

No. 726,033.

PATENTED APR. 21, 1903.

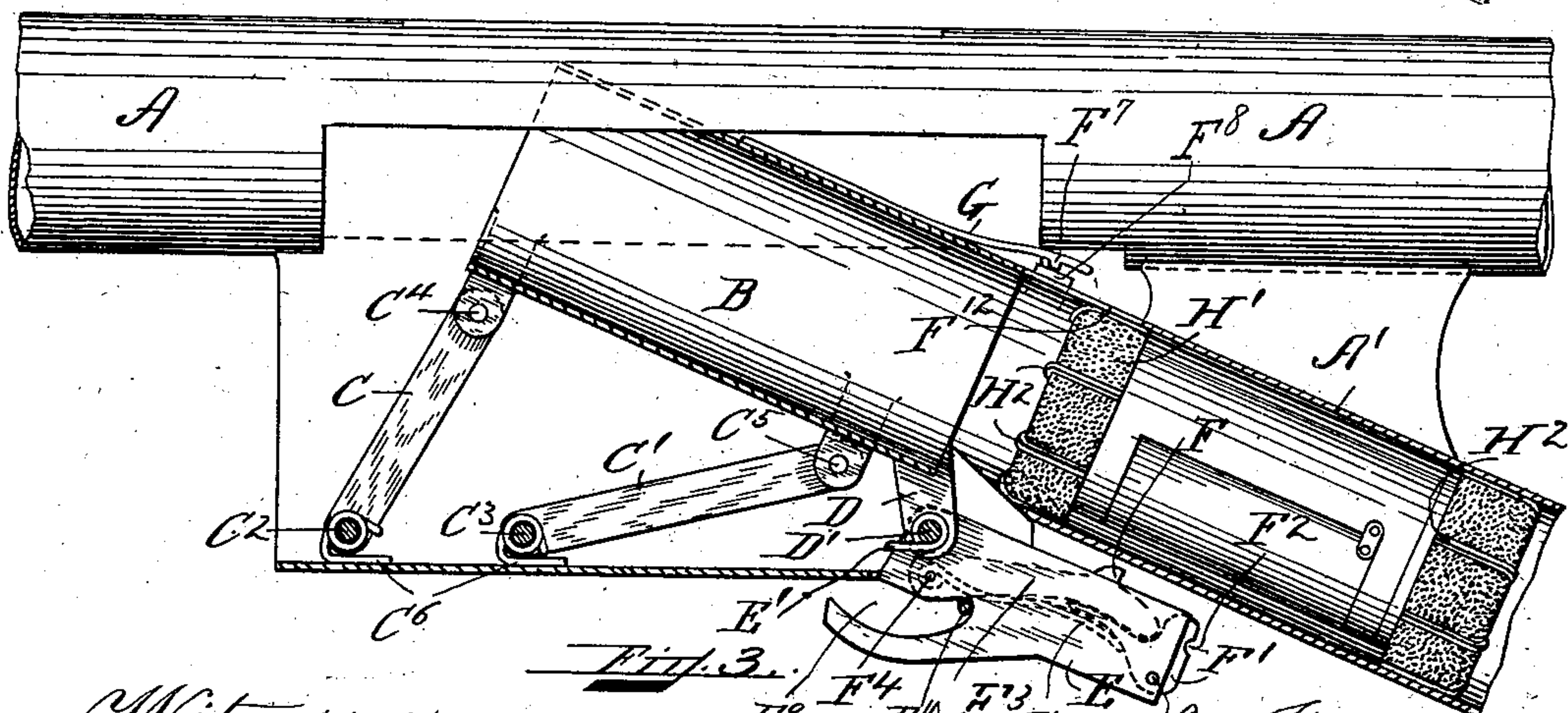
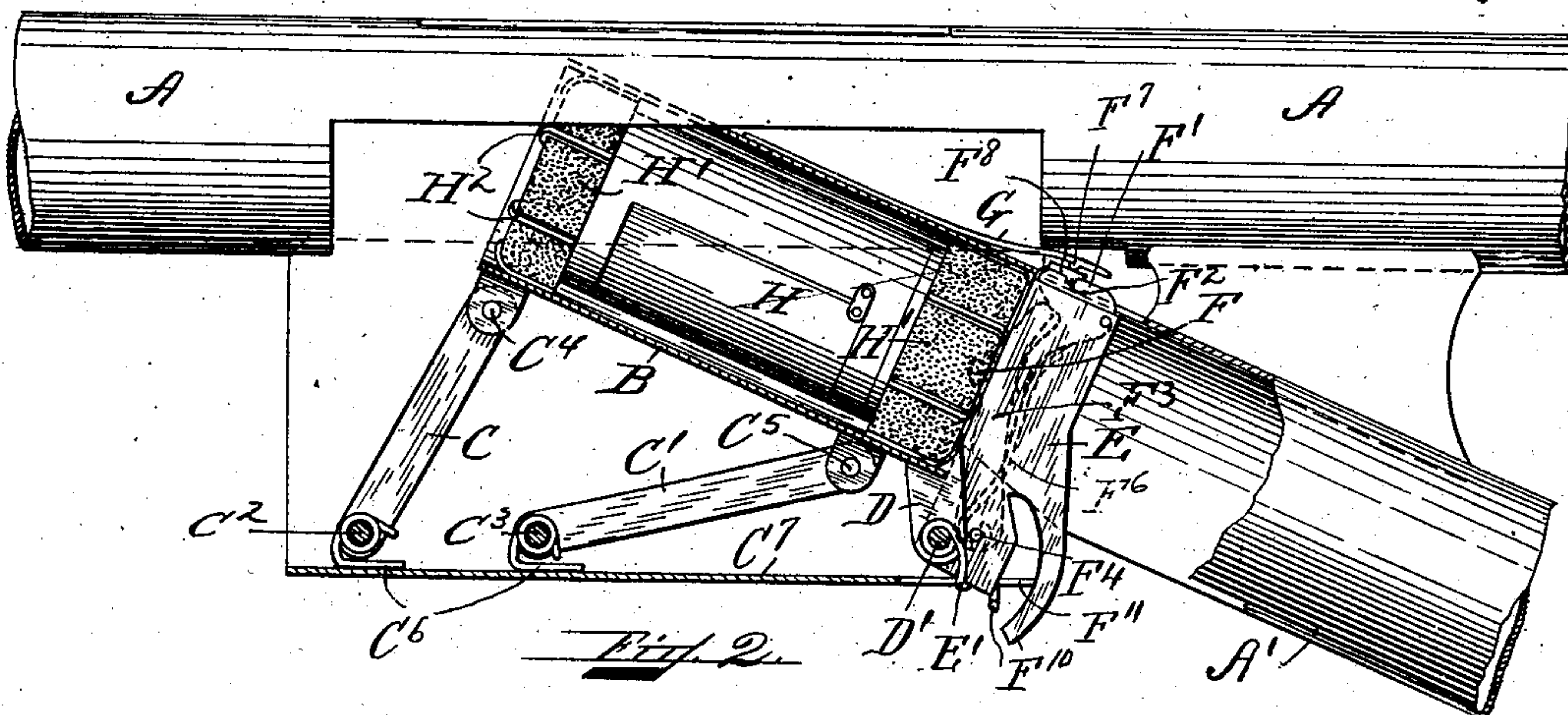
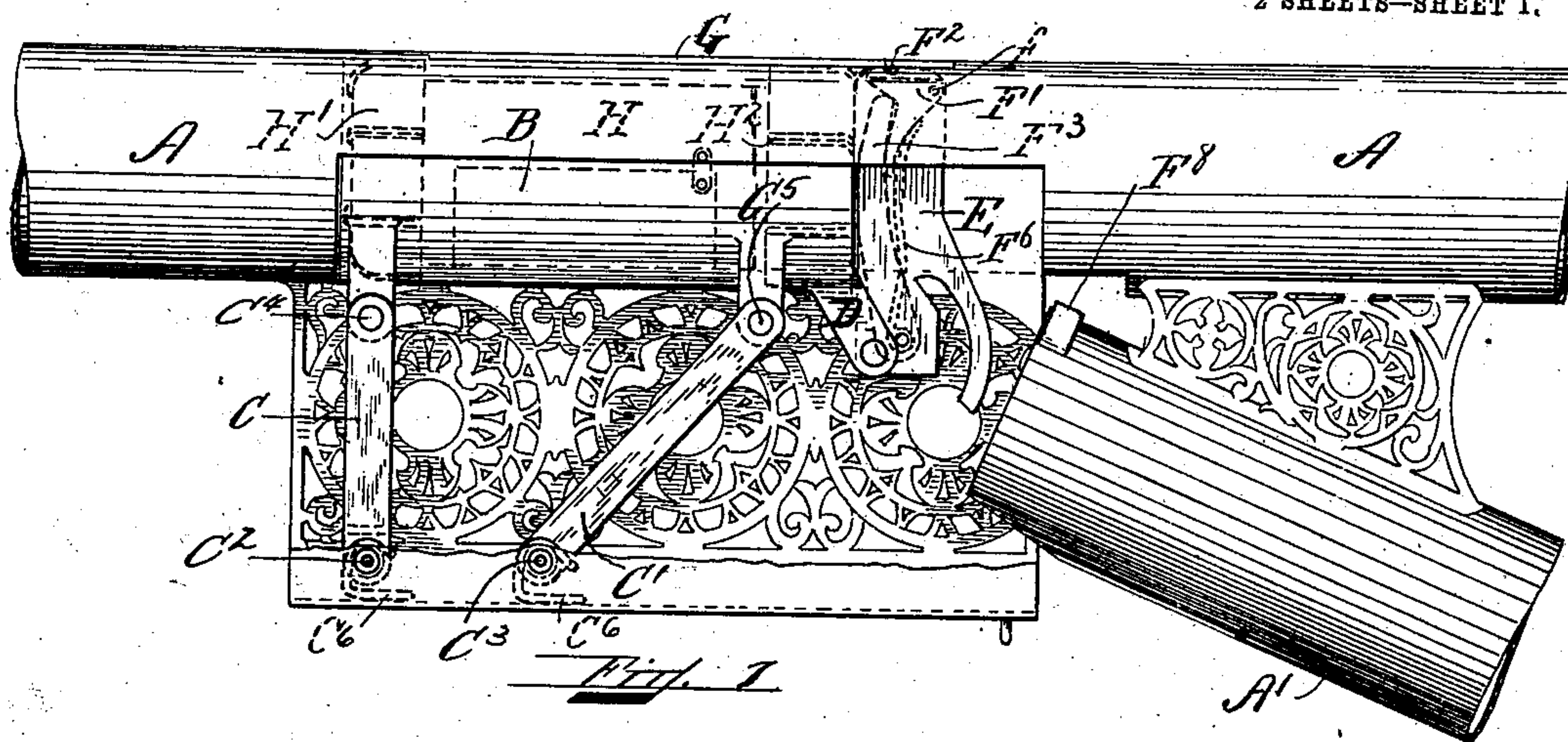
F. C. CUTTING.

AUTOMATIC SWITCH FOR PNEUMATIC DESPATCH APPARATUS.

APPLICATION FILED MAY 16, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
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Inventor:
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By E. C. Lyman
J. G. Rust, atty

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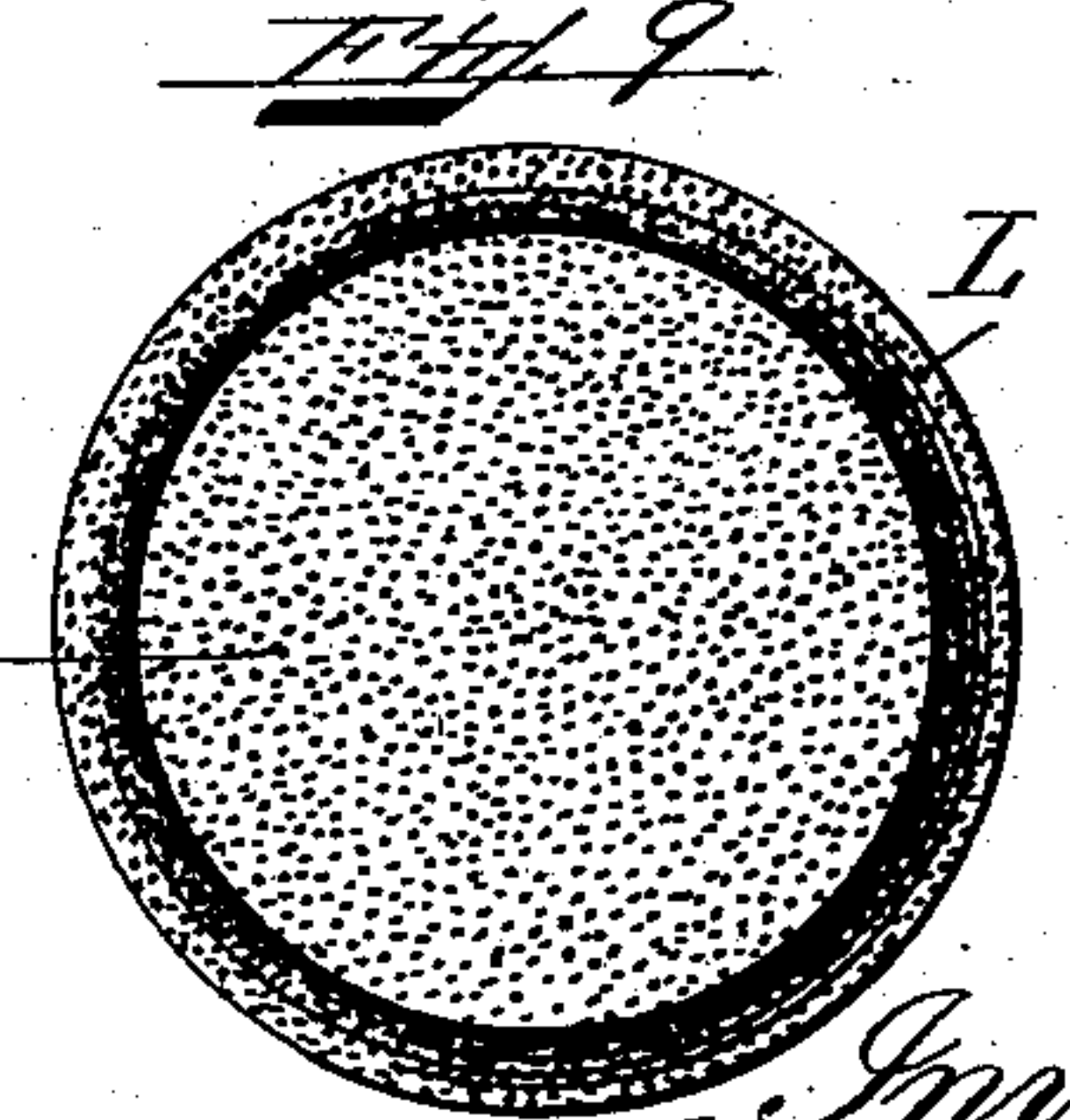
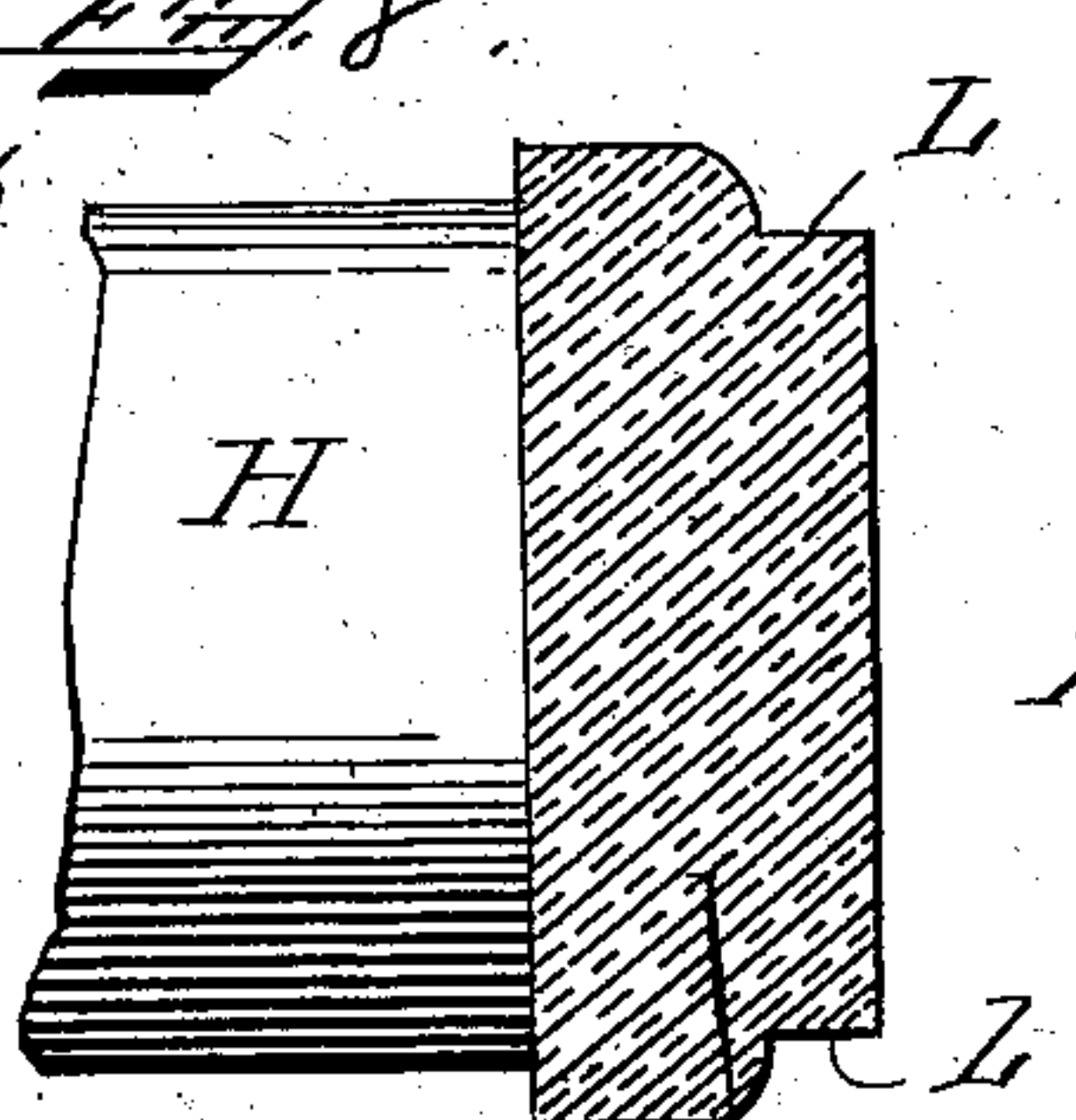
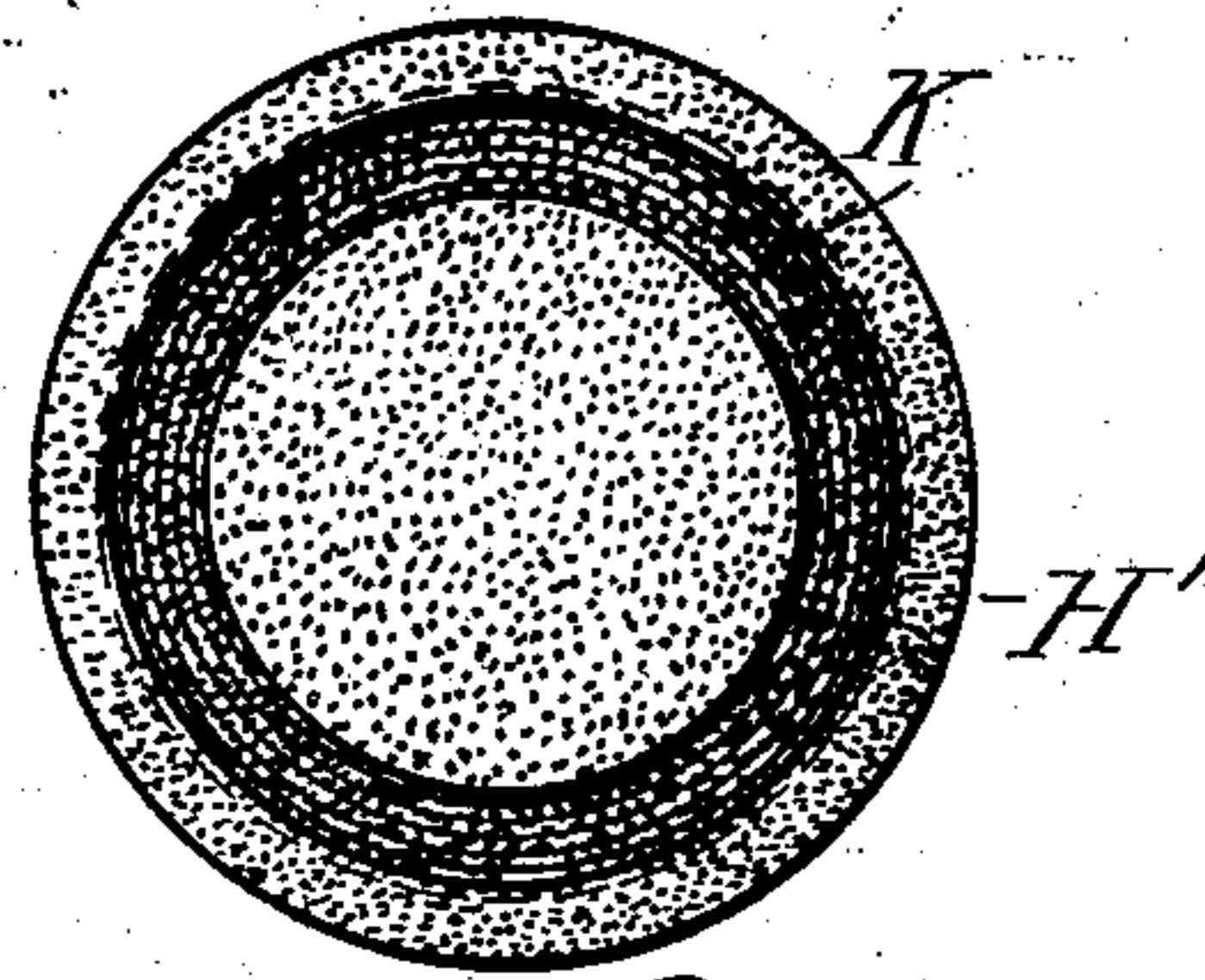
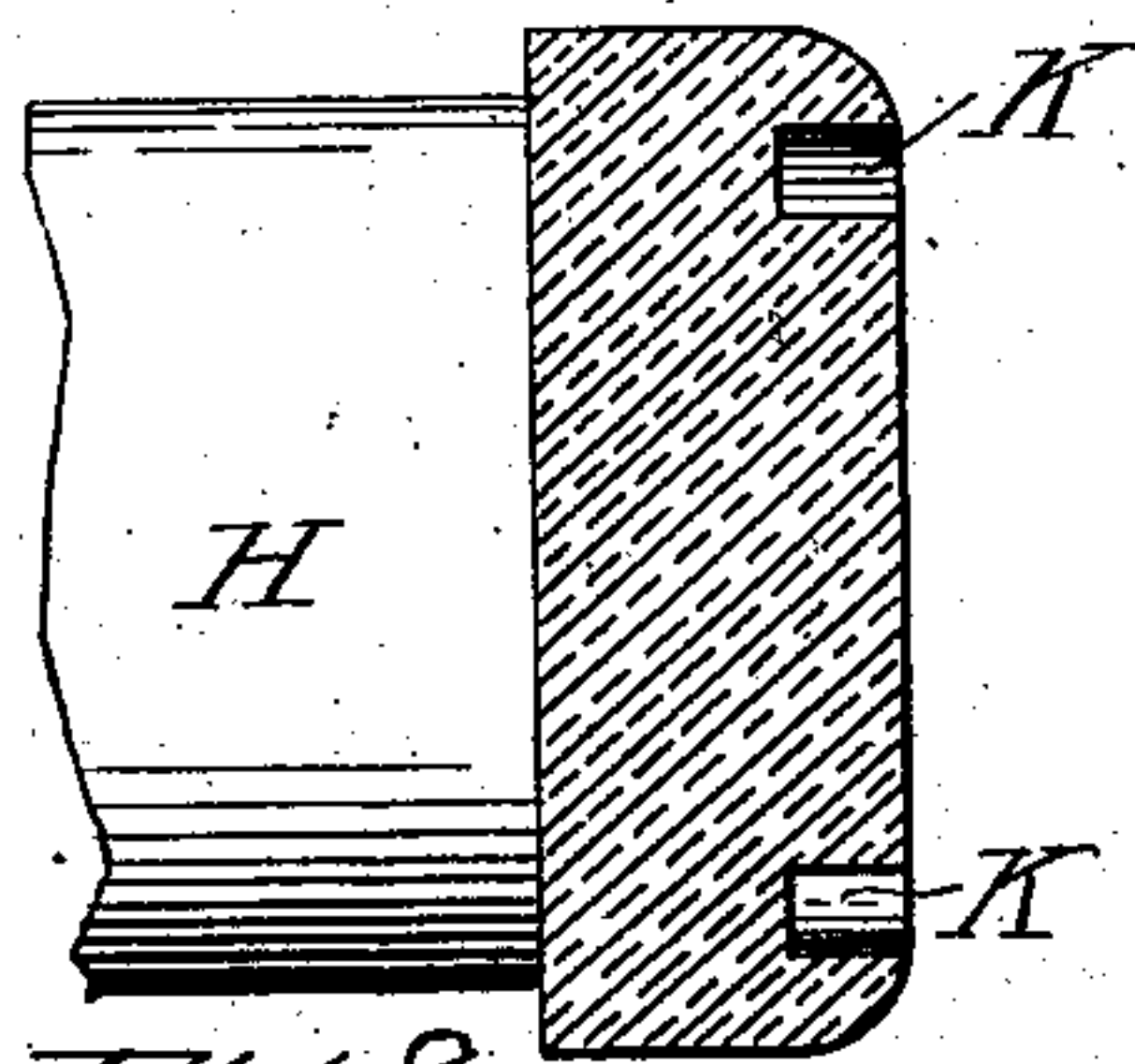
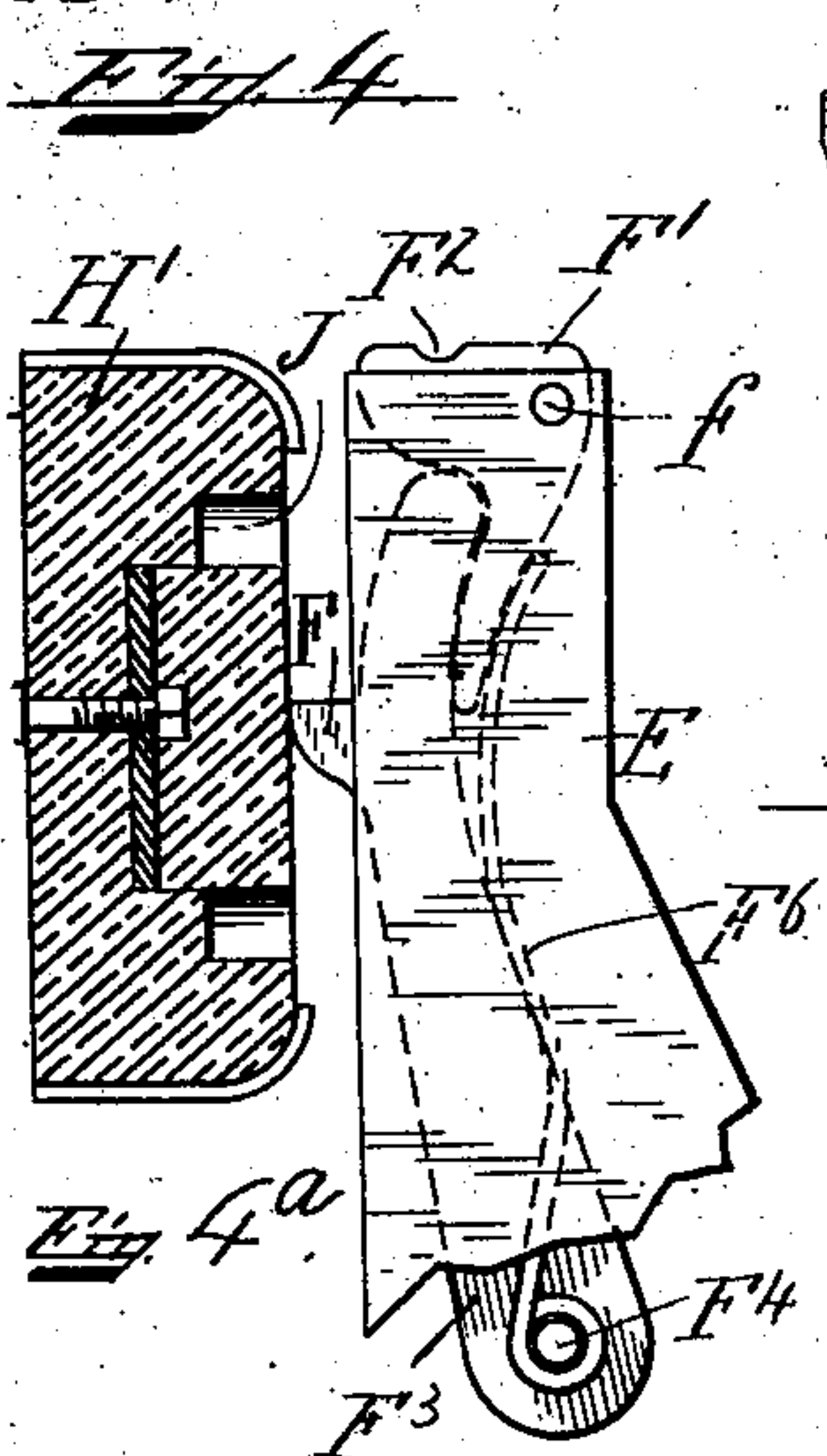
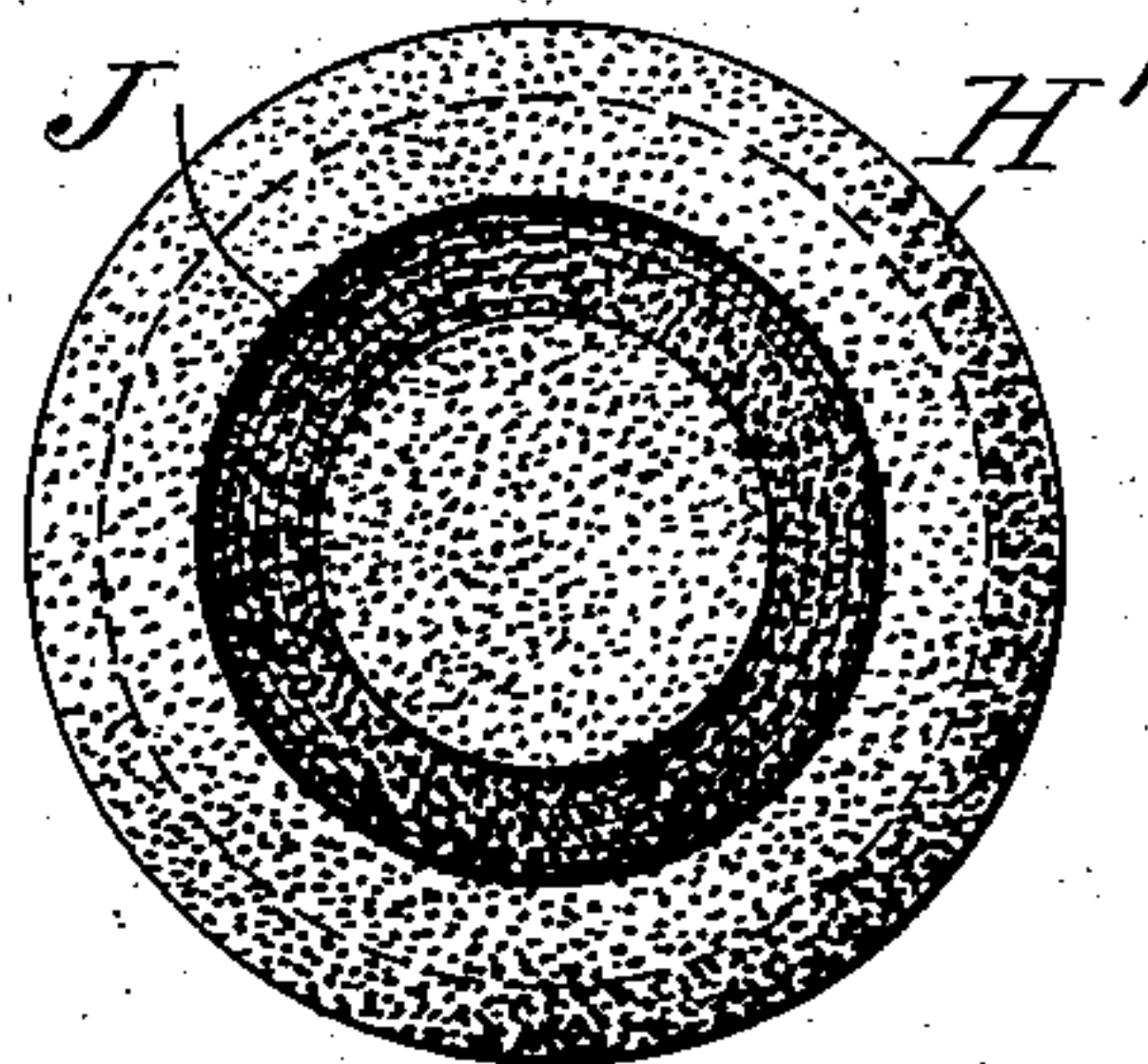
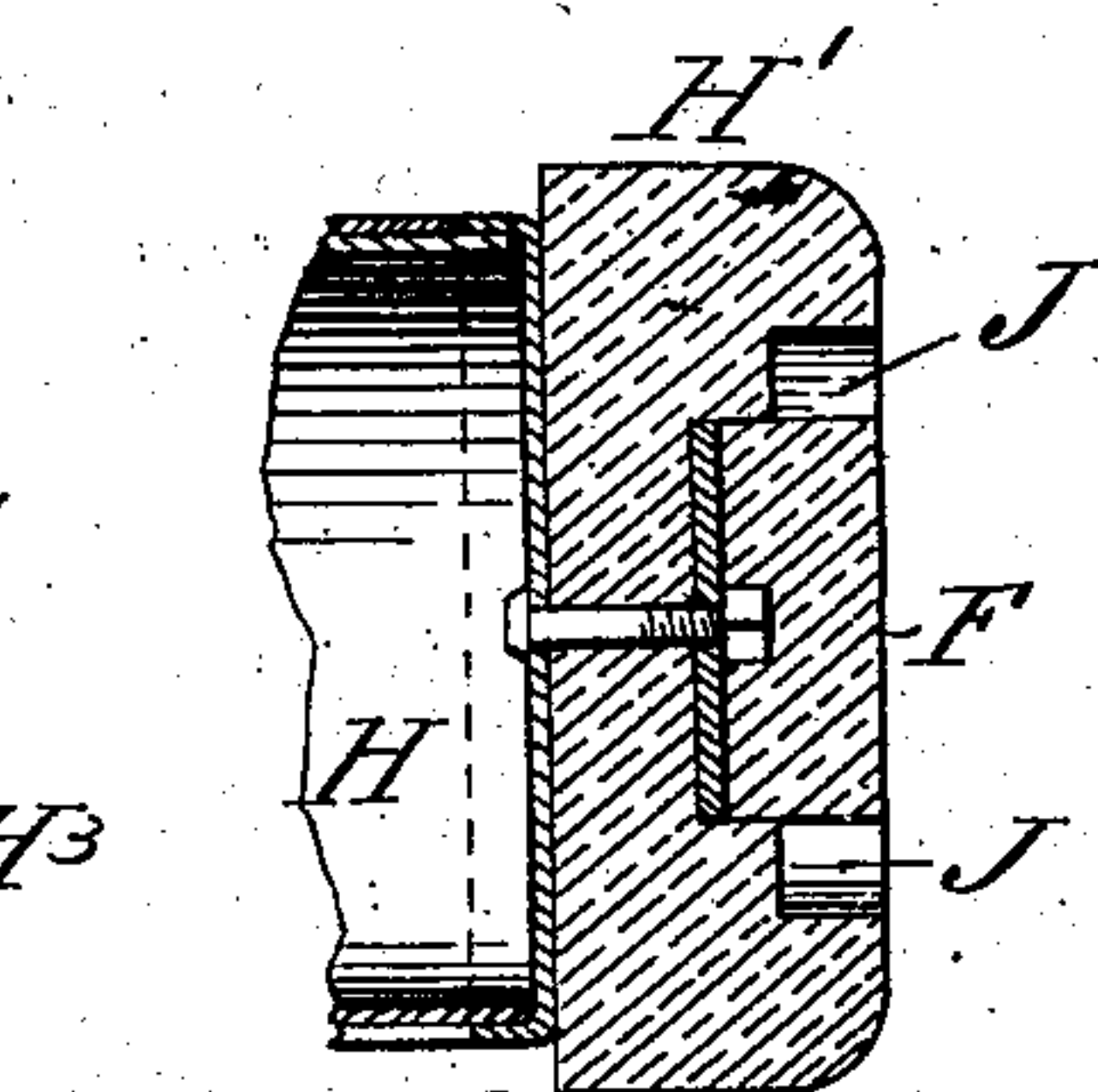
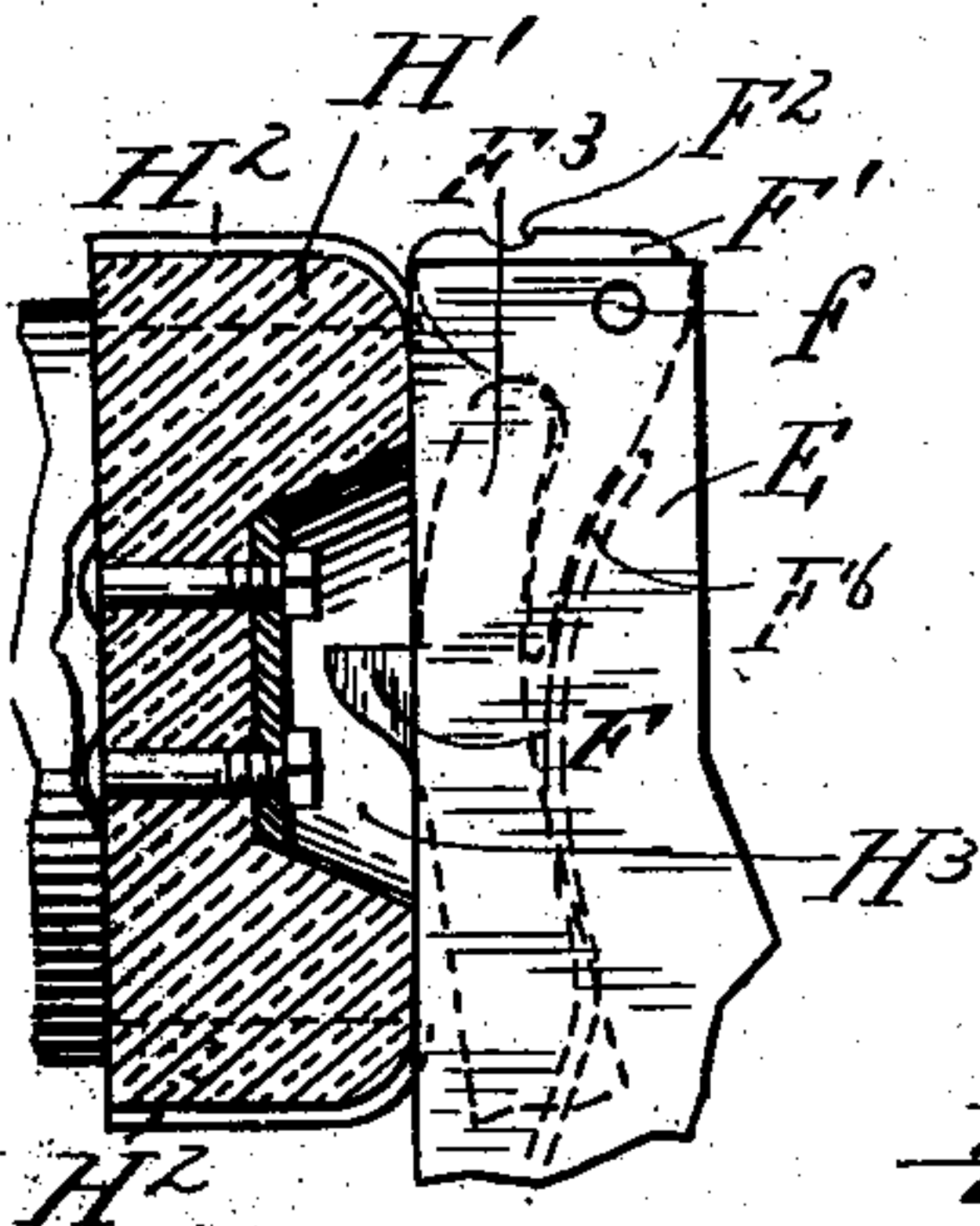
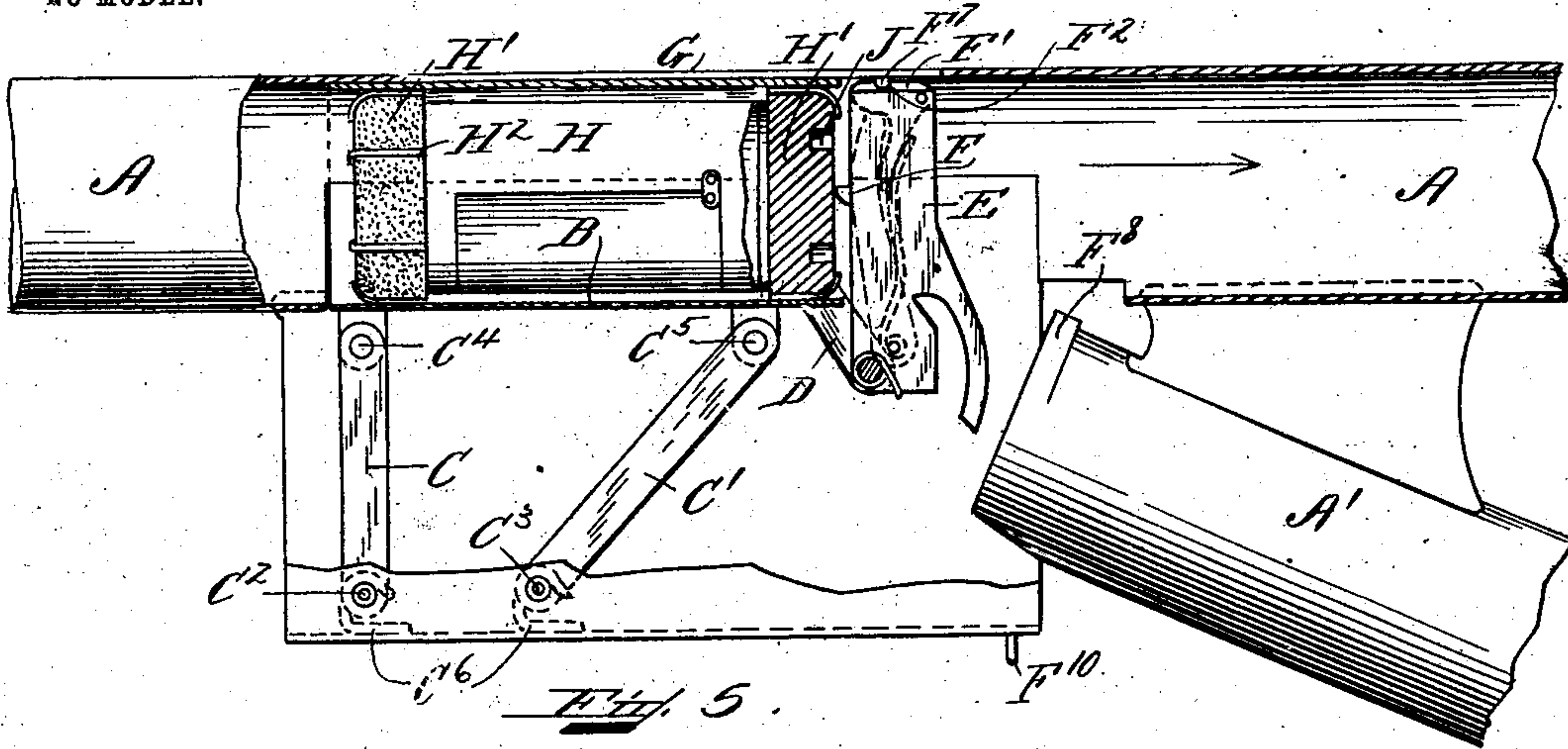
F. C. CUTTING.

AUTOMATIC SWITCH FOR PNEUMATIC DESPATCH APPARATUS.

APPLICATION FILED MAY 15, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERICK C. CUTTING, OF ROCHESTER, NEW YORK, ASSIGNOR TO
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AUTOMATIC SWITCH FOR PNEUMATIC-DESPATCH APPARATUS.

SPECIFICATION forming part of Letters Patent No. 726,033, dated April 21, 1903.

Application filed May 15, 1902. Serial No. 107,456. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK C. CUTTING, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Automatic Switches for Pneumatic-Despatch Apparatus, of which the following is a specification.

My invention relates to new and useful improvements in automatic switches for pneumatic-despatch apparatus wherein the switches at each station are automatically operated by the carriers belonging to that station and such carriers diverted and discharged through a branch tube.

The object of my invention is to produce a pneumatic-despatch apparatus wherein a single tube may be used for the transit of the carriers with branch tubes, into which the carriers are automatically switched at their respective stations.

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 side elevation of a pneumatic-despatch apparatus embodying my invention. Fig. 2 is a similar view, partly in section and showing a carrier diverted from the main transmission-tube. Fig. 3 is a similar view to Fig. 2 and showing the carrier passing from the switch into the branch tube. Fig. 4 is an enlarged view, partly in section, of the carrier-head and latch, hereinafter described. Fig. 4^a is an enlarged view, partly in section, of another form of carrier-head and latch and hereinafter described. Fig. 5 is a view similar to Fig. 1, with parts in section to show the construction more clearly and hereinafter described. Fig. 6 is a sectional view of part of the carrier and buffer-head, showing the recess in the head. Fig. 7 is an end elevation of the carrier-head shown in Fig. 6. Fig. 8 is a side view of part of the carrier, with the buffer-head in section, showing the recess in a different location from that shown in Figs. 4, 6, and 7. Fig. 9 is an end view of the carrier shown in Fig. 8. Fig. 10 is an end view of part of the carrier, with the buffer-head in section and showing the head

cut away on the ends. Fig. 11 is an end view of the same.

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

Along the main tube A are a number of stations at which carriers are to be diverted to their respective stations. Located in line with the main tube A is a tube-section B, held in its upper position in alinement with the main tube by the links C C', pivoted to the base C' on the shafts C² C³, and their upper ends, respectively, are pivoted at C⁴ C⁵ to suitable lugs on the tube-section B, and by means of the springs C⁶ the tube-section is held in its normal position, as shown in Figs. 1 and 5.

In the front end of the tube-section B there is pivoted to the lugs D on the shaft D' the finger E, which is normally held vertically across the front of the tube-section B by means of the spring E', passing under said finger and around the ends of the fixed shaft D'. Within the two sides of the finger E there is pivoted at F⁴ the latch F³, having a lug F, projecting inwardly to the tube-section B and held in such position by the bell-crank lever F', pivoted at f within the two sides of the finger E and provided on its upper end with a suitable recess F². By means of the flat spring F⁶, wound around the fixed shaft F⁴ and extending upwardly against the rear side of the latch F³ of the bell-crank lever F', the latch F³ and the bell-crank lever F' are held in a vertical position, as shown in Figs. 4 and 4^a. Secured to the top of the tube-section B is another flat spring G, provided with a lug F⁷, adapted to normally engage with the recess F² and lock the finger with the latch F³ in their normal positions, Figs. 1 and 5.

As shown in Figs. 1, 2, and 3, the carrier is intended to be diverted and switched at the station shown in the drawings, and the operation is as follows: When the carrier strikes the finger E, Figs. 1 and 4, it moves the tube-section by its momentum to the position shown in Fig. 2, when the lug F⁷ on the end of the flat spring G strikes the slight upper projection F⁸ on one side of an opening F¹² in the branch tube A', which causes the end of the flat spring to rise from engagement with the recess F², and the finger E, with the

latch F^3 , drops into the position shown in Fig. 3, and the carrier passes out through the branch tube A' , while the finger E swings back, as shown, until the inner end of the slot F^9 of said finger contacts with the fixed cross-bar F^{10} , secured on opposite sides of the slot F^{11} of the base C^7 . In the above operation it will be noted that the depression H^3 in the center of the buffer-head H' of the carrier (see enlarged view, Fig. 4) does not strike the lug F of the latch F^3 at all, the said latch not changing its normal position with relation to the finger E , but is carried with said finger E to the position shown in Fig. 3, and in the construction as described in Figs. 1, 2, and 3 the carrier belongs to this station, the depression being arranged so that the lug F is not struck by the head of the carrier, and therefore the finger E is not released and moved downwardly out of the way of the traveling carrier, so that the carrier can pass on to the station to which it belongs; but the buffer-head striking the finger E directly does not release said finger; but the finger with the tube-section are both bodily moved downwardly until the section aligns with the branch tube, at which time the flat spring G is moved upwardly and releases the bell-crank lever F' , when the weight and force of the carrier moves downwardly the finger E to the position shown in Fig. 3 and the carrier is discharged into the branch tube. Referring to Fig. 5, the carrier is shown with the buffer-head in section and with the head striking the lug F of the latch F^3 , Fig. 4^a. The momentum of the carrier will force inwardly the latch F^3 and push the rear end of the bell-crank lever F' outwardly and pull down the upper end of the bell-crank, whereby the lug F^7 on the flat spring G will be released from its engagement with the recess F^2 in the top of the bell-crank F' and the finger E , with the latch F^3 , will be moved out of the way of the traveling carrier without affecting the tube-section B , which remains stationary and in alinement with the main tube A , so that the carrier H (shown in this view) will pass on through the main tube A to the station where it belongs. At the station to which it belongs the lug F will be so arranged that it will pass into the depression J (see Figs. 4^a, 6, and 7) of the buffer-head H' , and under such conditions will not be moved to operate the bell-crank; but the momentum of the carrier will carry down the finger E and the tube-section B in a similar manner to that shown in Figs. 1, 2, 3 for carriers belonging to that station. The carrier shown in Figs. 8 and 9 has its recess K located in a different position from that shown in the carriers in the preceding figures, so that this carrier will only move down the tube-section for the diversion of the carrier at the station where the lug F of the latch F^3 is so arranged as to enter said depression, and thereby cause the full force and weight of the carrier to act on the finger E and move the

entire section down for the switching of the carrier.

The carrier shown in Figs. 10 and 11 shows another location of the recess L in the head of the carrier and carriers of this construction can only be switched at the station where the lug F of the latch F^3 is so located as to enter this depression, and thereby cause the carrier to act with its full force and weight on the finger E and carry down the entire section to allow the carrier to be switched into its branch tube.

I have shown four graduations of recesses in the heads of the carriers, these recesses having a correspondingly-graduated location to the lugs F on the latch F^3 at the different stations, and the carriers pass over stations at which they are not to be diverted and operate the lug F and latch F^3 , so that the finger E moves down out of the way, allowing the passage of the carrier; but the lug F of the latch F^3 at the station to which the carrier does belong will not be driven in by the momentum of the carrier, but will enter the recess of the carrier to which it belongs, and thus the carrier will strike the finger E without releasing it from the flat spring G , and the entire section by the weight and momentum of the carrier will be carried down and the carrier switched in the manner shown in Figs. 1, 2, and 3.

In order to reduce the friction of the traveling carrier, I have placed in the felt heads H' sections of rawhide H^2 , which project about a sixteenth of an inch from the surface of the felt, thus forming runners for supporting the carrier. While I have specified rawhide, any other suitable material may be used for this purpose.

I do not limit myself to the arrangement and construction shown, as the same may be varied without departing from the spirit of my invention.

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 of the United States, is—

1. In a pneumatic-despatch-tube apparatus, a main tube, a branch tube leading therefrom at each station, a movable section at each station normally in alinement with the main tube and adapted to be moved into alinement with the branch tube by carriers belonging to that station, mechanism connected to said section and extending across the line of travel of the carriers through the main tube, means for holding said mechanism across the line of travel of the carriers through the main tube, a latch adapted to be operated by carriers belonging to the stations beyond for releasing said mechanism to allow the passage of said carriers through the main tube, a series of carriers having recesses in the head graduated to receive the latch at the stations to which the carriers belong whereby a section with its mechanism is moved downwardly for the discharge of a carrier, and means for re-

leasing the mechanism upon the movement of the section in alinement with the main tube.

2. In a pneumatic-despatch-tube apparatus, a main tube, a branch tube leading therefrom at each station, a movable section at each station normally in alinement with the main tube and adapted to be moved into alinement with the branch tube by carriers belonging to that station, mechanism connected to said section and extending across the line of travel of the carriers through the main tube, means for holding said mechanism across the line of travel of the carriers through the main tube, a latch adapted to be operated by carriers belonging to the stations beyond for releasing said mechanism to allow the passage of said carriers through the main tube, a series of carriers having concentric recesses in the head graduated to receive the latch at the stations to which the carriers belong whereby a section with its mechanism is moved downwardly for the discharge of a carrier, and means for releasing the mechanism upon the movement of the section in alinement with the main tube.

3. In a pneumatic-despatch-tube apparatus, a main tube, a branch tube leading therefrom at each station, a movable section at each station normally in alinement with the main tube and adapted to be moved into alinement with the branch tube by carriers belonging to that station, mechanism connected to said section and extending across the line of travel of the carriers through the main tube, means for holding said mechanism across the line of travel of the carriers through the main tube, a latch adapted to be operated by carriers belonging to the stations beyond for releasing said mechanism to allow the passage of said carriers through the main tube, a series of carriers having recesses in the head graduated to receive the latch at the stations to which the carriers belong whereby a section with its mechanism is moved downwardly for the discharge of a carrier, means for releasing the mechanism upon the movement of the section in alinement with the main tube, and means for returning the movable section to its normal position in alinement with the main tube.

4. In a pneumatic-despatch-tube apparatus, a main tube, a branch tube leading therefrom

at each station, a movable section at each station normally in alinement with the main tube and adapted to be moved into alinement with the branch tube by carriers belonging to that station, mechanism connected to said section and extending across the line of travel of the carriers through the main tube, means for holding said mechanism across the line of travel of the carriers through the main tube, a latch adapted to be operated by carriers belonging to the stations beyond for releasing said mechanism to allow the passage of said carriers through the main tube, a series of carriers having recesses in the head graduated to receive the latch at the stations to which the carriers belong whereby a section with its mechanism is moved downwardly for the discharge of a carrier, means for releasing the mechanism upon the movement of the section in alinement with the main tube, means for returning the mechanism to its normal position on the section, and means for returning the section to its normal position in alinement with the main tube.

5. In a pneumatic-despatch-tube apparatus, a main tube, a branch tube leading therefrom at each station, switching mechanism normally in alinement with the main tube for diverting carriers belonging to that station into the branch tube, mechanism connected to said switching mechanism for arresting carriers belonging to that station, a device cooperating with said arresting mechanism and adapted to be operated by carriers belonging to the stations beyond to release said arresting mechanism and allow the carriers to pass, and a series of carriers having recesses in the heads graduated to receive said devices at the stations to which the carriers belong whereby the switching mechanism is moved into alinement with the branch tubes.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 6th day of May, A. D. 1902.

FREDERICK C. CUTTING.

Witnesses:

J. D. HARRIS,
H. P. REIBLING.