No. 714,202. Patented Nov. 25, 1902.

N. LEBLANC.

CASH AND PARCEL CARRIER.

(Application filed Mar. 28, 1902.)

(No Model.) 5 Sheets—Sheet 1.

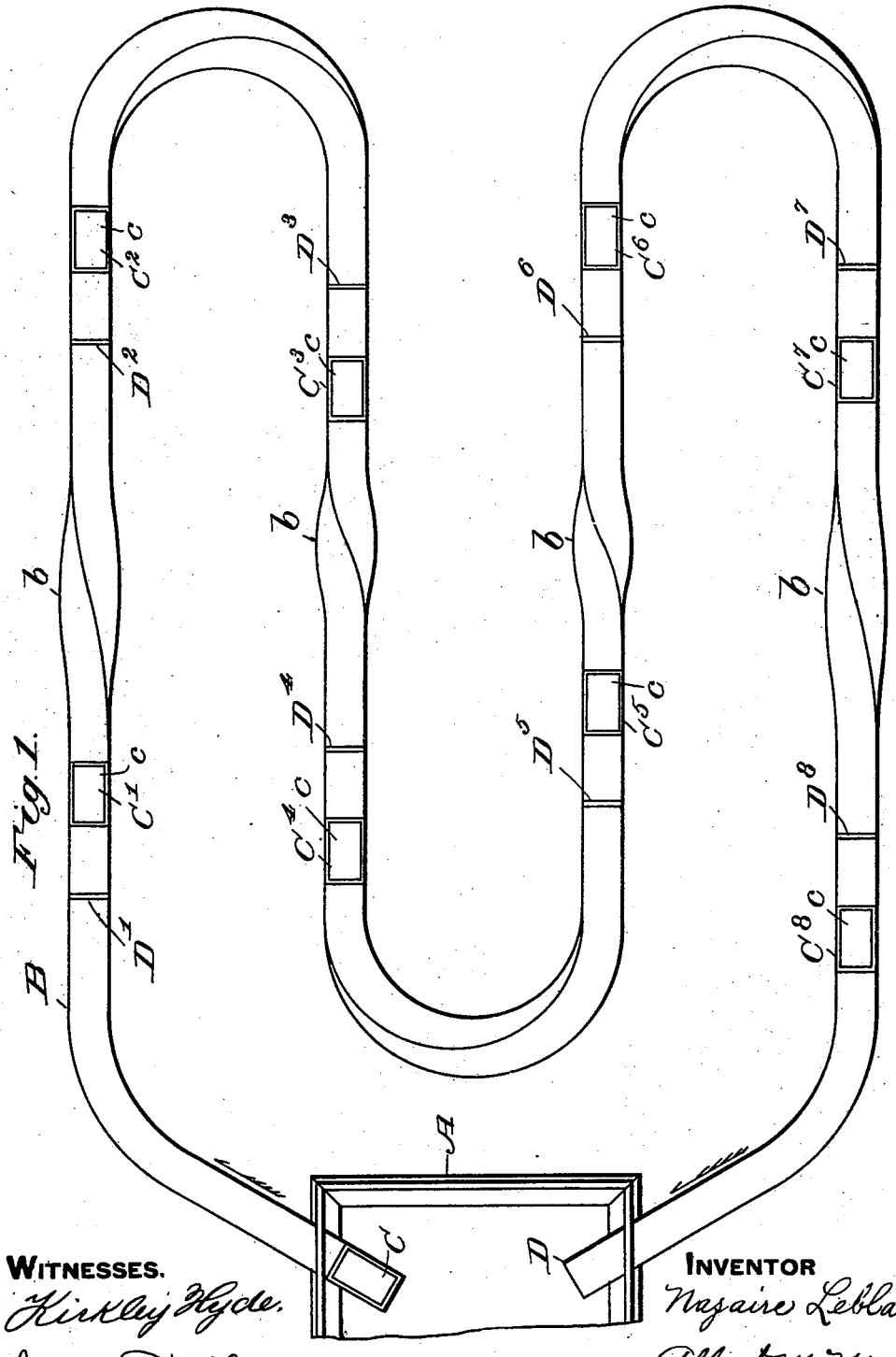

Fig. 1.

WITNESSES.

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Anna T. Halloran.

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By Albert M. Moore,

His ATTORNEY.

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

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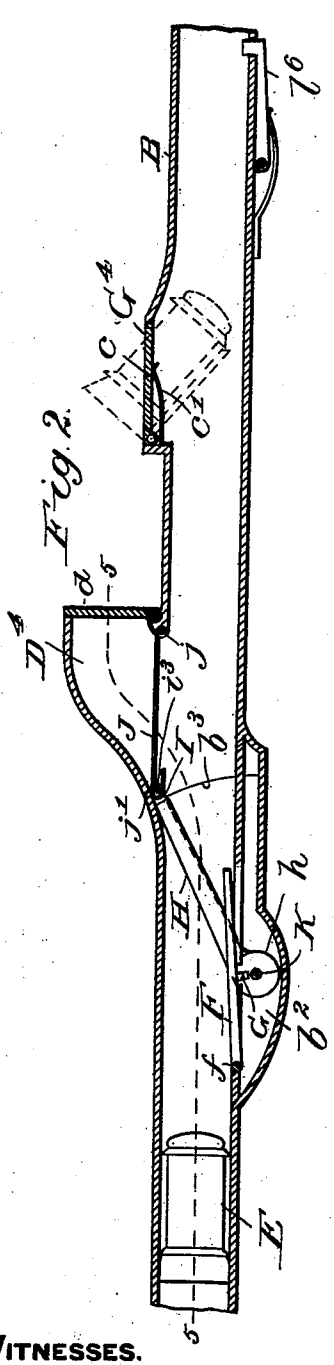

Fig. 2.

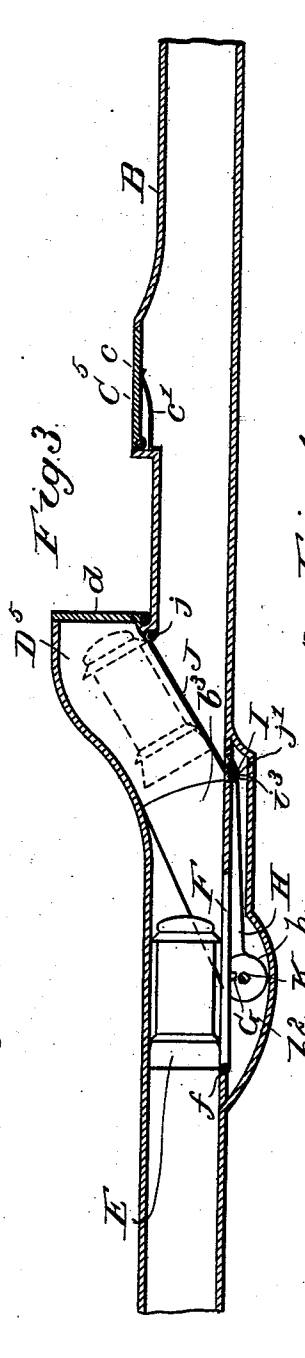

Fig. 3.

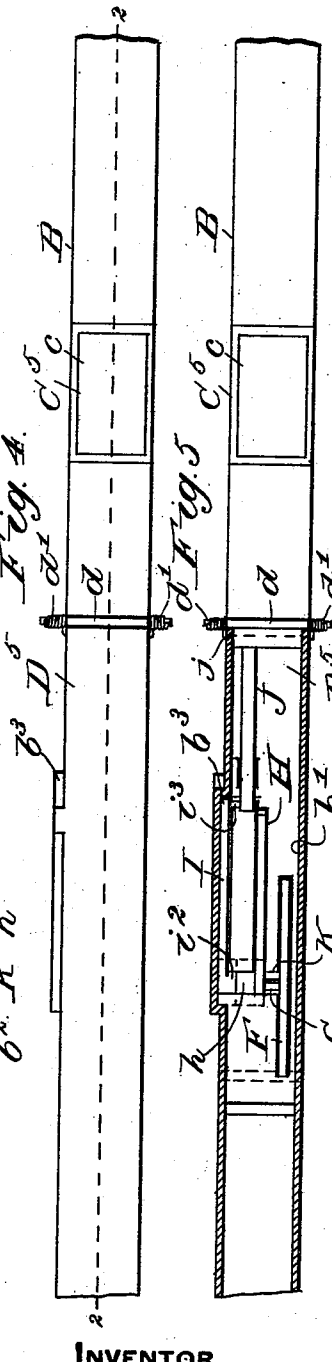

Fig. 4.

Fig. 5.

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(No Model.) 5 Sheets—Sheet 3.

Fig. 6.

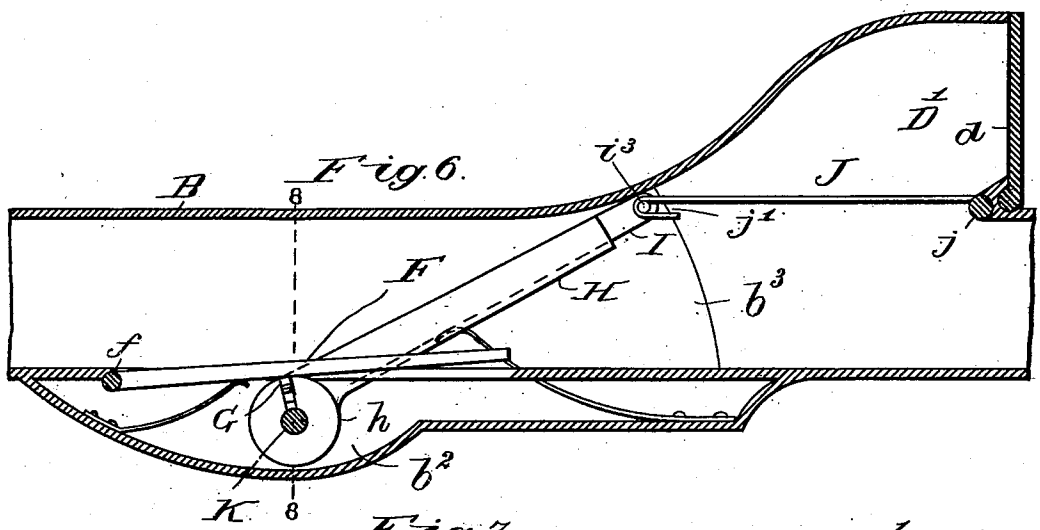

Fig. 7.

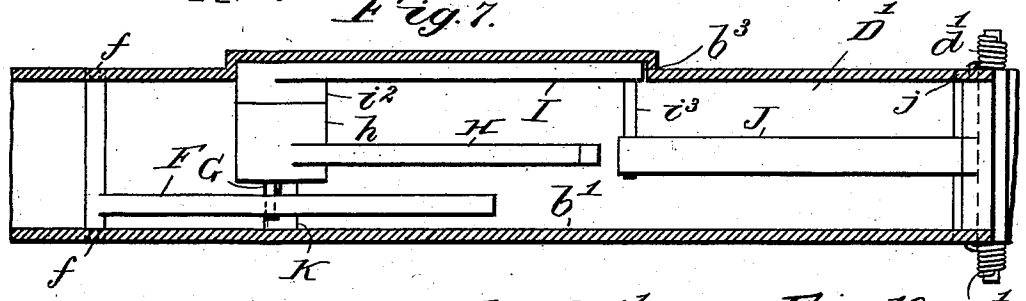

Fig. 8.

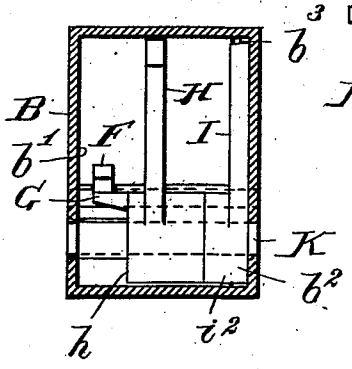

Fig. 9.

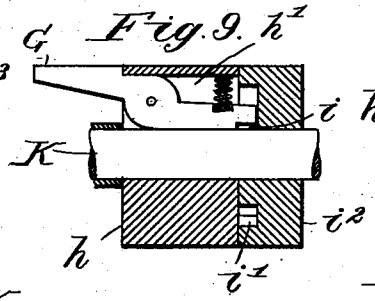

Fig. 10.

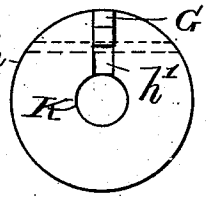

Fig. 11.

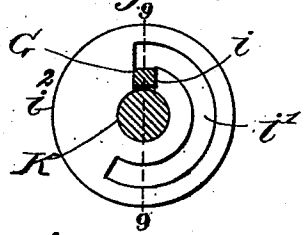

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Fig. 12.

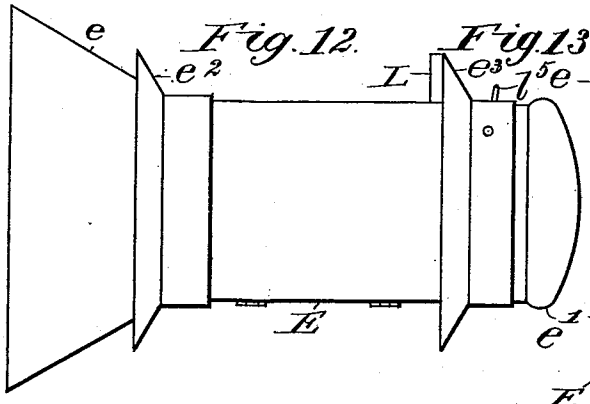


Fig. 13.

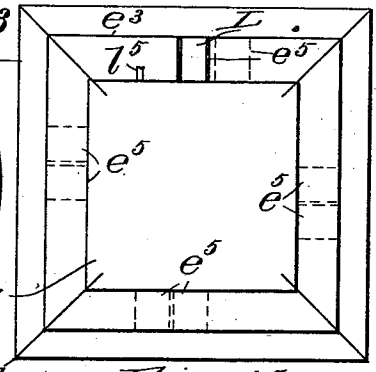


Fig. 14.

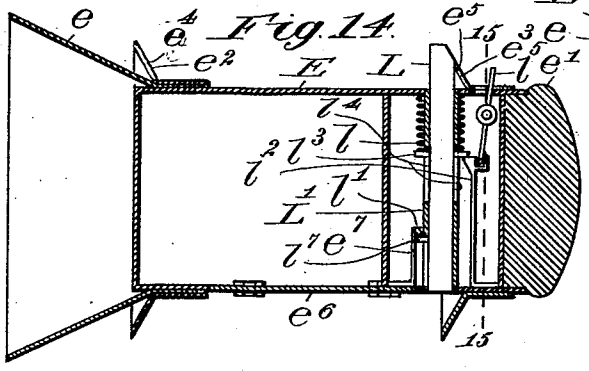


Fig. 15.

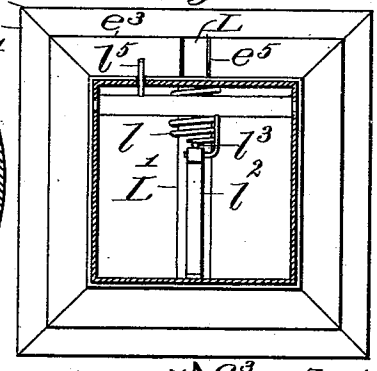


Fig. 16.

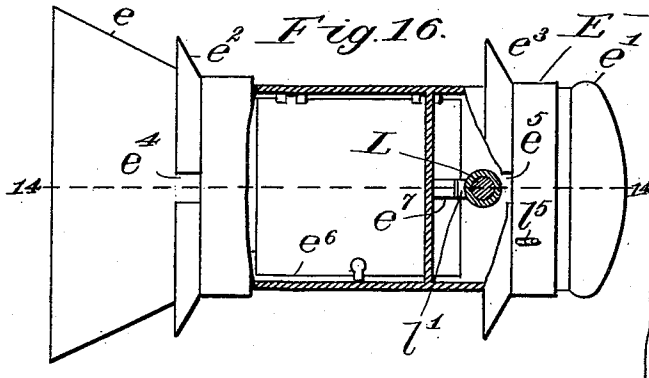
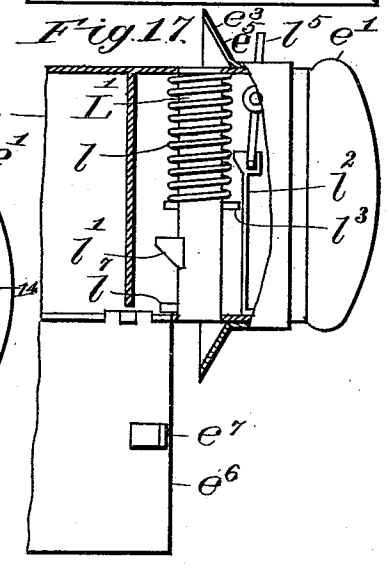


Fig. 17.



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(No Model.) 5 Sheets—Sheet 5.

Fig. 18.

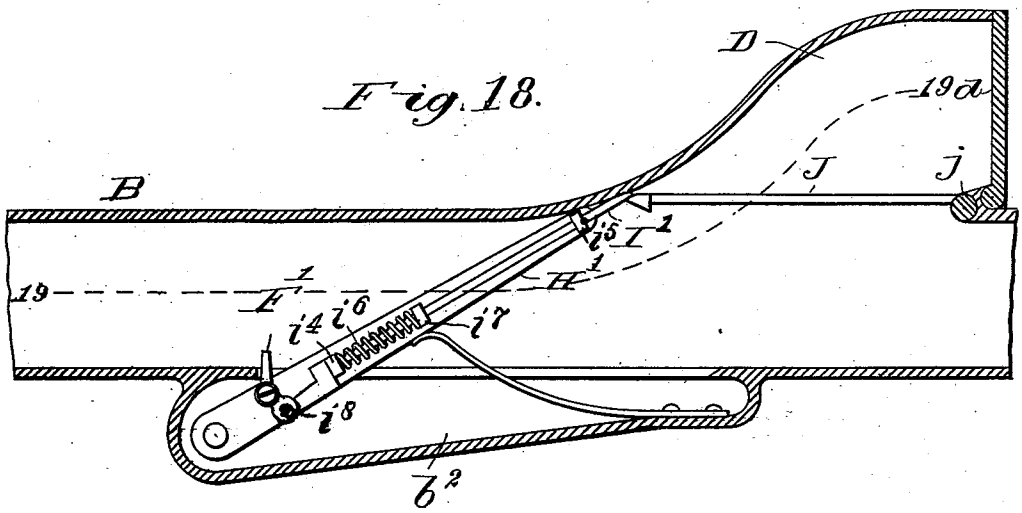
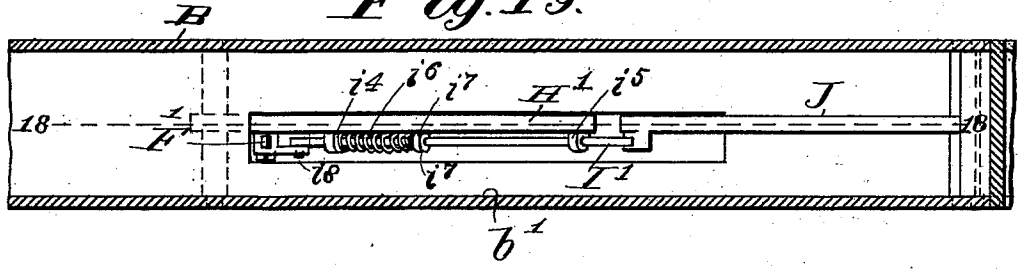


Fig. 19.



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UNITED STATES PATENT OFFICE.

NAZAIRE LEBLANC, OF LOWELL, MASSACHUSETTS.

CASH AND PARCEL CARRIER.

SPECIFICATION forming part of Letters Patent No. 714,202, dated November 25, 1902.

Application filed March 28, 1902. Serial No. 100,356. (No model.)

To all whom it may concern:

Be it known that I, NAZAIRE LEBLANC, a citizen of the United Kingdom of Great Britain and Ireland, residing in Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Cash and Parcel Carriers, of which the following is a specification.

This invention relates to cash and parcel carriers, or carriers which convey money and other articles between a central station and outlying stations by means of pneumatic-despatch tubes, and comprises the combinations and devices hereinafter described and claimed.

The object of this invention is to provide the despatch-tubes and carriers with means by which the carriers will be automatically delivered at their proper stations or switched into their proper branch tubes.

In the accompanying drawings, on five sheets, Figure 1 is a plan of a part of the cashier's desk and a line of despatch-tubes making a circuit which begins and ends at the cashier's desk; Fig. 2, a vertical longitudinal central section on the line 2 2 in Fig. 4 of a despatch-tube containing a switch, a delivery-station, and a receiving-station, showing also a carrier in the tube; Fig. 3, similar to Fig. 2, except in the position of the switching-levers and carrier, the carrier approaching the switch in Fig. 2 and operating the switch in Fig. 3; Fig. 4, a plan of the part of the tube shown in Figs. 2 and 3; Fig. 5, a similar plan, partly in transverse section on the line 5 5 in Fig. 2, omitting the carrier; Fig. 6, an enlarged view similar to Fig. 2, omitting the carrier and the parts at the right of the delivery-station; Fig. 7, an enlargement of the sectional part of Fig. 5; Fig. 8, a vertical transverse section of the tube, showing in end elevation a part of the switching device on the line 8 8 in Fig. 6; Fig. 9, a vertical transverse section on the line 9 9 in Fig. 11 of the hubs of the locking-lever and switch-actuating lever, showing the hub-locking devices; Fig. 10, a front end elevation of the part shown in Fig. 9; Fig. 11, a front elevation of the hub of the switch-actuating lever and its groove and a vertical section of the latch; Fig. 12, a side elevation of my improved carrier; Fig. 13, a rear elevation of the same; Fig. 14, a vertical central longitudinal section of the same on the line 14 14 in Fig. 16; Fig. 15, a vertical transverse section of the same on the line 15 15 in Fig. 14 looking to the left; Fig. 16, a plan of the same, partly in horizontal central section; Fig. 17, a side elevation of the same, partly in vertical central longitudinal section, on the same plane of section as in Fig. 14, showing the bolt retracted and the door of the carrier open. It will be understood that the words "side," "plan," "vertical," and "horizontal" in the above description of Figs. 12 to 17 are used relatively to the positions of the carrier in said figures and not absolutely, as the carrier may have any side uppermost when in use. Figs. 18 and 19 represent a modification of the part of the switching apparatus within the tube, Fig. 18 being a central vertical longitudinal section on the line 18 18 in Fig. 19 of the pneumatic tube at any switch and delivery-station, showing in front elevation the modified switching levers and devices, and Fig. 19 being a central horizontal section on the line 19 19 in Fig. 18 of said tube and a plan of said levers and devices.

A indicates the cashier's desk; B, a tube or trunk angular in cross-section, preferably rectangular, which leads out from the cashier's desk and after making a circuit of all the salesmen's stations returns to said desk.

C C′ C^2 C^3 C^4 C^5 C^6 C^7 C^8 indicate the sending-stations, the first indicated being at the cashier's desk, each sending-station consisting of a trap-door *c*, pressed upward and normally closed by a spring *c*′, through which door the carriers E are introduced into the tube B at the cashier's desk or at any of the salesmen's stations. From the sending-station the carriers are sucked or drawn through the tube B in the direction of the arrows shown in Fig. 1.

The delivery-stations D′ D^2 D^3 D^4 D^5 D^6 D^7 D^8 are arranged at the salesmen's stations and are hereinafter described, it being understood that the delivery-station D at the cashier's desk may be merely the end of the pneumatic tube B, from which the carrier may be discharged into a box, basket, or other suitable receptacle.

Assuming the tube B to be rectangular in

cross-section, the carriers E will also be rectangular in cross-section. In other respects, except as hereinafter stated, the carriers are similar to those commonly employed in cylindrical pneumatic tubes, each having a flap e, which spreads out to fill the tube B and catch the air, and a buffer e' or cushion at the front end. The current of air is preferably furnished by a suction-fan or exhaust-fan.

The body of the carrier E is provided with flanges e^2 e^3, of rigid material, near its ends, and these flanges are provided with openings e^4 e^5 of a width sufficient to allow them to receive and travel over the lever F in the direction of its length, said openings being arranged one directly behind the other for that purpose. This lever and the other switching devices supported by the tube B are shown in Figs. 2 to 7, and the carriers are best represented in Figs. 12 to 17.

The end of the lever F first approached by the carrier is pivoted at f, and the free end of said lever rises slightly above the floor of the tube, so that when the openings e^4 e^5 are at the same distance from the side of the tube as the lever F (said lever parallel with said tube) the carrier passes over said lever without moving it; but when these openings and said lever F are at different distances from said side b' the carrier in passing depresses the free end of the lever F and forces downward the front end of a locking-lever G, pivoted in a longitudinal slot h' of the hub h of the switch-lever actuator H, itself a lever, lifting the rear end of said lever G out of a notch i at the end of a groove i' in the front end of the hub i^2 of the switch-lever I, said hubs h i^2 being concentric with each other and turning on a common fulcrum K, which passes through a downward enlargement b^2 or chamber of the tube B, as shown in Figs. 2, 3, 6, and 8, and said groove i' being also concentric with said fulcrum, so that when the rear end of the lever G is raised into the groove i' the actuator H may be turned independently of the switch-lever I. The switch-lever I is arranged in a backward extension or chamber b^3 of the tube B and is not affected directly by the passing of the carrier, so that when the actuator H and said lever I are unlocked the carrier will pass over and depress the actuator H without moving the lever I. When the openings e^4 e^5 are at the same distance from the side b' of the tube B and the lever F is not depressed, a passing carrier will depress the actuator H, as usual, causing the switch-lever I to be thrown downward, because the hubs h i^2 are not unlocked by the lever F.

A switch J or lever is pivoted at j in the top of the tube B and is connected at j' by a hook, slot, or other obvious means with a stud i^3, which projects horizontally forward from the free end of the switch-lever I, so that the depression of said switch-lever brings said switch J into the path of the carrier and causes said carrier to pass up through a short branch or delivery-station D'. This branch D' is closed by a suitable gate or flap d, which yields outwardly when struck by the carrier, allowing the carrier to be discharged, and is closed by suitable springs d', Figs. 4 and 5, connected in an obvious manner with said gate at its pivot.

It is obvious that by changing the distances of the openings e^4 e^5 from the side b' or front of the tube B and equally changing the corresponding distances of the levers F at different stations a number of carriers may be sent from the cashier's desk, and only one of such carriers will be discharged at any given station, said openings being all arranged on the bottoms of their respective carriers. Moreover, an additional number of carriers having their openings e^4 e^5 on one side may be sent from the carrier-station and will safely pass all stations of the first set of carriers. In the same way two more sets of carriers may be used by utilizing the other two sides of the carriers for the openings e^4 e^5. To discharge each set of carriers properly, it would be necessary without changing the tube B that the levers F for each set should be arranged on the same side of the carriers with said openings e^4 e^5. Such an arrangement would require the discharge-stations or branches to be on the opposite side of the tube B from the lever F, which would be inconvenient. I am enabled to avoid this inconvenience by giving the tube B a quarter-twist between each set of stations. Suppose there are ten carriers in each set, and suppose that each salesman's station, as D' C', represents ten stations instead of one, the levers F being arranged at the bottom of the tubes B throughout the system. Then the second set of carriers will pass the first ten stations and being turned by a quarter-twist in the tube B at b in Fig. 1 will then have their openings e^4 e^5 next the floor or bottom of tube B and will be discharged one at each of the next ten stations in a similar manner. A third set of carriers sent from the desk A and having the openings e^4 e^5 in the top carrier will pass the first twenty stations without being discharged, being turned quarter-way around, as above described, between the first and second sets of stations and after passing the second set of stations will be turned another quarter-way around in the same direction, bringing the bottom of the carrier to the top of the tube and the openings e^4 e^5 to the floor of said tube and causing the third set of carriers to be delivered at the third set of stations, supposed to be represented by C^3 D^3. A fourth set of ten carriers sent from the desk A and having their openings e^4 e^5 in the fourth side of the carrier will pass thirty stations and being turned at the quarter-twist b next succeeding the thirtieth station will be properly distributed at the ten stations represented by C^4 D^4, thus properly distributing forty carriers.

In the above statement the number of the openings and stations are assumed for con-

venience of description, and I do not mean to limit myself to these numbers.

It will also be understood that by the "top" of the carrier is meant its upper face when placed at the desk A in the sending-station C, and in practice all the carriers will be marked on top in any convenient manner, as by making said tops of a uniform color, different from the color of the sides and bottoms of the carriers, or by placing any designating-mark on said tops.

The openings e^4 e^5 serve the same purpose as a groove cut lengthwise of a solid carrier of the same diameter as the flanges e^2 e^3.

The above description assumes, but only for explanatory purposes, that all the positions which the imaginary groove formed by the openings e^4 e^5 may occupy have been exhausted in distributing forty carriers, or, in other words, that each flange of each carrier is wide enough to make, side by side with suitable separations, ten openings e^4 or e^5 and no more.

It is evident that a solid ungrooved carrier of the same diameters as the flanges e^2 e^3 or a carrier with flanges destitute of the openings e^4 e^5 would pass by any number (no matter how large) of delivery-stations without being discharged and would return to the desk after passing all said stations. By stopping up the opening e^5 in the front flange e^3 in any carrier such carrier will be enabled to pass through the tube from end to end thereof, depressing all the levers at large in succession and unlocking the actuator H and switch-lever I at each station. It follows that if the opening e^5 can be closed until the first four sets of salesmen's stations are passed and again opened by means within the tube B four other sets of equal number and of substantially the same construction may be delivered properly at forty additional stations. I accomplish this by means (shown in Figs. 12 to 17) with which the carrier is provided and by the hooked lever i^6. (Shown in Fig. 2 at the right.)

The carriers E of the fifth, sixth, seventh, and eighth sets are each provided with a bolt L, normally retracted by a spring i out of the opening e^5 in the front flange e^3, but shot up into said opening e^5 by the closing of the door e^6 of the carrier, said door having a projection e^7, which by the closing of the door, Fig. 17, reaches under a projection l' on the bolt L and raises said bolt into the position shown in Figs. 12 and 14, filling the opening e^5, where said bolt is retained by a latch l^2 springing under a pin or projection l^3 on said bolt. Just before the door e^6 is completely closed the projection e^7 is disengaged from or swings out from under the incline l', so that the bolt L is free to fly into the carrier when released by the latch l^2. The bolt is guided by a tube L', slotted at l^4 to allow the pin l^3 to project therefrom, Fig. 14. A lever l^5 engages the latch l^2 and projects from the carrier and when engaged by a hooked lever l^6, which reaches into the tube B between the fourth and fifth series of stations, as shown in Fig. 2, allows the bolt to be drawn into the carrier and the carrier to be discharged at the proper station of the fifth, sixth, seventh, and eighth series.

It is further obvious that by moving the projecting arm of the lever l^5 to the right or left of the position it occupies when it engages the hooked lever l^6 above named said lever l^6 will not operate to allow the bolt D to be withdrawn, and the carriers will pass the fifth, sixth, seventh, and eighth series of stations and continue on until said carriers meet another hooked lever l^6, arranged in a position to release said bolt L in the new position of the outer arm of the lever l^5, and that the bolt L being withdrawn the carriers may be delivered each at its proper station in the ninth, tenth, eleventh, and twelfth series of stations, and that on every change of position of the outer arm of said lever l^5 and by the use of a new hooked lever properly placed four new series of carriers and stations may be used, assuming the carriers to have four sides and the tube B to have a quarter-twist b between each series of stations.

In Figs. 18 and 19 the upper arm of the lever F' stands in the path of a carrier and is depressed by every passing carrier except the one in which the openings e^4 e^5 or groove admits said upper arm. Said lever F' is pivoted on an actuator or lever H', substantially like the actuator H in the other figures. The actuator H' is provided with ears i^4 i^5, in which slides a rod I', which may be regarded as a switch-lever, having the same fulcrum as the actuator and normally engaging the switch J, as by projecting over the free edge of said switch, being held in this position by a spring i^6, compressed between the ear i^4 and a collar i^7 on said rod or lever I'.

The rod or lever I' (unlike the lever I, above described) is depressed at every depression of the actuator—that is, by every passing carrier—but the lower end of said rod is so jointed or connected to the lower end of the lever F' at i^8 that the movement of said lever F' due to direct contact of a carrier draws said rod I' down out of engagement with the switch J and allows the actuator to be depressed without opening said switch. When the groove in the carrier is arranged to admit the lever F', the switch is opened by the depression of the actuator.

I claim as my invention—

1. In a pneumatic carrier system, the combination of a despatch-tube having branches, a switch, a switch-lever operated by a passing carrier, and mechanism normally connecting said switch and lever and controlled by a carrier and adapted to disconnect said switch and lever and to allow said lever to be operated without operating said switch.

2. In a carrier system, the combination of a despatch-tube having branches, a switch, a switch-lever arranged in the path of a carrier

and operated by the passing of the same, and a movable connection between said switch and lever, adapted to be displaced by said carrier and to disconnect said switch and lever before said lever is operated.

3. In a carrier system, the combination of a tube having two or more branches or discharge-tubes, a like number of switches, each normally closing one of said discharge-tubes, a like number of levers, operated by a passing carrier, a like number of mechanisms, each normally connecting one of said levers to one of said switches and arranged at varying distances from the middle of the carriers and adapted when struck by a carrier, to disconnect the corresponding lever and switch and as many carriers, each having a longitudinal opening to allow said carrier to pass one of said mechanisms without operating the same.

4. In a carrier system, the combination of a tube having a series of discharge-tubes or branches, switches to close said branches, means of opening said switches by passing carriers having openings which register with said means, with a carrier having a longitudinal opening, a bolt adapted to fill said opening, a spring to draw said bolt out of said opening and a latch to retain said bolt in said opening, said tube having a projection arranged to engage said latch and release said bolt.

5. In a carrier system, the combination of a despatch-tube, divided into connected longitudinal sections, having a series of branches, switches and switch-levers in each section, and mechanisms normally connecting said switches and levers and adapted to be controlled by a suitable passing carrier, to disconnect said switches and levers and to permit the passing of a carrier without operating a switch, and as many series of carriers as there are tube-sections, each series of carriers being appropriate to one of said sections and each carrier of each section being adapted to pass through all of the other sections without operating any switch of said other sections and to operate a single switch of its own section.

6. In a carrier system, the combination of a despatch-tube, angular in cross-section and divided into a plurality of longitudinal sections by twists or turns of said tube about its axis, each of said longitudinal sections having a series of branches, switches and switch-levers, and mechanisms normally connecting said switches and levers and adapted to be controlled by a suitable passing carrier, to disconnect said switches and levers and to permit the passing of said carrier without operating a switch, and as many series of carriers as there are tube-sections, each series of carriers being appropriated to one of said tube-sections and each carrier of each tube-section being adapted to pass through all the other tube-sections without operating any switch and to operate a single switch of its own tube-section, and each carrier being of angular cross-section corresponding to the cross-section of said tube.

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

NAZAIRE LEBLANC.

Witnesses:

ALBERT M. MOORE,

BENJAMIN HODGMAN.