 551,211. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. PIKE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Pneumatic-Despatch-Tube Systems, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to pneumatic-despatch-tube systems, and has for its object a construction and arrangement of the tube system so that a number of carriers can travel through the system at one and the same time at a safe distance apart and at a maximum rate of speed obtainable by a single carrier traveling through the system. I accomplish this by constructing the tube system in divisions. The first division begins at the main station and terminates at the first station of the system. The second division begins at the station where the first division terminates and extends to the next station of the system, which may be another station in the system or the terminal station of the line. Between the end of one division and the commencement of a succeeding division is located the junction-switch of the division, which is under the control of the entrance-gate of the succeeding division to divert a carrier *en route* into said station, said gate being in a closed position, which is necessary while the carrier is passing through said succeeding division. Each division is provided with a blower or air-pressure device to propel the carrier through it.

My invention accordingly consists of the constructions, arrangements, and combinations of the parts, as hereinafter shown and described.

Reference is had to the accompanying drawings, wherein—

Figure 1 is a diagrammatic view showing a pneumatic-tube system and appurtenances in accordance with my invention. Fig. 2 is a plan of the junction-switch of a station set to allow a carrier to enter the next succeeding division. Fig. 3 is an end view of the gate at the entrance of a succeeding division in an open position. Fig. 4 is a vertical section of the tube at the entrance-gate, showing the catch mechanism to hold the gate open and the trip to allow the carrier to close it. Fig. 5 is a view similar to Fig. 2 with the junction-switch set to divert the carrier into the station. Fig. 6 shows the entrance-gate in a closed position.

A, Fig. 1, is the first division of the system beginning at the main or first station M, provided with the entrance-gate a, the blower B to give the required air-current to propel the carrier through the tube in said division, and terminating at a', station C, where the second or next succeeding division A^2 begins, which terminates at a^2, the terminal station of the line. The end a' of division or section A' is connected with the section A^2 by means of the skeleton track d, which has a branch d' leading to receiver D of station C.

At the junction of the track d and branch track d' is located a switch s, so constructed as to be opened by a carrier destined to station C, as shown in a concurrent pending application filed June 3, 1895, Serial No. 551,803. Said switch s is composed of top and bottom members of like construction (see Fig. 4) and is provided with the arm s', which extends into the path of the wedges a^5 a^5 on the entrance-gate a^4 of section A^2. (Shown more plainly in Figs. 2, 3, 4, and 5, and is not shown in detail, as it forms no part of this invention.) The rod a^6 is attached to the top of gate a^4 (see more plainly Figs. 3 and 6) and extends through the valve-lever e', which is moved to close the valve e of the engine E, Figs. 1, 3, and 6, by the contact-collars a^7 and a^8 as the gate a^4 is raised or lowered. The blower B' has belt connection with the engine E, and its discharge-opening b' is connected to the transmitter B^2 by the pipe b^2.

The operation is as follows: The gate a, which is constructed like gate a^4, Fig. 4, without the wedges a^5 a^5 and the rod a^6, is raised and the carrier inserted in the tube A. The gate a is then closed and the blower B started, causing the carrier to be propelled by the air-current through section A'. As it emerges from its end a' it comes in contact with the signaling device x to notify the attendant at the main station M that the division is clear, when the blower can be stopped or another carrier inserted. If the second division A^2 is clear and the switch s set for the straight run, as shown in Fig. 2, and the gate a^4 open, the

carrier passes into said second division, when it comes in contact with the trip a^9, withdrawing the catch a^{10}, causing the gate a^4 to descend by gravity, closing the end of the division, the wedge a^5, coming in contact with the arm s' of the switch s, changing the position of the switch to that shown in Figs. 5 and 1, so as to divert an arriving carrier from A′ should one arrive while the gate a^4 is closed. At the same time contact a^8 on the rod a^6 moves the valve-lever e' to the position shown in Fig. 6, opening the valve e of the engine E to start the engine, so as to rotate the blower B′, thereby propelling the carrier through said section or division. As the carrier emerges from its end a^2 it makes contact with the signaling device x' to notify the attendant at station C, who opens the gate a^4. The wedge a^5 is released from the arm s' of the switch s, which returns to its normal position, as shown in Fig. 2, by the action of the compression-spring g^2, and the contact a^7 of the rod a^6 raises the lever e' to its normal position, Fig. 3, closing the valve e of the engine E to stop the blower B′. Should a carrier be diverted into station C it is immediately, by means of the run-around track d^2, moved to the transmitter, when the gate a'' is raised and the carrier introduced into the transmitter B^2, the gate a'' is closed, and also the gate a^4, which sets the switch s and starts the engine E, as heretofore described. The noise of any arriving carrier is heard to notify the attendant of its approach, giving him ample time to introduce the carrier and close gate a^4 before its arrival at station C.

It will be seen that each division is closed against a carrier while in operation, and a carrier emerging from one division cannot enter another division if it is in operation, and all of the various divisions can be worked or employed at the same time.

I have shown a system with but one station. Any number may be ingrafted into the system, however, as the construction is the same and the stations are but repetitions each of the other.

It is obvious that the construction can be varied without departing from the spirit of my invention, as, for instance, the valve of the engine can be worked by the attendant instead of by the gate a^4, or the junction-switch may be inclosed instead of being a skeleton. Therefore I do not confine myself to the construction as shown.

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

1. A pneumatic-despatch-tube system divided into divisions, said divisions each beginning at a station and terminating at the next succeeding station, a gate at or near the entrance of each division, and a junction-switch located between the exit end of one division and the entrance of the next succeeding division, said switch being under the control of the gate at the entrance of the succeeding division to divert a carrier into the adjacent station when said gate is closed, substantially as set forth.

2. A pneumatic-despatch-tube system divided into divisions by junction-switches located between adjacent divisions, each division being provided with an engine, a blower, and a gate at or near its entrance end, said gate controlling both the adjacent switch and the operating-valve of said engine, substantially as set forth.

3. A pneumatic-despatch-tube system divided into divisions, said divisions each beginning at a station and terminating at the next succeeding station, a junction-switch located between and separating adjacent divisions, and a gate located at or near the entrance of each division, each switch being so connected with its adjacent gate that when the gate is in a position to render its division operative, the switch will be set to deflect a succeeding carrier and prevent its entrance into said division, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES F. PIKE.

Witnesses:
THOS. S. RODGERS,
JOHN H. HUDSON.