

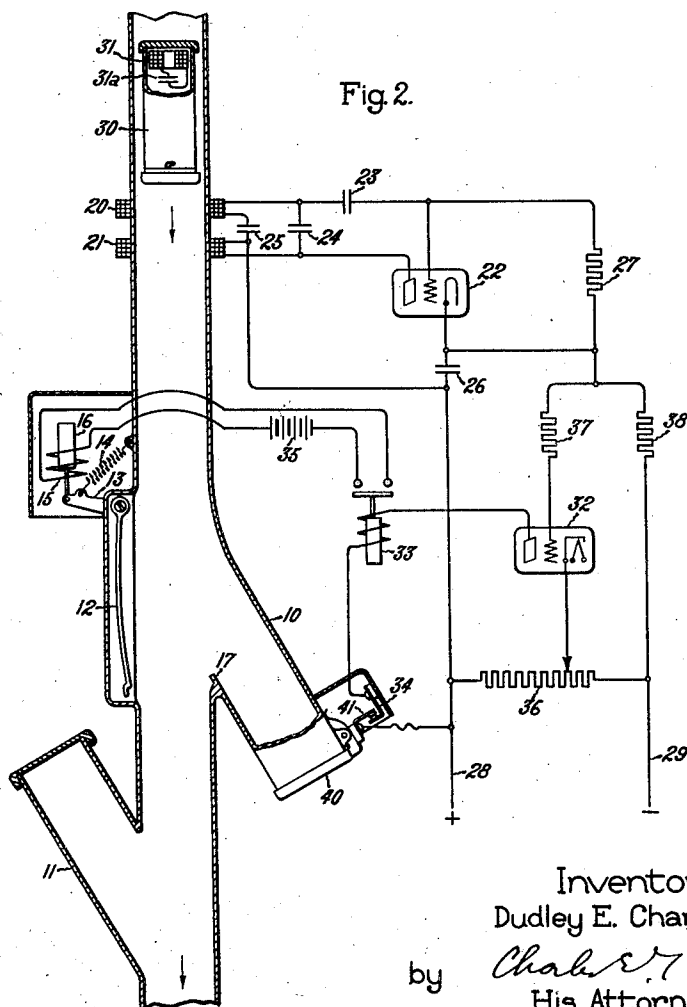
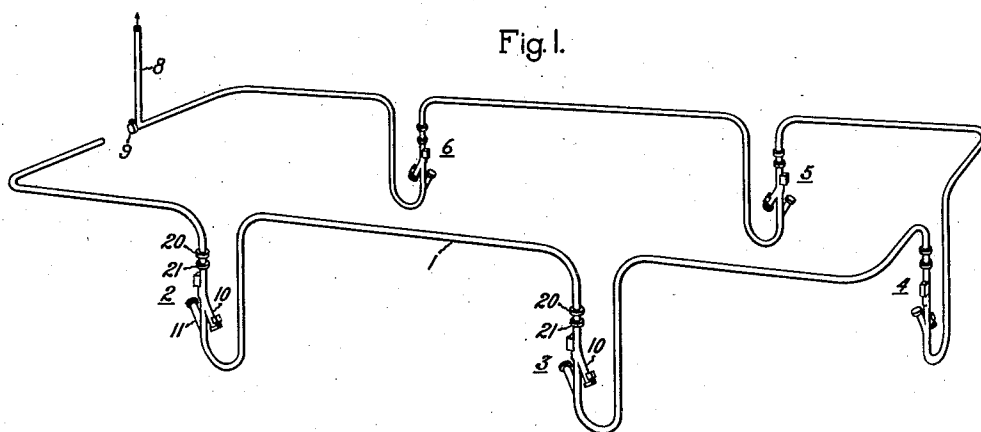
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CARRIER CONVEYER SYSTEM

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CARRIER CONVEYER SYSTEM

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My invention relates to carrier conveyer systems of the type in which a plurality of stations in the system are connected in series by a single conveyer. It is the object of my invention to provide improved means for selectively controlling the carriers of said system.

My invention will be better understood from the following description taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

Referring to the drawing, Fig. 1 represents a series conveyer system which embodies my invention, and Fig. 2 is a combined circuit diagram and enlarged view of a portion of the system at one station thereof.

In Fig. 1, the conveyer system is shown comprising the pneumatic tube 1 which connects in series the several stations represented at 2, 3, 4, 5, and 6. Beyond the last station 6 of the series the tube connects by the branch 8 with suitable exhausting means, not shown, the end of the tube 1 being closed by the door 9 which in the customary manner permits the discharge of a carrier traveling through the entire tube. At each station the tube is provided with a discharge-Y 10 by which the carrier intended for that station may be discharged. Carriers not intended for that station travel on through the station to the next station. The tube at each station may also be provided with a second or entrance-Y 11 by which carriers may be inserted in the system. For causing a carrier to be deflected into a discharge-Y the tube at each station is provided with a pivotally mounted deflector 12, which normally lies in an offset portion of the tube, and by means of the connected lever 13 and spring 14 is maintained in the inoperative position. The deflector 12 is moved to a position to cause the deflection of a carrier by the electromagnet 15 whose core 16 connects with lever 13 and opposes the return spring 14. In its operative position the end of deflector 12 engages the projection 17 on the discharge-Y of the tube.

The apparatus by which selection is made of the particular carrier or carriers which should be discharged at each station will now be described. At a short distance ahead of the discharge-Y at each station is a winding comprising the two spaced coils 20 and 21, it being understood that the conveyer tube at this point is of non-metallic material. These two coils comprise a part of an oscillation circuit or generator including the oscillator electron discharge tube 22 and capacitors 23, 24, 25, and 26 and resist-

ance 27. This oscillation circuit is connected to a direct current source of supply represented by the leads 28 and 29 and is so constructed that when a carrier is not near it the circuit oscillates. Each carrier 30 has mounted therein, preferably at one end, a closed oscillation circuit comprising the inductance coil 31 and capacitor 31^a. The oscillation circuit at each station is constructed to have an oscillation frequency slightly different from that of the other stations and the carrier intended to be delivered at each station will have the frequency of its oscillation circuit tuned to the same frequency. Thus when a carrier in approaching the particular station for which it is intended passes through the coils 20 and 21, it increases the loading of the oscillation circuit of that station to such an extent that oscillations substantially cease until the carrier has passed beyond the influence of the coils. This cessation of oscillation is used to operate the deflector 12 to cause the deflection of the carrier to the outlet-Y. For operating the deflector I have provided the vapor electric discharge device 32 whose anode connects through the winding of relay 33 and switch 34 with the positive supply lead 28. Relay 33 when operated closes a local circuit in which is arranged the magnet 15 and which is connected to any suitable source of supply, shown for example as the battery 35. The cathode of the vapor electric device 32 connects through potentiometer 36 with the source of supply 28, 29, and the grid of the device 32 connects through resistance 37 and resistance 38 with a negative supply lead 29. When a carrier having the same frequency as that of the oscillation circuit is not near coils 20, 21 the oscillation circuit is in the state of oscillation. Hence the potential drop of the current supplied to the circuit through resistance 38 is small and the grid of the vapor electric device 32 is held sufficiently negative to prevent current from flowing through this device. However, when oscillations in the oscillatory circuit cease due to the presence of a carrier having a properly tuned circuit, the increase in current supplied to the oscillation circuit causes a greater potential drop through resistance 38 which will cause the potential of the grid of device 32 to change and permit current to flow through the device. The relay 33 and hence the magnet 15 and deflector 12 are thereby operated to cause the approaching carrier to be deflected into the discharge-Y 10. This Y is closed at its lower end by the door 40 which is provided with the extension 41 carrying one

contact of switch 34. When the carrier passes through the door, the switch 34 is opened and thus the anode circuit of the vapor device 32 is momentarily opened stopping the flow of current therethrough and causing the release of relay 33 and deflector 12. It will be understood that the tuned circuit carried by each carrier will be adjusted to correspond in frequency with the frequency of the oscillation circuit of the particular station for which it is intended. Any well known means may be employed for adjusting the natural frequency of the tuned circuit of each carrier such as the provision of taps on the winding 31 or by making the capacitor 31^a variable. It will also be understood that all carriers whose tuned circuit does not correspond in frequency with that of the station for which it is intended will pass through the coils 20 and 21 without substantially affecting the state of oscillation of the circuit thereof.

I have chosen the particular embodiment described above as illustrative of my invention and it will be apparent that various other modifications may be made without departing from the spirit and scope of my invention, which modifications I aim to cover by the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In a carrier conveyer system, carrier selective means comprising an oscillation circuit associated with a conveyer of said system and normally in a state of oscillation, a closed oscillation circuit carried by a carrier of said system for decreasing the oscillation of said circuit when passing the same and means responsive to said decrease in oscillation for controlling the path of travel of said carrier.

2. In a carrier conveyer system, carrier selective means comprising an electron discharge oscillation generator constructed and arranged

normally to be in a state of oscillation and including a plurality of coils on a conveyer of the system, a closed oscillation circuit carried by a carrier of the system constructed to load the generator beyond the point of oscillation when passing said coils, and means responsive to a cessation of oscillation of the generator for controlling the path of travel of the carrier.

3. In a carrier conveyer system, carrier selective means comprising an electron discharge oscillation generator constructed and arranged normally to be in a state of oscillation and including a plurality of spaced coils surrounding a conveyer of the system, a closed oscillation circuit carried by a carrier of the system constructed to load the generator beyond the point of oscillation when passing said coils, a vapor electric discharge device responsive to the current supplied to said generator, means controlled by said device for deflecting the carrier into a discharge path, and means responsive to the movement of the carrier in the discharge path for opening the anode circuit of said device.

4. In a carrier conveyer system, carrier selective means comprising an electron discharge oscillation generator normally in a state of oscillation and including a winding adjacent a conveyer of said system, a supply circuit for said generator, a closed oscillation circuit carried by a carrier of said system and constructed to load the oscillation generator beyond the point at which it will oscillate when passing the winding, means for deflecting said carrier, a vapor electron discharge device in circuit with said deflecting means, and means responsive to an increase in current in said supply circuit when oscillations cease in said generator for causing the vapor device to pass current to the deflecting means.

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