

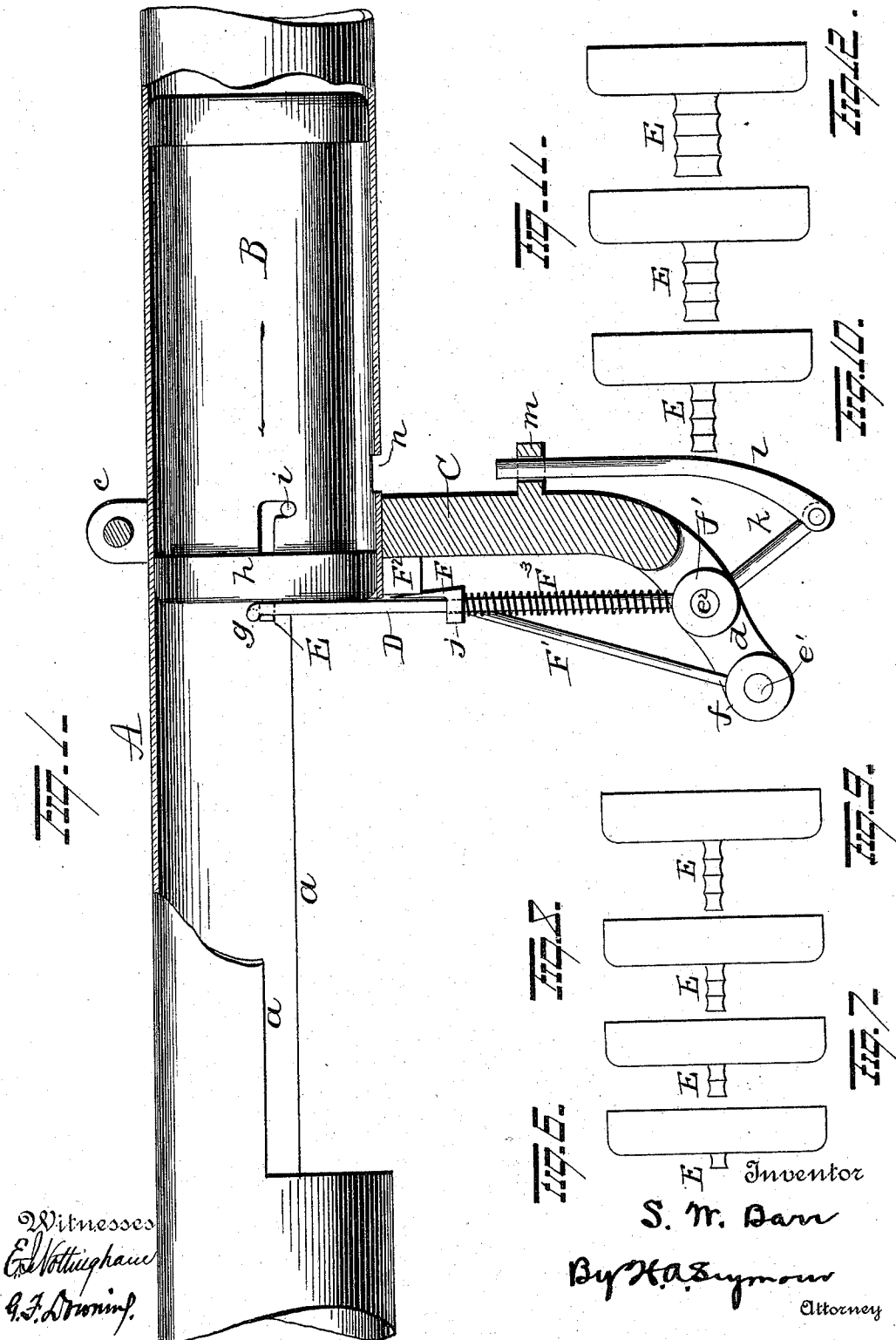
(No Model.)

3 Sheets—Sheet 1.

S. W. BARR.
PNEUMATIC DESPATCH APPARATUS.

No. 570,421.

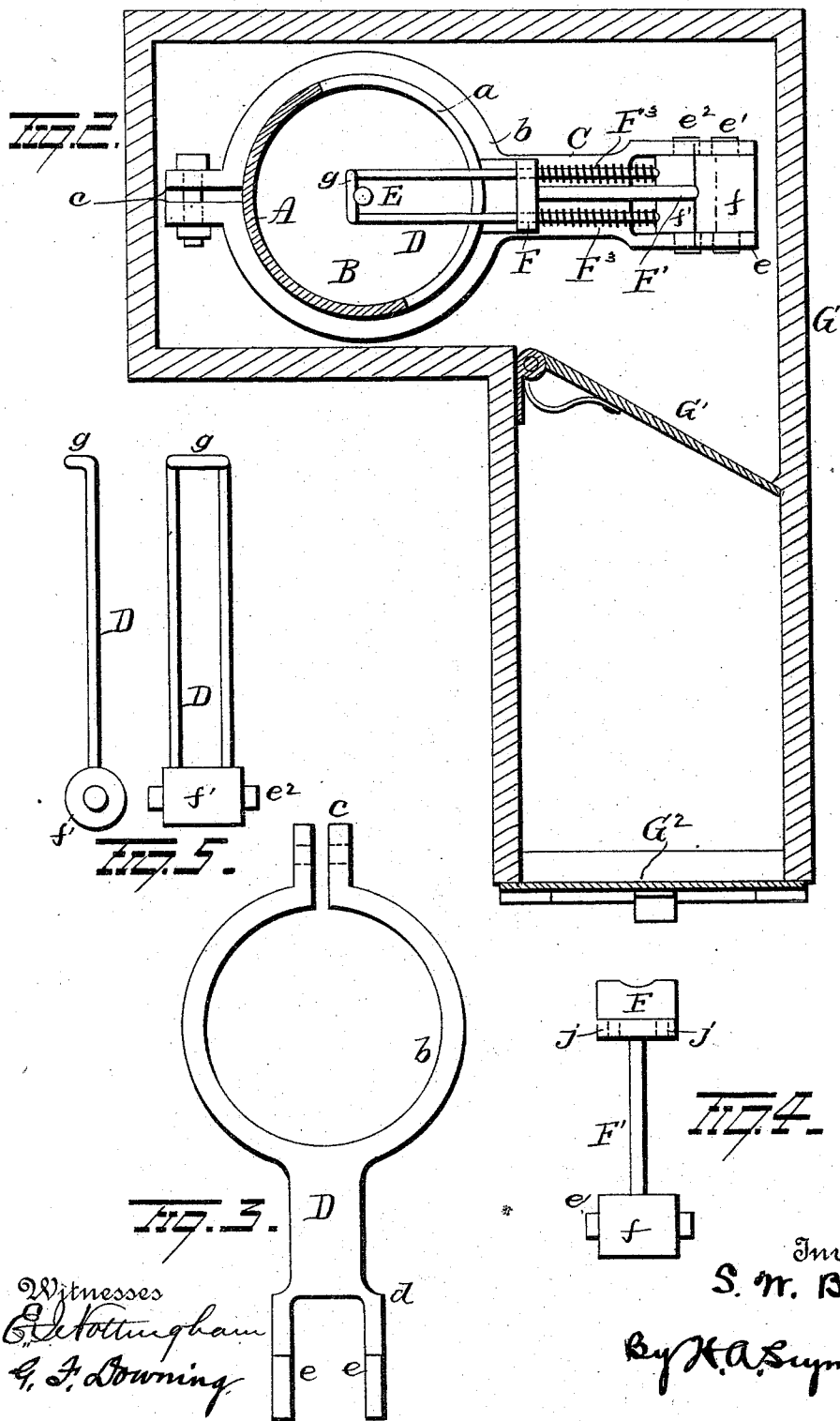
Patented Oct. 27, 1896.



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Witnesses
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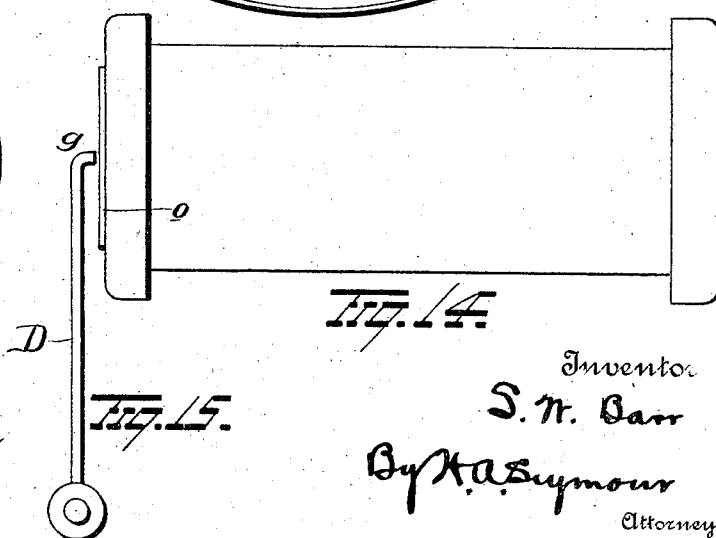
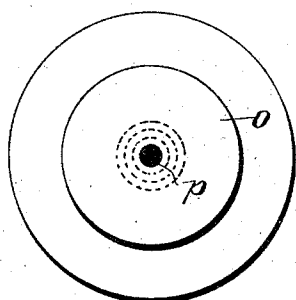
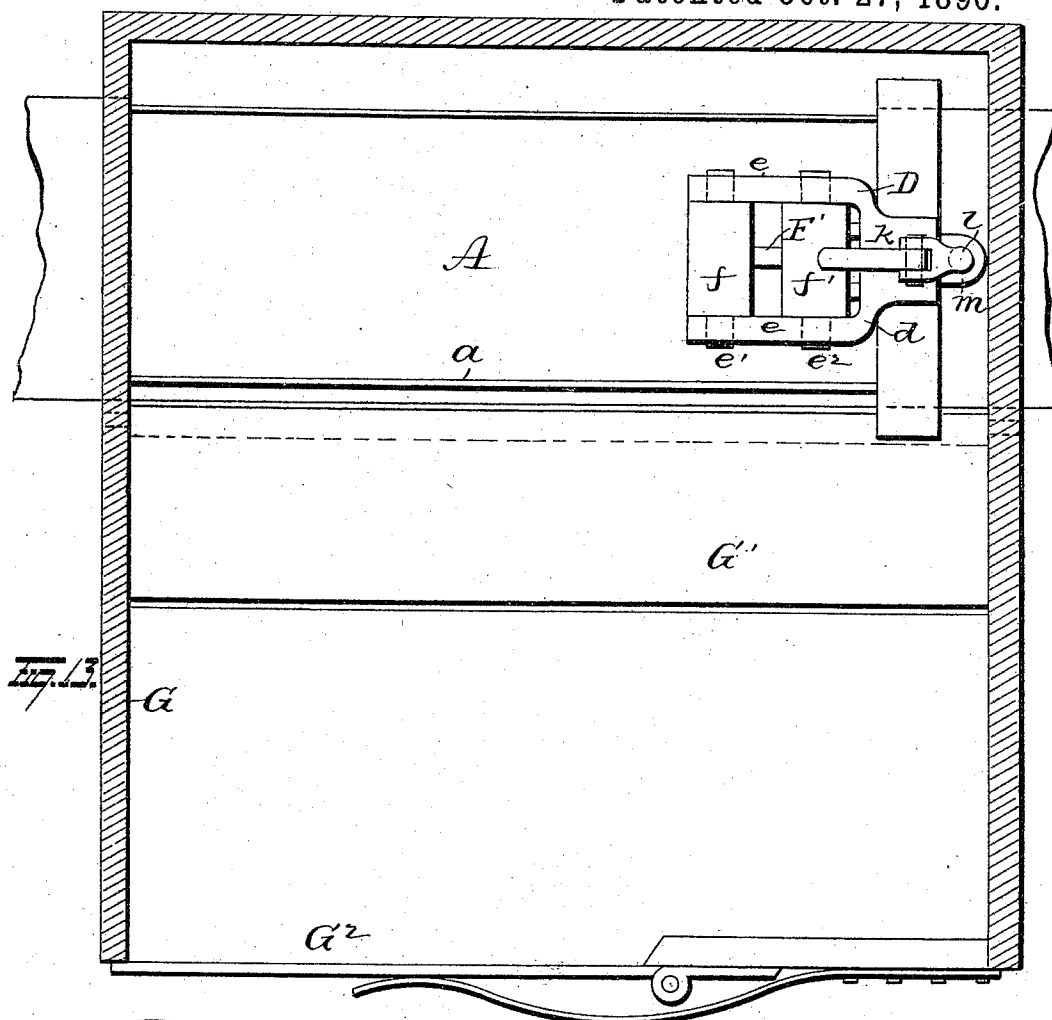
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UNITED STATES PATENT OFFICE.

SAMUEL W. BARR, OF MANSFIELD, OHIO, ASSIGNOR TO THE BARR CASH AND PACKAGE CARRIER COMPANY, OF SAME PLACE.

PNEUMATIC-DESPATCH APPARATUS.

SPECIFICATION forming part of Letters Patent No. 570,421, dated October 27, 1896.

Application filed April 12, 1893. Serial No. 470,045. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. BARR, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Pneumatic-Despatch Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in pneumatic-despatch devices, and more particularly to automatic switches used in connection with such devices, the object of the invention being to produce a simple and efficient switch for automatically ejecting the cash-boxes at certain predetermined points in the line of the despatch-tube.

A further object is to produce a switch for automatically ejecting the box or car of a pneumatic-despatch device which shall be simple in construction, not easy to get out of order, one which shall be accurate in operation, and which shall in every respect be effectual in the performance of its functions.

With these objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view illustrating my invention, a portion of the tube being broken away to show the position of the box when ready to be discharged or ejected. Fig. 2 is a sectional view. Figs. 3, 4, and 5 are detail views. Figs. 6 to 12, inclusive, illustrate the pins. Fig. 13 is a view illustrating the casing which incloses the switch and the opening in the tube and the arrangement of gates or valves therein. Figs. 14, 15, and 16 illustrate a modification.

A represents a despatch-tube showing a portion cut away to illustrate the position of the car B when in position ready to be ejected from the tube. At each station on the line of the tube one-half of the tube is cut away, as at *a*, at an angle of about eighty degrees from horizontal, so that the lower portion extends beyond the center to produce a track for cash-boxes which pass on to other switches.

Through these openings in the tube the cash-boxes are adapted to be ejected, as will be presently fully explained.

At one end of each opening *a* in the tube a bracket or hanger C is clamped to the tube, said bracket or hanger being made with an open loop *b*, adapted to encircle the tube, and the free ends of the members of said open loop being provided with perforated ears or lugs *c*, for the accommodation of a bolt, by means of which to secure the device to the tube. The other end or arm *d* of the bracket or hanger C is made to extend forwardly and laterally, and at its free end is bifurcated to produce arms *e e*, between which two pins or short shafts *e' e'* are secured, the pin or shaft *e'* being located at the extremity of the hanger or bracket and the pin or shaft *e'* being located rearwardly therefrom. On the pins or shafts *e' e'* hubs *f f'* are loosely mounted. An outwardly-projecting arm or lever D is secured to the hub *f'* and is of a length sufficient to extend about half-way through the tube A, said arm or lever D being made, preferably, of wire and in the form of a loop or bail having its upper end bent outwardly at right angles to its main portion, as at *g*.

The arm or lever D in its normal position is disposed at right angles to the longitudinal axis of the tube A and adapted to be struck by a car or box B passing through the tube, and a pin or projection E on the end of the car or box B is adapted to enter between the members of the arm or lever D. Each head of each car or box B may be provided with felt whereby to make an air-tight fit within the tube, and the head *h* of the car or box constitutes the lid or cover thereof, said lid or cover being provided with a pin *i*, adapted to enter an L-shaped slot in the car or box. The pins or projections E may be located on both ends of the car or box, so that either end may be inserted into the tube.

The pins or projections E are made of varying sizes, as are also the arms or levers D. For instance, one car or box B may be provided with a projection E three-sixteenths of an inch long and three-sixteenths of an inch in diameter, and the arm or lever D, which ejects the box or car with such a projection, is made with an arm *g* of a size sufficient to

permit the pin on the box to pass under the cross-bar of said arm *g*. The members of such arm or lever *D* are arranged a distance apart just sufficient to admit the pin *E*. Another
 5 box may be provided with a pin *E* of the same thickness, but slightly longer, say five-sixteenths of an inch long, and the switch which ejects this box will be provided with an arm *g* of sufficient length to permit the pin to pass
 10 under the cross-bar thereof, but too long to permit the first-mentioned pin to pass under it. There may be a series of pins, one for each of a series of boxes or cars, and varying in length from three-sixteenths of an inch to
 15 one-half inch, and all of the same diameter, say three-sixteenths of an inch. There will also be a series of arms *D*, one for each of a series of switches, and said switches being located at various stations. The number of
 20 switches and stations may be increased by increasing the size of the pins *E* successively to an extent of, say, one-eighth inch each, and the lengths of the arms *g* and the distance apart of the members of the arms or levers *D*
 25 will be varied to correspond.

The detail views of the arm or lever *D* show said lever of a size adapted to be operated by a pin one-half inch long and the same in diameter. The next station in the line of the tube
 30 may be provided with an arm *D*, adapted to operate a pin of the same length and one-eighth inch less in diameter, and the next of the same length and one-eighth inch less in diameter than the last, and the next one-
 35 eighth inch less in diameter and one-eighth inch less in length than the last one, and so on. Thus at least sixteen stations may be provided on each tube and a car or box may be provided adapted to be ejected at each
 40 station.

A wedge-shaped block *F* will be provided and made with perforations *j* for the passage of the members of the bail-shaped arm or lever *D*, the perforations of each block *F* being arranged a distance apart commensurate with the distance apart of the members of said arm
 45 or lever. A rod *F'* is connected with said wedge at one end, and at the other end is secured to the hub *f*. When the parts are in their normal positions, the wedge *F* rests against a buffer *F*². In order to retain the parts in their normal positions and return them to such positions when they shall have been operated by a car, a spring (or springs)
 50 *F*³ is made to encircle the member (or members) of the arm or lever *D*, said spring or springs being secured at one end to the block or wedge *F* and at the other end to the hub *f'*, said spring or springs thus tending to maintain the arm or lever *D* in the position shown in Fig. 1.
 60

In order to prevent a box following the one being ejected at a certain station from escaping with the ejected box, the devices now to be described will be employed. An arm *l*
 65 projects from the hub *f'* at an angle to the arm or lever *D*, and to the free end of said arm *l*

a horizontally-movable bar *l* is pivotally connected, said horizontally-movable bar being adapted to pass through an eye or guide *m*
 70 projecting from the bracket or hanger *C*, and adapted when the switch is operated to pass through an opening *n* in the tube *A*, and thus prevent the passage of a box following the one being ejected until the parts assume their
 75 normal positions.

Assume now that the station shown in Fig. 1 is provided with an arm or lever *D*, adapted to eject a box having a pin *E* one-half inch long and one-half inch in diameter, and that the box
 80 shown in Fig. 1 is provided with such a pin. When the box reaches the switch, its pin will enter between the members of the arm *D* and project under the horizontal bar *g* of the arm. The box or car being thus connected with the
 85 arm or lever *D* of the switch, the momentum of the box or car will cause said arm or lever to turn on its fulcrum and thus pull the car or box out of the tube. During this movement of the arm or lever *D* the wedge *F* will be rising, and
 90 when the arm or lever *D* has moved sufficiently far to insure the proper ejection of the box or car said wedge will enter between the box or car and the arm or lever *D*, thus permitting the escape of the box or car and the return of
 95 the arm or lever *D* and connected devices to their normal positions. Suppose now that a box or car having a shorter pin should arrive at the station having a switch-arm adapted to receive a pin one-half inch long, such shorter
 100 pin could not enter under the horizontal bar *g* of the switch-arm, and hence the box or car would not be drawn outwardly and the car would simply push the switch-arm out of the way and continue on to the proper station.
 105 Again, when a box or car having a pin too wide for a certain switch reaches such switch, it will simply force the switch-arm out of the way and pass on to the switch having an arm adapted to receive and operate it.
 110

The opening in the tube and switch will be inclosed by a casing *G*, having valves *G'* *G*², and through these valves the car or box passes after leaving the tube, the valves being so
 115 arranged that one will close before the other opens.

In the modified form of the invention shown in Figs. 14, 15, and 16 the arm *g* of the arm or lever *D* is in the opposite direction to that in which the box or car travels, while in the
 120 preferred form of the invention said arm projects in the same direction as the travel of the car or box. In the modified form of the invention the box or car is provided on its ends with a plate *o*, having a perforation *p*,
 125 into which an arm *g* of the same size is adapted to enter and thus eject the box or car in substantially the same manner as above described. All boxes or cars for a certain station will be provided with plates having per-
 130 forations of the same size, and the arm *g* of the switch of such station will be of a size sufficient to enter such perforations. Other boxes or cars will be provided with plates

having perforations of varying sizes, each adapted to be entered by a switch-arm of the same size as the particular perforation.

Other slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope, and hence I do not wish to limit myself to the precise details of construction herein set forth; but,

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

1. The combination with a pneumatic-despatch tube having an outlet-opening formed therein, and a box or car fitted and adapted to slide in the tube, of a yieldingly-supported trip projecting into the path of the box or car and provided with a loop adapted to receive a pin on one of the boxes or cars whereby the box or car is caused to pass out of the opening when the pin enters the loop, substantially as set forth.

2. The combination with a pneumatic-despatch tube having an opening therein for the escape of a car or box, and a car or box adapted to travel through said tube, of an ejecting arm or lever made in the form of a bail or loop, and a device on the car or box of a size sufficient to operate with the said arm or lever to eject the box, substantially as set forth.

3. The combination with a pneumatic-despatch tube having an opening therein for the escape of a car or box, and a car or box adapted to travel through said tube, of an ejecting arm or lever made in the form of a bail or loop and having an arm at its free end projecting at an angle thereto, and a device carried by the car or box adapted to act in conjunction with said free end of the arm or lever to eject the car or box, substantially as set forth.

4. The combination with a pneumatic tube and a car adapted to travel through said tube, of a bracket or hanger, an arm or lever pivotally connected to said bracket or hanger, a device carried by the car or box adapted to act in conjunction with said arm or lever to eject the box from the tube, and a wedge adapted to automatically release said arm or lever from the device carried by the car or box, substantially as set forth.

5. The combination with a pneumatic tube and a car or box adapted to travel through said tube, of a bracket or hanger, an ejecting

arm or lever pivotally connected to said bracket or hanger, a device carried by the car or box and adapted to cooperate with said arm or lever to eject the car or box, a wedge mounted to slide on said arm or lever, and a rod connected at one end to said wedge and at the other end pivotally connected with the bracket or hanger, said wedge being adapted, when the device is operated, to release the arm or lever from the device carried by the car, substantially as set forth.

6. The combination with a pneumatic tube and a car or box adapted to travel therein, of a bracket or hanger, an arm or lever pivotally supported by said bracket or hanger, a device carried by the car or box adapted to cooperate with said arm or lever to eject said car or box, a wedge for releasing said arm or lever from the device carried by the bracket, a spring for returning said arm or lever to its normal position, and a buffer to receive the ejecting devices, substantially as set forth.

7. The combination with a pneumatic tube and a car or box adapted to travel therein, of a hanger, an ejecting arm or lever pivotally supported by said bracket or hanger, devices carried by the car or box and adapted to cooperate with said arm or lever to eject the car or box, and a stop adapted to prevent the escape of more than one box or car at a time at a station, substantially as set forth.

8. The combination with a pneumatic tube a car or box adapted to travel therein, and a bracket or hanger, of an ejecting arm or lever carried by a hub mounted in said bracket or hanger, a device carried by the car or box and adapted to cooperate with said arm or lever to eject the car or box, an arm projecting from said hub, a bar pivotally connected to said arm, a loop carried by the bracket or hanger for guiding said bar, said bar being adapted to pass through the tube and thus prevent the escape of a box or car following the one being ejected, until the parts assume their normal positions, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SAMUEL W. BARR.

Witnesses:

SAML. MARRIOTT,
F. A. ACKERMAN.