Nov. 5, 1935. W. J. TAYLOR 2,019,876

PNEUMATIC DISPATCH SYSTEM

Filed March 8, 1932 2 Sheets-Sheet 1

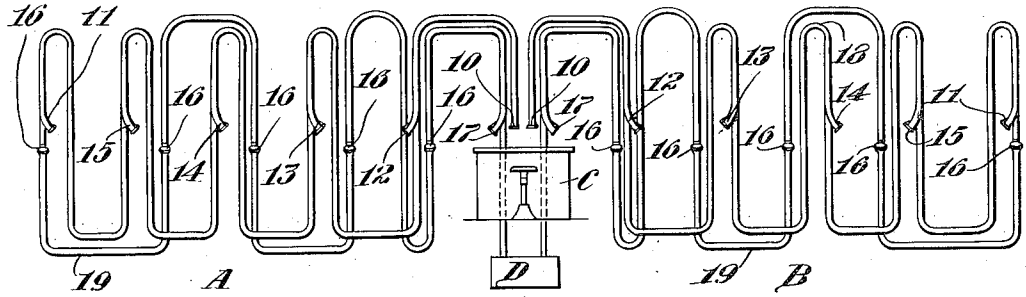


Fig. 1

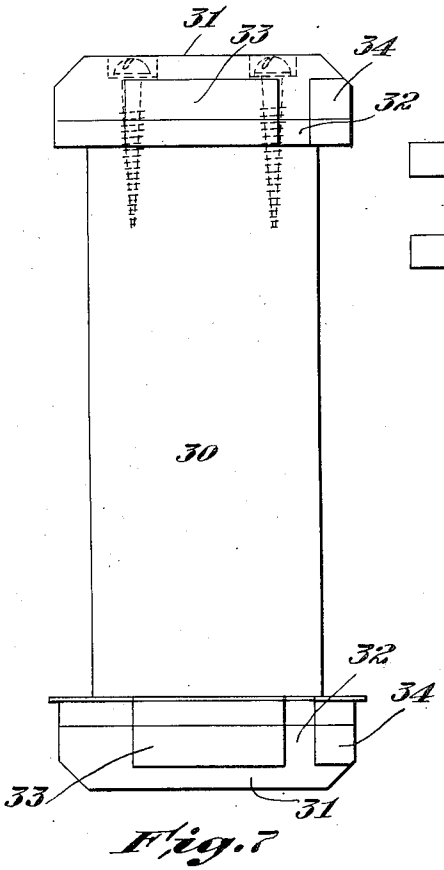


Fig. 7

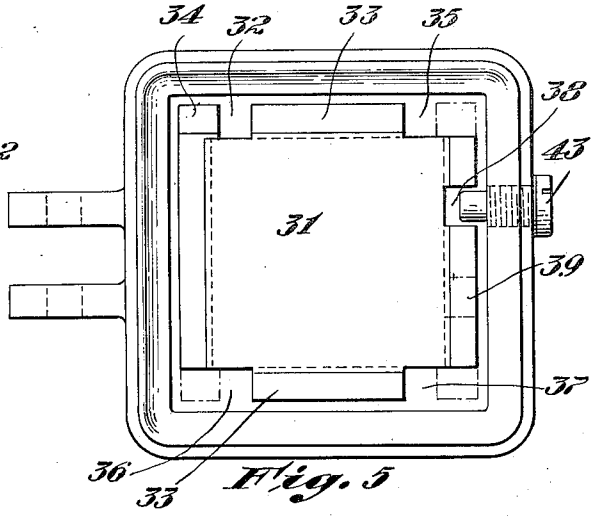


Fig. 5

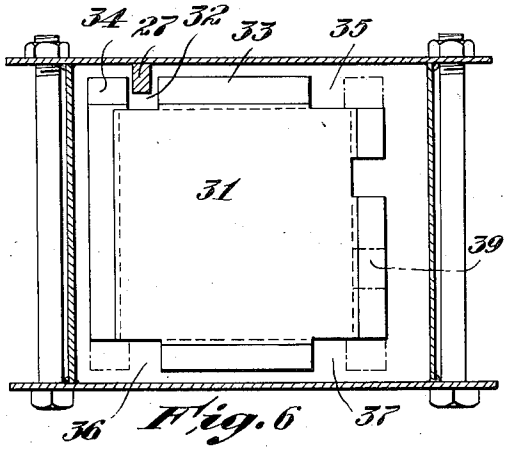


Fig. 6

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PNEUMATIC DISPATCH SYSTEM

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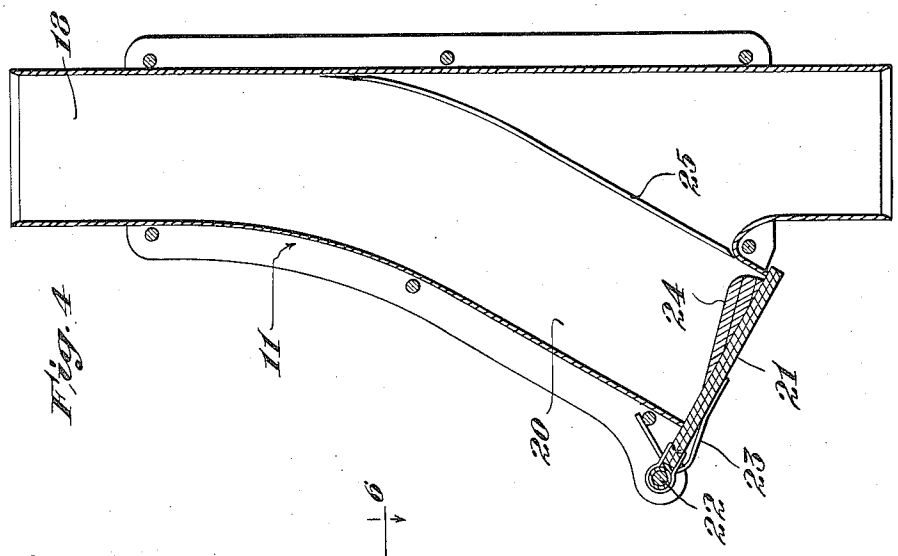


Fig. 4

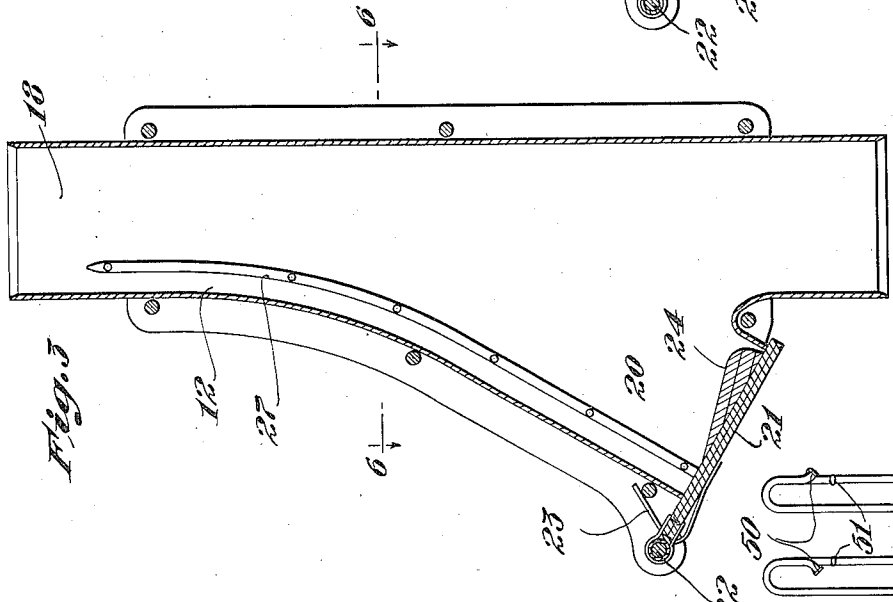


Fig. 3

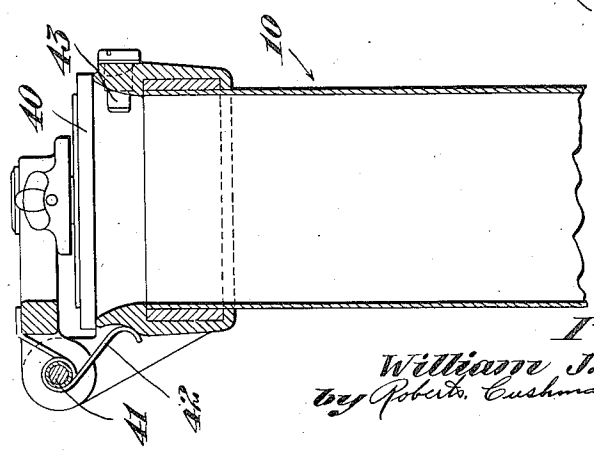


Fig. 2

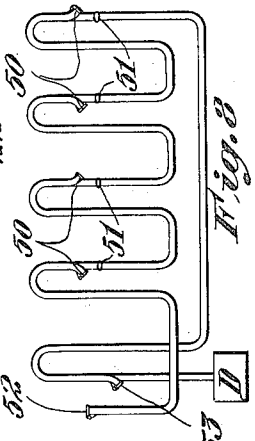


Fig. 6

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UNITED STATES PATENT OFFICE

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PNEUMATIC DISPATCH SYSTEM

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Application March 8, 1932, Serial No. 597,439

6 Claims. (Cl. 243—16)

This invention relates to an improvement in a pneumatic dispatch system, and more particularly to a system comprising a main line and a plurality of branch lines, to the means by which each of the carriers in the system is selectively switched from the main line to a destined branch line, and to the type of carriers employed therein.

In accordance with this invention the switching in the system is controlled by the carrier itself in contradistinction to the systems in which the switch is thrown by an operator at the sending station. Moreover, the switching is performed by stationary guides instead of by movable guides or switch arms as in the operator controlled systems. It will be understood that in this system the carriers travel first over the main line and are then switched to the destined branch lines, over which they continue their travels, and which may or may not lead to outlet terminals.

One object of this invention is to provide a pneumatic dispatch system having a main line and a plurality of branch lines to which carriers in the main line are selectively deflected by means of stationary guides in the main line, each guide being associated with a branch line and adapted to be engaged by only those carriers destined for the branch line associated with the guide. A further object of this invention is to provide in a system of the class mentioned pneumatic carriers, the heads of which are provided with notches suitably spaced so that the heads of the carriers intended for a certain branch line will engage the guide associated with such branch line and will not engage any other guides in the system.

Other objects of the invention will appear from the following description taken in connection with the drawings which form a part thereof and in which

Fig. 1 is a diagrammatic view of a system embodying this invention and consisting of two main lines, each having a plurality of outlet terminals fed by branch lines and to which carriers from a central station may be selectively dispatched;

Fig. 2 is an enlarged sectional view of an inlet terminal at the central station;

Fig. 3 is a similar view of an intermediate outlet terminal illustrating the branch line and the fixed guide by which carriers dispatched to such terminal are deflected thereto from the main line;

Fig. 4 is a view similar to Fig. 3 of the last terminal in the line;

Fig. 5 is an enlarged plan view of the inlet terminal at the central station, the cover of such terminal having been removed and a carrier being shown in position for dispatching;

Fig. 6 is a sectional plan view taken along the line 6—6 of Fig. 3, illustrating a carrier being deflected by a fixed guide from the main line to the branch line which leads to an outlet terminal;

Fig. 7 is a side elevation of a carrier embodying this invention; and

Fig. 8 is a diagrammatic view of a loop system embodying this invention.

As shown in Fig. 1, this invention may be employed in a pneumatic dispatch system comprising two main lines A and B leading from a central station C and square in cross section. Each line comprises a dispatching terminal 10 at the central station, an outlet terminal 11 at the end of the line, and a plurality of intermediate outlet terminals 12, 13, 14 and 15. Associated with each of the outlet terminals is an inlet terminal 16, each pair constituting the terminals of a particular station. Outlet terminals 17 are provided at the central station. The inlet terminal 10 and the outlet terminals 11, 12, 13, 14 and 15 are arranged along a tube 18, while the inlet terminals 16 and the outlet terminal 17 are arranged along a return tube 19.

In accordance with this invention carriers may be dispatched from the central station C along either tube 18 to the desired outlet terminal 11, 12, 13, 14 or 15, and carriers may be sent back from any of the inlet terminals 16 to the outlet terminal 17 at the central desk over the return tube 19. The tubes 18 and 19 are joined at one end and a flow of transmitting air is set up therein in the usual way as, for example, by a blower D, shown in Fig. 1. Systems of this general type are old and well known, and the novelty in the present invention resides in the manner in which the destination of the carriers dispatched from the central desk is controlled.

Each outlet terminal on the tube 18, as shown in section in Figs. 4 and 3, comprises a branch tube 20 leading from the main tube 18 and normally closed in the illustrated embodiment by a valve 21 which may be of any desired construction. In the present instance the valve 21 is pivotally mounted upon a pin 22 and normally held closed by the action of a spring 23. Projecting into the branch tube 20 from the rear face of the valve 21 is a projection 24 which is engaged by the head of the carrier intended for such station so that the valve is opened by the

impact of the carrier against the action of the spring. The outlet terminal 11, shown in Fig. 4, is at the end of the main tube 18 and hence any carrier not previously switched from the main line will be delivered at this terminal. Accordingly there is provided a curved strap 25 which extends across the main tube 18 and by which the approaching carriers are deflected into the branch tube 20. The strap 25 may be of any desired form, it being understood, however, that it should be perforated so that it will not interfere in any way with the normal travel of the air through the line. Each of the intermediate outlet terminals 12, 13, 14 and 15 comprises in addition to the valve 21 and its associated parts a guide strip 27 secured to one side of the main tube and extending into the branch tube 20. As shown in Fig. 1, the outlet terminals 12 and 14 are on the opposite side of the main tube 18 from the terminals 13 and 15. The strips 27 at the various outlet terminals are differently located, for example, those associated with the terminals 12 and 14 may be mounted on opposite walls of the tube 18 and lead in the same direction, while those associated with the terminals 13 and 15 may be similarly mounted on the opposite walls of the tube but lead in a direction opposite to that of the strips associated with the terminals 12 and 14.

One type of carrier adapted to be used in this system is illustrated in Fig. 7 and comprises a body portion 30 with heads 31 at the ends thereof. The heads and body portion are both rectangular in cross section and the heads project beyond the body portion at all sides, as indicated by dotted lines in Figs. 5 and 6. The destinations of the carriers are determined by notches in the sides of the carrier heads, which notches engage the guide strips 27 and hence are spaced to correspond to the locations of the guide strips at the various outlet terminals.

In Figs. 5 and 6 the heads 31 of the carrier there shown are provided with a notch 32 in one side thereof, such notch being formed by a central projecting portion 33 and a corner projection 34. As indicated in dotted lines, the projections corresponding to the projections 34 at the other corners are cut away. Obviously instead of having the notch 32 at the upper left-hand portion, as shown in Figs. 5 and 6, the carrier might have a notch 35 at the upper right-hand portion, a notch 36 at the lower left-hand portion, a notch 37 at the lower right-hand portion, or have no notch at all. In accordance with the description above given, carriers having the notch 32 are switched off at terminal 12, those having the notch 35 at terminal 13, those having the notch 36 at terminal 14, those having the notch 37 at terminal 15, and those having no notches travel to the end outlet terminal 11. The side of the carrier head at the left in Figs. 5 and 6 preferably is uninterrupted while the side at the right has a single notch 38 therein. In place of the notch 38 shown in full lines in Figs. 5 and 6, it is obvious that the notch 39 shown in dotted lines in these figures might be provided. The purpose of the notches 38 or 39 is to designate the particular line in which the carrier is to be used.

The dispatch inlet 10 at the central station, illustrated in Fig. 2, is normally closed by a valve 40 hinged upon a pin 41 and held closed by a spring 42 in the usual manner. Projecting into the mouth of the terminal 10 is a set screw 43 which, as shown particularly in Fig. 5, prevents the dispatch of any carriers over the line A, except those having the notch 38 in the heads thereof. It will be understood that in the present system where there are two lines shown, the inlet terminal 10 of the line B will have the set screw 43 located to engage the notch 39, indicated in dotted lines in Figs. 5 and 6.

From the above description it will be apparent that when the operator desires to dispatch a carrier with goods or a message to an out-station, he will select a carrier which, as pointed out above, is adapted for the proper main line and which will be switched off that line onto the branch line leading to the proper outlet terminal. The carrier is dispatched from the terminal 10 in the usual manner, and, if its destination be an intermediate station, the guide strips 27 associated with that station will enter the notches in the carrier heads and will deflect such carrier from the line into the branch line 20 of the station, while, if its destination be an end outlet terminal, it will be deflected to the branch line by the strap 25. The provision of station notches on both heads of each carrier ensures that the carrier will be fully deflected to the proper station and prevents any cocking or tripping of the carrier to block the main tube.

It will be noted that the removal of the projections at the other corners of the carrier allow the carrier to travel by other stations without difficulty or interference in any way with the guide strips associated with the stations passed on the way so that the guide strips may be arranged in any desired order. Advantage may be taken of this fact by using such carriers in a loop system as shown in Fig. 8 wherein the inlet terminals 51 at each of the various outstations are mounted in the outgoing transit tube below the outlet terminals 50 at such stations. The inlet terminal 52 at the central station is mounted on the outgoing transit tube and outlet terminal 53 at the central station is mounted on the return transit tube. Carriers destined to any out-station may be dispatched to the central station through the more distant outstations since obviously, as pointed out above, the carriers will pass freely by the guide strips associated with such stations.

While one embodiment of this invention has been shown and described and certain arbitrarily selected relationships of the station notches in the carrier heads and the guide strips are set forth, it will be understood that I am not limited thereto and that other embodiments can be made or other relationships selected without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. In a pneumatic dispatch system, carriers having rectangular heads and provided in one edge with a line selecting notch and in another edge with a station selecting notch.

2. In a pneumatic dispatch system comprising a transit tube rectangular in cross section and a plurality of stations to which carriers are selectively dispatched along the tube, carriers each having a rectangular head provided at opposite edges with central lateral projections and at one edge adjacent the end thereof with a projection which defines with the central projection a notch, and means extending into the tube at one only of said stations adapted to enter such notch and to deflect the carrier to that station.

3. In a pneumatic dispatch system comprising a transit tube rectangular in cross section and a plurality of stations to which carriers are selec-

tively dispatched along the tube, carriers each having a rectangular head provided at opposite edges with central lateral projections and at one edge adjacent the end thereof with a projection which defines with the central projection a notch, the location of the notch on each carrier determining the station to which it is dispatched, and means extending into the tube at each of said stations in a position to enter the notches of only those carriers dispatched thereto and to deflect only such carriers.

4. In a pneumatic dispatch system of the loop type comprising a transit tube rectangular in cross section, a central station, and a plurality of outstations located along said tube, to which carriers are dispatched from the central station, each station comprising an inlet terminal and an outlet terminal, carriers each having a rectangular head provided at opposite edges with central lateral projections and at one edge adjacent the end thereof with a projection which defines with the central projection a notch, the location of the notch on each carrier determining the station to which it is dispatched, and means extending into the tube from the outlet terminal of each station in a position to enter the notches of only those carriers dispatched thereto and to deflect them to the outlet terminal, each of said carriers being returnable along the tube to the central station through the inlet terminal of the station to which it was dispatched.

5. In a pneumatic dispatch system of the loop type comprising a transit tube rectangular in cross section, a central station, and a plurality of outstations located along said tube, to which carriers are dispatched from the central station, each station comprising an inlet terminal and an outlet terminal, carriers each having a rectangular head provided at opposite edges with central lateral projections and at one edge adjacent the end thereof with a projection which defines with the central projection a notch, the location of the notch on each carrier determining the station to which it is dispatched, and stationary guides extending into the tube, one from the outlet terminal of each station in a position to enter the notches of only those carriers dispatched to that station, the carriers dispatched to all other stations passing the guides unaffected, and to deflect them to the outlet terminals, each of said carriers being returnable along the tube to the central station through the inlet terminal of the station to which it was dispatched.

6. In a pneumatic dispatch system comprising a transit tube rectangular in cross section, a central station and a plurality of outstations located along said tube to which carriers are dispatched from the central station, each station comprising an inlet terminal and an outlet terminal, carriers each having a rectangular head provided at opposite edges with central lateral projections and at one edge adjacent the end thereof with a projection which defines with the central projection a notch, means extending into the tube from the outlet terminal of each outstation each of which enters the notches of only those carriers dispatched thereto and deflects only such carriers, and means projecting into the mouth of the inlet terminal at the central station, the rectangular head of each carrier being provided with a second notch which receives said inlet terminal means only when the carrier is inserted in the correct position, whereby said means prevent the insertion of incorrectly positioned carriers.

WILLIAM J. TAYLOR.