(No Model.) 5 Sheets—Sheet 1.

C. F. PIKE.

SWITCH FOR PNEUMATIC DESPATCH TUBES.

No. 567,654. Patented Sept. 15, 1896.

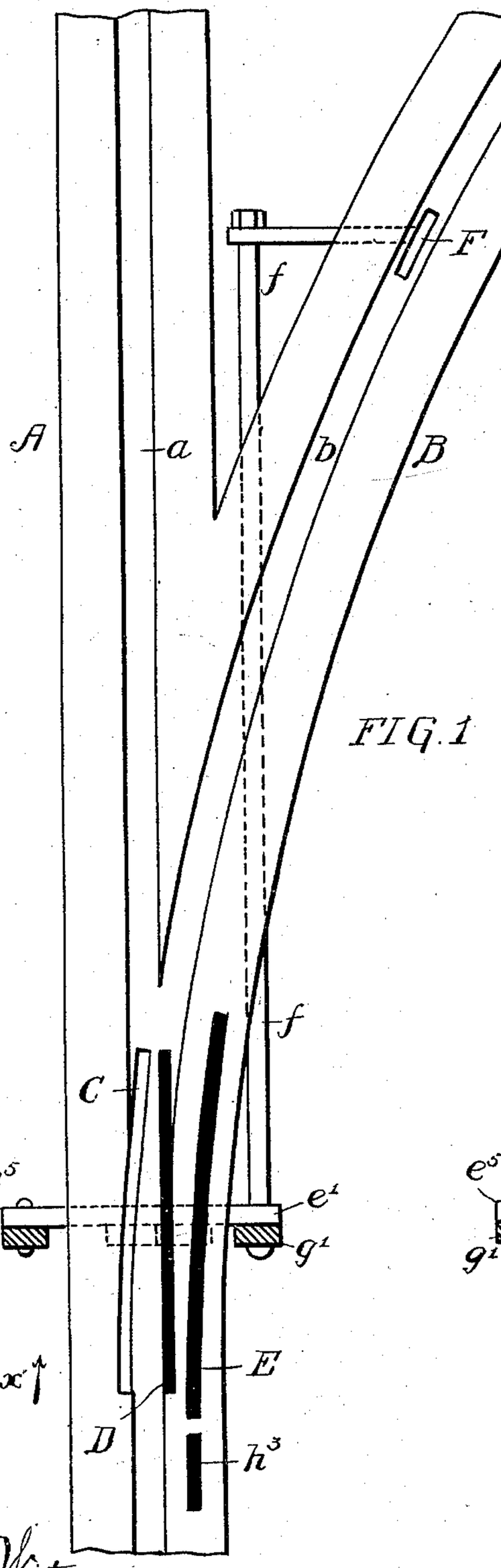

FIG. 1

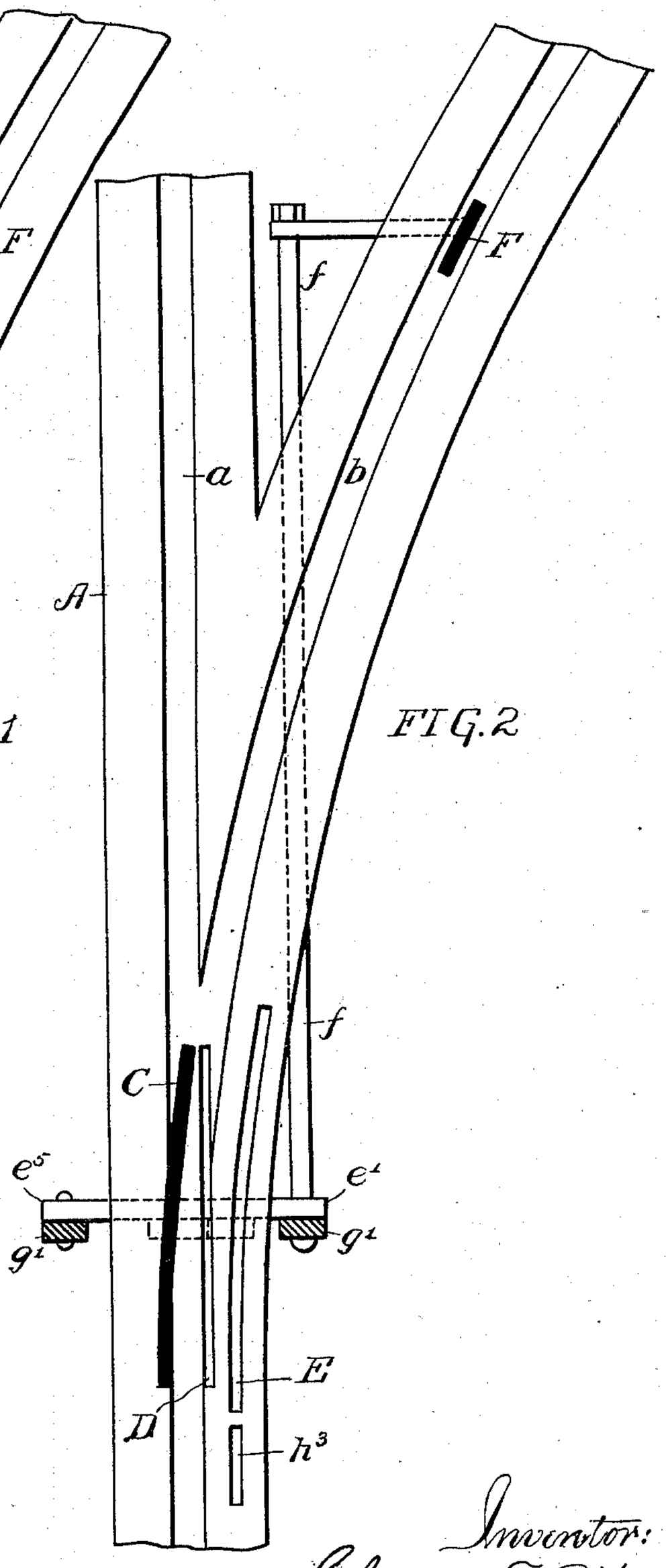

FIG. 2

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Jno E Parker
J. Henderson.

Inventor:
Charles F. Pike,
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William A. Pike

(No Model.) 5 Sheets—Sheet 2.

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FIG. 3

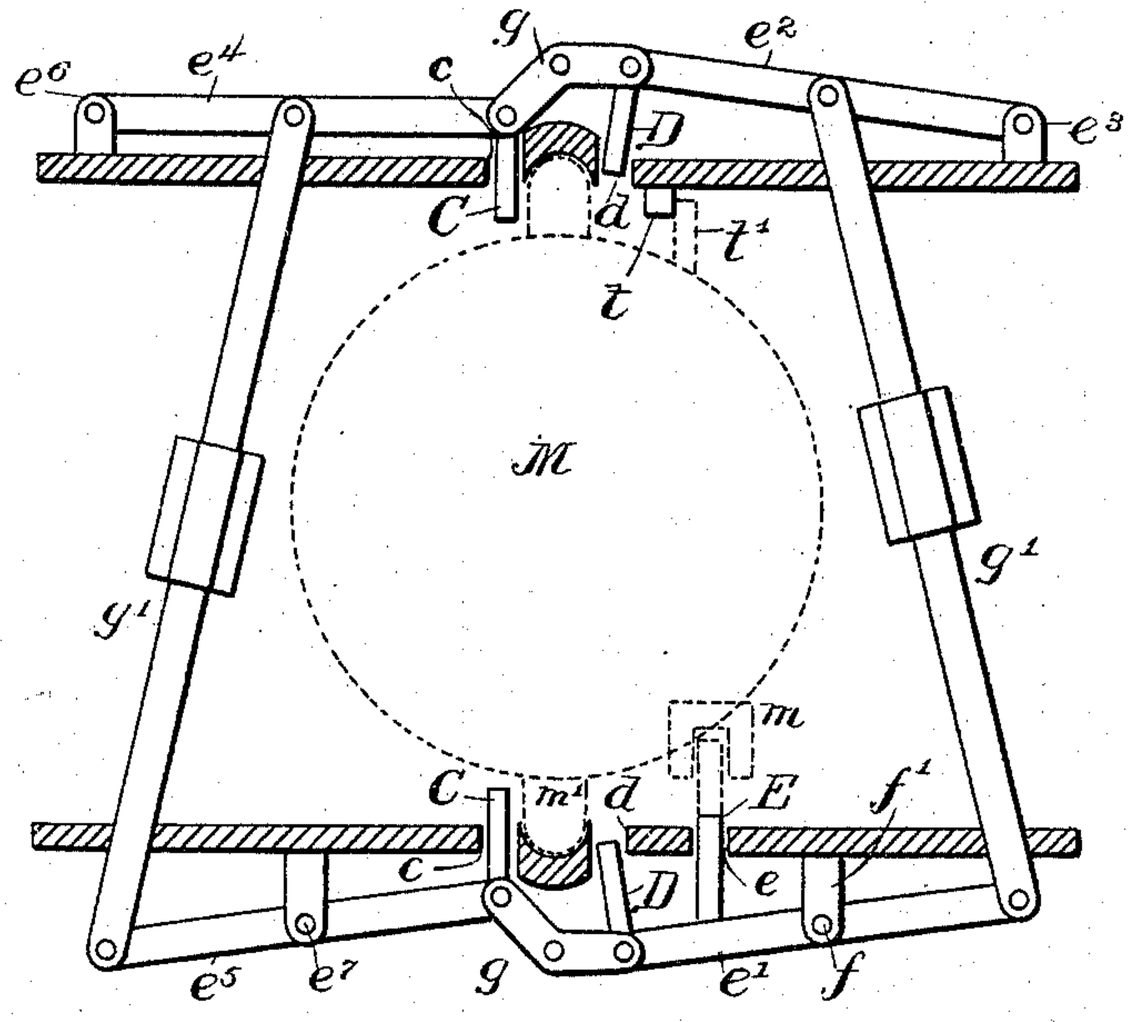
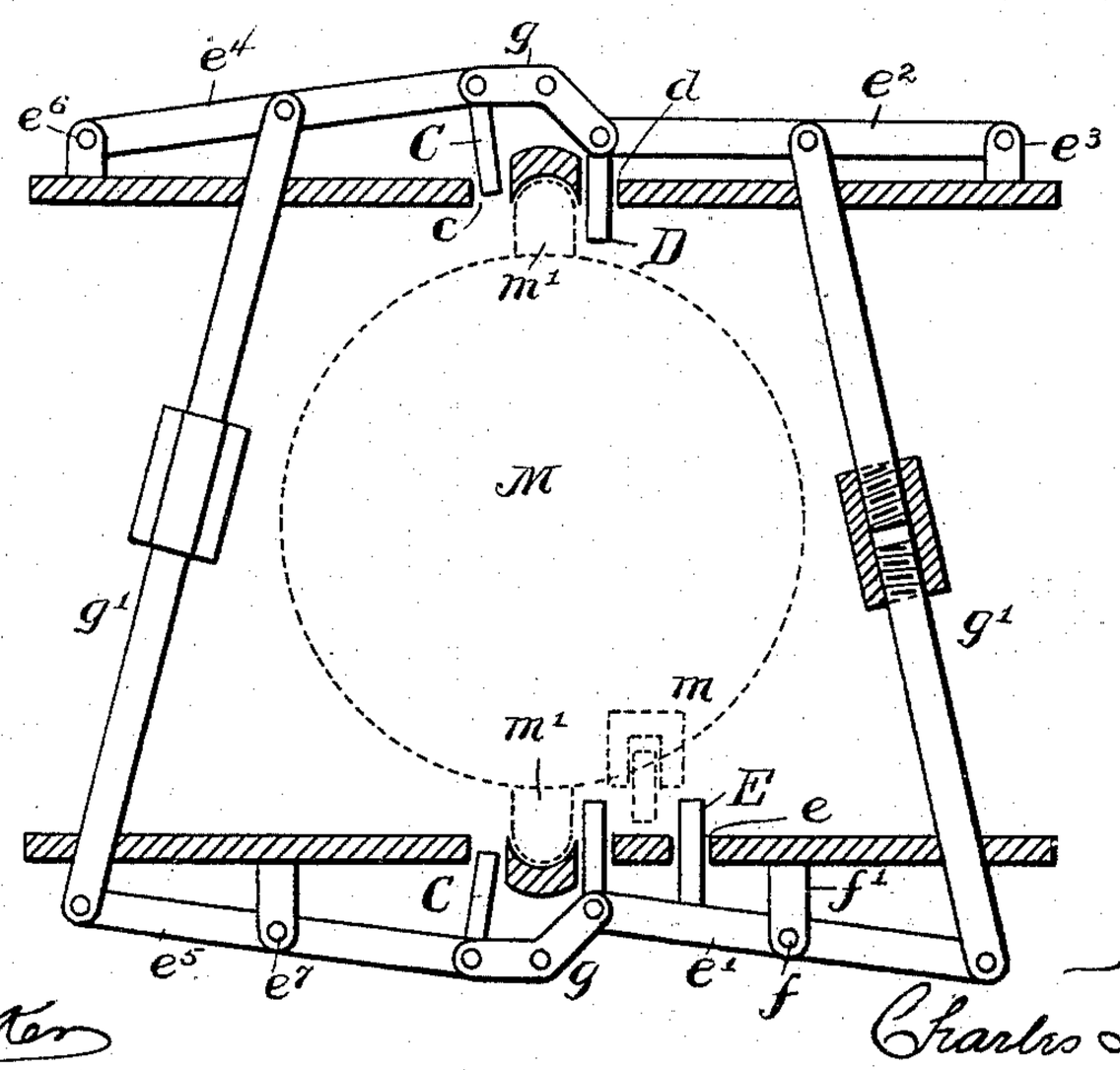


FIG. 4



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(No Model.) 5 Sheets—Sheet 3.

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FIG. 5

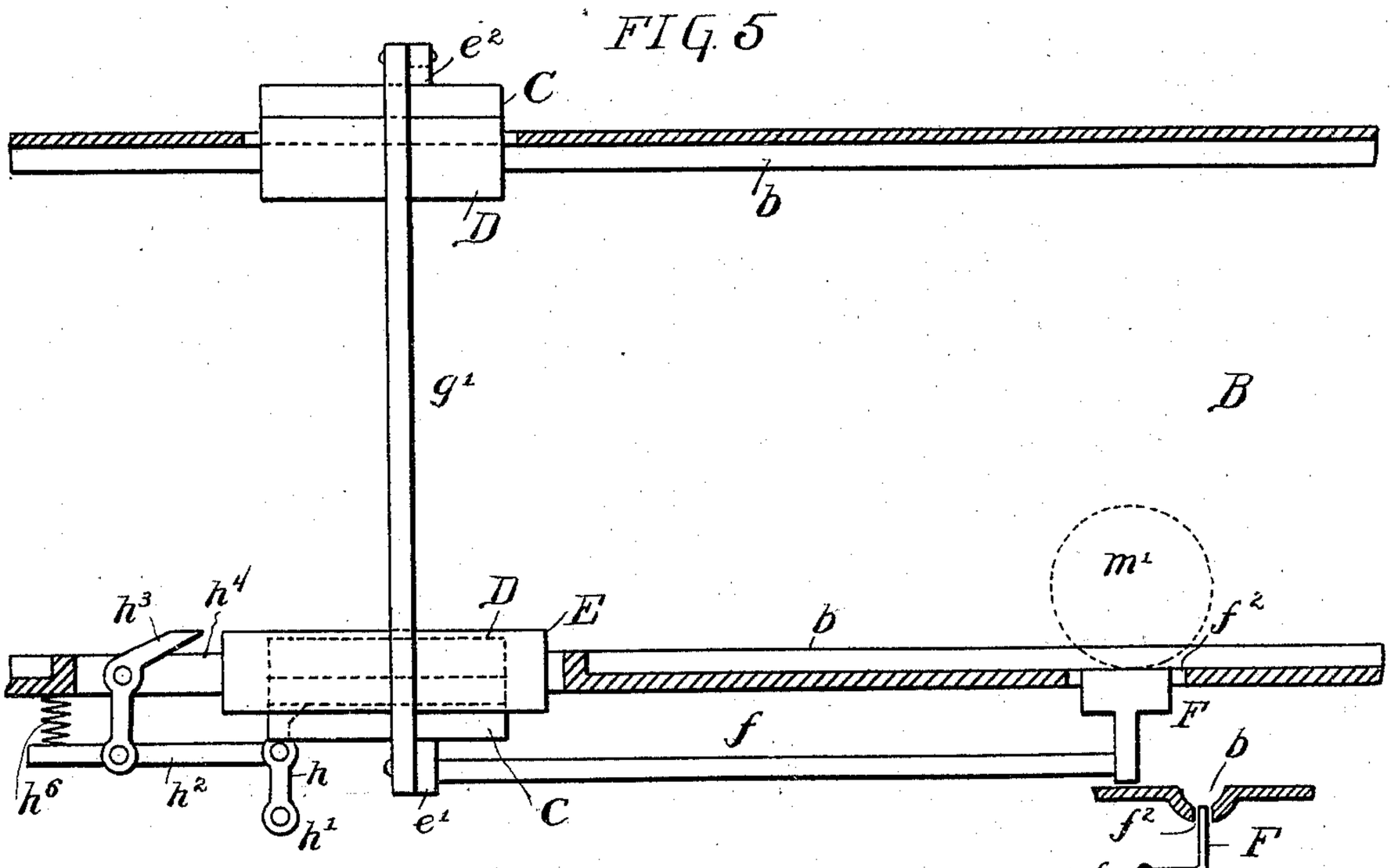

FIG. 6

FIG. 7

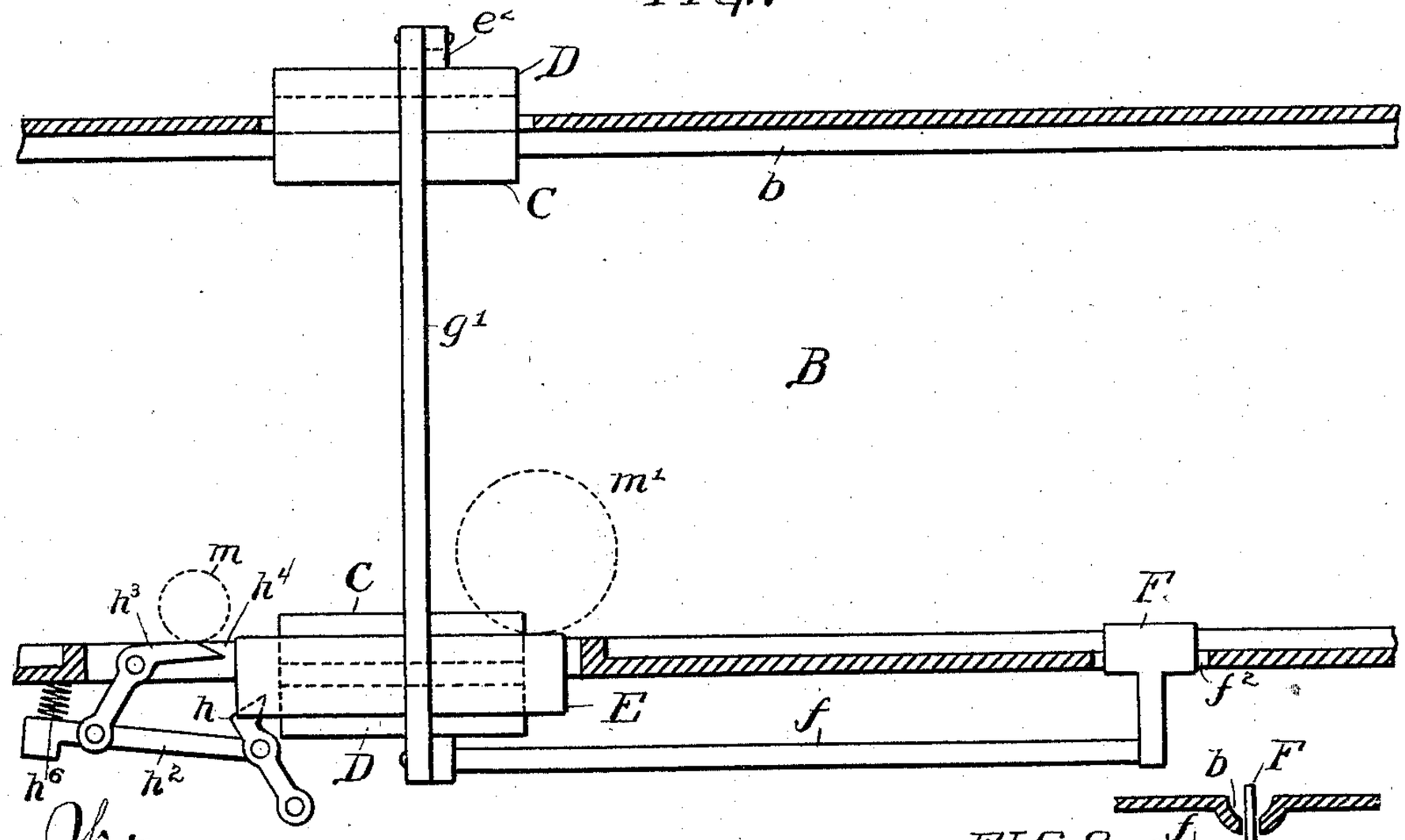

FIG. 8

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(No Model.) 5 Sheets—Sheet 4.

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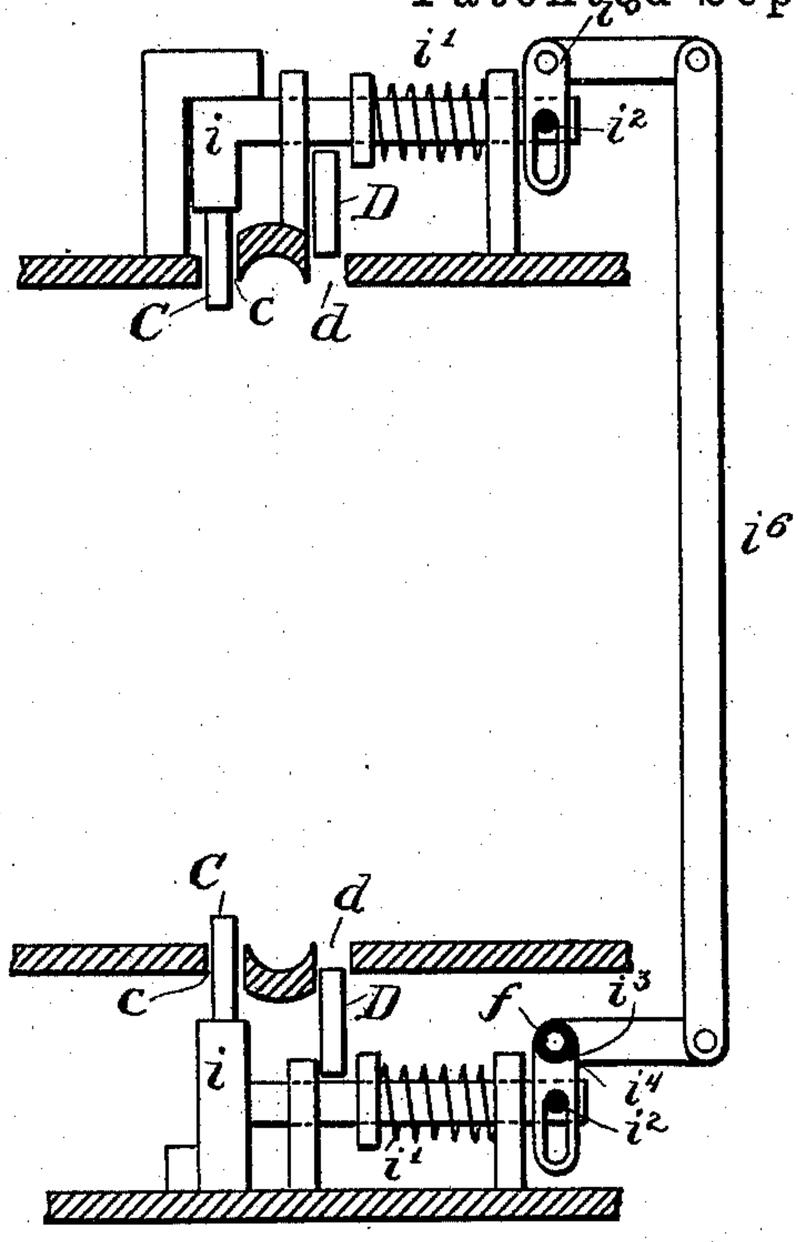

FIG. 9

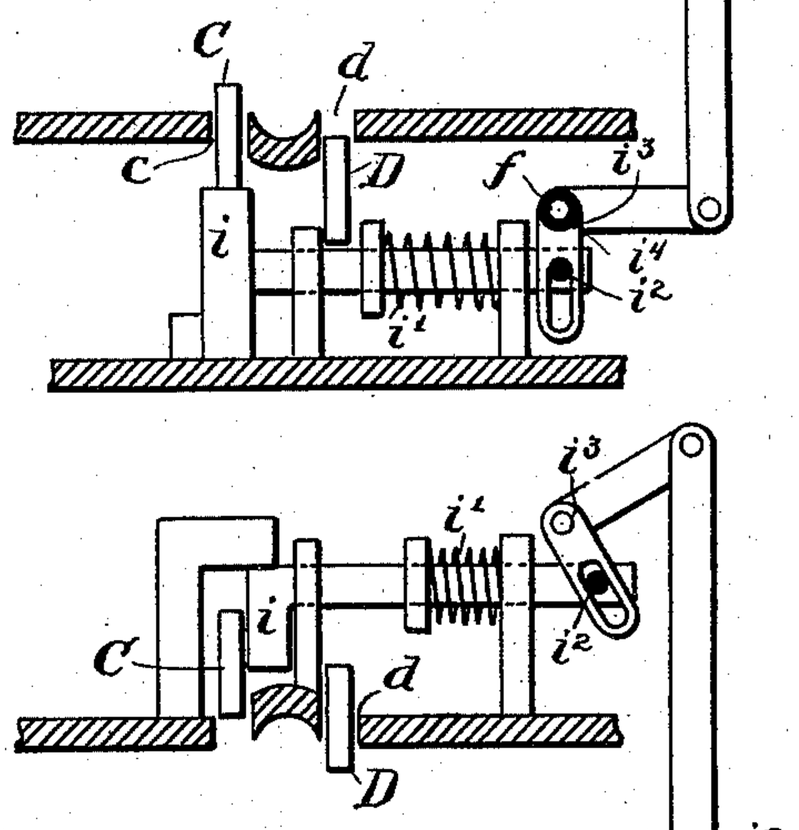

FIG. 10

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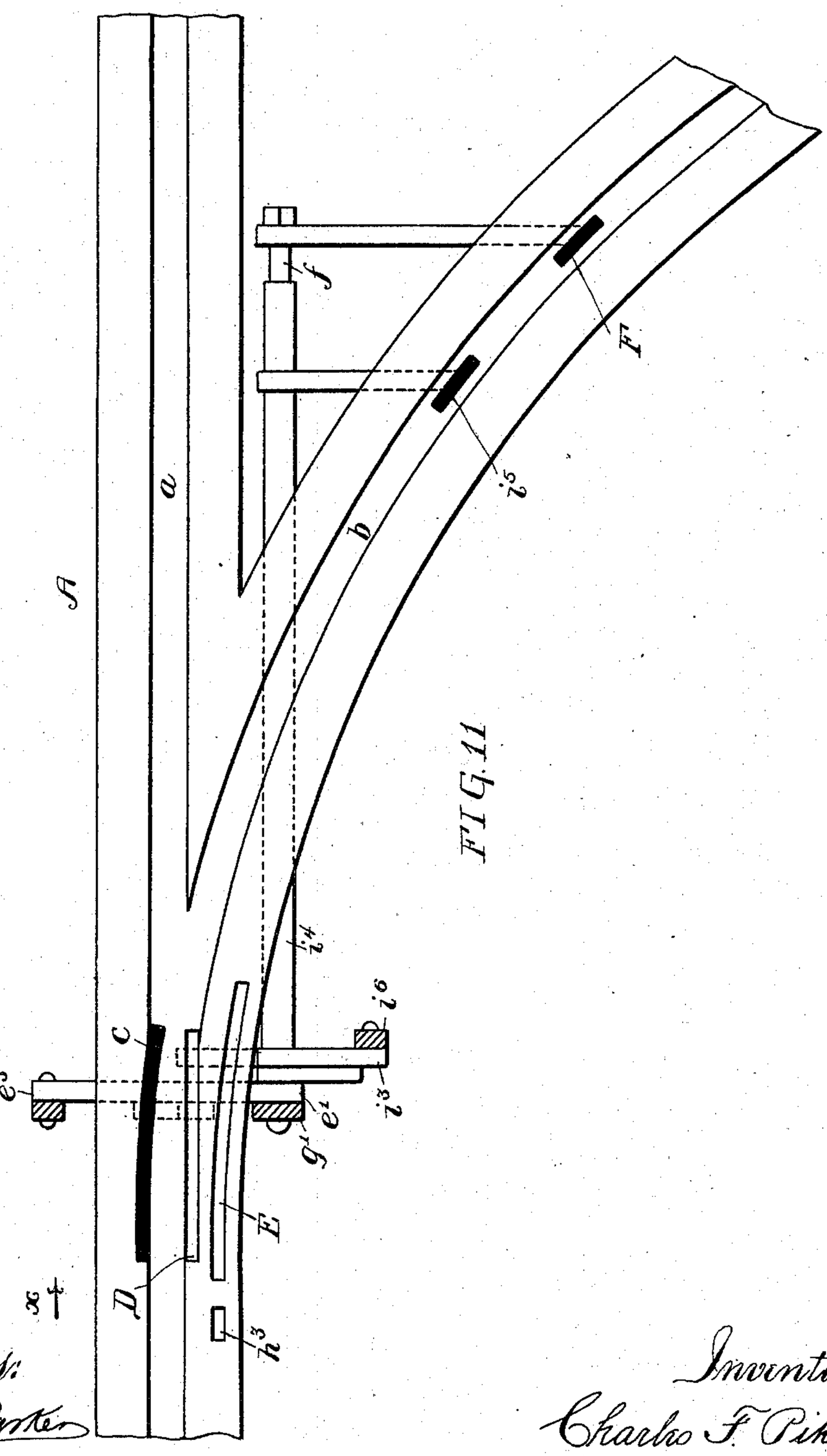

FIG. 11

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Inventor:
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UNITED STATES PATENT OFFICE.

CHARLES F. PIKE, OF PHILADELPHIA, PENNSYLVANIA.

SWITCH FOR PNEUMATIC-DESPATCH TUBES.

SPECIFICATION forming part of Letters Patent No. 567,654, dated September 15, 1896.

Application filed May 31, 1895. Serial No. 551,214. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. PIKE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Switches for Pneumatic-Despatch Tubes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has relation to carrier-diverting switches and their actuating mechanism at the junction of main and branch tubes or at other required places in pneumatic-despatch-tube systems; and it has for its object a construction and arrangement of switches which admit of their being of a short length to effect the diverting of the carrier, and, further, to actuating devices for the switches under the control of the traveling carriers, and, still further, to locking mechanism for holding the switches rigidly in position as the carriers pass over or by them, which locking mechanism and their actuating devices are also under the control of the traveling carriers.

My invention accordingly consists of the combinations, constructions, and arrangement of parts as hereinafter more particularly described in the specification, and pointed out in the claims.

Reference is had to the accompanying drawings, wherein—

Figure 1 is a plan view of junction-tubes, represented as upon a flat surface, with switches, trippers, and part of actuating mechanism therefor, the tube intended to be represented being of a form having top and bottom track-grooves for the end wheels of the carriers to travel in, and, furthermore, the heavy black lines showing the straight switch for the main line and the two alining trippers unset or withdrawn and the curved switch, represented by open lines, set or projected to divert a carrier from the main to branch line when traveling in the direction of arrow X. Fig. 2 is a like view showing the curved switch, indicated by the heavy black line, unset or withdrawn and the straight switch and trippers set. Fig. 3 is a sectional elevation showing said switches and one of the trippers and another part of their actuating mechanism and the curved switch set and the straight switch and trippers unset, as described for Fig. 1. Fig. 4 is a like view showing curved switch unset and the straight switch and trippers set, as described for Fig. 2. Fig. 5 is a longitudinal sectional elevation showing switches, trippers, locking mechanism, and actuating devices therefor for the straight switch and actuating mechanism for the switches, the same showing the straight switch set and locked. Fig. 6 is a sectional elevation showing tripper in the branch tube for resetting switches after a carrier has been diverted thereto, said tripper being shown depressed. Fig. 7 is a view similar to Fig. 5, showing the straight switch unset and unlocked. Fig. 8 is a view similar to Fig. 6, showing the tripper in branch tube elevated. Fig. 9 is a sectional elevation showing locking device for the curved switches and part of the actuating mechanism therefor and illustrating the curved switch set and locked. Fig. 10 is a like view showing the curved switches unset and unlocked; and Fig. 11 is a view similar to Fig. 2, showing two trippers in the branch tube actuated by the carriers, the additional or advanced tripper controlling the unlocking of the curved switches.

a represents the top and bottom track grooves in the main line or tube A, and *b* the corresponding grooves in the branch tube B; C, the curved switches, and D the straight switches, which are located proximately at the junction of the grooves *a* and *b*, both at the top and bottom of the tubes, and they are set and unset so as to project into or be withdrawn from the main-line grooves *a* by vertically moving them into and out of suitably-formed slots *c* and *d*, respectively. (See more plainly Figs. 3 and 4.)

The straight switches D are normally set to keep the main-line grooves *a* open, and they are unset and the curved switches C are set by the traveling carriers when they are to be diverted to the branch tube B. To one side of the straight switches D and approximately parallel to the curved switches C and at the bottom of the tube is a tripper-bar E, located in a suitable slot *e* in the tube-casing A. This tripper-bar E is longer than the switches, extending in advance and to the rear of the same. (See more plainly Figs. 1 and 2.) This tripper-bar E is secured to a lever *e'*, rigidly secured to a shaft *f*, having suitable bear-

ings in brackets f', secured to the tube-casings. This shaft f extends some distance beyond the switches, and to its other end is rigidly secured an angle or bent tripper F, (see more plainly Figs. 5 to 8, inclusive,) which projects through a slot f^2 into the lower-track-groove b of the branch tube B. A carrier passing over and depressing this tripper F unsets the curved switches and sets the straight switches, as hereinafter described. The top and bottom straight switches D are affixed to the inner ends of corresponding top and bottom levers e^2 and e', respectively, the lever e^2 being pivoted at its outer end to a bracket e^3 and the lever e' secured to shaft f, as above described, intermediate of its end.

The top and bottom curved switches C are secured to the inner ends of corresponding top and bottom levers e^4 and e^5, the lever e^4 being pivoted at its outer end to a bracket e^6 and lever e^5 to a bracket e^7, intermediate of its ends. (See Figs. 3 and 4.) The inner ends of the levers e^2 and e^4 and e' and e^5 are connected by pivoted bell-crank levers g, and levers e^2 and e' and levers e^4 and e^5 have link connections g', which may be adjustable as to length, as shown, or otherwise, as desired. The effect of this described arrangement of levers for the top and bottom switches C D is that when a carrier depresses the tripper-bar E all of said levers e', e^2, e^4, and e^5 are actuated to withdraw or unset the straight switches D and set or project the curved switches C, as more plainly shown in Fig. 3. When such movement is made, the tripper F in branch-tube groove b is also moved or raised by shaft f into the track-groove b, so that the carrier diverted thereto by the setting of the curved switches meets and depresses the said tripper F to reversely rotate or oscillate shaft f to reverse the movements of levers e', e^2, e^4, and e^5 to unset the curved switches C and set the straight switches D and the tripper-bar E to normal, as illustrated in Fig. 4.

Any suitable fingers, wheels, or other devices m may be suitably secured to carriers M for actuating tripper-bar E, said carriers, with differently-located fingers or wheels m, being shown in Figs. 3 and 4. The device m is located differently on different carriers, in order that a carrier will not depress all the differently-located tripper-bars E, but only the one at the branch tube or station for which it is destined. The tripper F is actuated by the carrier-wheels m' when it is wheel-supported, or by the carrier when it has no wheel-supports, in which case there are no track-grooves in the system.

When it is desired to lock the straight switches D in their normal or set position, a form of locking device and actuating mechanism (shown in Figs. 5 and 7) may be used, which consists of a locking-dog h, pivoted at its lower end h', and its upper end passes underneath the lower edge of the straight switches when set. (See Fig. 5.) The dog h has a link connection h^2 with a pivoted tripper h^3, located in a slot h^4 in the tube-casing A in advance of and on a line with the tripper-bar E, so that a carrier which will actuate bar E will first depress tripper h^3 and release the locking-dog from the straight switches, as shown in Fig. 7, before the carrier-finger m contacts with the tripper-bar E. The link h^2 has a reacting spring h^6 for restoring the tripper h^3 to normal and the dog h to locking engagement with the switches D when they are subsequently set.

When it is desired to lock the curved switches after or as they are set to divert the carrier to branch tube B, a form of locking device and actuating mechanism, as shown in Figs. 9 and 10, may be used, consisting of a sliding dog i for the top and for the bottom curved switches, which dogs have reacting springs i' for sliding them into locking engagement when the curved switches are set, as in Fig. 9. The dogs i are each provided near their outer ends with a pin i^2, projecting into slotted ends of bell-crank levers i^3. The upper one of said bell-crank levers is suitably pivoted and the lower one rigidly secured to a tubular shaft i^4, surrounding the shaft f, having at its opposite end a rigidly-secured angled or bent tripper i^5 in a slot in branch groove b in advance of and similar to that for tripper F. (See more plainly Fig. 11.) The bell-cranks i^3 are joined by a link i^6, for securing simultaneous movement of both dogs i. A carrier diverted to branch B first depresses tripper i^5, oscillating the tubular shaft i^4 and moving the bell-crank i^3, secured thereto, to effect an unlocking of the dogs i (see Fig. 10) from the curved blades before said carrier reaches the tripper F to depress it to effect the unsetting of the curved switches C and setting of the straight switches D, as hereinbefore set forth.

It will be noted from the foregoing that the switches are of short length and light in weight, and can therefore be controlled by the carriers.

As it is obvious that the foregoing-described parts may be variously changed and differently arranged according to the various conditions or demands of service, I do not limit myself thereto as shown and described. Thus, for instance, if desired, the switches C D may be actuated by power appliances or by hand. When the curved switches are set to steady the carrier in traveling by the same, a stud t on the casting and a finger t' on the carrier to abut or ride against said stud may be used.

Having thus described my invention, what I desire to secure and claim by Letters Patent is—

1. In a pneumatic-despatch-tube system, junction-switches composed of separate straight and curved switches, and actuating mechanism therefor under the control of the carriers.

2. In combination with the main and branch tubes, separate straight and curved switches, actuating mechanism therefor, and locking

devices for said mechanism when set, and actuating mechanism for said locking devices, substantially as set forth.

3. In combination with two differently-directed tubes, straight and curved switches and actuating mechanism for setting and unsetting them.

4. In combination with the tubes A and B, the separate curved and straight switches, trippers h^3, E, and i^5, F, locking devices for said switches, actuating mechanism between the trippers h^3, i^5, and said locking devices and actuating mechanism between the tripper E, and the switches, and between tripper F and the actuating mechanism for the switches, substantially as set forth.

5. In a pneumatic-despatch-tube system, junction-switches composed of two separate differently-directed switches and actuating mechanism therefor under the control of the carrier.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES F. PIKE.

Witnesses:
THOS. S. RODGERS,
JOHN H. HUDSON.