

(No Model.)

3 Sheets—Sheet 2.

E. A. FORDYCE.
STORE SERVICE APPARATUS.

No. 570,163.

Patented Oct. 27, 1896.

Fig. 3

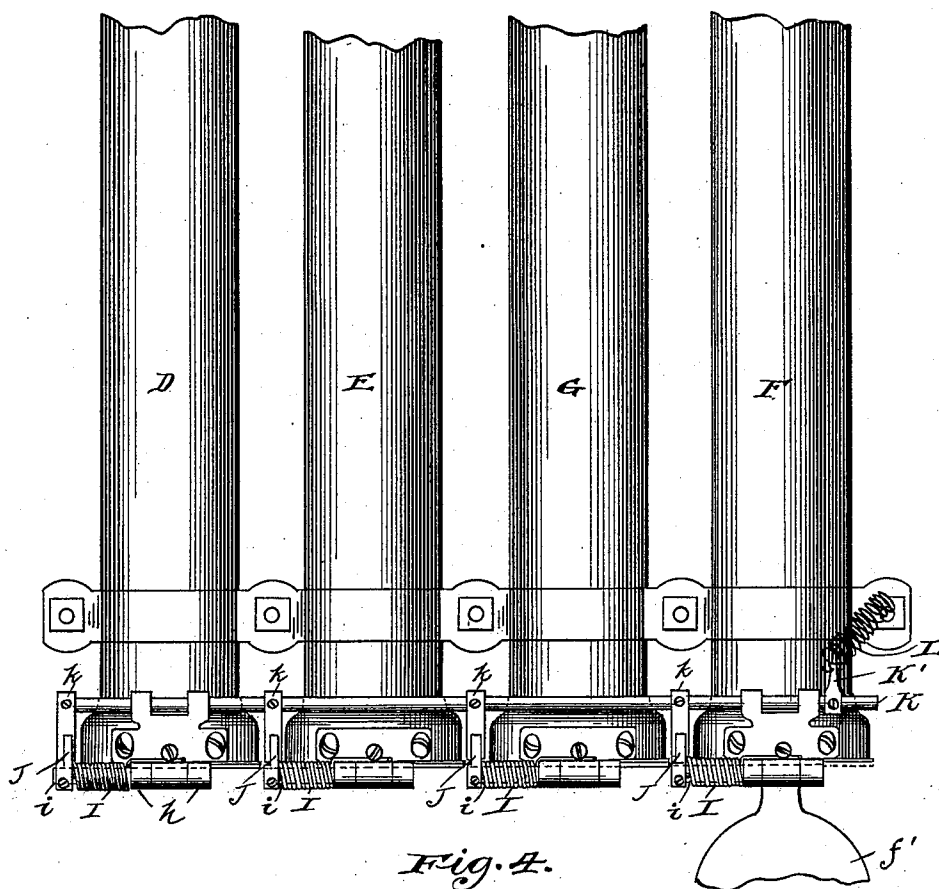
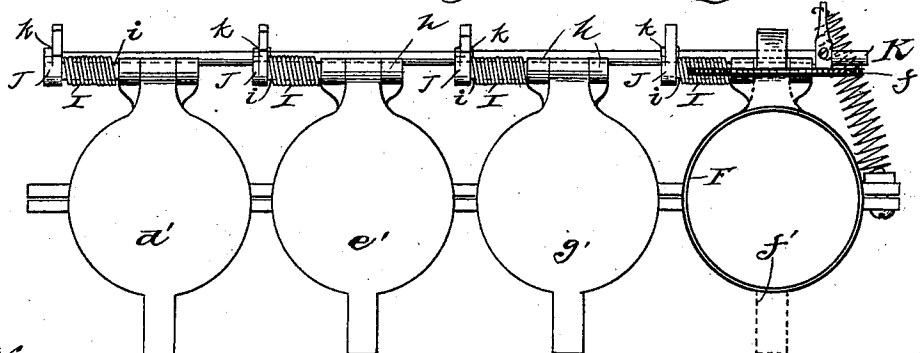


Fig. 4.



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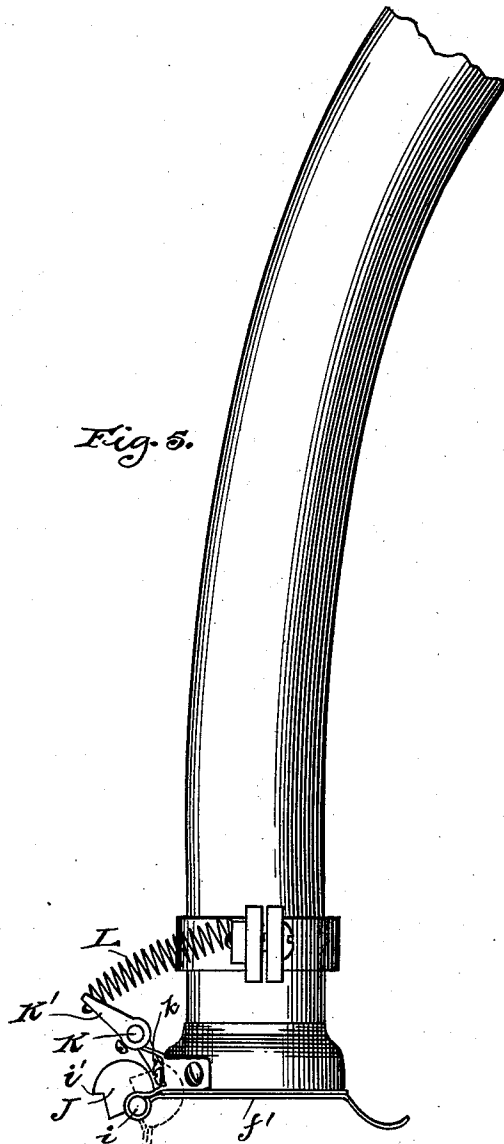
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UNITED STATES PATENT OFFICE.

EDMOND A. FORDYCE, OF CHICAGO, ILLINOIS:

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 570,163, dated October 27, 1896.

Application filed July 29, 1895. Serial No. 557,500. (No model.)

To all whom it may concern:

Be it known that I, EDMOND A. FORDYCE, of Chicago, Illinois, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a specification.

This invention relates to an improved form of apparatus for transmitting carriers by means of an air-current moving through a despatch-tube.

The invention is more particularly concerned with a pneumatic-despatch-tube apparatus wherein a single tube is used for sending carriers from the various floors or parts of a building to a central station, while a number of tubes, one for each station, is employed for returning the carriers. The sending-tube is provided with a series of inlets, one for each station from which the carriers are to be sent, and each of the return-tubes has a discharge-opening in the vicinity of its corresponding sending-station.

I have shown my invention as applied in a building having a series of floors, the tubes being arranged vertically and one return-tube extending to each floor and there provided with a discharge terminal. The sending-tube communicates at each floor with the return-tube for that floor. Each of the return-tubes is adapted to receive carriers at the central station through its open end or through a specially-formed inlet or branch, the opening being in all cases provided with a movable and preferably with a hinged cover.

The principal feature of my invention relates to the connecting of the several covers so that on opening one of the return-tubes the cover of the one last previously opened is closed, so that the current of air passes through one tube only to its discharge terminal and thence returns through the sending-tube. By this means the current is "shifted," as it is called, from one tube to the other, so that only power requisite to move a current of air sufficient to transmit a carrier through one tube need be used.

In the accompanying drawings, Figure 1 is a front elevation showing a series of vertically-arranged tubes extended through a series of floors, the latter broken away and in section. Fig. 2 is a side elevation of the parts shown in Fig. 1. Fig. 3 is an enlarged view,

in rear elevation, of the lower ends of the return-tubes, to which hinged flaps are applied, and showing a rock-shaft for operating said flaps. Fig. 4 is an end view of the series of flaps and showing the rock-shaft and tripping-arms thereon in plan. Fig. 5 is a side elevation of one of the tubes, showing its flap in two positions and the rock-shaft in end elevation.

In the drawings, A, A', A², A³, and A⁴ represent a series of floors.

B represents a sending-tube extending through the series of floors and provided with a series of inlets B', B², B³, and B⁴, one for each floor. These inlets may consist of short branch tubes connected into the main tube B and each provided with a flap *b*, normally closed by the reduced pressure within the pipe. From the lower end of said pipe a suction-pipe C extends to an air-exhaust apparatus. (Not shown.)

From the floor A a series of return-tubes D E F G extend, respectively, to the several floors and are there provided with terminals *d e f g* of known construction, and which need not therefore be particularly described. The lower ends of these tubes are closed by a series of flaps *d' e' f' g'*, which are hinged to lugs *h*, provided on the collar surrounding the lower end of the tube. The hinge-pins are extended beyond one of the lugs and provided with a coiled spring I, having a bearing on one of the lugs, with its other end made fast to the hinge-pin and tending to keep the flap or lid closed. Each of said extended pins also carries a trip-arm J, curved on its upper side, so as to form a cam.

K represents a rock-shaft journaled in the rear of the several tubes and having an arm K', to which is connected a spring L, normally tending to hold the shaft in a certain position. This rock-shaft carries a series of stop-arms *k*, one for each cam. Now when one of the flaps is pulled down its cam rides over the stop-arm, which yields thereto, rocking the shaft K until a shoulder *k'* on the cam engages the front end of the stop-arm, which will move up into position to be engaged, owing to the action of the spring L. The flap is thus held open by the engagement of the shoulder of the cam with the end of the stop-arm. The current then will pass through the

tube thus opened, and if a carrier be returned through said tube it will pass to its destination and be discharged, the course of the current being through the open tube and thence
 5 back to the exhaust apparatus by way of the sending-tube, which is connected with the return-tubes at the several stations by the connecting-tubes N. If now it be desired to return a carrier through one of the other
 10 tubes, its flap is opened and its cam will wipe over the stop-arm, turning the rock-shaft in its bearing and releasing the cam of the flap previously opened. The flap will then close and thereby the current passing through that
 15 tube will be cut off and the current established through the last-opened tube. This operation has been designated "shifting the current."

I have shown four return-tubes connected
 20 to a single sending-tube, but obviously a greater number may be so connected, and in actual practice as many as ten sending-tubes can be taken care of by a single attendant; as, for example, the cashier in a store where
 25 this apparatus is employed for despatching sales-slips and change from the cashier's station to the various floors of the building.

While I have described my improvements as applicable particularly to a vertical system, they may be, so far as pertains to the
 30 means for automatically closing one tube by the opening of another, applied to a system wherein the sending and receiving tubes are arranged horizontally or in other positions.

It will be observed that in the arrangement
 35 shown in Fig. 1 a single sending-tube is employed, all of the inlets being to the same tube and arranged in vertical series. From this it results that the carrier being de-
 40 spatched at any of the inlets would drop down by gravity alone, but a current is constantly passing through one of the return-tubes and through some portion of the sending-tube, and therefore the descent of the carrier is ex-

pedited by the action of the current, and
 45 where the tube is arranged so that gravity may assist this system is practical, although it would not be well adapted to a horizontal arrangement of the tubes.

I claim—

1. A pneumatic-despatch apparatus, comprising a sending-tube having a plurality of inlets and a plurality of return-tubes, one for each station and in pneumatic communication with the sending-tubes, and closures for the receiving ends of the return-tubes adapted to be operated singly and by their opening to close the one last previously opened, substantially as described. 50

2. A pneumatic-despatch apparatus, comprising a sending-tube having a plurality of inlets and a plurality of return-tubes, one for each station and in pneumatic communication with the sending-tube, and closures for the receiving ends of the return-tubes, said
 60 closures each having a tripping device, a series of locks, one for each trip, and said locks being connected whereby when one of the closures is opened its trip releases the lock of the then open closure, substantially as described. 65 70

3. In a pneumatic-dispatch apparatus, the combination with a sending-tube normally closed to the atmosphere, of a series of return-tubes, each of which is connected with the sending-tube and provided with a normally-closed hinged cover for its receiving
 75 end, a cam connected and moving with the hinged cover, a spring-controlled rock-shaft having a series of stop-arms, one for each cam, and adapted to engage such cam to hold the hinged lid open and to be depressed by the manual opening of another lid, substantially as described. 80

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