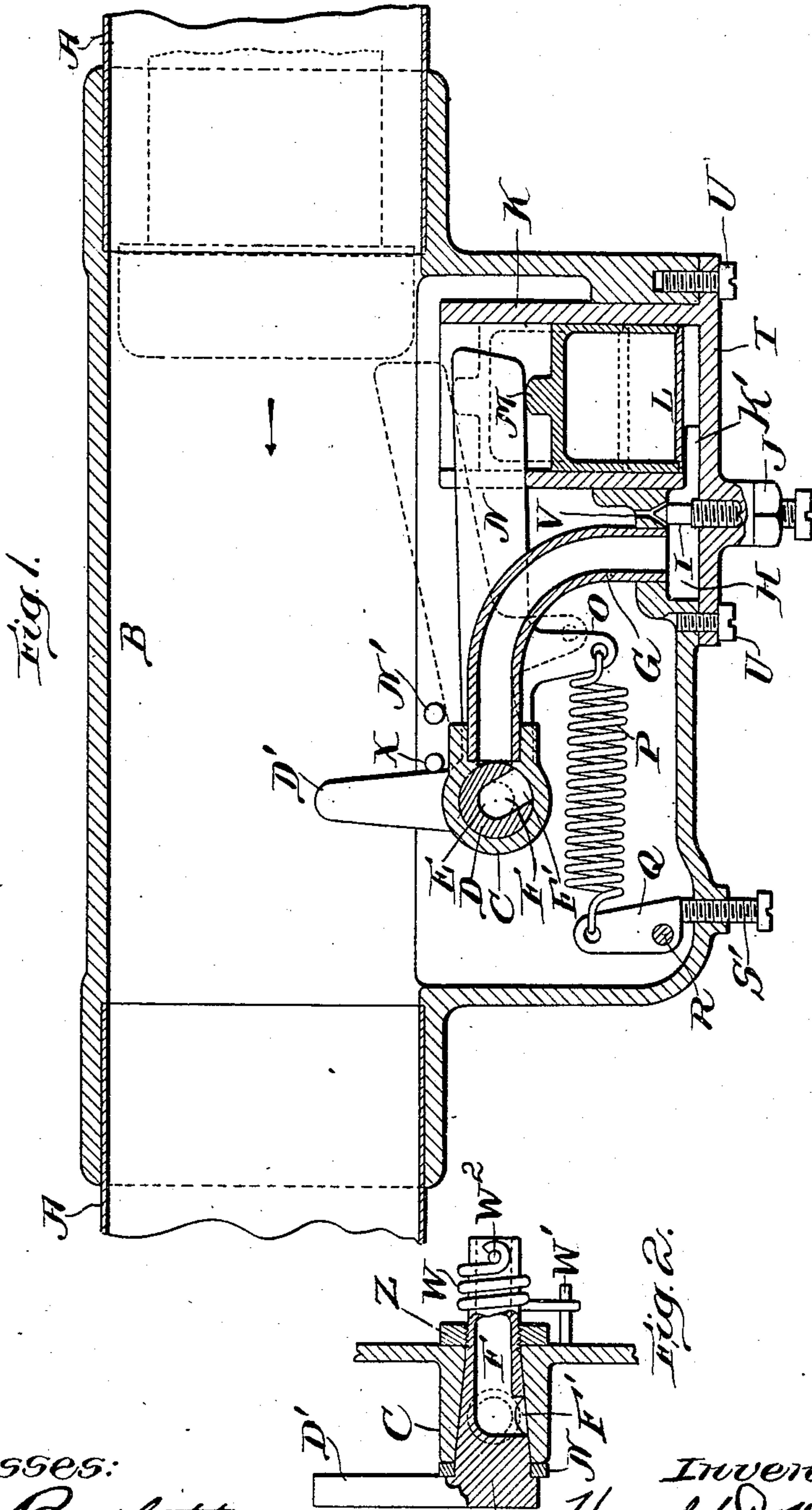


H. D. WATERHOUSE.
PNEUMATIC CARRIER SEPARATOR.
APPLICATION FILED MAY 11, 1906.

968,614.

Patented Aug. 30, 1910.



Witnesses:
L. G. Battlett
J. A. Murrey

Inventor:
Harold D. Waterhouse
My Atty. C. C. Newman
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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.

PNEUMATIC CARRIER-SEPARATOR.

968,614.

Specification of Letters Patent.

Patented Aug. 30, 1910.

Application filed May 11, 1906. Serial No. 316,805.

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 Pneumatic Carrier-Separators, of which the following is a specification.

My invention relates to improvements in pneumatic despatch tube apparatus, its object being to automatically separate and space the carriers in transmission previous to switching, thereby preventing clogging of the switching mechanism.

In the accompanying drawing in which a construction embodying my invention is set forth: Figure 1 is a longitudinal sectional view of the device in connection with an ordinary pneumatic transit tube. Fig. 2 is a sectional view of the automatic air-valve.

Referring to the drawings:—A represents a pneumatic transit tube connected with the casing B. The taper air-valve D is mounted in the hub C extending into the lower chamber of the said casing B and carries fixed to one end thereof the trip D' which projects through a slot in said casing into the path of carriers in transit. The air-valve D is adjustably seated and held in position within said hub by means of nut Z (Fig. 2). The helical spring W mounted on the outer or external projecting end of the valve D and confined between the pin W² on said valve D and the pin W' on the casing B, holds the trip D' in normal position against the stop X. The tube G is fixed at one end into the side of the hub C and at the opposite end communicates with the chamber H located in the lower portion of the casing B.

Cap T carries on the inner face thereof the cylinder K, said cylinder K being inserted into the lower chamber of the casing B the cap T being secured to said casing by screws U. Chamber H communicates with the vacuum within the transit tube A by means of opening V which is regulated by needle valve I threaded in cap T and secured in proper adjustment by check-nut J. Air passage F in valve D is open to the atmosphere at its outer end, the inner end of said passage F being controlled by port F' which is normally closed as shown in Fig. 1, but adapted upon oscillation of the air-valve D to communicate with the chamber H by means of tube G. Chamber H also com-

municates with the lower end of the cylinder K by means of port K'. Mounted within the cylinder K is the piston L carrying on its upper end the boss M.

The check-lever N is pivoted on the stem of air-valve D and normally holds the piston L at the bottom of the cylinder K by means of spring P which is attached at one end to the arm O on said lever and at the other end with the adjustment plate Q pivoted by pin R to the casing B. The tension of said spring P is adjusted by screw S' acting upon adjusting plate Q. The free end of the check-lever N is adapted to be lifted by piston L against tension of spring P into the path of the carriers as shown in dotted lines Fig. 1 and which movement is limited by the stop N'.

The operation is as follows:—A carrier in transit through the tube A, in the direction indicated by the arrow Fig. 1, strikes the trip D' oscillating the valve D until the port F communicates with the tube G, admitting atmospheric pressure through passage F, port F' and said tube G into chamber H, thence through port K' into the lower part of the cylinder K causing the piston L to be forced upward thereby moving check-lever N into the position shown by dotted lines. Any carrier immediately following is checked and held by said lever N as shown in Fig. 1. In the meantime the trip D has resumed its normal position by action of spring W, thereby closing tube G to the atmosphere. The pressure under piston L and in chamber H and tube G gradually escapes through the passage V into the casing B permitting the piston L and lever N to be brought to normal position through action of spring P, thereby releasing the carrier. The interval the carrier is held is timed and regulated by adjustment of needle-valve I and spring P.

Having thus described 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 tube for the transmission of carriers, pneumatic means for automatically engaging and separating carriers in transit through said tube, and means located in the path of the traveling carriers adapted to be actuated by a carrier in transit for operating said pneumatic mechanism.

2. In an apparatus of the character described, a tube for the transmission of carriers, pneumatic mechanism for separating and spacing carriers in transit through said
5 tube, means located in the path of the traveling carrier adapted to be actuated by a carrier in transit for operating said pneumatic mechanism, and means for automatically timing the release of said carriers at pre-
10 determined intervals.

3. In an apparatus of the character described, a tube for the transmission of carriers, a casing connected with said tube, mechanism mounted in said casing and
15 adapted to be operated by atmospheric pressure for separating and spacing carriers in transit through said tube, and means automatically operated by a passing carrier for admitting atmospheric pressure for oper-
20 ating said mechanism.

4. In an apparatus of the character described, a tube for the transmission of carriers, a casing connected with said tube, mechanism mounted in said casing and
25 adapted to be operated by atmospheric pressure for separating and spacing carriers in transit through said tube, means automatically operated by a passing carrier for admitting atmospheric pressure for operating
30 said mechanism, and means for predetermining the interval of separation of said carriers.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 28th day of
35 April A. D. 1906.

HAROLD D. WATERHOUSE.

Witnesses:

H. L. MESSER,

LOUIS G. BARTLETT.