

July 1, 1930.

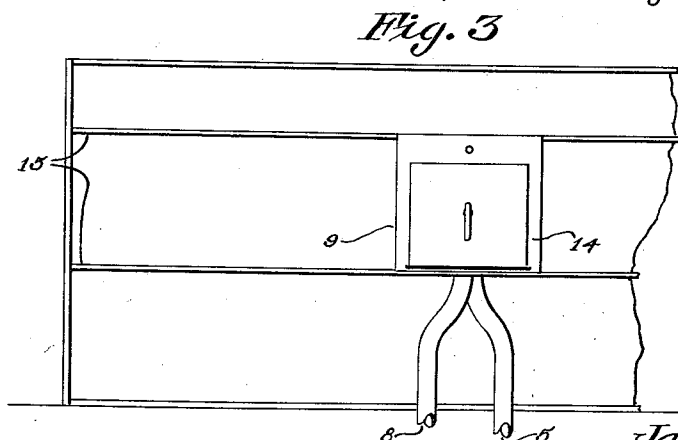
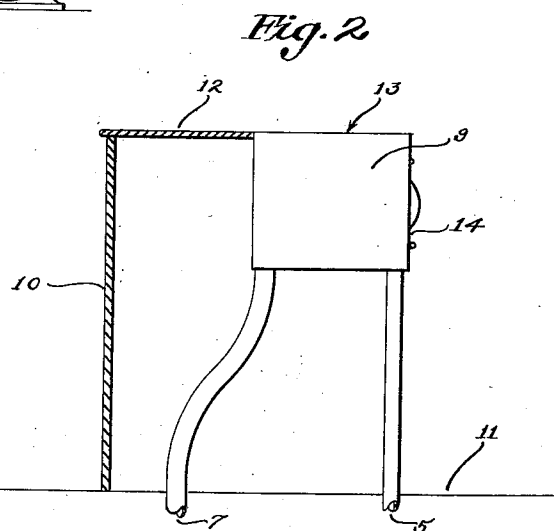
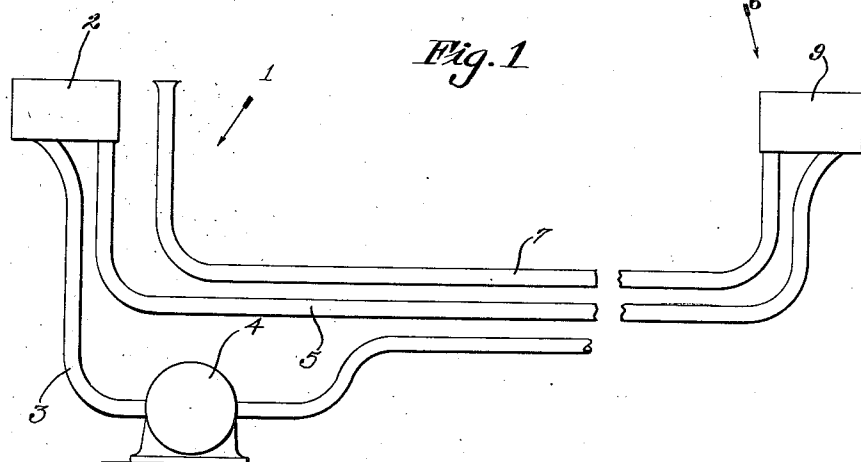
J. T. COWLEY

1,769,676

TERMINAL FOR PNEUMATIC DISPATCH SYSTEMS

Filed May 2, 1928

3 Sheets-Sheet 1



Inventor:
James T. Cowley
By *Roberts Cushman Woodberry*
Att'ys.

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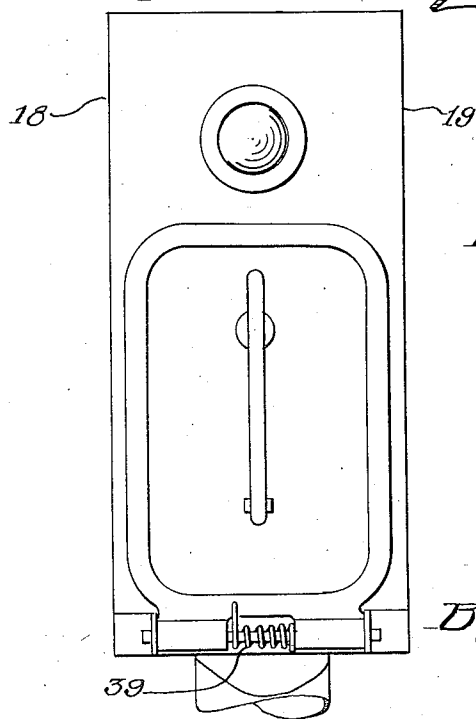
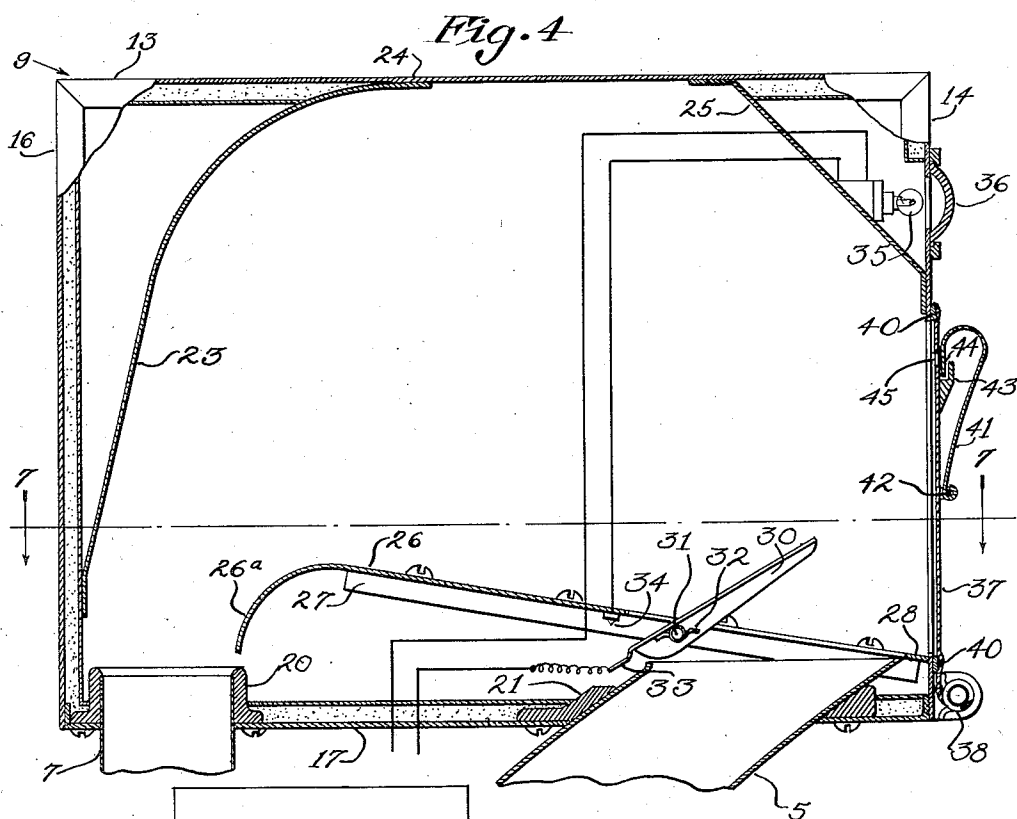
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TERMINAL FOR PNEUMATIC DISPATCH SYSTEMS

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 5

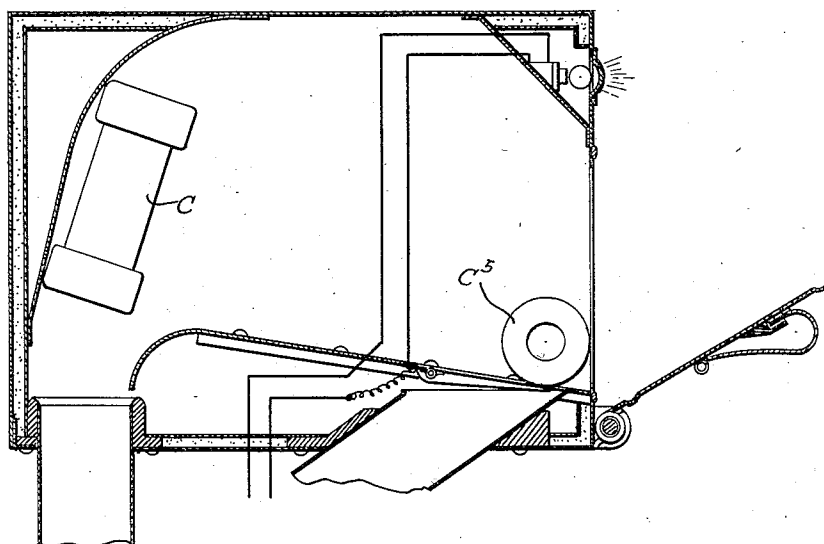
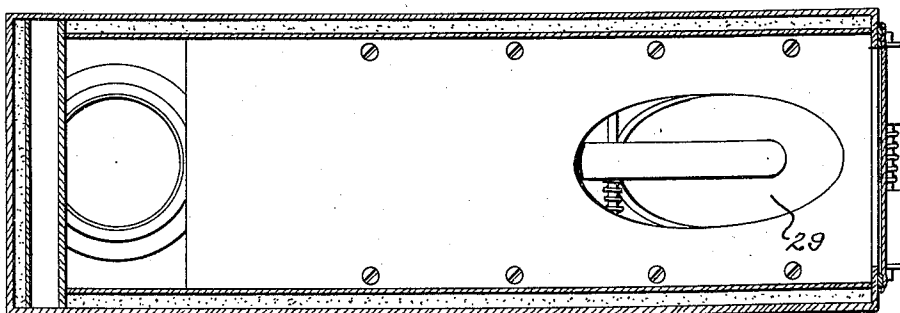


Fig. 7



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UNITED STATES PATENT OFFICE

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TERMINAL FOR PNEUMATIC-DISPATCH SYSTEMS

Application filed May 2, 1928. Serial No. 274,434.

This invention pertains to pneumatic dispatch systems and more particularly to a combined dispatch and delivery terminal for such a system. With the increasing demand in mercantile and other establishments for furnishings and decorations of artistic and pleasing appearance, more or less complaint has been made about the obviously mechanical, unaesthetic, and often untidy appearance of the usual pneumatic terminal structure comprising, as it does, a delivery and a dispatch tube, each with a noisy valve or cover, and a basket or other open receptacle in which arriving carriers alight with a crash and wherein the idle carriers are wholly exposed to view. Not only is the usual form of terminal displeasing in appearance and objectionably noisy, but it also requires considerable space which, in many cases, is extremely valuable and badly needed for other purposes.

In accordance with my present invention I provide a pneumatic tube terminal of very simple and compact form, which requires little space, and is of such character that it may readily be concealed in whole or in part or, if exposed, finished to present a pleasing appearance. This new terminal is less noisy than the usual terminal since arriving carriers are retained within a closed receptacle until released by the operator; it may, if desired, be built into a counter, bench, stack of shelving, or other article; and it does not interfere with or delay the dispatching of carriers.

In the accompanying drawings I have illustrated one desirable embodiment in the invention by way of example and in the drawings:

Fig. 1 is a diagram illustrating the application of the present invention to a simple pneumatic tube line of well-known type;

Fig. 2 is a diagrammatic vertical section illustrating the incorporation of the improved terminal in a store counter;

Fig. 3 is a similar view showing the application of the improved terminal to a stack of shelving;

Fig. 4 is a vertical section showing the com-

plete terminal with its parts in normal or idle position;

Fig. 5 is a similar section, to smaller scale, showing a carrier in the terminal compartment and the door of the compartment open to permit removal of the carriers;

Fig. 6 is a front elevation of the terminal with the door closed; and

Fig. 7 is a section, substantially on the line 7-7 of Fig. 4.

Referring to Fig. 1, I have shown one unit of a two-tube pneumatic dispatch system of well-known type having my improved terminal at the outlying station thereof. In this view Fig. 1 represents the central station of the system having the receiving terminal 2, which may be of any desired type, but here shown as consisting of a cabinet or box into which carriers are delivered. From this box or cabinet the pipe 3 leads to the usual blower 4 by means of which the desired carrier-impelling air flow is maintained in the system. A tube 7 leads from a dispatch terminal 8 at the central station to the outlying station 6 and from the latter station a tube 5 extends to the box 2 at the central station. The above arrangement is in general old and well known.

I have here shown my improved terminal 9 arranged at the outlying station 6. As illustrated in Fig. 2, this terminal 9 may be built into and form a part of a counter setting upon the floor 11 at the outlying station and having the upper surface 12 upon which merchandise may be stacked or placed for exhibition. As shown the terminal 9 has a substantially flat and smooth upper surface 13 which is flush with the top 12 of the counter, forming in effect a part of the latter. The front wall 14 of the terminal is exposed at the rear of the counter in a convenient position for the reception and delivery of carriers by the clerk stationed at the counter.

In Fig. 3 I have shown the terminal 9 built into a stack of shelving 15. Thus arranged the front wall 14 of the terminal may be substantially flush with the front edges of the shelves, or slightly in advance of or behind such forward edges as may be preferred.

In either of the arrangements shown in

Figs. 2 and 3 the terminal is readily accessible to the clerk or attendant but at the same time interferes to a minimum extent with the exhibition or storage of merchandise and is entirely devoid of any obviously mechanical features tending to detract from the artistic appearance of its surroundings. Preferably when disposed in positions such as suggested in Figs. 2 and 3, the exposed surfaces of the terminal are finished to resemble the wood or other material of which the associated structures are built.

Referring more particularly to Figs. 4 to 7 inclusive, my improved terminal comprises a receptacle or box of substantially air-tight construction, conveniently made of sheet metal and, if desired, having walls of sound-insulating material or construction. This box preferably is of rectangular shape, although it may be made of almost any contour to suit the environment in which it may be placed, and as here shown comprises the substantially flat top wall 13, the front wall 14, the rear wall 16, the bottom wall 17 and the side walls 18 and 19. The bottom wall, as here illustrated, is provided with an opening adjacent to the rear wall 16 and the material surrounding the opening is preferably reinforced by means of a metal ring 20 secured to the bottom 17 by means of screws or rivets. The delivery end of the tube 7 is fitted within the ring 20, being made air tight with respect thereto and securely fixed in position in any desired and usual manner.

The bottom wall 17 of the terminal box is also furnished with an opening at a point adjacent to its front wall 14 and the material surrounding this opening is likewise reinforced by means of a ring 21 suitably fixed in position. Within this ring is secured the receiving end of the dispatch tube 5. Preferably this tube, as shown in Fig. 4, enters the box in an inclined direction so that its open end is presented toward the front wall 14 of the box. This arrangement is not necessary but is desirable for convenience in dispatching carriers.

A curved guide plate 23, which may be of non-resonant material, is arranged within the box at the rear of the latter, extending from a point 23 at the lower part of the wall 16 to a point 24 in the upper wall 13. This plate 22 may be riveted or otherwise secured to the walls 16 and 13, forming a brace for the box and at the same time serving to deflect carriers ejected upwardly from the tube 6 so that they are caused to describe an arc and fall toward the forward part of the box. This curved guide causes a gradual change in direction of the carrier so that the momentum of the latter is gradually reduced and the shock of arrival is minimized. Preferably a plate 25 extends across the front upper corner of the box, constituting a brace for the box and also acting to deflect carriers downwardly

if they have not substantially lost their momentum before engaging this plate.

A carrier support 26 is arranged at the lower part of the box. This support preferably consists of a plate supported upon flange members 27, secured to the side walls 18 and 19 of the box. This plate preferably inclines downwardly toward the front of the box, the rear end 26 of the plate being spaced from the bottom of the box to permit free entrance of air beneath it. The plate 26 terminates at the point 28 close to the front wall 14 of the box, and is provided with an opening 29 (Fig. 7) registering with the top of the tube 5, the opening 29 being of sufficient size to permit ready introduction of a carrier into the end of the tube.

A normally open gate 30 is pivotally supported at the point 31 and is normally held in the position shown in Fig. 4 by means of a spring 32. When this gate is in normal position it leaves the opening 29 unobstructed so that a carrier may readily be inserted in the tube 5, but when the gate is swung down to the position shown in Fig. 5, it restricts the opening 29 so that a carrier can not accidentally enter the tube 5.

Preferably, although not necessarily, the gate 30 is provided with an arm 33 carrying one element of a circuit-closing device which is adapted, when the gate is closed, to engage a complementary element 34 of the circuit closer. The circuit-closing device is in circuit with a source of electrical energy, for example a battery or power line, and with a lamp 35 or other suitable signal device conveniently mounted within the box and behind the window 36, as indicated in Fig. 4. Thus, when the gate 30 is closed, the electrical circuit is completed and the lamp is lighted, visually indicating the arrival of a carrier within the box as hereinafter more fully described. In place of a visible signal such as the lamp 35, an audible signal, for example a bell or buzzer may be employed, or a whistle actuated by the suction within the box, and it is to be understood that the signal, if used, need not be mounted within the box but may be arranged at any desired and convenient point.

The front wall 14 of the box is provided with a large aperture which is normally closed by a door 37, hinged at the point 38 and normally tend to close under the action of a spring 39. When closed, the door is held in closed position by the atmospheric pressure acting upon its outer surface. Preferably suitable packing material 40, for example, felt or rubber, extends around the opening to form an air-tight joint with the door.

To facilitate opening the door I provide a handle 41, and if desired this handle may be pivoted at 42 and movable outwardly to a certain extent as determined by a stop 43. The upper end of the handle carries a valve 44

normally closing the small opening 45 in the door. Thus when the handle is grasped to open the door, the handle first swings outwardly, opening the passage 45 and to some extent breaking the vacuum within the box, thereby permitting the door to be opened more easily than would be the case if this opening 45 were not provided. A suitable spring, not shown, is provided for retaining the handle 41 normally in position to close the opening 45.

When no carrier is in the terminal, the parts occupy substantially the position shown in Fig. 4 with the gate 30 in its upper position and the door 37 closed. When a carrier arrives through the tube 7, it shoots upwardly, as shown at C in Fig. 5, and by engagement with the guide 22 is caused to describe an arc in a forward direction and eventually falls onto the support 26 down which it slides toward the front of the box. As it arrives near the front of the box it engages the gate 30 and depresses the latter, thus covering or partially covering the opening 29 and preventing the carrier from accidentally escaping through said opening. The carrier finally comes to rest in a position C' of Fig. 5 where it may readily be removed by opening the door 37. After the desired transaction has been completed, the carrier may be returned to the central station by opening the door 37 and thrusting the carrier down through the opening 29, it being noted that normally the gate 30 is in its upper position where it does not obstruct said opening. Whenever a carrier arrives and engages the gate 30 to depress the latter, the signal device is actuated and thus apprises the operator of the arrival of the carrier. Such a signal device is quite desirable with this type of terminal since the noise of the arriving carrier is slight, particularly if the walls of the terminal box be insulated to prevent transmission of sound.

It is clear from the above description that this combined receiving and sending terminal may be made of very compact form and of almost any desired external configuration and appearance. It is substantially noiseless; it is relatively cheap to construct and install; it is not in any degree unsightly; it does not have the appearance of a machine or other mechanical appliance, and it is extremely convenient for the operator since the cabinet or box forms a convenient storage for carriers and since the dispatch of carriers requires the manipulation of but a single door.

While I have shown and described one desirable embodiment of the invention, I wish it to be understood that various changes in shape, proportion, and arrangement of parts, as well as the substitution of equivalent elements for those herein shown and described may be made without departing from the spirit of the invention.

I claim:

1. A pneumatic dispatch terminal comprising a substantially air-tight receptacle having a normally closed door, said receptacle providing a single chamber having orifices for the reception of a pneumatic delivery tube and a pneumatic sending tube.

2. A terminal for a pneumatic system having a delivery and a dispatch tube, said terminal comprising a substantially air-tight sound-insulated box having a normally closed door, the box providing a single chamber having openings for the reception of the ends of the delivery and the dispatch tubes, respectively.

3. A terminal for pneumatic dispatch systems comprising a substantially rectangular box of sheet metal having exposed portions of its outer surface finished to resemble wood, said box providing a single chamber having a normally closed door and an opening for the reception of the end of a delivery tube and of a dispatch tube, respectively.

4. A terminal for pneumatic dispatch systems of the two-tube type, said terminal comprising a substantially air-tight box having a normally closed door, the receiving end of the dispatch tube of the system being disposed within the box and accessible for introduction of a carrier when the door is open, the delivery terminal of the delivery tube also being within the box.

5. A terminal for pneumatic dispatch systems, said terminal comprising a substantially air-tight box having a smooth and flat upper surface and a normally closed door in its side wall, said box having openings for the reception of the ends of the delivery and dispatch tubes of said system, the receiving end of the dispatch tube being accessible for introduction of a carrier when the door is open.

6. In combination with a store counter, a pneumatic dispatch terminal comprising a cabinet having its top flush with the top of the counter, said cabinet having a normally closed door accessible to an operator stationed behind the counter, said cabinet providing a single chamber containing the ends of a pneumatic delivery tube and a pneumatic dispatch tube respectively.

7. A terminal for a pneumatic dispatch system of the two-tube type, said terminal comprising a substantially air-tight box having a single chamber provided with openings for the reception of the delivery end of one tube and the receiving end of the other tube, a normally closed door for the box, and means for guiding arriving carriers to a position adjacent to said door.

8. A terminal for pneumatic dispatch systems of the two-tube type, said terminal comprising a box having a normally closed door in its front wall, said box having an opening adjacent to the door for the reception of the dispatch end of one tube, the box having an-

other opening for the reception of the delivery end of the other tube, and carrier-supporting means within the box, said supporting means inclining downwardly toward the door.

9. A terminal for pneumatic dispatch systems comprising a substantially rectangular box, the delivery tube of the system opening upwardly into lower part of the box, a curved deflector within the box for engagement by carriers discharged upwardly by the delivery tube, a support upon which arriving carriers come to rest, and a normally closed door giving access to the interior of the box, the dispatch tube of the system opening downwardly from the interior of the box at a point adjacent to the door.

10. A terminal for pneumatic dispatch systems of the two-tube type, said terminal comprising a substantially air-tight box having a normally closed door, the delivery end of one tube of the system entering the box at a point remote from the door and the dispatch end of the other tube entering the box adjacent to the door, carrier-supporting means within the box, said supporting means having an opening registering with the end of entering the dispatch tube.

11. A terminal for pneumatic dispatch systems comprising a substantially air-tight box having a normally closed door, said box having openings for the reception of the ends of delivery and dispatch tubes, respectively, and means to prevent carriers arriving through the delivery tube from accidentally entering the dispatch tube.

12. A terminal for pneumatic dispatch systems comprising a substantially air-tight box having a normally closed door, said box having openings for the reception of the ends of delivery and dispatch tubes, respectively, and a normally open gate adapted, when engaged by a carrier in the box, to move across the entrance of the dispatch tube and thereby prevent accidental entry of the carrier into said tube.

13. A terminal for pneumatic dispatch systems comprising a substantially air-tight box having a normally closed door, said box having openings for the reception of the ends of the delivery and dispatch tubes, respectively, of the systems, an inclined support within the box upon which arriving carriers alight and down which they move toward the door, and a normally open gate in the path of carriers moving down the support, said gate moving across the entrance to the dispatch tube when engaged by a carrier thereby preventing accidental dispatch of the carrier.

14. A terminal for pneumatic dispatch systems, said terminal comprising a substantially air-tight box having a normally closed door, said box containing the ends of the delivery and dispatch tubes respectively of the

system, and a gate to prevent an arriving carrier from accidentally entering the dispatch tube, the parts being so constructed and arranged that closure of the gate does not prevent free passage of air from the box into the dispatch tube.

15. A terminal for pneumatic dispatch systems comprising a substantially air-tight box having a normally closed door, said box containing the ends of the delivery and dispatch tubes of the system, the end of the dispatch tubes being adjacent to the door, a carrier support within the box, said support inclining downwardly toward the bottom of the door and having an opening registering with the end of the dispatch tube, and a pivoted gate for preventing carriers which move down along said support from passing through the opening into the dispatch tube.

16. A terminal for a pneumatic system having a delivery and a dispatch tube, said terminal comprising a substantially air-tight sound-insulated box having a normally closed door, the box having openings for the reception of the ends of the delivery and dispatch tubes, respectively, and means for signaling the arrival of a carrier in the box.

17. A terminal for pneumatic dispatch systems comprising a substantially air-tight box having a normally closed door, said box having openings for the reception of the ends of the delivery and dispatch tubes, respectively, of the system, a pivoted gate disposed in the path of carriers arriving in the box, said gate swinging under contact with a carrier to a position in which it guards the entrance to the dispatch tube, and signal means responsive to such movement of the gate.

18. A terminal for pneumatic dispatch systems, said terminal comprising a substantially air-tight box having a normally closed door, said box providing a single chamber which contains the ends of the delivery and dispatch tubes respectively of the system, the parts being so constructed and arranged as to provide free passage of air from the box into the dispatch tube regardless of the number of carriers stored within the box.

19. A terminal for pneumatic dispatch systems, said terminal comprising a substantially air-tight box having a normally closed door, said box containing the ends of the delivery and dispatch tubes respectively of the system, a carrier support within the box, said support being spaced above the intake end of the dispatch tube to provide free entry of air into the latter at all times.

20. A terminal for a carrier dispatch system comprising a housing providing a normally closed chamber, a door giving access to the chamber, a tube for delivering carriers into said chamber, a downwardly yieldable support within the chamber adjacent the mouth of the tube, and means located in the

chamber for guiding an arriving carrier onto said support.

21. A terminal for a carrier dispatch system comprising a housing providing a normally closed chamber, a door giving access to the chamber, a tube for delivering carriers into said chamber, and means for signaling the arrival of a carrier in the chamber comprising a support on which the carrier in the chamber rests which support yields downwardly from its normal position under the weight of an arriving carrier.

22. A terminal for a carrier dispatch system comprising a housing providing a substantially air-tight chamber, a carrier delivery tube arranged to deliver carriers into said chamber, signal means for indicating the presence of a carrier in the chamber, said signal means comprising a carrier support and a detector element movable by engagement with a carrier on the support, and guide means within the chamber for directing an arriving carrier to the support upon which it engages the detector element.

23. A terminal for a pneumatic dispatch system comprising a housing providing a substantially air-tight chamber, a door in the housing giving access to the chamber, means for signaling the arrival of a carrier in the chamber, said signaling means comprising a detector disposed within the chamber and movable by engagement of a carrier therewith, a tube arranged to deliver carriers into the chamber, means for guiding arriving carriers into engagement with the detector, and a dispatch tube opening into the chamber below the detector and which at all times is in free communication with the chamber.

24. A terminal for a pneumatic dispatch system comprising a housing providing a single substantially air-tight chamber, a normally closed door giving access to the chamber, a delivery tube arranged to discharge carriers into the chamber, and a dispatch tube freely communicating with the chamber, the parts being so constructed and arranged that the full air current circulating in the system passes through the chamber.

25. A terminal for a pneumatic dispatch system comprising a housing providing a single normally closed chamber, a door in the housing giving access to the chamber, a pneumatic tube entering the housing, said tube being arranged to deliver carriers into the chamber, and a dispatch tube having free communication at all times with said chamber, the chamber constituting an essential portion of the air circuit through the system.

26. A terminal for pneumatic dispatch systems comprising a cabinet, said cabinet providing a single substantially air-tight receiving chamber and having a normally closed door giving access to said chamber, and a delivery tube and a dispatch tube each entering the cabinet and each communicating with

the chamber, the latter constituting a connection between the tubes through which the circulating air currents pass from one tube to the other.

27. A terminal for a pneumatic dispatch system comprising a housing providing a single substantially air-tight chamber, a door in the housing giving access to the chamber, a delivery tube arranged to deliver carriers in an upward direction into the chamber, curved deflector means within the chamber engageable by carriers entering the chamber and arranged to direct carriers to a point adjacent to the door, and a dispatch tube communicating freely with the chamber.

Signed by me at Syracuse, New York, this 27th day of April 1928.

JAMES T. COWLEY.

DISCLAIMER

1,769,676.—*James T. Cowley*, Syracuse, N. Y. TERMINAL FOR PNEUMATIC-DISPATCH SYSTEMS. Patent dated July 1, 1930. Disclaimer filed June 19, 1936, by the assignee, *The Lamson Company*.

Hereby enters this disclaimer to claims 1, 4, and 21 of the specification.
[*Official Gazette July 7, 1936.*]