

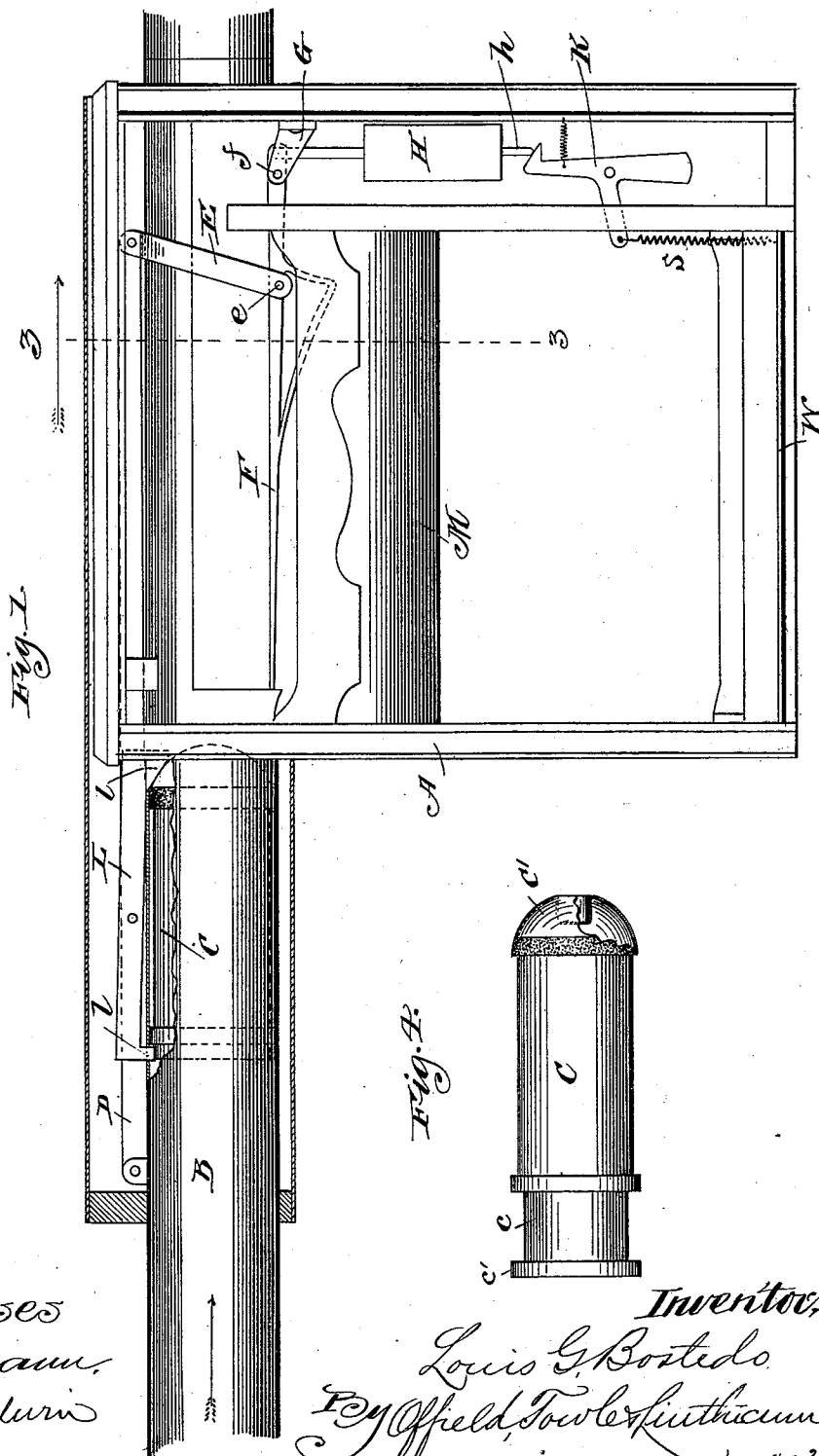
(No Model.)

3 Sheets—Sheet 1.

L. G. BOSTEDO.
DESPATCH TUBE SWITCH.

No. 563,550.

Patented July 7, 1896.



Witnesses
J. M. Mann.
J. B. Goodwin

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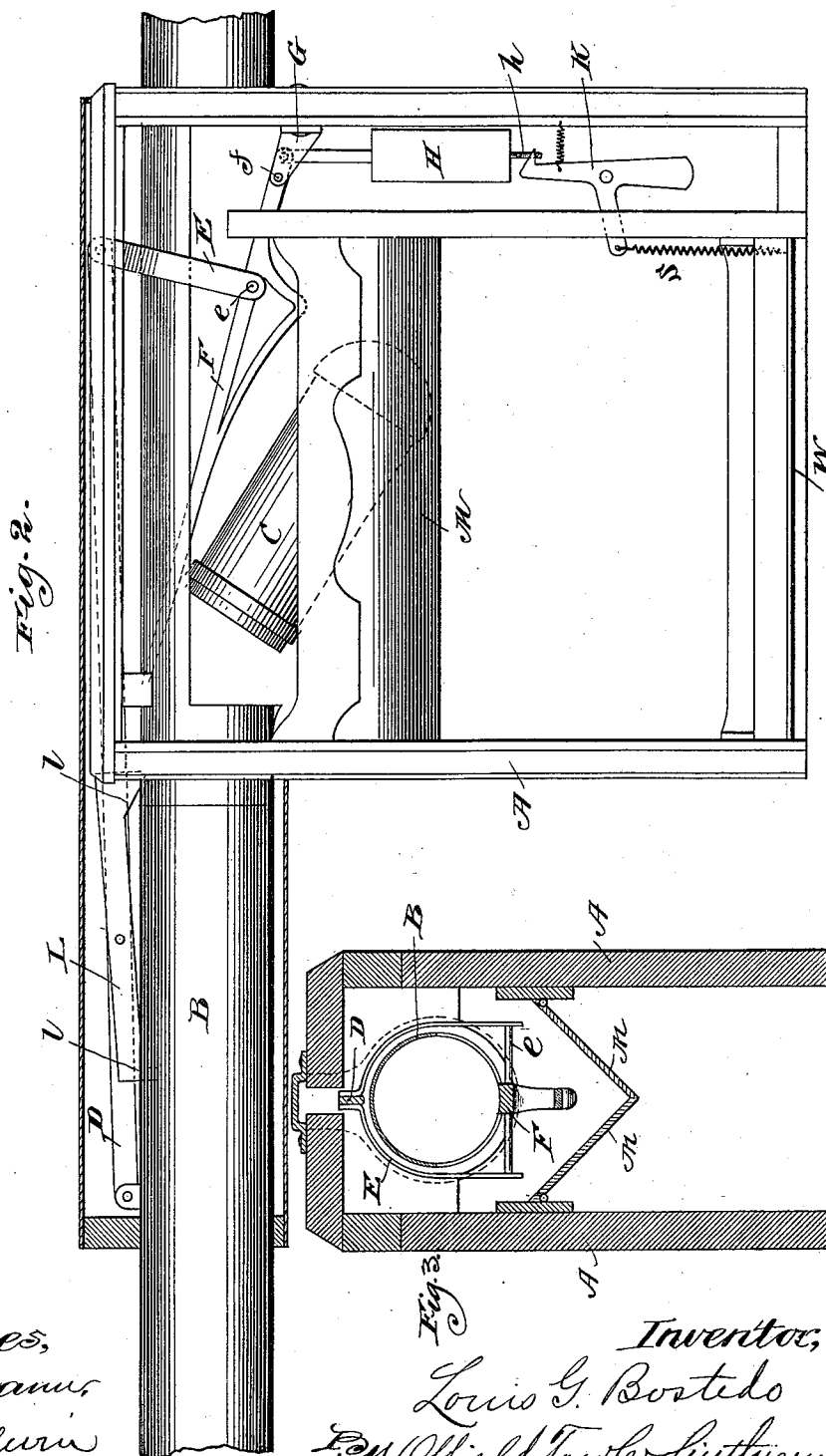
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DESPATCH TUBE SWITCH.

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Fig. 3.
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(No Model.)

3 Sheets—Sheet 3.

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Fig. 5.

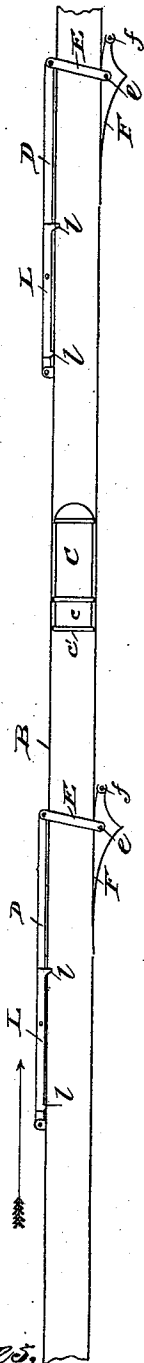


Fig. 5a.

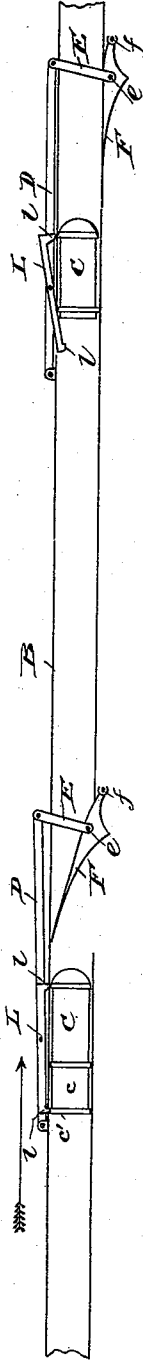
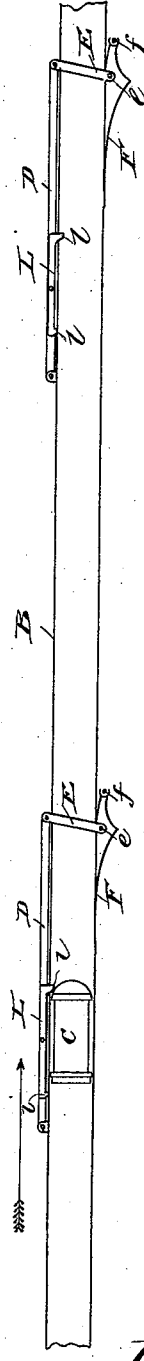


Fig. 5b.



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UNITED STATES PATENT OFFICE.

LOUIS G. BOSTEDO, OF CHICAGO, ILLINOIS.

DESPATCH-TUBE SWITCH.

SPECIFICATION forming part of Letters Patent No. 563,550, dated July 7, 1896.

Application filed February 7, 1893. Serial No. 461,311. (No model.)

To all whom it may concern:

Be it known that I, LOUIS G. BOSTEDO, of Chicago, Illinois, have invented certain new and useful Improvements in Despatch-Tube Switches, of which the following is a specification.

This invention relates to a mechanical switch for a despatch-tube system, and more particularly to a system having a despatch-tube provided with a receiver communicating with the tube and provided with valves adapted to open to permit the carrier to drop through into the bottom portion of the receiver, which is also provided with a hinged door through which the carrier may be discharged or be removed. The carriers are graduated and are adapted to operate each upon its own switch, so that the carriers operate only the switch at the receptacle for which they are destined. The switch in the preferred construction comprises a pivoted arm which is arranged to span the discharge-aperture in the wall of the despatch-tube and which is lifted by a bail so constructed as to permit the passage of the carriers through it, and which bail is connected to a pivoted arm carrying an actuating-bar, the several actuating-bars being graduated to correspond with the respective carriers with which they are intended to coact.

In the operation of the device, when the carrier reaches its proper station it engages the actuating-bar in such manner as to cause it to lift the arm which, through the bail, raises the switch and causes the carrier to be deflected so as to discharge through the aperture of the despatch-tube, whereupon it will drop through the valve into the lower part of the receptacle and opening the door thereof pass out at the bottom, the valve and door closing behind the carrier to prevent the escape of the motor fluid. I have also provided a latch which will counteract rebound of the switch, after it has been lifted by the bail, at such time as it might interfere with the carrier.

In the accompanying drawings, Figure 1 is an elevation partly in section and with the side of the receiver removed. Fig. 2 is a similar view showing the carrier in the act of being discharged and the several moving parts being in a position corresponding to

the position of the carrier. Fig. 3 is a sectional detail on the line 3 3, Fig. 1, looking in the direction of the arrow; and Fig. 4 is a detail view showing a carrier of different length and construction than that shown in Fig. 1. Figs. 5, 5^a, and 5^b represent sections or different portions of the same main tube, showing carriers of different lengths and a series of actuating-bars of varying lengths.

In the drawings, A represents the receiver, which may be a suitably tight box adapted to inclose the despatch-tube B at a point where in the latter is provided with an aperture in its lower side.

C represents the carrier, which may be of usual construction, and the several carriers differ from each other in respect to graduation.

D represents an operating-arm, which is pivoted to the despatch-tube and projects into the receiver, where at its forward end it is connected with a bail E (shown in Fig. 3) and of such form as to permit the passage of a carrier through it. The bifurcations of this bail are connected at their lower ends by a rod *e*, which is connected with the switch-arm F, the latter being pivoted at *f* upon a bracket G, secured in a separate compartment of the receptacle.

H represents a counterweight, which is connected to the switch-arm behind its pivot, and the lower end of this weight may have an eye *h*, to be engaged by the hook of a pivoted latch K, having a trip-arm or trigger which projects into the body of the receptacle. Upon the arm D there is pivoted an actuating-bar L, which has bent ends *l*, adapted to project through apertures in the top of the despatch-tube. For the purpose of graduation these arms may be of different lengths at the different stations and the carriers of corresponding lengths. This difference of construction is illustrated in Fig. 4, where the carrier B has a cylindric extension *c* with a flange *c'*.

In Figs. 5, 5^a, and 5^b the actuating mechanisms for a series of stations are illustrated, the arrows indicating the direction of movement of the carrier, and by reference to the several pivoted actuating-bars it will be observed that they are progressively shorter, commencing with the one at the left of Fig.

5 and reading through the remaining figures from left to right. It will be understood that the shortest one is arranged at the most remote station. The several carriers will be
 5 respectively of such lengths as to engage each with its own appropriate actuating-bar. Thus, for example, as shown in Fig. 5^a, a carrier is in operative engagement at the left of the view, while the carrier at the right of the
 10 view is shown as passing a station beyond which it is destined. In the means of graduation shown the length of carrier corresponds to the length of its bar, and the carrier will not operate the bar except when the projec-
 15 tions *ll* of the bar engage the flanges of the carrier. Thus, if only the flange at the forward end of the carrier is in engagement with a projecting arm of the actuating-bar the latter will be rocked on its pivot, permitting the
 20 carrier to pass. When both ends of the bar *L* are engaged with the carrier, the actuating-bar will be raised and thereby the long arm will be lifted, thus raising the bail and through it the switch, and the parts will then
 25 assume the position shown in Fig. 2 of the drawings, the carrier being deflected by the switch-arm and being in position to discharge between the pivoted leaves *M*, which constitute the upper valve. The carrier will
 30 be projected from the tube in a direction to engage the end trip-arm of the latch *K*, which projects within the receptacle, and will therefore trip the latch and permit the switch-arm to descend, but to insure the releasing of the
 35 switch-arm it may be found expedient to employ the spring *S*, connecting the trip-arm of the latch with the lower door or valve *W*. When the carrier strikes this door, the latter will open, thus tensioning the spring *S* and
 40 withdrawing the latch from the counterbalance-weight and the switch-arm will descend by gravity.

It is obvious that the particular graduation shown is not essential to the operation of the
 45 invention. I have depended in this illustration upon the length of the carriers and upon making the actuating-bars of corresponding lengths. Instead of this, however, the actuating-bars may be adapted to be operated by
 50 carriers of different diameters in a manner which is well known to those skilled in the art, and which therefore does not require specific description.

One of the advantages of this system is
 55 that the device is entirely mechanical. Electrically-operated switches are common, but they require the installation of electrical apparatus, which is delicate and therefore likely to get out of order. Another advantage of
 60 this system is that it can be applied to a single tube arranged to make a circuit of the salesmen's and cashiers' stations, and the placing of a carrier in the tube by any salesman along the line will not interfere with the simultane-
 65 ous deposit in the tube of a carrier at the cashier's station, whereas in a system controlled electrically from the cashier's station

two tubes are necessarily employed because the switch controlled by the cashier might be wrongly set for a carrier deposited by the
 70 salesman.

Instead of the bail shown, a curved arm which will permit the passage of the carriers may be employed, and the precise construction and arrangement of the several parts is
 75 not of the essence of the invention. The counterbalance is useful because it is desirable to pivot the actuating-bar close to the pivot of the switch, so as to require but a slight movement of the bail to lift the front
 80 end of the switch sufficient to deflect the carrier, and the leverage thus obtained being slight the counterbalance assists in the operation. The latch and its tripping mechanism may be dispensed with, but it is use-
 85 ful to prevent the rebound of the switch after it has been raised by the bail. The movement is so rapid that the switch-arm will in operation be thrown against the top of the tube and a tendency to rebound therefore
 90 exists.

In Fig. 4 I have shown an improved construction of carrier, which consists in providing it with a metal cap *C'*, which partially covers the felt used as a packing, and this metal
 95 cap will take the wear which will be caused by the impingement of the carrier upon the projecting ends of the actuating-bars. The contacting surfaces are preferably rounded, so as to prevent shock and jar. The felt itself
 100 being elastic, could not be depended upon to move the bar, and if made compact or solid it would still be subject to wear and would not form a proper air-tight joint while moving through the tube. The cap, it will be
 105 seen, does not engage the wall of the tube, and the function of the felt is therefore not interfered with.

The bodies of the several carriers are of the same length, and to graduate them to
 110 correspond with the several actuating-bars I apply to the ends of the carriers the cylindric sections *c*, which are of varying lengths. These sections *c* are made cylindric because the carrier does not always move through the
 115 tube in the same position, and by this cylindric extension the position of the carrier in moving through the tube becomes unimportant.

Among the variations of structural detail
 120 it may also be mentioned that instead of employing a despatch-tube having an aperture therein and a pivoted switch, a section of the despatch-tube may itself be pivoted and serve as a switch, the other features of con-
 125 struction remaining practically as above described.

Without limiting my invention to precise details of construction, I claim—

1. The combination with a despatch-tube,
 130 of a pivoted switch, an arm pivoted at one end upon the tube and connected at its opposite end with the switch, and an actuating-bar carried by the pivoted arm and having

its ends projected through the wall of the tube into the path of the carrier and adapted to be operatively engaged by a carrier to lift the arm and operate the switch, substantially as described.

2. A despatch-tube system comprising in combination a tube having a discharge-aperture in its wall, a pivoted switch spanning said aperture, an arm pivotally connected at one end to the tube and also connected at its opposite end to a bail, said bail being connected with the switch and an actuating-bar pivotally mounted on the arm and having its ends projected through apertures in the tube and adapted when both of said ends are engaged by a carrier to lift the arm and thereby the switch whereby to deflect the carrier through the aperture, substantially as described.

3. In a switching device for despatch-tubes, the combination with a pivoted switch spanning the discharge-aperture of the tube, of an arm pivoted at one end to the tube and carrying an actuating-bar, a bail pivotally connecting said arm with the switch and a counterbalance applied to the switch behind its pivot, substantially as described.

4. In a switching device for despatch-tubes, the combination with a pivoted switch span-

ning the discharge-aperture of the tube, of an arm pivoted at one end to the tube and carrying an actuating-bar, a bail pivotally connecting said arm with the switch, a counterbalance applied to the switch behind its pivot, and a latching mechanism to engage the counterbalance when the switch is raised and having a trip-arm adapted to be engaged by the descending carrier, substantially as described.

5. A carrier for a despatch-tube system having its end provided with a packing material whereby to form a suitable air-tight joint while moving through the tube, a metal cap applied to the end of said carrier and partially covering the packing material and said cap being adapted to serve as an element to operate a tripping device, substantially as described.

6. In a despatch-tube system, the combination with a series of receptacles each having a switch whereby to deflect the carrier, of a series of graduated actuating-bars and a series of carriers having cylindric extensions of varying lengths corresponding with the several actuating-bars, substantially as described.

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