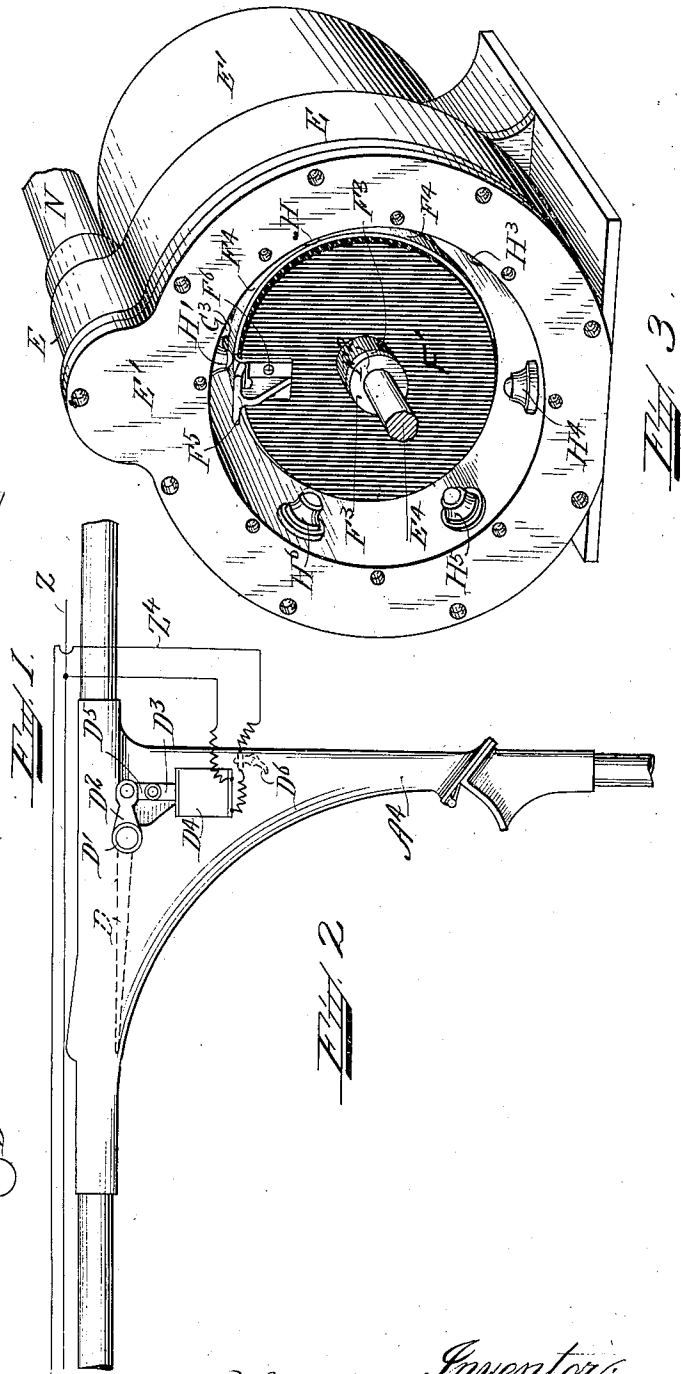
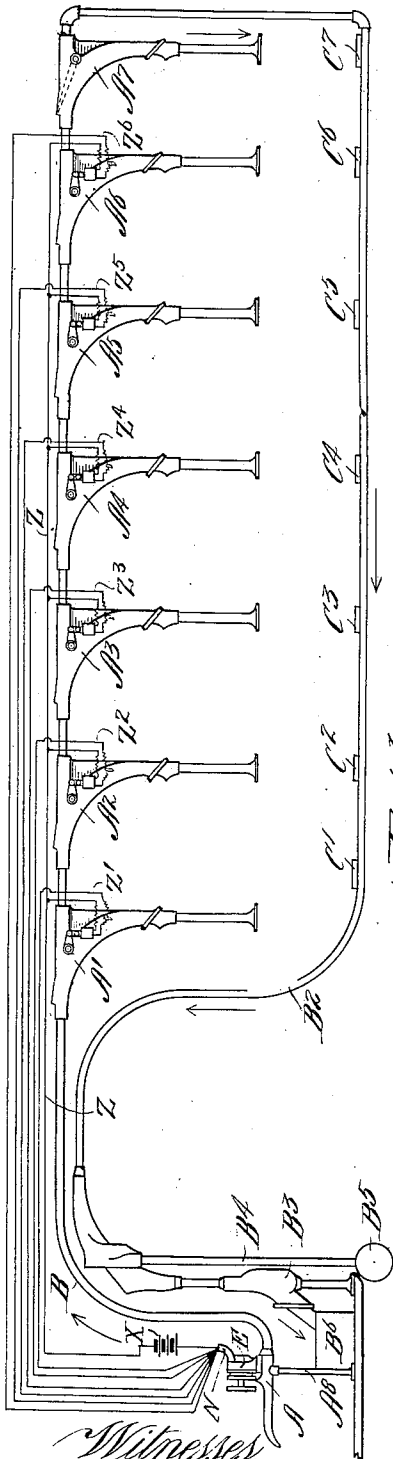


H. D. WATERHOUSE.
 SWITCH CONTROLLER.
 APPLICATION FILED FEB. 27, 1906.

992,305.

Patented May 16, 1911.

2 SHEETS—SHEET 1.

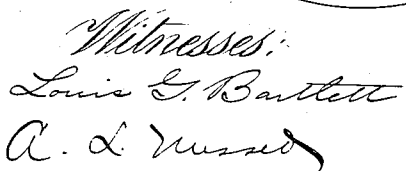


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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HAROLD D. WATERHOUSE, OF QUINCY, MASSACHUSETTS, ASSIGNOR TO LAMSON CONSOLIDATED STORE SERVICE COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SWITCH-CONTROLLER.

992,305.

Specification of Letters Patent. Patented May 16, 1911.

Application filed February 27, 1906. Serial No. 303,307.

To all whom it may concern:

Be it known that I, HAROLD D. WATERHOUSE, of Norfolk Downs, Quincy, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Switch-Controllers, of which the following is a specification.

My invention relates to improvements in selective switch controllers for pneumatic despatch tube systems, its object being to produce a compact, reliable and selective indicating device for electrically controlling the switches throughout the systems.

My invention consists of certain novel features hereinafter described and particularly pointed out in the claims.

In the accompanying drawings which illustrate a construction embodying my invention, Figure 1 is a diagrammatic view of a pneumatic despatch tube system showing my device in electrical connection therewith. Fig. 2 is an enlarged view of one of the switches. Fig. 3 is a perspective view of controller showing dial plate removed and shaft in section. Fig. 4 is a vertical section of controller mounted at central station. Fig. 5 is a front elevation of the device.

Like letters of reference refer to like parts throughout the several views.

The central despatching station A is connected with sub-receiving stations A', A², A³, A⁴, A⁵, A⁶ and A⁷ by the transmission tube B, the air circuit returning through the transmission tube B² to the central receiving station B³. Vacuum is maintained in the system by means of suction drum B⁵ connected therewith by the suction tube B⁴. Sub despatching stations C', C², C³, C⁴, C⁵, C⁶ and C⁷ are located along the line of and connected with the transmission tube B² adjacent to their respective stations. The central despatching station is supported by the standard A⁸ and carries mounted thereon the controller E which is connected with switches at sub-stations A', A², A³, A⁴, A⁵, and A⁶ by the main wire Z and selective wires Z', Z², Z³, Z⁴, Z⁵ and Z⁶. Current is supplied by the battery X. The sub-station A⁷ being the last receiving station on the line is not in electrical connection with the controller E, the switch at said station remaining in open position at all times.

The switches (see Fig. 2) consists of the arm D pivoted at D' and operated by the

lever D² pivotally connected to the core D³ of the solenoid D⁴ by the link D⁵. The trip or circuit breaker D⁶ is adapted upon contact of a carrier therewith to break the connection of the solenoid D⁴ with the selective wire Z⁴.

The controller consists of the outer support E, said support being mounted and attached to the central despatching shelf A (Fig. 4). The inner casing E' containing the selective mechanism is mounted within the outer casing E and secured in position therein by screws E². Said casing E' is removable from the outer casing E without disturbing the mechanism contained therein. The internal hub or bearing E³ is centrally located on the inner end of the casing E' and carries mounted therein the shaft E⁴ which is rotatable and longitudinally movable therein. The dial plate E⁵ is secured to the face of the inner casing E' by screws E⁶ and carries the central hub or bearing E⁷ which also supports said shaft E⁴. The end of the shaft E⁴ projecting beyond the casing is rigidly held in the controller handle E⁸ by the pin E⁹. The indicator E¹⁰ is mounted in the hub E¹¹ located on the hub of the handle E⁸ and is held therein by the pin E¹². Notches are located in the dial plate opposite each numeral on said plate and are adapted to receive the indicator E¹⁰. The collar E¹³ is pinned to the shaft E⁴ and confines the spiral spring E¹⁴ in position on the bearing E³. The plate F is driven on the shaft E⁴ and is pinned to the fiber disk or commutator base F' also mounted on said shaft. The buffer or washer F² is mounted on the shaft E⁴ between the fiber disk F' and metal washer F³ and is adapted to absorb the reaction of the spring E¹⁴. Mounted on said disk F' is the commutator ring F⁴. The contact plate F⁵ is attached to the face of the disk F' by screws F⁶ and is in electrical contact with said commutator ring F⁴. The contact G in the casing E' is separated therefrom by insulation G' and held in position by the nut G². The pin G³ is loosely mounted in the lower end of the contact G and is held by the spring G⁴ in continuous contact with the commutator ring F⁴. The magnet base K and coils K' K² are attached to the inner casing E' by screws K³. The coil K' is connected with the contact G by wire G⁵ which is held in place by the nut G⁶. The coil K² is connected with the main wire Z.

The contacts H' , H^2 , H^3 , H^4 , H^5 and H^6 are mounted at intervals around the periphery of the inner casing E' and located opposite their respective numerals on the dial plate E^5 . These contacts are insulated and held in position in the casing by the nuts in the same manner as contact G . The selective wires Z' , Z^2 , Z^3 , Z^4 , Z^5 and Z^6 are connected respectively with contacts H' , H^2 , H^3 , H^4 , H^5 and H^6 . Normally said contacts are not in connection, but any one is independently adapted to contact with the plate F^5 upon rotation of the handle E^8 until said plate is opposite the contact selected, when the handle may be pressed inward until contact therewith is made. Wires are led through the conduit N screwed into the support E .

The operation of the device is as follows: If the operator at the central station desires to despatch a carrier to a clerk at sub-receiving station A^4 , the controller handle E^8 is rotated until the indicator E^{10} points to the figure 4 on the dial plate E^5 . The handle is then pressed inward, forcing the shaft E^4 against the tension of the spiral spring E^{14} until the indicator E^{10} coöperates with the notch opposite the figure 4, which notch holds the indicator at said figure preventing further rotation of the handle E^8 . As the handle E^8 is pressed in, the contact H^4 hits the plate F^5 while the contact G remains on the commutator ring F^4 . The circuit now being completed the magnets K' K^2 attract and hold the plate F attached to the shaft E^4 . The current being transmitted through wires Z and Z^4 excites the solenoid D^4 causing the core D^3 to be drawn inward throwing open the switch arm D through the medium of the link D^5 . The operator then inserts the carrier into the inlet A from whence it is transmitted through the tube B , thence through the open switch D . The trip D^6 is then engaged by the carrier thereby breaking the circuit, and the carrier discharges at sub-station A^4 . Simultaneously with the breaking of the circuit, the magnets K' and K^2 release the plate F causing the indicator to be thrown by reaction of the spring E^{14} out of the notch and breaking the contact of the plate F^5 with the contact H^4 and the controller is now in normal position ready for despatching another carrier. In the meantime, the core D^3 being released, the switch arm D drops of its own weight into normal or closed position. Carriers may be despatched to all other sub-stations along the line in a similar manner except sub-stations A^7 which is the last station. The switch controlling this station is not connected with the controller E , but is always open as shown in dotted lines Fig. 1.

All carriers despatched from central station A are received at sub-station A^7 unless otherwise indicated by operating the controller E . Carriers may be returned from

any of the sub-despatching stations through the transmission tube B^2 to the central receiving station or terminal B^3 from whence they are discharged into the receptacle B^4 .

Having thus described the nature of my invention and set forth a construction embodying the same, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In an apparatus of the character described, a central station, a plurality of sub-stations, a tube for the transmission of carriers connecting said central with said sub-stations, a series of normally open electric circuits connecting said central station with sub-station, a switch located at each sub-station for diverting carriers, a single controlling means located at said central station and controlling all of said circuits, means for locking said controlling means in the position to which it is adjusted for closing any desired circuit thereby preventing the operation of any other switch until the carrier has passed the selected switch, and means for releasing said controlling means from its locked position after a carrier has passed the switch at a predetermined sub-station.

2. In an apparatus of the character described, a central station, a plurality of sub-stations, a tube for the transmission of carriers connecting said central with said sub-stations, a series of normally open electric circuits connecting said central station with sub-station, a switch located at each sub-station for diverting carriers, a single rotative controlling means located at said central station and controlling all of said controlling means in the position to which it is adjusted for closing any desired circuit thereby preventing the operation of any other switch until the carrier has passed the selected switch, and means for releasing said controlling means from its locked position after a carrier has passed the switch at a predetermined sub-station.

3. In an apparatus of the character described, a central station, a plurality of sub-stations, a tube for the transmission of carriers connecting said central with said sub-stations, a series of normally open electric circuits connecting said central station with sub-station, a switch located at each sub-station for diverting carriers, a single controlling means located at said central station and controlling all of said circuits, means for locking said controlling means in the position to which it is adjusted for closing any desired circuit thereby preventing the operation of any other switch until the carrier has passed the selected switch, means for releasing said controlling means from its locked position after a carrier has passed the switch at a predetermined sub-station, and means for indicating the selected switch.

4. In an apparatus of the character described, a central station, a plurality of sub-stations, a tube for the transmission of carriers connecting said central with said sub-stations, a series of normally open electric circuits connecting said central station with sub-station, a switch located at each sub-station for diverting carriers, a single controlling means located at said central station and controlling all of said circuits, means for locking said controlling means in the position to which it is adjusted for closing any desired circuit thereby preventing the operation of any other switch until the carrier has passed the selected switch, and automatic means for releasing said controlling means from its locked position after a carrier has passed the switch at a predetermined sub-station.

5. In an apparatus of the character described, a central station, a plurality of sub-stations, a tube for the transmission of carriers connecting said central with said sub-stations, a series of normally open electric circuits connecting said central station with

sub-station, a switch located at each sub-station for diverting carriers, a single controlling means located at said central station and controlling all of said circuits, means for locking said controlling means in the position to which it is adjusted for closing any desired circuit thereby preventing the operation of any other switch until the carrier has passed the selected switch, means for releasing said controlling means from its locked position after a carrier has passed the switch at a predetermined sub-station, and means operated by a carrier in transit for automatically releasing said controlling means from its operative position after a carrier has passed the switch at a predetermined sub-station.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this fifteenth day of February A. D. 1906.

HAROLD D. WATERHOUSE.

Witnesses:

A. L. MESSER,
LOUIS G. BARTLETT.