July 10, 1934. F. R. TAISEY 1,965,933

PNEUMATIC DISPATCH SYSTEM

Filed March 8, 1932 3 Sheets-Sheet 1

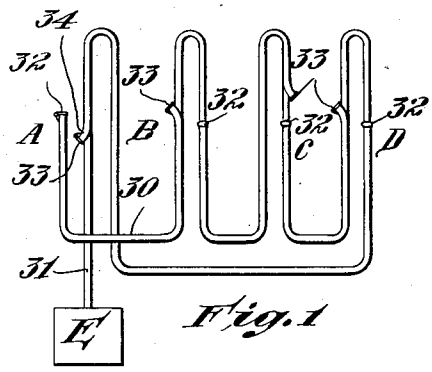


Fig. 1

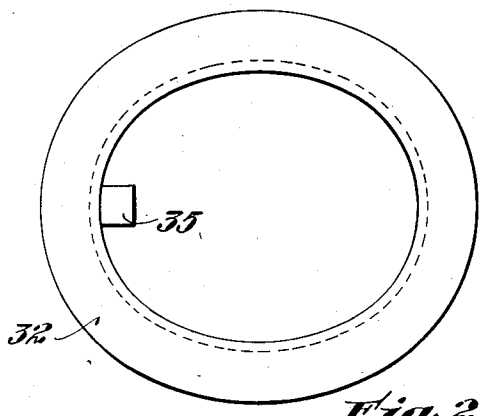


Fig. 2

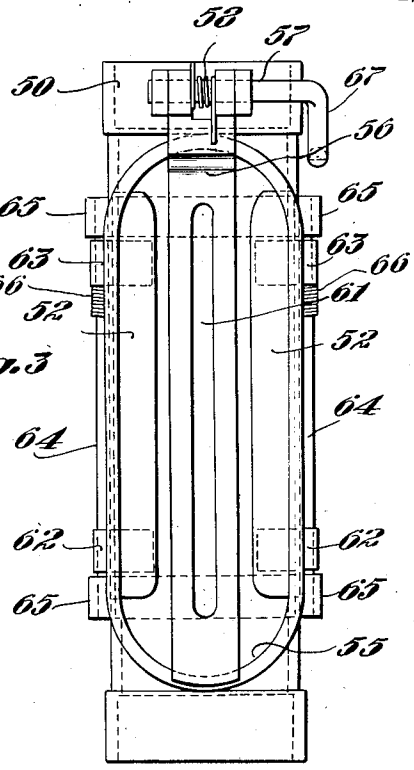
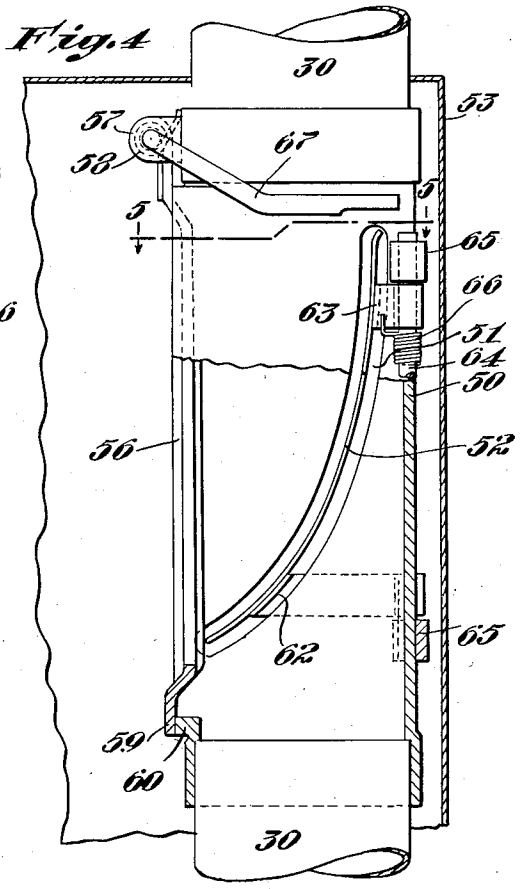


Fig. 3

Fig. 4



Inventor
Fred. R. Taisey
by Rhoades, Cushman & Woodbury,
Attys.

July 10, 1934. F. R. TAISEY 1,965,933

PNEUMATIC DISPATCH SYSTEM

Filed March 8, 1932 3 Sheets-Sheet 2

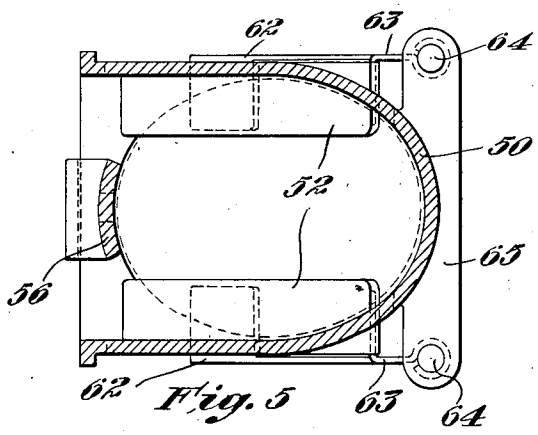


Fig. 5

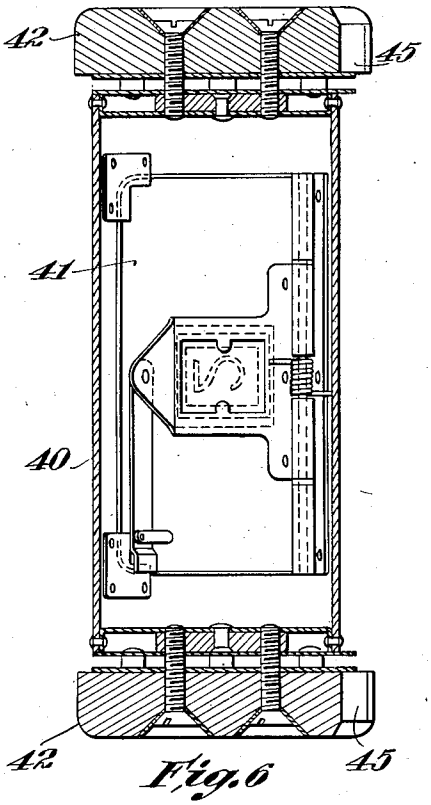


Fig. 6

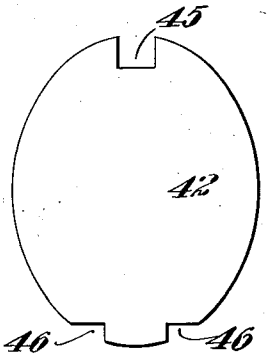


Fig. 7

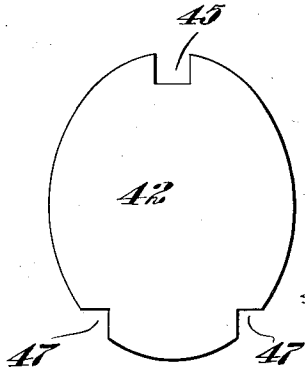


Fig. 8

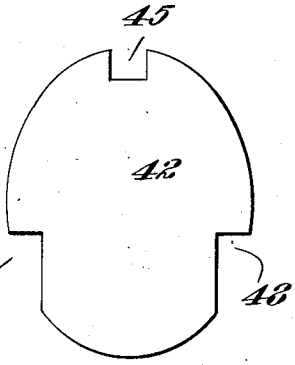


Fig. 9

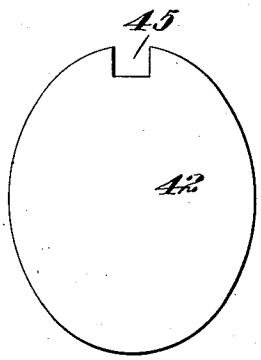


Fig. 10

Inventor

Fred R. Taisey

by Roberts, Cushman and Woodberry.

Attys.

July 10, 1934. F. R. TAISEY 1,965,933

PNEUMATIC DISPATCH SYSTEM

Filed March 8, 1932 3 Sheets-Sheet 3

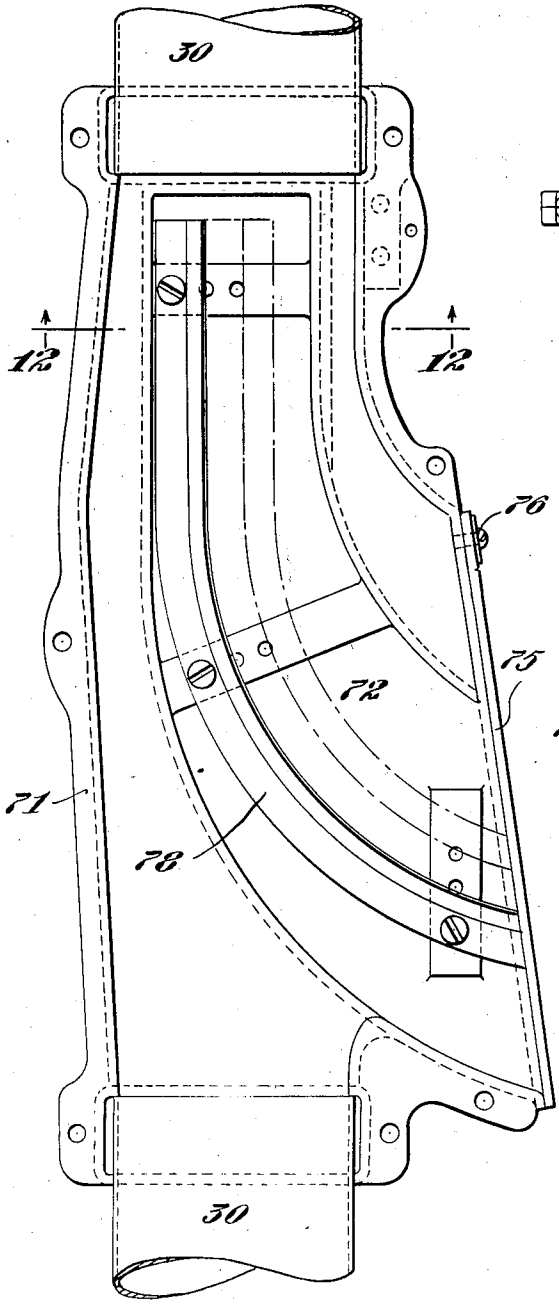


Fig. 11

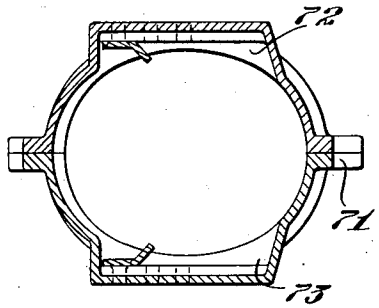


Fig. 12

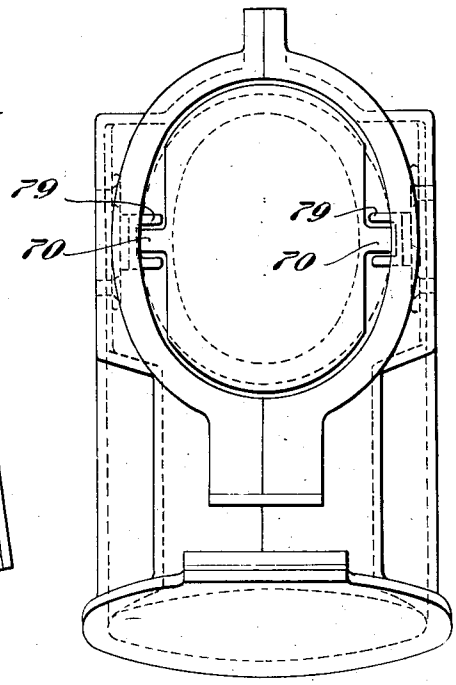


Fig. 13

Inventor
Floyd R. Taisey
by Robert S. Cushman & Woodbury
Attys.

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UNITED STATES PATENT OFFICE

1,965,933

PNEUMATIC DISPATCH SYSTEM

Fred R. Taisey, Lowell, Mass., assignor to The Lamson Company, Syracuse, N. Y., a corporation of Massachusetts

Application March 8, 1932, Serial No. 597,487

5 Claims. (Cl. 243—16)

This invention relates to improvement in pneumatic despatch system and more particularly to a system comprising a main line, and a plurality of branch lines, which lines are oval in cross section; to means on the carrier which cooperate with means in the system at the junction points between the main line and the branch lines, whereby the carriers are despatched to their desired destination by the coaction of such means; to a terminal by which the received carriers are presented to the operator at the station and to the form of carriers employed in such systems.

This invention is a development along the general lines of the invention disclosed in the copending applications of William J. Taylor, Serial Nos. 597,439 and 597,440, filed on even date herewith, and distinguishes therefrom by reason of the conformation of the tube and the coacting means on the carriers and in the system by which the course of travel of the carriers is controlled.

Several embodiment of this invention are described herein and illustrated in the accompanying drawings, in which:

Fig. 1 is a diagrammatic view illustrating a system embodying this invention;

Fig. 2 is a plan view of the open end of the inlet terminal at the central station of the system illustrated in Fig. 1;

Fig. 3 is a view in elevation of one form of outlet terminal which may be employed in connection with this invention;

Fig. 4 is a sectional view of such terminal, the terminal being shown enclosed within a receptacle;

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 4;

Fig. 6 illustrates, in longitudinal section, a carrier of one type which might be employed in carrying out this invention;

Figs. 7, 8, 9 and 10 illustrate diagrammatically the contours of various carrier heads which may be employed with the carrier illustrated in Fig. 6;

Fig. 11 is an elevation of another form of outlet terminal, one wall thereof having been removed;

Fig. 12 is a sectional view taken along the line 12—12 of Fig. 11; and

Fig. 13 is a top plan view of another type of terminal similar to that shown in Figs. 11 and 12.

As illustrated in Fig. 1, one form of system embodying this invention comprises a central station A and a plurality of outstations B, C and D. These stations are connected by a transit tube 30 which forms a closed circuit from the central station through each of the outstations and thence to the central station. The flow of carrier transporting air through the system may be set up in any desired way, as for example, by means of a suction blower E connected by a pipe 31 to the tube 30 at the outlet terminal of the central station. The tube 30 is provided at eact station with an inlet terminal 32 and an outlet terminal 33. The outlet terminals 33 are here shown as connected to the main tube 30 by branch tubes 34 which may of course be of any desired length. It will be understood, of course, that the showing in this figure is merely diagrammatic and that the forms of terminals at the various stations may be changed as desired without in any way affecting the operation of the system embodying this invention.

The purpose of this invention, as suggested above, is generally that carriers introduced into the tube 30 at the inlet terminal 32 of the central station A will be deflected from the main tube 30 to the branch tube 34 which leads to the outlet terminal 33 of the selected outstation. Various means may be provided for determinating the destination of the carriers and several such means have been illustrated in the drawings and will be described hereinbelow.

As shown in Fig. 2 and as mentioned above, the tubes 30 and 34 are oval in cross section so that the carriers can not rotate on their longitudinal axes as they travel through the system. It is desirable, in many forms of this invention, to insure that the carriers are inserted into the system in the proper manner. Accordingly at the inlet 32 of the central station there is provided a projecting tongue 35 which in the manner to be pointed out later coacts with the carriers and prevents their insertion into the system in other than the proper or desired position.

One form of carrier applicable for use in this system is illustrated in Fig. 6 and comprises a body portion 40 having a side opening normally closed by a spring lid 41 and having at its ends felt heads 42. As illustrated in Figs. 7, 8, 9 and 10, the felt heads are oval so that as the carriers travel through the tubes the edges of the heads will bear against the walls of the tubes in the well recognized manner. As illustrated in Figs. 7, 8, 9 and 10 these heads 42 may vary in contour, being provided with one or more notches therein. It will be understood that the four forms of heads about to be described differ according to the station to which they are despatched in a system embodying this invention.

Each head 42 is provided with a notch 45 at one end of the major axis. This notch permits the insertion of the carriers into the inlet terminal 32 at station A in one position only, since the tongue 35 thereat, shown in Fig. 2, must enter the notch 45 and hence a carrier can not be inserted in any other position other than with the notch 45 in a position to receive the tongue 35. The head of the carrier shown in Fig. 7 is provided with a pair of notches 46 equally distant from the major axis of the head. The head 42 shown in Fig. 8 has similar notches 47, which notches, however, are further apart than are the notches 46. The head 42 shown in Fig. 9 has notches 48 which are still further apart than the notches 46 or 47. The head 42 shown in Fig. 10 has no notches other than the notch 45. In each head the edge 49 at the opposite end of the major axis from the notch 45 has no notch therein.

Referring to the system diagrammatically illustrated in Fig. 1, a carrier having the head shown in Fig. 7 will be delivered to the outstation B, one having the head shown in Fig. 8 will be delivered to station C, and one having the head shown in Fig. 9 to station D. Fig. 10 illustrates the head of a carrier which may be despatched to the end station of a system in which fixed deflecting means are employed, a structure not possible in a loop system such as shown in Fig. 1.

In order to deflect the carriers from the main tube 30 when they arrive at the destined station, suitable structure may be provided, as for example that illustrated in Figs. 3, 4 and 5. As shown in those figures, the transit tube 30 is interrupted to receive a station casing 50, the inner contour of which corresponds to the inner contour of the tube 30. In the opposite walls of the casing 50 are formed arcuate slots 51 through which curved blades 52 project into the path of travel of carriers through the system. In view of the slots 51 it is necessary, in order to prevent the escape of the carrier transmitting air, to surround the casing 50 with a receptacle 53 into which the carriers are delivered and from which the carriers may be removed in any well known manner. The casing 50 is also provided with an opening 55 which, as shown in Fig. 3, is made oval although, of course, openings of other contour could be provided, through which opening the carriers are discharged into the receptacle 53. Extending across the opening 55 is a strap 56 pivotally mounted upon a pin 57 and normally held by a spring 58 in the position shown in the drawings. It will be noted that the lower end 59 of the strap rests against the lower edge of the wall 60 defining the opening 55. In order to lighten the structure of the strap a central portion thereof may be removed, forming a longitudinal aperture 61 therein. The blades 52 are supported upon arms 62, 63 which are secured to rods 64 carried in bearings provided by brackets 65, suitable spring means 66 acting to hold the blades normally in the position shown. One end of the pin 57 may be extended to form an arm 67 which, when the strap is moved away from the opening 55 by a discharged carrier is swung behind one of the blades 52 for a purpose to be described below.

It will be understood that each carrier arriving at a station of the type just described will either be guided out of the line through the opening 55 by the blades 52 or will pass on through the system. Thus, assuming that the drawings show an outlet terminal at station B, a carrier having a head formed as shown in Fig. 7 will be deflected from the main line by the blades 52, since the notches 46 are such a distance apart that they will rest squarely upon the flats of the blades 52 and no tendency will be exerted by the carrier to force the blades to move outwardly. The arm 67 by moving behind a blade 52 will hold the blade in the operative position and thus lock the blade in place and prevent any tendency thereof to shift and to permit the carrier to pass the station. If, however, a carrier having heads formed as shown in Figs. 8 and 9 should arrive at this station, the rounded portions 49 of the heads between the notches would engage the blades and force them apart so that the carrier would continue on its travel.

The outlet terminal in station C is similar to that previously described with the exception that the blades 52 are spaced such a distance apart that the notches 47 of the head shown in Fig. 8 will rest squarely upon the flats of the blades so that carriers having heads of this type will be deflected. Similarly the outlet terminal at station D is constructed so that carriers having the heads shaped as shown in Fig. 9 will be deflected.

Figs. 11, 12 and 13 illustrate another embodiment of this invention wherein the sides of the carrier head are flattened and provided with laterally projecting pins 70 which engage stationary guide members at the various outstations. It will be understood that the pins 70 instead of being at the ends of the minor axis, may be arranged at any desired location above or below that axis, and that the terminal guides are correspondingly arranged. The terminals illustrated in Figs. 11 and 13 differ from each other solely in the form of guide provided for engagement with the projecting pins on the carriers. In Fig. 11 the transit tube 30 is shown interrupted by a casing 71 which, as indicated in Fig. 12, may be made up in two sections. Recesses 72 and 73 are formed in the station sections parallel to the major axis of the carrier heads. These recesses are curved as shown in Fig. 11, and extend from the line of travel through the main tube to the closure valve 75, which may be of any well known construction. As here shown, the closure 75 is of well known clapper type, being of leather and secured to the terminal casing by screws 76. Mounted in the recesses 72 and 73 are guide strips 78 which may be secured in any suitable manner, and as suggested by the dot and dash lines in Fig. 11 may be in any one of three positions. In the form of terminal illustrated in Fig. 13 the guide strips 79 are grooved to receive the pins 70, but in other respects these two terminals are similar.

While several embodiments of this invention have been shown and described, I am not limited thereto since other embodiments may be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. In a pneumatic despatch system comprising a main transit tube, and a plurality of stations to which carriers are selectively despatched along the tube, a carrier having a head provided with a notch in the edge thereof at one end of a diameter, means engaging said notch to position the carrier in the tube, said carrier head being also provided with notches equidistant from the first-named notch and equally spaced from such diameter, and means at said stations adapted to

engage said notches of the carriers despatched thereto.

2. In a pneumatic despatch system comprising a main transit tube, and a plurality of stations to which carriers are selectively despatched along the tube, a carrier having a head provided with a notch in the edge thereof at one end of a diameter, means engaging said notch to position the carrier in the tube, said carrier head being also provided with notches equidistant from the first-named notch and equally spaced from such diameter, the edge between the last-named notches and opposite the first-named notch being rounded, and means at said stations adapted to engage said notches of the carriers despatched thereto.

3. In a pneumatic despatch system comprising a main transit tube, oval in cross section, and a plurality of stations to which carriers are selectively despatched along the tube, a carrier having a head oval in cross section and provided at its edge with notches equally spaced from the major axis of the head, and means at said stations adapted to engage said notches of the carriers despatched thereto.

4. In a pneumatic despatch system comprising a main transit tube, oval in cross section, and a plurality of stations to which carriers are selectively despatched along the tube, a carrier having a head oval in cross section and provided at its edge with a notch at one end of the major axis, means engaging said notch to position the carrier in the tube, said carrier head being also provided with notches at opposite sides of and equally spaced from the major axis of the head, and means at said stations adapted to engage said notches of the carriers despatched thereto.

5. In a pneumatic despatch system comprising a main transit tube, oval in cross section, and a plurality of stations to which carriers are selectively despatched along the tube, a carrier having a head oval in cross section and provided at its edge with a notch at one end of the major axis, means engaging said notch to position the carrier in the tube, said carrier head being also provided with notches at opposite sides of and equally spaced from the major axis of the head, the edge between the last-named notches and opposite the first-named notch being rounded, and means at said stations adapted to engage said notches of the carriers despatched thereto.

FRED R. TAISEY.