

(No Model.)

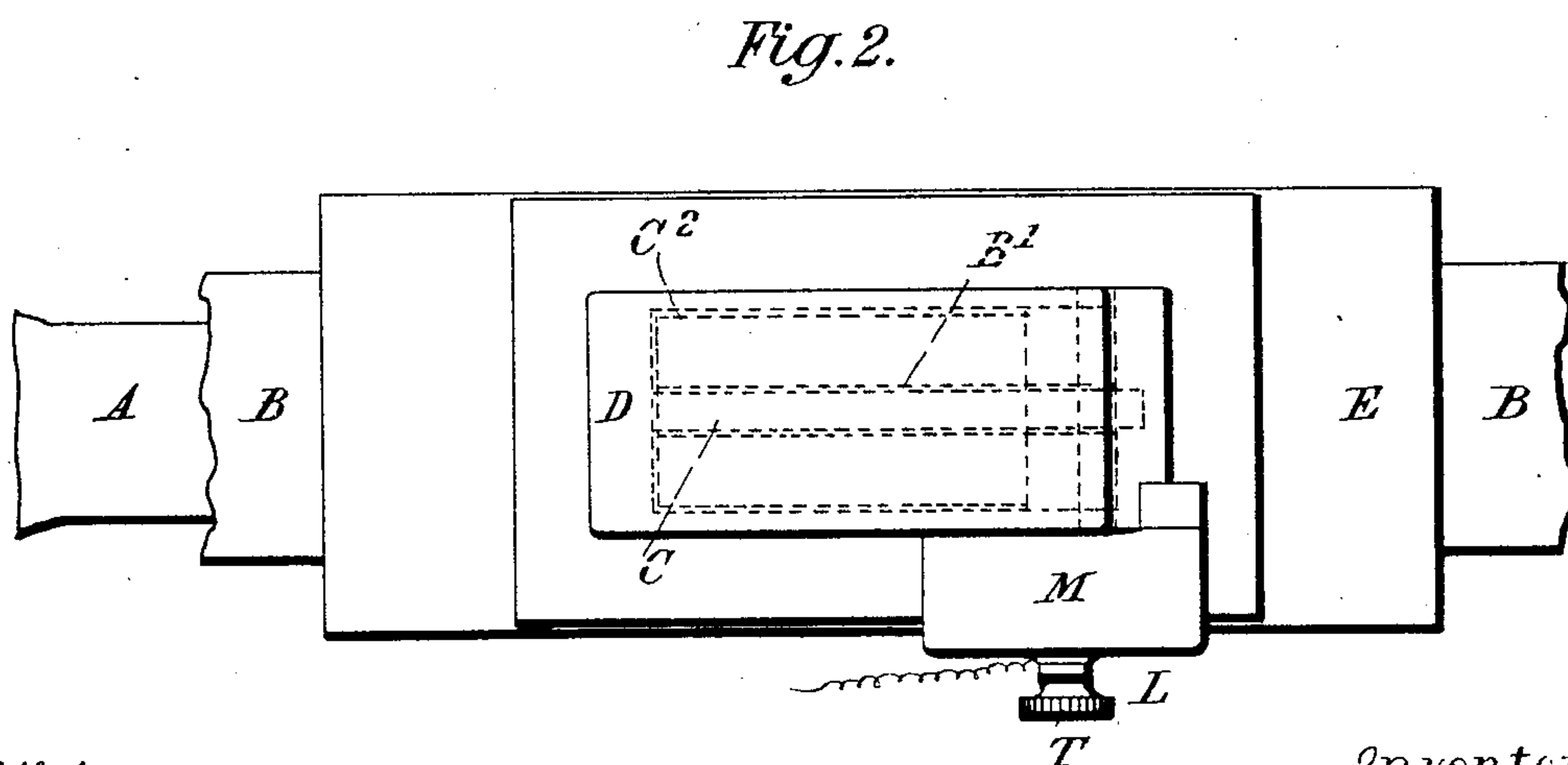
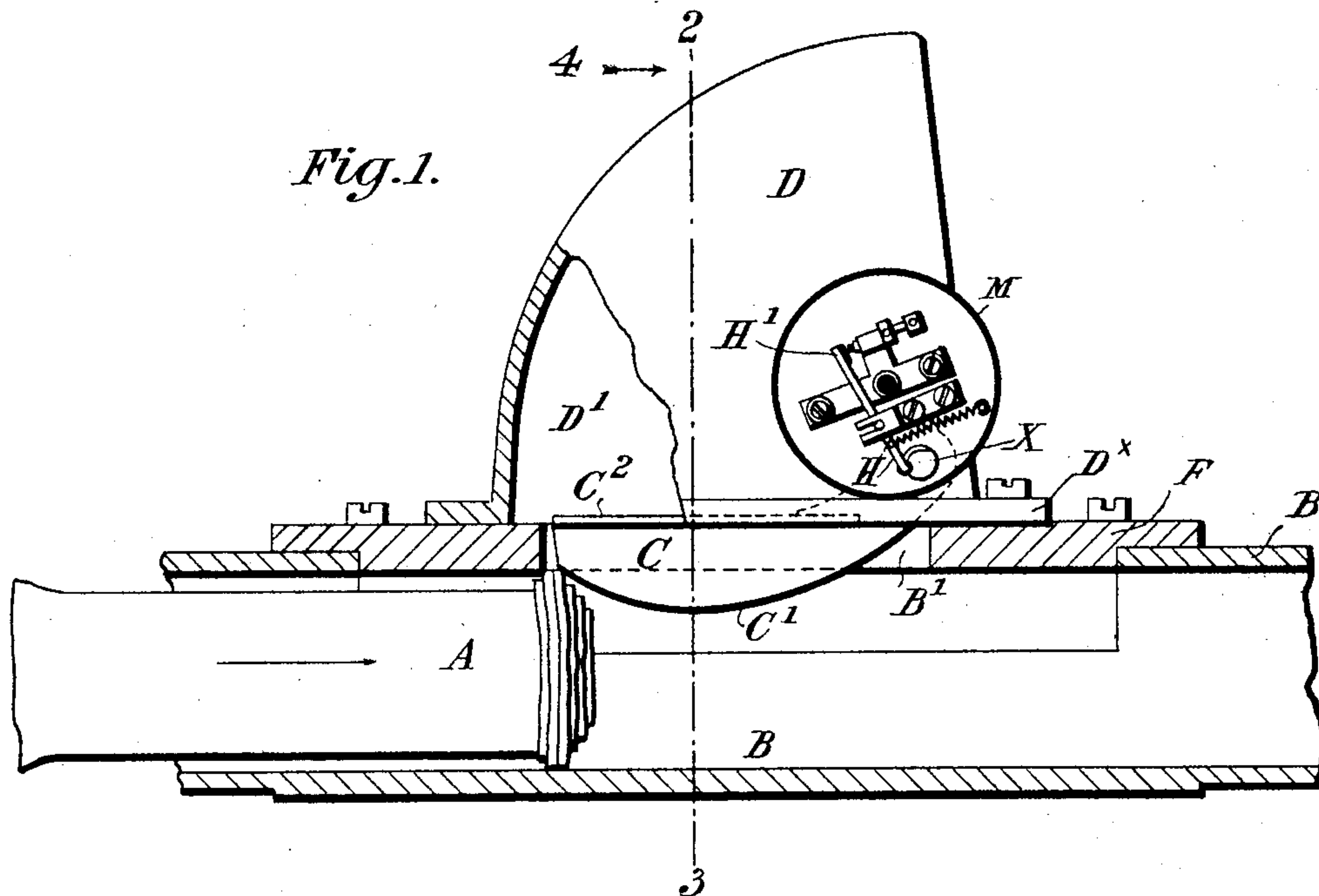
2 Sheets—Sheet 1.

G. W. HOOK.

ELECTRICAL SIGNALING DEVICE FOR USE ON PNEUMATIC CONVEYER
TUBES.

No. 589,832.

Patented Sept. 14, 1897.



Witnesses

J. Stephen Grist
D. H. Blakelock

Inventor

Geo. W. Hook,
by Whitman & Wilkinson
Attorneys.

(No Model.)

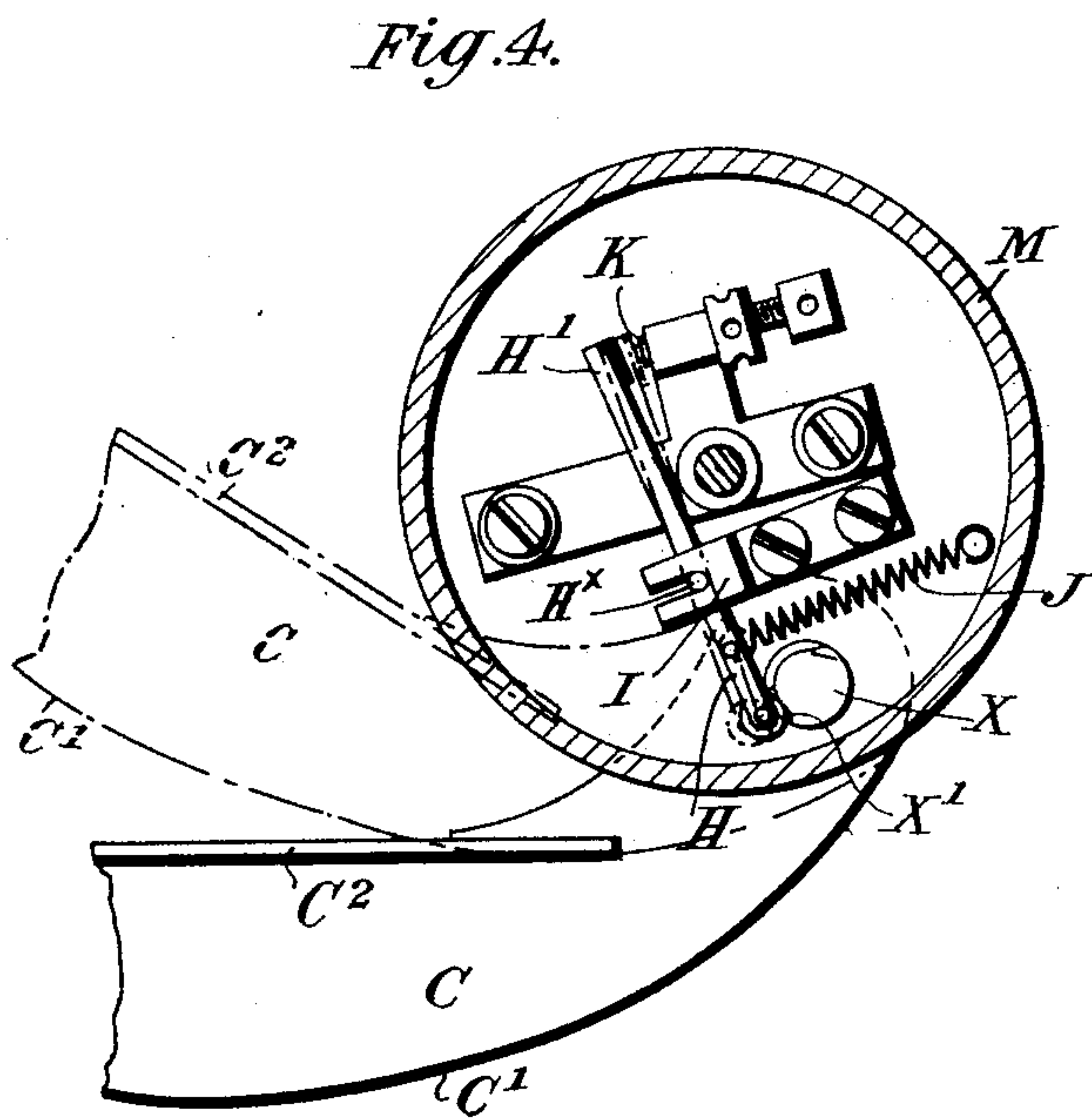
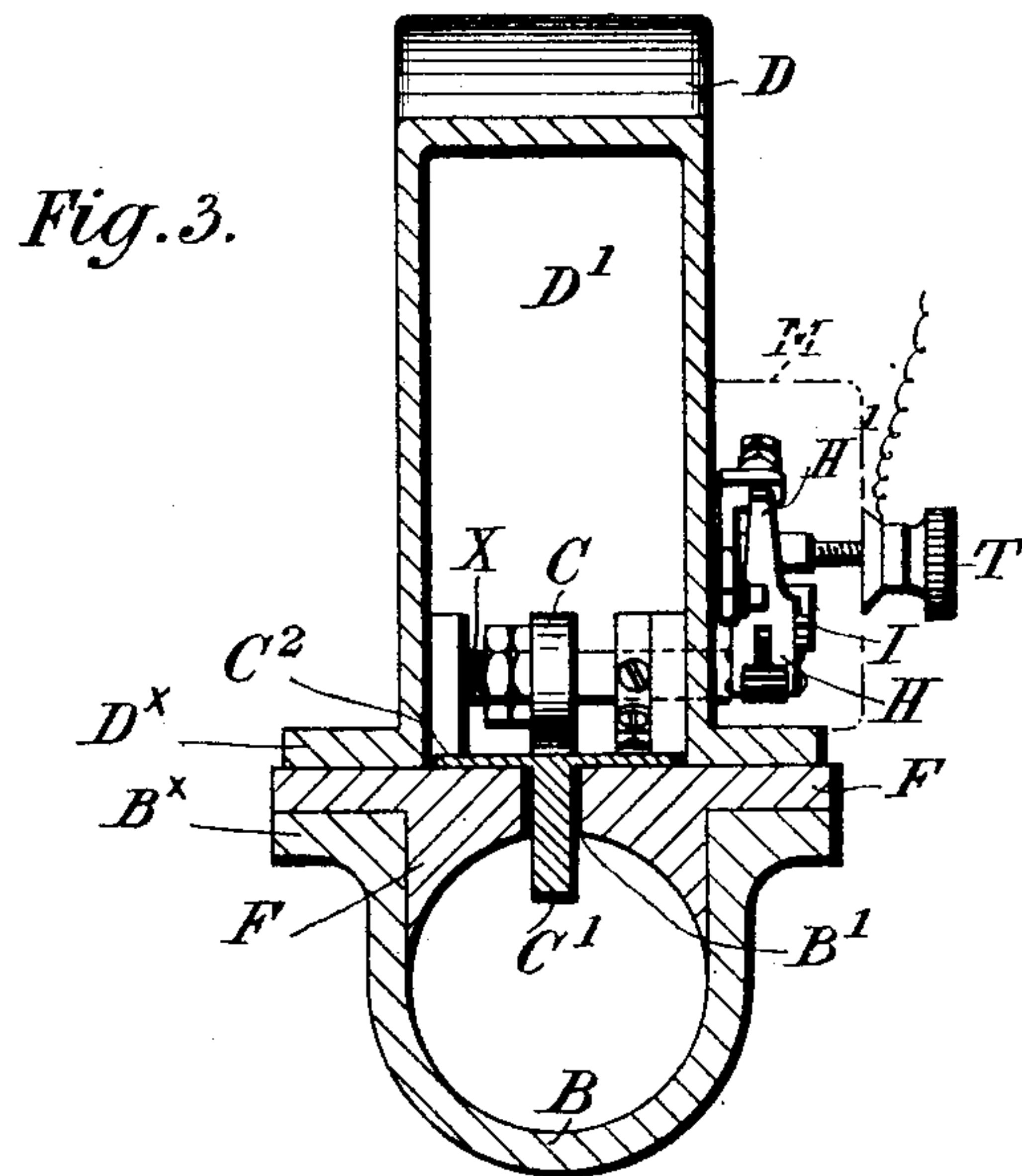
2 Sheets—Sheet 2.

G. W. HOOK.

ELECTRICAL SIGNALING DEVICE FOR USE ON PNEUMATIC CONVEYER
TUBES.

No. 589,832.

Patented Sept. 14, 1897.



Witnesses

J. Stephen Givsta
D. H. Blakelock.

Inventor

Geo. W. Hook,
by Whitman & Wilkinson,
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE WILLIAM HOOK, OF LONDON, ENGLAND.

ELECTRICAL SIGNALING DEVICE FOR USE ON PNEUMATIC CONVEYER-TUBES.

SPECIFICATION forming part of Letters Patent No. 589,832, dated September 14, 1897.

Application filed February 1, 1897. Serial No. 621,492. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WILLIAM HOOK, assistant superintending engineer, London general post-office, a subject of the Queen of Great Britain, residing at Glenlyn, King's Road, Clapham Park, London, England, have invented certain new and useful Improvements in or Relating to Electrical Signaling Devices for Use on Pneumatic Conveyer-Tubes, of which the following is a specification.

It is well known that air-tubes are used to transport small packages for considerable distances, particularly in large towns in England, where the British post-office employs such air-tubes as a convenient and rapid means for transporting small receptacles (usually of a cylindrical form) adapted to fit within the air-tube in an air-tight or approximately air-tight manner, (like a piston or plunger in a cylinder,) such receptacle after having been filled or charged with a number of telegrams or other matter to be transported being placed in the air-tube and a blast of air or strong air-pressure applied in the air-tube behind said receptacle, whereby the latter is caused to travel at a great speed along said air-tube until it arrives at its destination.

Instead of forcing the receptacle along the air-tube by air-pressure as above said receptacle is sometimes caused to travel by means of a vacuum being created in front of same in said air-tube. Now it is a great desideratum to automatically signal back to the starting-station (or to any other desired point or points) not only the arrival of the said receptacle at its destination, but it is also of the greatest importance to automatically signal from one or more intermediate points (on the journey of the receptacle) of the arrival of said receptacle at these successive signal-stations to thus show the progress of each such receptacle, and thus enables further receptacle or receptacles to be placed in the tube to follow each other in rapid succession but at suitable distances apart, the progress of each such receptacle being duly signaled from each succeeding signaling-point somewhat after the plan known as the "block system" on railways, only my system operates and is operated entirely automatically—that is, the receptacles as they pass each signal-point or signal-station themselves act upon the sig-

naling device forming the subject of my present invention, whereby an electric bell or other signal (either audible or visible, or both) is electrically operated.

In order that my present invention may be the more easily understood and readily carried into practice, I will proceed to describe same, with reference to the drawings hereunto annexed, in which—

Figure 1 is a longitudinal sectional view of my automatically-operated electrical signaling device shown applied to an air-tube. Fig. 2 is a plan of Fig. 1. Fig. 3 is a vertical cross-sectional view on line 2 3, Fig. 1, looking in the direction of the arrow 4. Fig. 4 is an enlarged detail view of the signal-operating mechanism.

A is a receptacle in which is placed the telegrams or matter to be transported.

B is an air-tube in which the said receptacle A fits in a more or less air-tight manner, and along which air-tube said receptacle travels.

C is a curved arm or lever (which I term the "trigger," and for the sake of brevity shall hereinafter refer to same as the "trigger C") pivoted or turning on its axis at X in the hood or cover D, within the interior D' of which latter the said trigger C can swing. This trigger C is curved or rounded on its under side at C', (in the special manner shown in the drawings, according to my present invention,) which curved or rounded portion C' descends through, and advantageously without touching the sides of, a longitudinal slot B' in the tube B. This special shape and arrangement of the curved or rounded portion C' of the trigger C which descends into the interior of the tube B, as shown, constitutes a very important improvement and is a very essential feature of my present invention.

In the construction shown in the drawings the whole of the mechanism for making and breaking the electrical signal-circuit is carried or supported in or upon the hood or air-tight cover D, which latter hermetically seals the slot B' and is provided with horizontal flanges D^x, while the air-tube at this point is formed somewhat trough-shaped with corresponding horizontal flanges B^x, said flanges D^x and B^x being laid together and firmly secured to one another by bolts, screws, or other

suitable fastenings, a block F of suitable material, such as brass, being laid in and secured by and between said flanges, the interior face F' of said block F being formed circular of the same radius as the interior of the tube B, as shown, (see Fig. 3,) the slot B' before referred to being in such case formed in said block F.

The aforesaid axis X in the case illustrated is a shaft or spindle fixed rigidly to the trigger C and is journaled in an air-tight manner in bearings for same in or upon the said hood or air-tight cover D, and one end of this spindle or shaft X extends through and beyond the side of the hood D (see Fig. 3) and carries thereon a cam or tappet X', which latter, when the shaft X is turned, operates on the contact-making device II as follows: This device II has trunnions II^x thereon, which are held in the fork-bearings I for same in such wise that when the cam or swelling X' is not touching the said device II the latter is pulled back by the spring J until the said trunnions II^x rest or bear against the bottom of the fork-bearings I, and thereby the other end II' of said device is moved away from and clear of the contact-piece K, which latter may advantageously consist of an adjustable screw. When the trigger C is thrown up into the position shown in dotted lines in Fig. 4 or thereabout, thereby the cam X' forces the device II away from the center of the spindle X and consequently moves its trunnions II^x off the bottom of the fork-bearings I, and the spring J by its tension will now pull the end II' against the contact-point K and thus make contact therewith and thereby close an electric signal-circuit and give a signal.

By the particular arrangement and construction shown (to which, however, I would remark, I do not confine myself) a rubbing contact is thus produced, which rubbing contact is of great importance in the operation of electric apparatus of this character.

The various parts of the apparatus are so arranged and insulated that the signal-circuit is only completed by the rubbing of the end II' of the device II upon the contact-point K.

I. is a line-wire connection.

The return-current passes to earth at E or through the tube B.

M is a removable air-tight cover of insulating material, which is removed by unscrewing the terminal head T.

The operation is as follows: Whichever way the receptacle is caused to travel through the tube B it will strike the curved portion C'

of the pivoted trigger C, depending in the air-tube B, and by reason of the shape of the latter will not only press same upward out of its way, but will, by reason of the great force with which said receptacle strikes the trigger C, throw the latter right up or force same out of its way, and thus insure contact being made without fail each time a receptacle passes under same, the said trigger C dropping or descending by its own weight each time, while same is prevented from descending too far by the wings or laterally-extending flanges c', which overlap the top of the slot B', and thereby prevent the trigger C descending into the tube B beyond a certain distance—for instance, in the manner shown in the drawings hereunto annexed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a signaling device for pneumatic conveyer-tubes, the combination with a trigger-arm provided with a convex side extending into the conveyer-tube and pivoted within an air-tight chamber outside said conveyer-tube; and a cam on the axis of said trigger-arm; of a contact device adapted to be operated by said cam as said trigger-arm swings on its pivot, substantially as described.

2. In a signaling device for pneumatic conveyer-tubes, the combination with a trigger-arm provided with a convex side extending into the conveyer-tube, and adapted to allow the passage of the conveyer in either direction, said trigger-arm being mounted upon an axis pivoted in an air-tight chamber outside of said conveyer-tube; and a cam on the axis of said trigger; of a contact-arm mounted upon a movable pivot; and means for normally holding one end of said contact-arm in engagement with said cam, and the opposite end of said arm out of contact, substantially as described.

3. In a signaling device for pneumatic conveyer-tubes, the combination with a trigger-arm provided with a convex side extending into the conveyer-tube, and mounted upon an axis pivoted in an air-tight chamber outside of said conveyer-tube; and a cam on the axis of said trigger; of a contact-arm provided with trunnions mounted in a forked frame; and a spring normally holding said contact-arm in engagement with said cam and out of contact, substantially as described.

GEORGE WILLIAM HOOK.

Witnesses:

H. BIRKBECK,
E. GANDER.