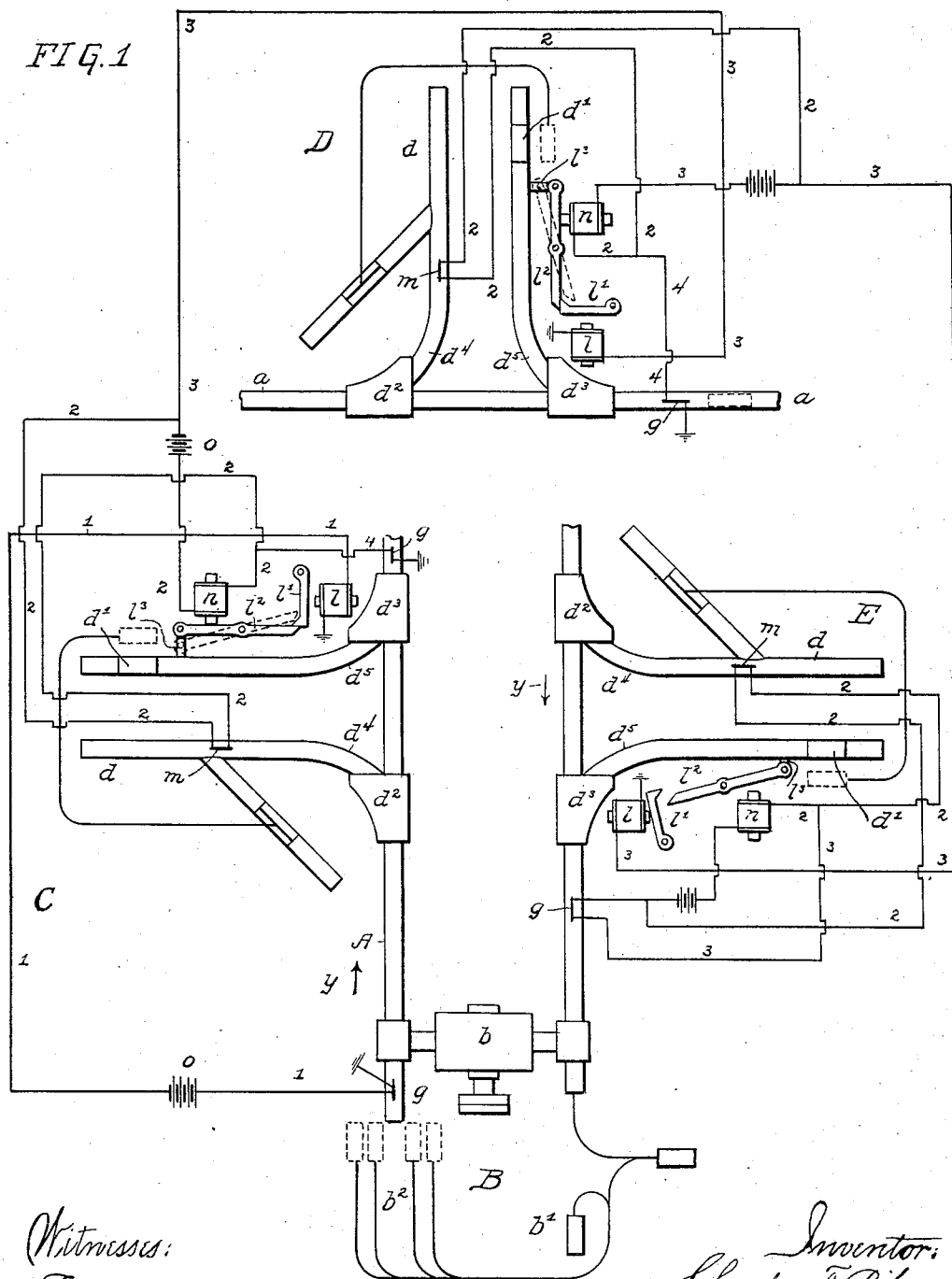


C. F. PIKE.
PNEUMATIC DESPATCH TUBE SYSTEM.

No. 566,013.

Patented Aug. 18, 1896.

FIG. 1



Witnesses:
John E. Carter
J. Henderson.

Inventor:
Charles F. Pike,
By his Attorney,
William A. Pike

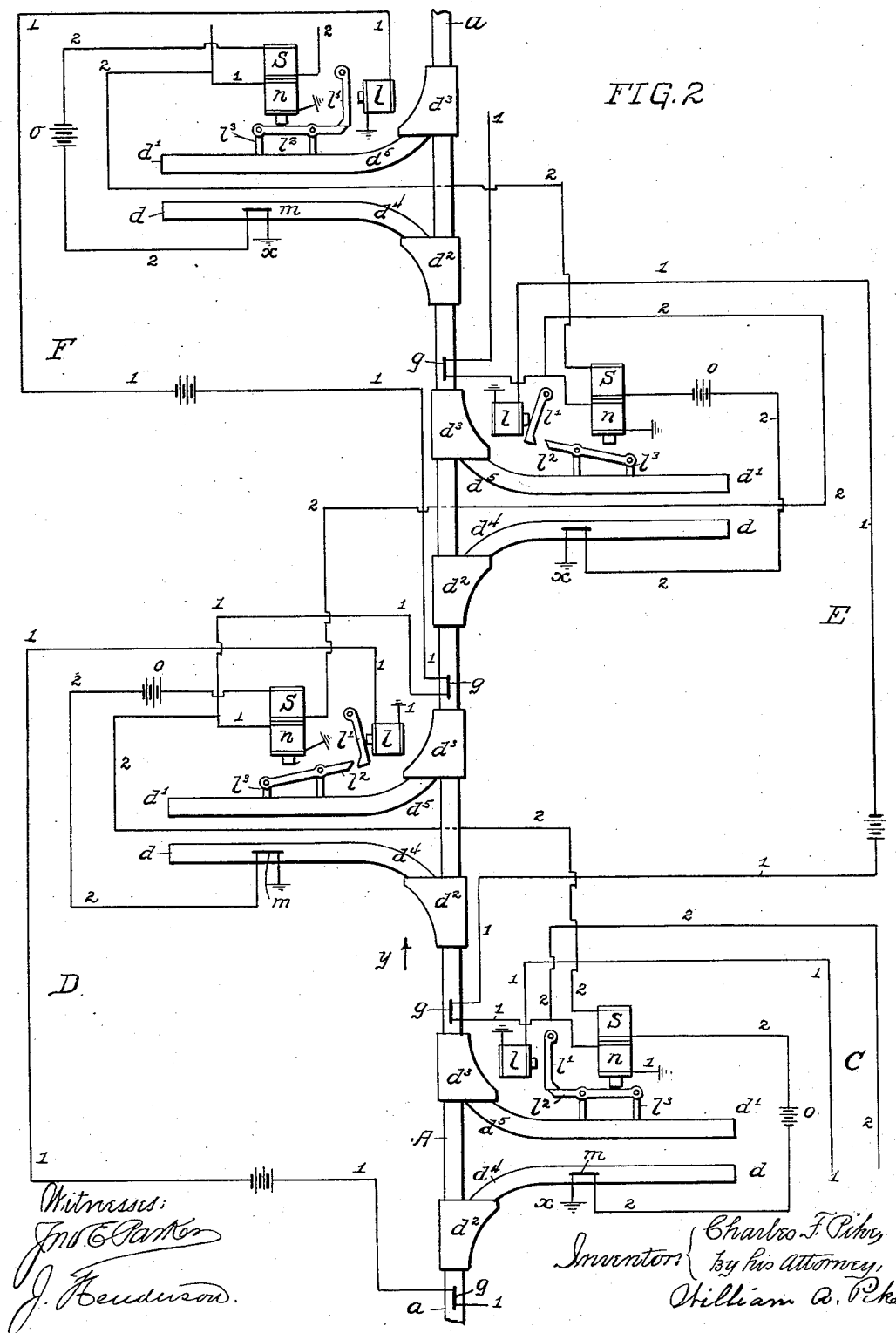
(No Model.)

2 Sheets—Sheet 2.

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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. 566,013, dated August 18, 1896.

Application filed May 31, 1895. Serial No. 551,212. (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 has relation to pneumatic-despatch-tube systems having main and sub stations provided with branch tubes for receiving and transmitting carriers from and into the main-line tube. In this construction of pneumatic-despatch-tube systems there is great danger of collision of the carriers at the junction of the transmitting branch tube with the main line from transmitting a carrier into the main tube at the same time a carrier from a rear station arrives. The object of my invention is to prevent such collisions. I attain this object by means of the combinations, constructions, and arrangements of parts, as hereinafter more particularly described in the specification and pointed out in the claims.

Reference is had to the accompanying drawings, in which—

Figure 1 is a diagrammatic view of a pneumatic-despatch-tube system, partly broken away, with main and sub stations, and showing the same arranged for the carrier to successively lock the transmitter ahead of it and unlock the said devices at each station which it had previously locked as it passed it, and furthermore showing that as a carrier passes to the receiver of a substation whose transmitting device had been previously locked it is unlocked by the carrier. Fig. 2 is a similar view of a pneumatic-despatch-tube system, showing a modification thereof, with a succession of substations, in which the traveling carrier successively locks the transmitter devices at two stations ahead of it and unlocks said devices at the station immediately to the rear of it, and furthermore showing that when the carriers enter a substation they unlock the transmitter devices at said station and at others previously locked ahead of said station.

A represents the main-line tube, partly broken away at a a.

B is a main station.

C, D, E, and F are substations, the number of which depends upon the length of the line and the demands of service required.

The main station is equipped with a power device *b*, receiver and transmitter *b'* *b''*, respectively, and the substations are equipped with the receivers and transmitters *d* *d'*, respectively, and with air-tight switch-boxes *d''* *d'''* at the junctions of the receiving and transmitting tubes *d''* *d'''*, respectively, with the main tube A, the arrangement and operation of which are not shown, as the same form no part of this application, but may be constructed as shown in other applications of even date or as may be desired. At the main station and beyond the switch-boxes *d''* at each substation within the main tube A are suitably-arranged electric-circuit terminals or contacts *g*, which are bridged by a suitable finger or brush on the passing carrier, which is not shown in the drawings, as the same is well known. Similar terminals or contacts *m* are correspondingly located in the substation receiving-tubes. Each of the substations is provided with a locking device to lock the transmitter, and it is composed of a pivoted lever *l''*, which is provided with the locking-pin *l'''*. The lever *l''* is held in position by the trip *l'*, which is actuated by the magnet *l*. The lever *l''* is restored to its normal position by the action of the magnet *n*. In Fig. 1, magnet *l* at the substation C is connected to the contact *g* at the main station B (or said magnet *l* at any substation to the contact *g* at the substation immediately to the rear of it) by the wire 1 1, which is provided with a battery *o*. Both magnet *l* and contact *g* are provided with ground-wires. Magnet *n* at substation C is connected by the wire 2 2 with the contact *m*. The contact *g* at said substation is connected to the magnet *n* at substation C and the magnet *l* at substation D by means of wires 4, 2, and 3, which are provided with the battery *o*. The contact *g* at the substation D is similarly connected to magnet *n* of that substation and magnet *l* at substation E. Substation E being the last substation, its contact *g* is connected to magnet *n* only.

The arrow *y* indicates the direction of travel of the carrier.

The operation is as follows: Suppose it is desired to send a carrier from the main station B to the substation E. When the carrier starts from the main station and passes the contact *g*, the finger or brush on the carrier closes the circuit and the electric current from the battery in wire 1 1 energizes the magnet *l* at substation C, which attracts the trip *l'*, releasing the locking-lever *l''*, which falls by gravity or by the action of a spring to the position shown in dotted lines, the locking-pin *l'''* locking the transmitter. When the carrier has passed the transmitting and main-tube junction switch-box *d*³ at substation C, it comes in contact with the terminal or contact *g*, making the circuit of the wires 4, 2, and 3, energizing the magnet *n* at substation C, which attracts the locking-lever *l''* back to its normal position, where it is held by the trip *l'*, and the magnet *l* at substation D is also energized, at the same time attracting the trip *l'* to allow the locking-lever *l''* to fall, thus causing the locking-pin *l'''* to lock the transmitter. When the carrier passes the transmitter-tube and main-tube junction switch-box *d*³ at substation D, its finger brushes contact *g*, energizing the magnet *n* at said substation, and the transmitter at D is unlocked and the transmitter at substation E is locked. When the carrier arrives at the substation which is its destination, it enters it through the receiving-tube *d*⁴ and makes contact with the terminal contact *m*, closing the circuit in the wire 2 2, energizing the magnet *n*, unlocking the transmitter at said station. Should the carrier be sent from substation C the same result is obtained, substation D being locked by the carrier brushing the terminal or contact *g* as it passes out of the transmitter-tube and enters the main tube A, and, continuing in its travel, brushes the terminal or contact *g* at substation D, unlocking the transmitter at said substation, which had been previously locked, and locking the transmitter at substation E, and the same result is obtained from whichever station the carrier may receive its initial impetus.

Fig. 2 is a modification, showing a number of successive substations provided with similar locking and unlocking devices actuated in the manner heretofore described, in which the arrangement of the magnets relative to their respective points of contact is of such a character that the carrier traveling in the main tube A by brushing the points of contact locks the transmitter two stations ahead of and unlocks the transmitter immediately to the rear of the traveling carrier, and when the carrier is diverged from the main tube into the receiver it unlocks the transmitter at said substation and at the substation immediately ahead of it.

Magnet *l* at any substation is connected by means of wire 1 1 with the terminal or contact *g* two stations to the rear. Magnet *n* at any substation is connected by means of

wire 1 1 with contact *g* at said station. Magnet *s* at any substation is connected by means of wire 2 2 with contact *m* at said station and by means of wires 2 2 1 with magnet *n* at the station immediately following. Both magnets *l* and *n* and contact *m* have ground-wires. The wires are provided with their appropriate batteries *o*.

The operation is as follows: A carrier bridging contacts *g* closes the circuits 1 1 at those substations, energizing the magnet *n* thereat, as at substation C, to unlock the transmitters thereat, and at the same time energizing the magnets *l* two stations ahead of said contact to lock the transmitters thereat, as at station E, and so on throughout its travel in the main tube locking the transmitter two stations ahead of it and unlocking said devices in the rear which had been previously locked.

If a carrier be diverted to the receiver-tube *d*⁴, as at substation D, it bridges the contact *m* and completes the circuit in wires 2 2, energizing the magnets *s* at said substation, as at substation D, to unlock the transmitter, and at the same time magnet *n* at the substation immediately following, as at substation E, is energized to unlock the transmitter of that substation which was previously locked by the carrier when it made contact at *g*, substation C. A carrier arriving at its destined station therefore unlocks the transmitter at that substation and also unlocks the transmitter at the substation ahead of said destined substation. Therefore I do not confine myself to the construction and arrangement of the parts as shown and described, as it is evident they may be variously changed without departing from the spirit of my invention. The locking of the transmitter may be effected at more than two stations ahead of the carrier or it may be locked at a station in its rear.

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

1. A pneumatic-despatch-tube system having substations, with inlet and outlet tubes, receivers and transmitters for said tubes, and a locking mechanism for the transmitter, actuating mechanism for effecting such locking and for unlocking the same controlled by a traveling carrier for locking the transmitters at stations ahead of it and unlocking the station to the rear of it, substantially as set forth.
2. A pneumatic-despatch-tube system having substations with locking mechanism for the outlet-tubes, transmitters for the substations, and actuating mechanism for effecting such locking and for unlocking the same controlled by a traveling carrier, which when diverted to its destined station unlocks the transmitter at said station and at the stations ahead of the destined station, substantially as set forth.

3. A pneumatic-despatch-tube system having main and sub stations, transmitter and receiver devices, carrier-diverting switches, and

locking mechanism for said transmitters under the control of traveling carriers, which successively lock said transmitters at the stations ahead of and unlock them at stations behind them, substantially as set forth.

under the control of a passing carrier, substantially as set forth. 10

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

5 4. A pneumatic-despatch-tube system having main and sub stations, transmitter and receiving devices, carrier-diverting switches and locking mechanism for said transmitter

CHARLES F. PIKE.

Witnesses:

THOS. S. RODGERS,
JOHN H. HUDSON.