

**No. 616,255.**

**Patented Dec. 20, 1898.**

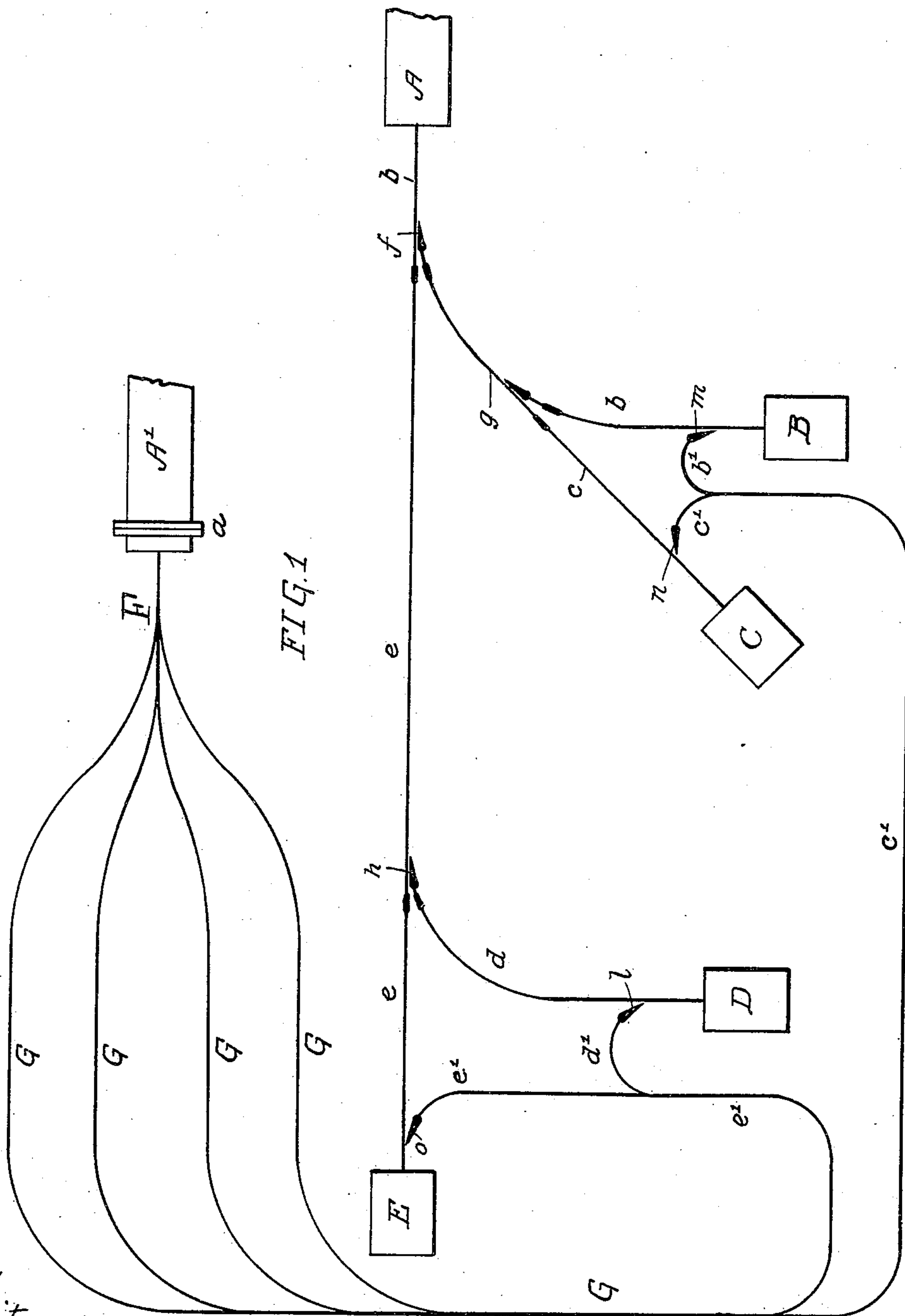
**C. F. PIKE.**

**RECEIVER APPLIANCE FOR PNEUMATIC DESPATCH TUBE SYSTEMS.**

(Application filed June 5, 1895.)

(No Model.)

**7 Sheets—Sheet 1.**



Witnesses:

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Inventor:

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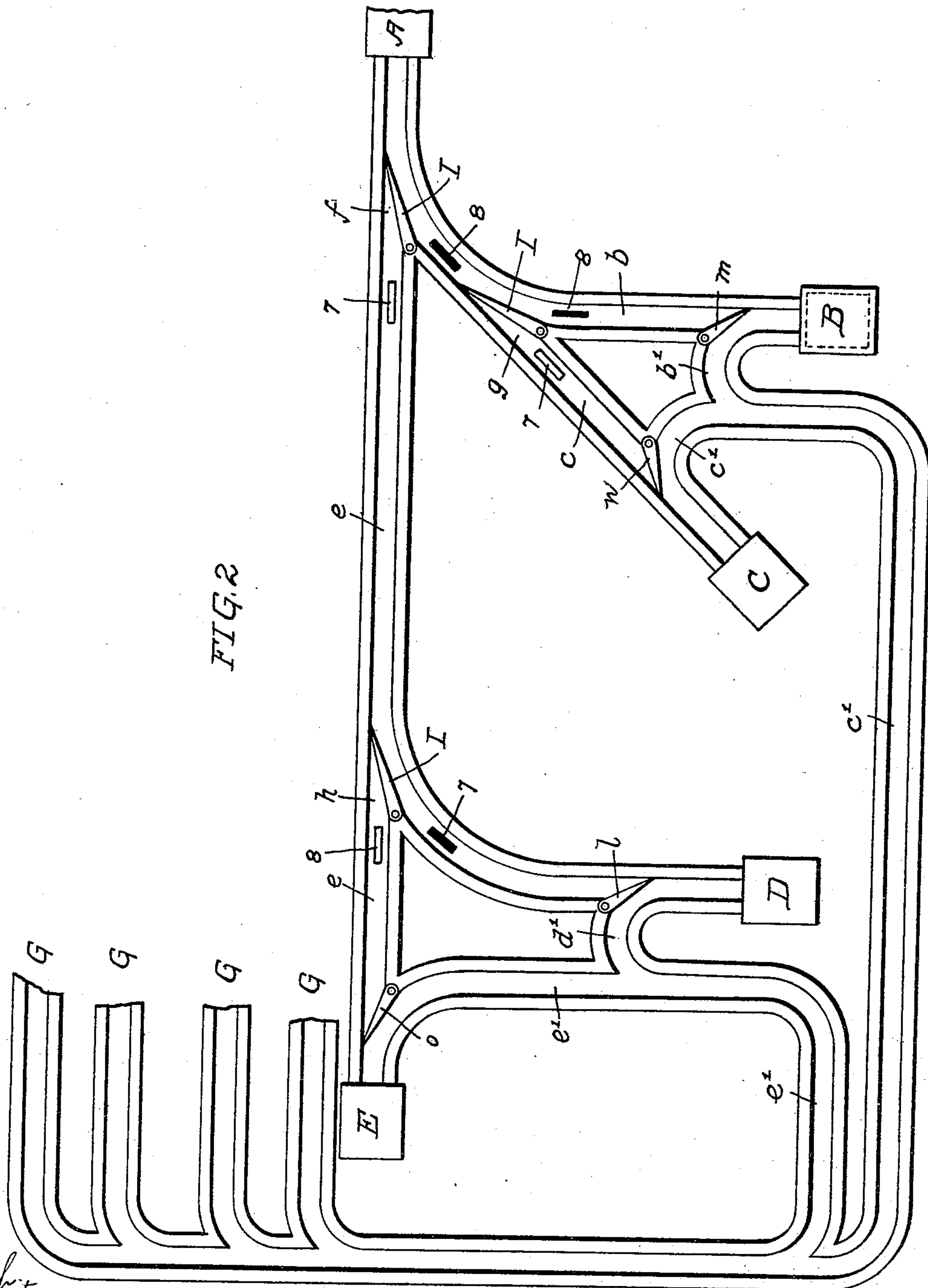
C. F. PIKE.

RECEIVER APPLIANCE FOR PNEUMATIC DESPATCH TUBE SYSTEMS.

(Application filed June 5, 1895.)

(No Model.)

7 Sheets—Sheet 2.



Witnesses:  
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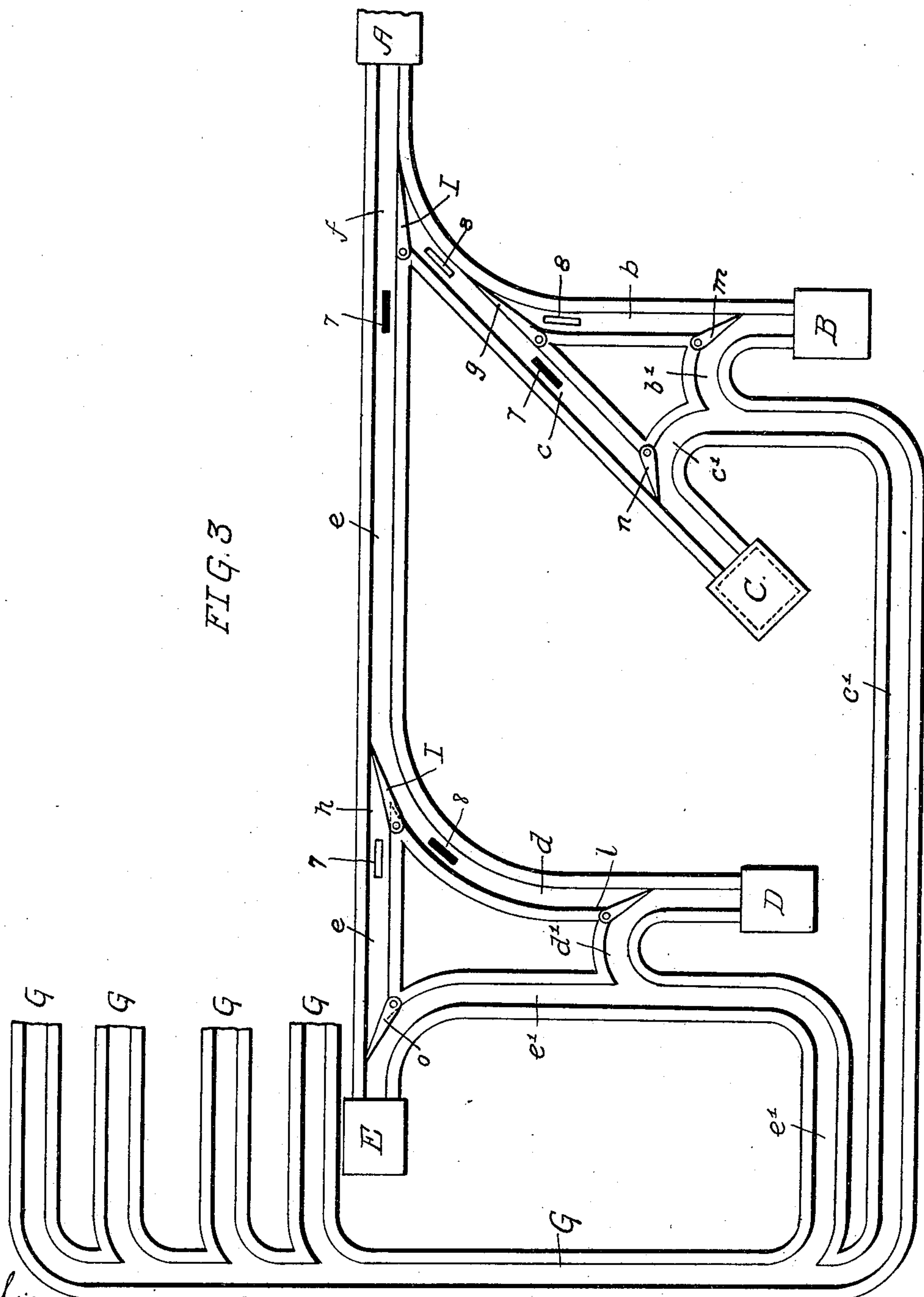
C. F. PIKE.

RECEIVER APPLIANCE FOR PNEUMATIC DESPATCH TUBE SYSTEMS.

(Application filed June 5, 1895.)

(No Model.)

7 Sheets—Sheet 3.



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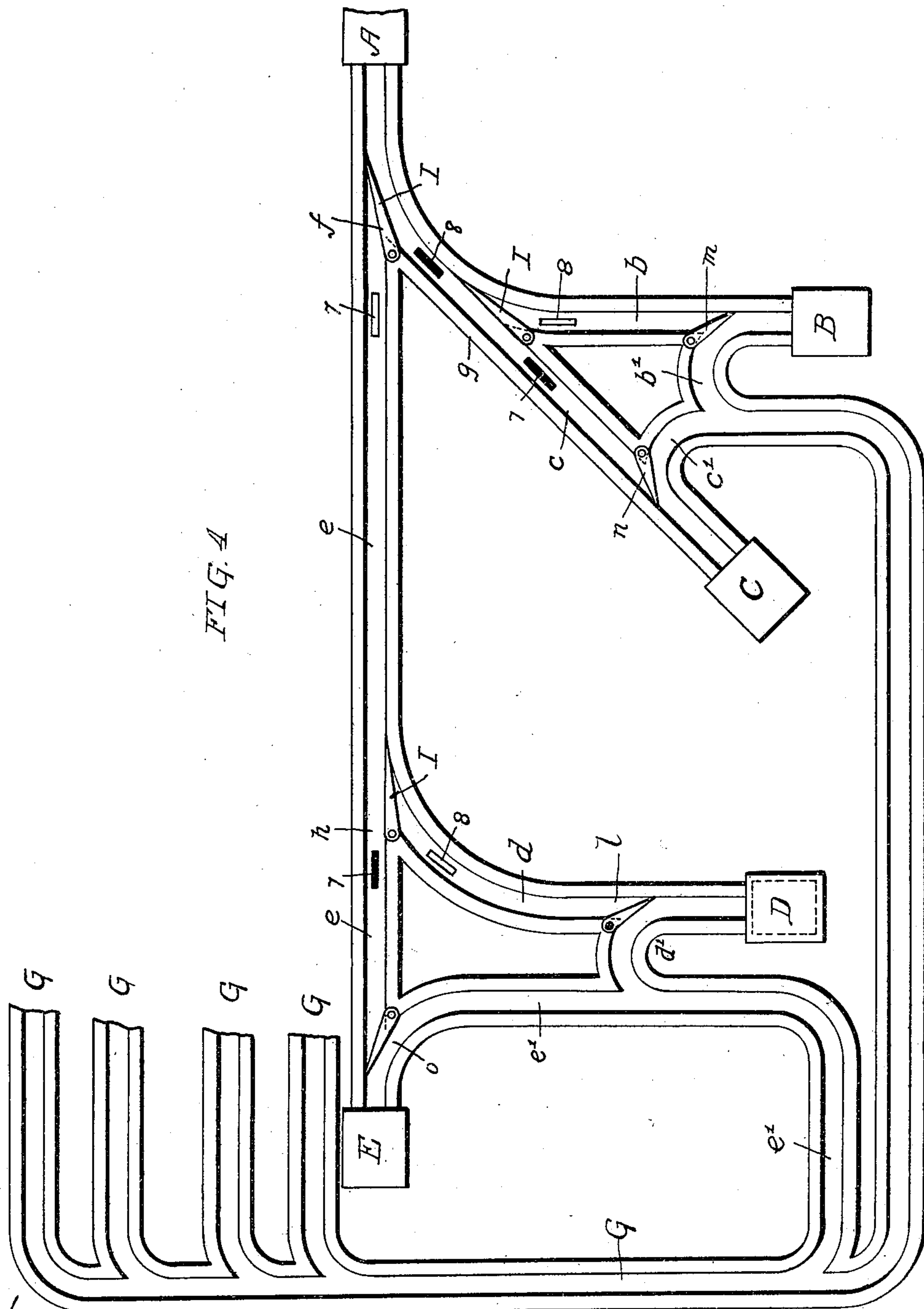
**C. F. PIKE.**

## RECEIVER APPLIANCE FOR PNEUMATIC DESPATCH TUBE SYSTEMS.

(Application filed June 5, 1895.)

(No Model.)

**7 Sheets—Sheet 4.**



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Patented Dec. 20, 1898.

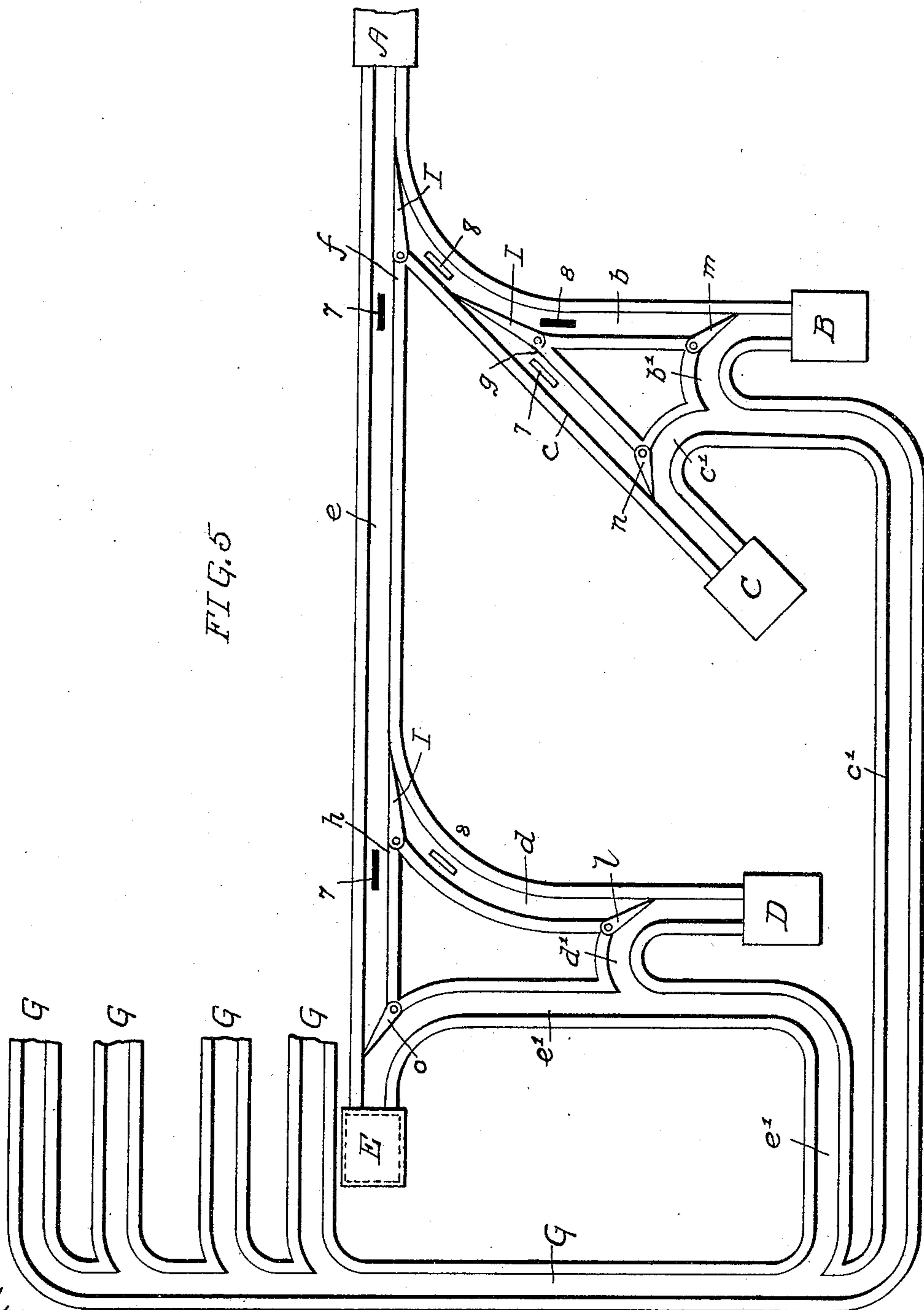
C. F. PIKE.

RECEIVER APPLIANCE FOR PNEUMATIC DESPATCH TUBE SYSTEMS.

(Application filed June 5, 1895.)

(No Model.)

7 Sheets—Sheet 5.



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No. 616,255.

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RECEIVER APPLIANCE FOR PNEUMATIC DESPATCH TUBE SYSTEMS.

(Application filed June 5, 1895.)

(No Model.)

7 Sheets—Sheet 6.

FIG. 8

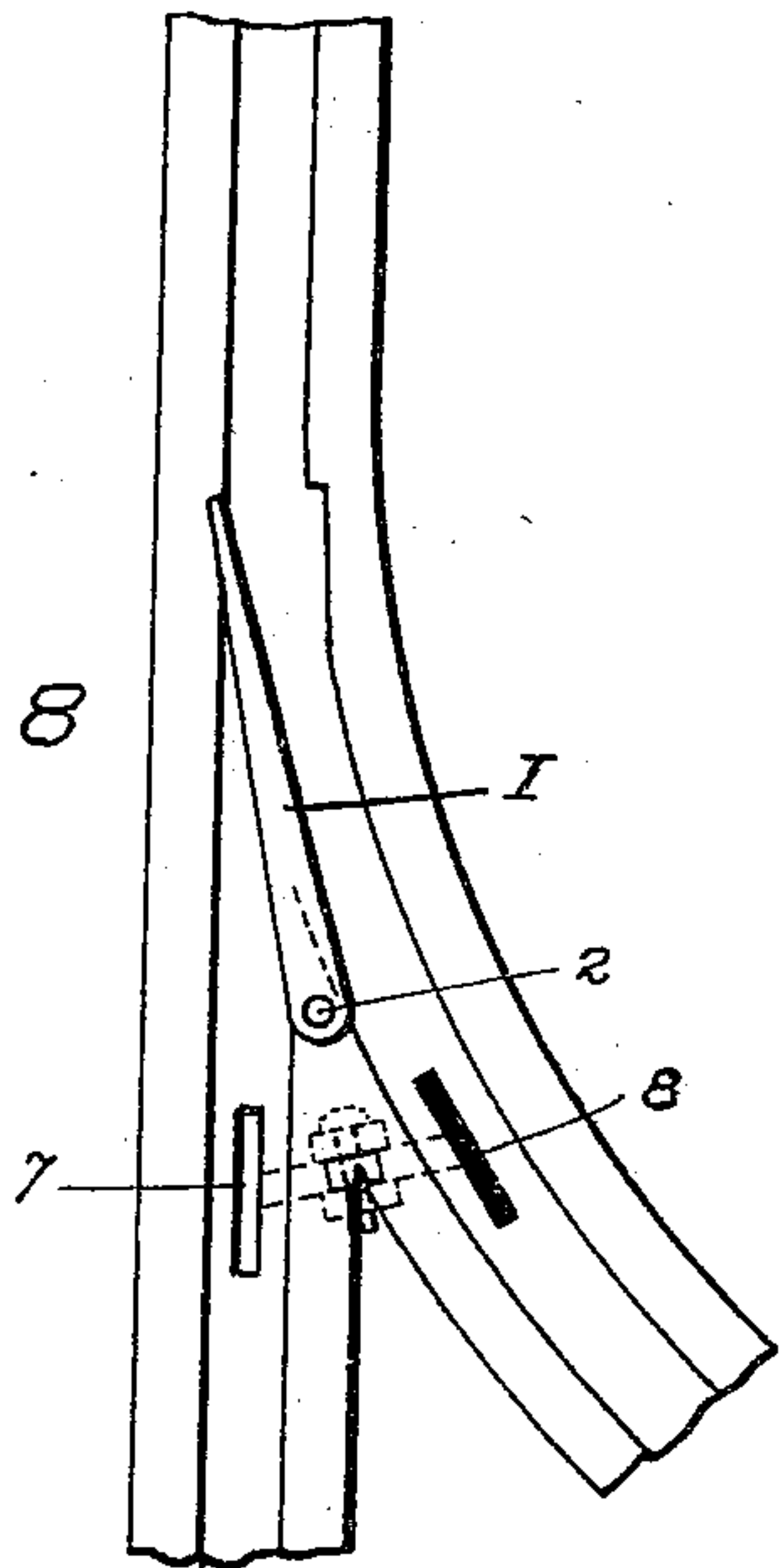


FIG. 6

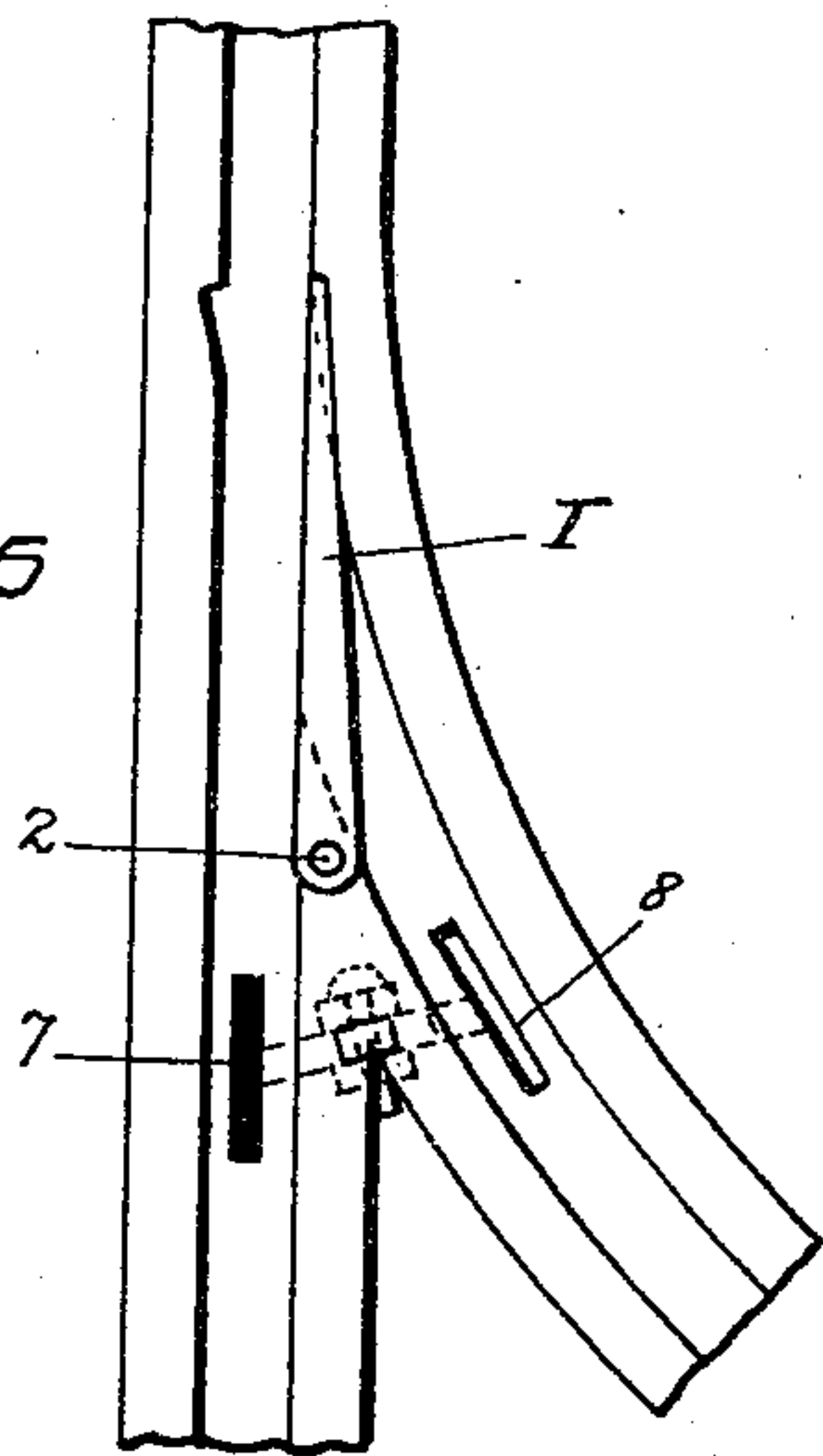


FIG. 9

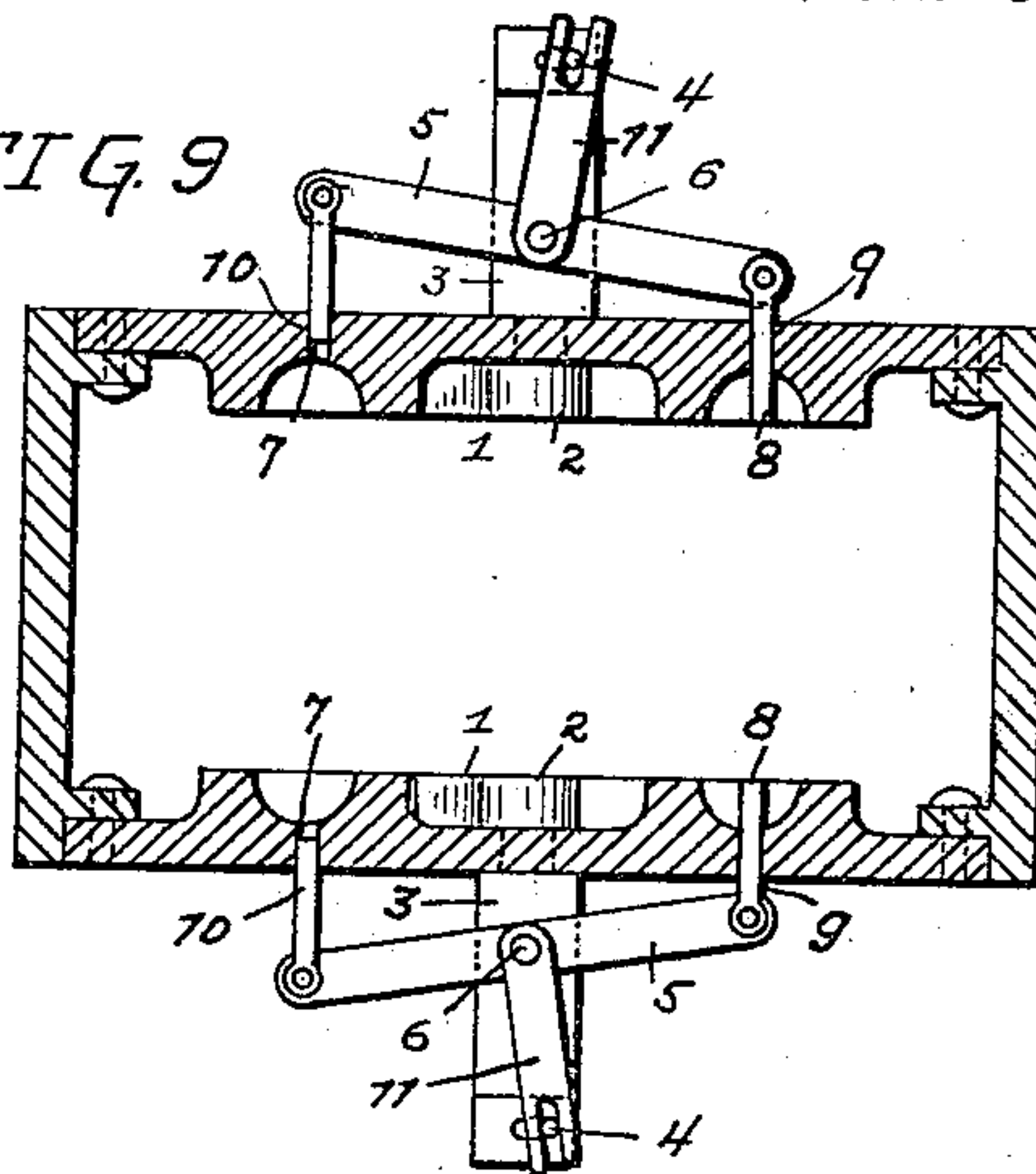


FIG. 7

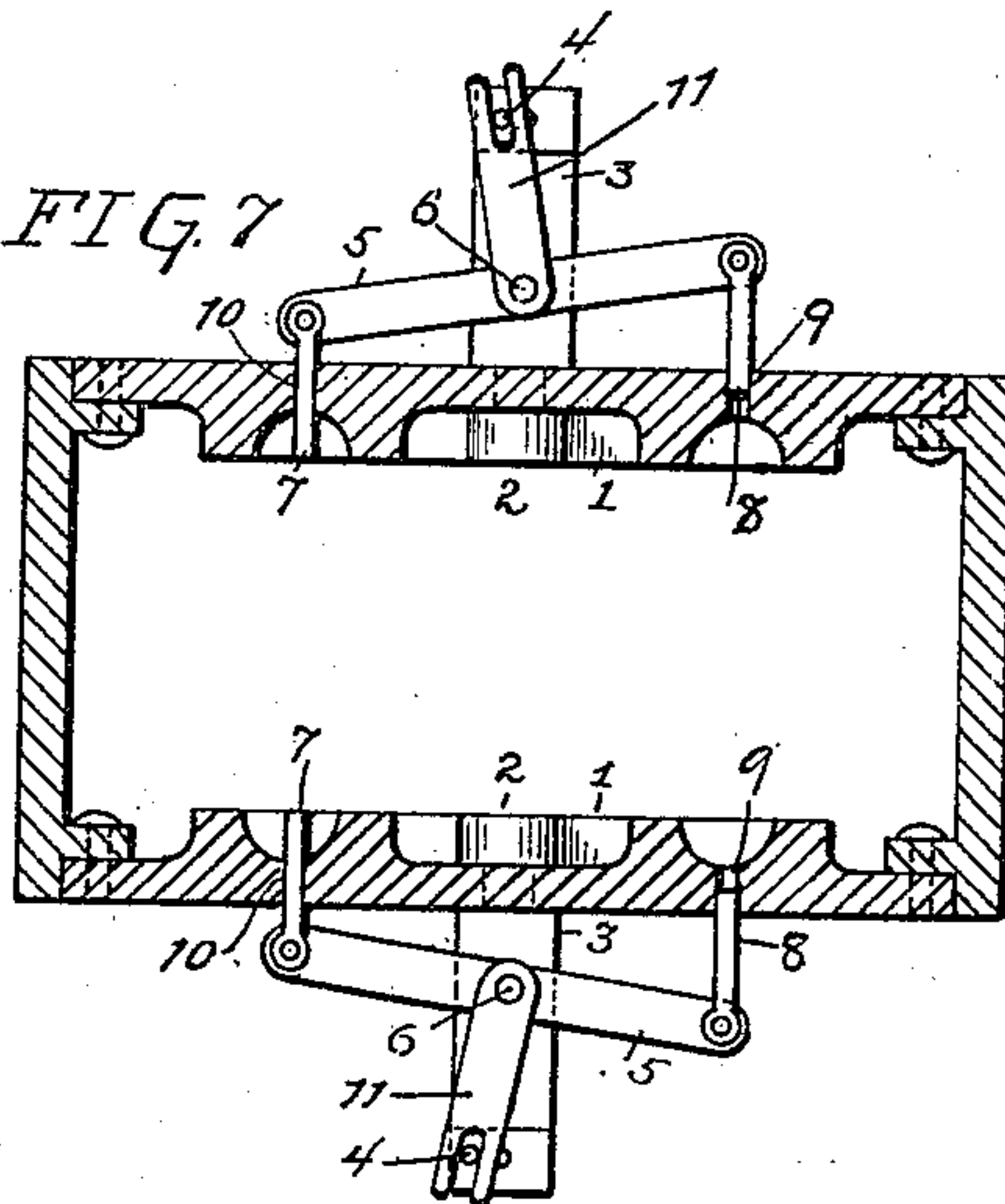
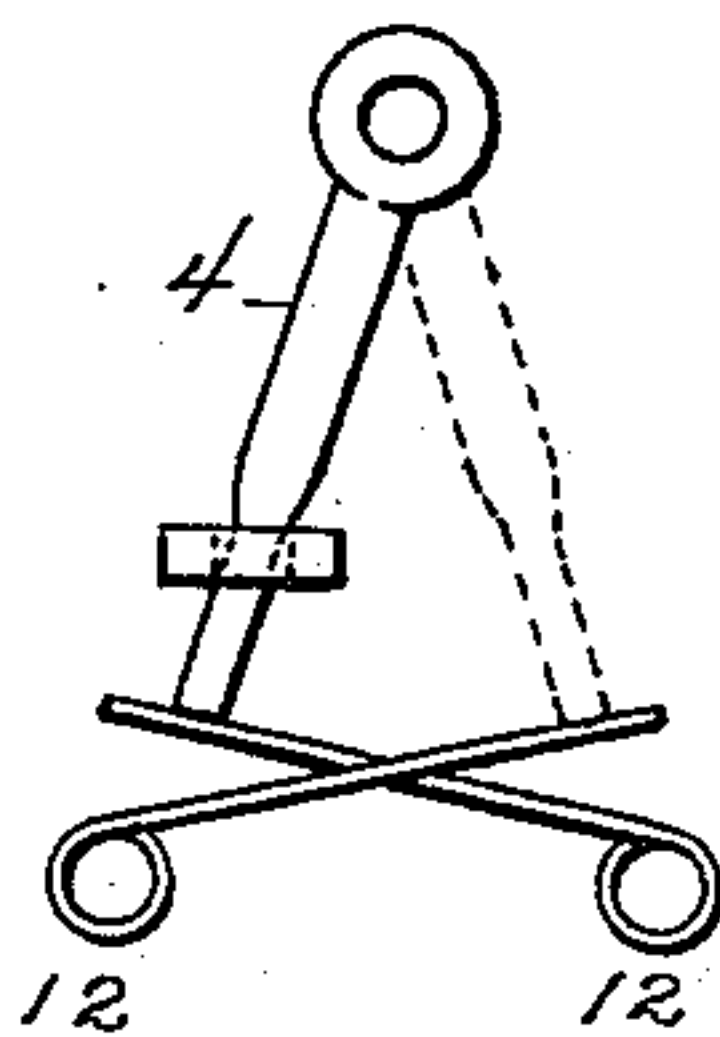


FIG. 10



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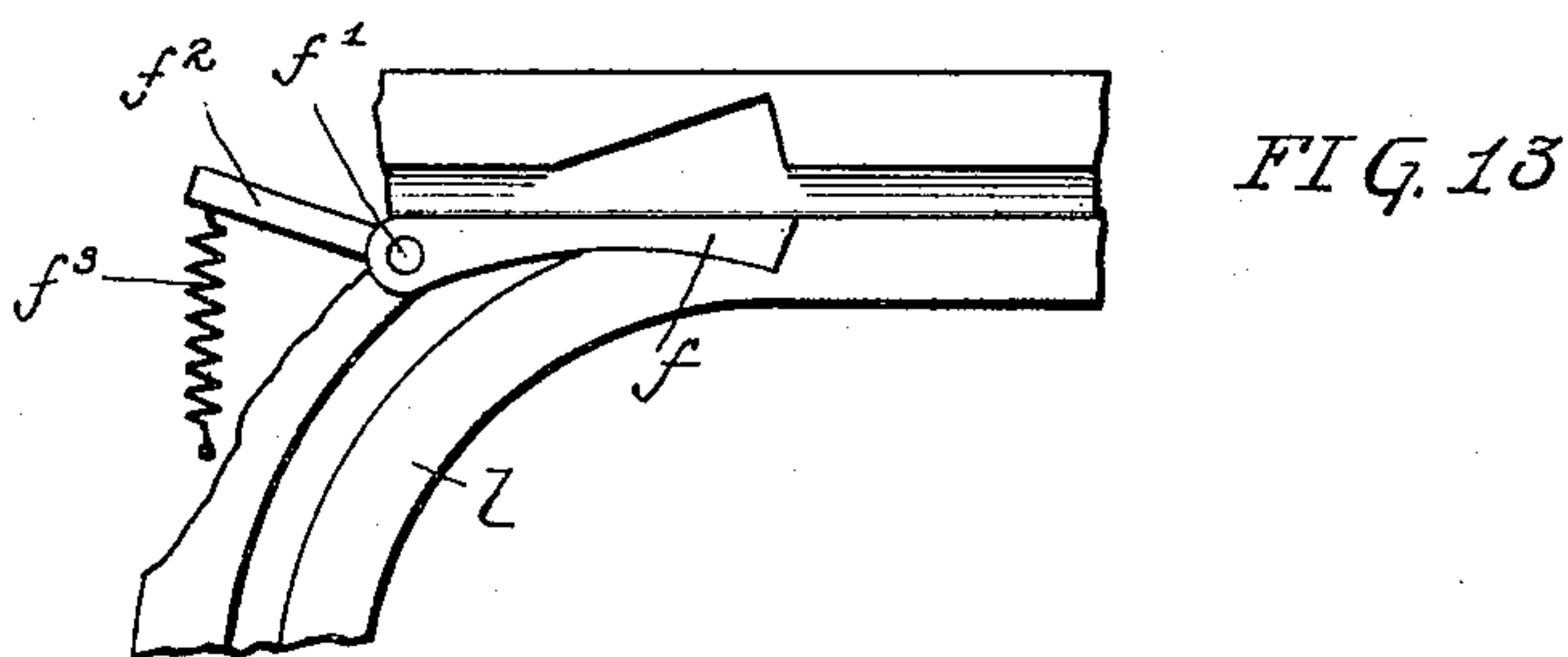
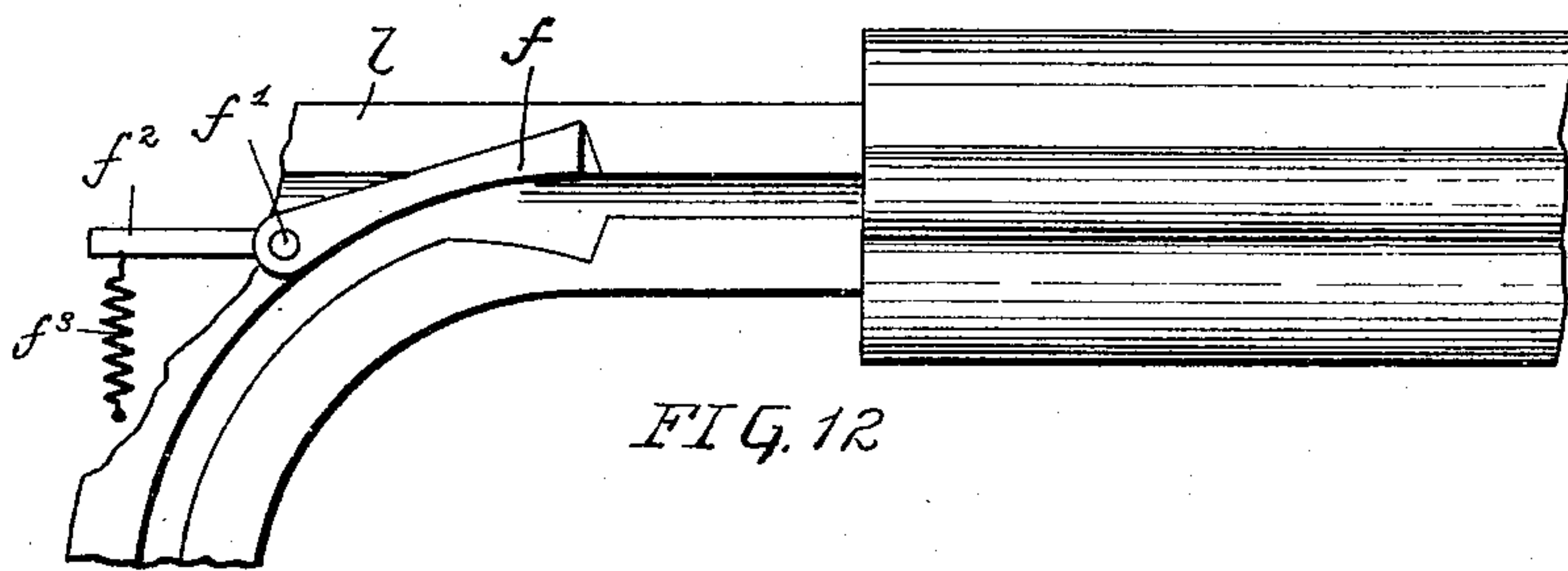
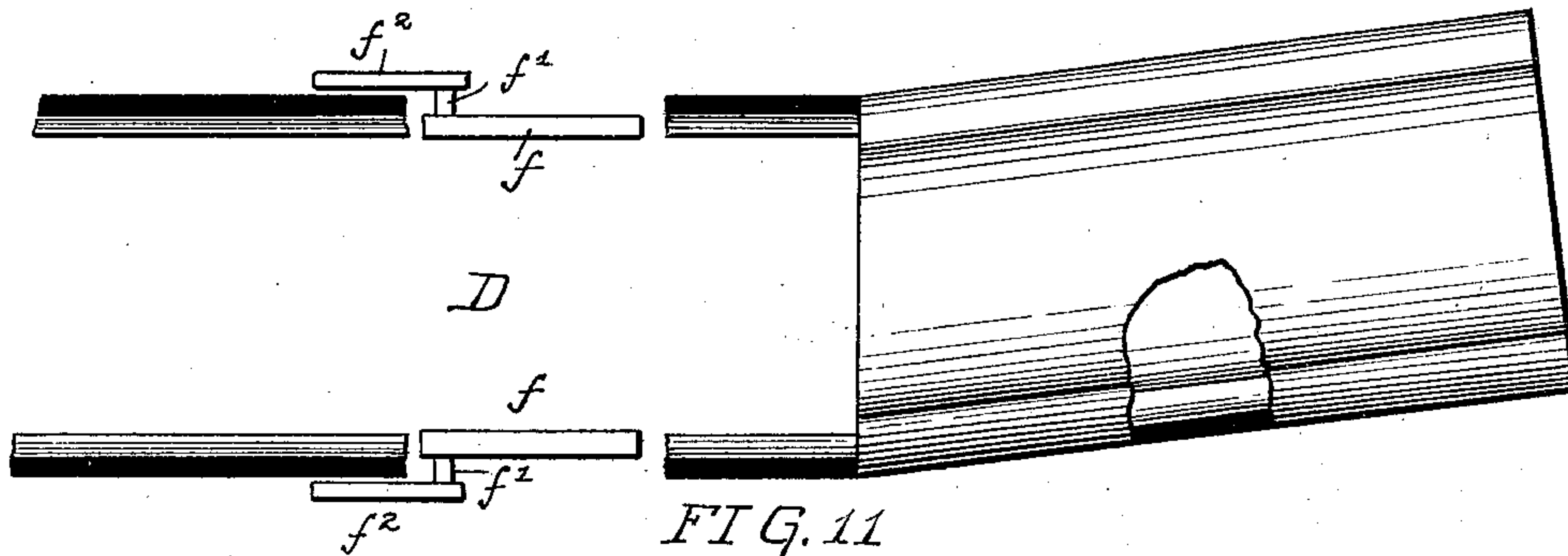
C. F. PIKE.

RECEIVER APPLIANCE FOR PNEUMATIC DESPATCH TUBE SYSTEMS.

(Application filed June 5, 1895.)

(No Model.)

7 Sheets—Sheet 7.



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# UNITED STATES PATENT OFFICE.

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## RECEIVER APPLIANCE FOR PNEUMATIC-DESPATCH-TUBE SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 616,255, dated December 20, 1898.

Application filed June 5, 1895. Serial No. 551,803. (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 Receiver Appliances for Pneumatic-Despatch-Tube Systems, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has relation to pneumatic-despatch-tube receivers, and particularly to that form of the same composed of a cluster or number of receivers for a main or sub station, the receivers of each cluster being separate from each other and having separate tube or other connection with the main or branch line, from which they receive the carriers, and other common or separate connection with the transmitter devices of said stations.

My invention has for its objects, first, the arrangement of switches at the junctions of the receiver inlet-tubes or connections with the main or branch tubes and actuating mechanism therefor controlled by the incoming carriers, as described and claimed in another concurrently-pending application filed by me, Serial No. 551,214, or otherwise, as may be desired, for automatically diverting the switches as they pass to the different receivers in order that each successive incoming carrier will enter a different receiver which is empty and not travel to one in which there is a carrier, thereby avoiding all danger of collision of carriers at the receiver-stations, and, second, to provide for easy and rapid receiving and transmitting of the carriers to and from a station and for correspondingly filling and emptying the carriers at the stations; and to this end I provide skeleton run-arounds or loops from the exit end of the receivers to the inlet end of the transmitter of a station, which skeleton run-arounds permit the carriers to remain on the track of the system while being emptied and filled.

My invention accordingly consists of the combinations, constructions, and arrangements of parts, as hereinafter more particularly described and claimed.

I will here premise that my improvements are applicable to pneumatic-tube systems having a smooth bore and corresponding cylinders or carriers as well as to those systems having track rails or grooves. In the drawings I have shown the tubes having upper and lower grooves for wheel-supported carriers and a skeleton form of track-grooves between the exit end of the main or branch tube and the receivers.

Reference is had to the accompanying drawings, wherein—

Figure 1 is a plan showing a receiver end and a transmitter end of a pneumatic-despatch-tube system with multiple receivers having track-groove connection with the exit end of the tube and with the transmitter for the opposite end of the tube, the switches at the junction of the track-grooves for the receivers being indicated diagrammatically. Figs. 2, 3, 4, and 5 are plan views showing the lower track-groove connections for the different receivers and the switches at the junctions. The actuating mechanism therefor is not illustrated, as it forms no part of my invention. Fig. 6 is a plan of switch *f*, *g*, or *h* set for the straight groove. Fig. 7 is a vertical cross-section of the same. Figs. 8 and 9 are similar views with the switch set for the curved groove. Fig. 10 is a view showing the lock. Fig. 11 is an elevation, partly broken away, of the switches *l*, *m*, *n*, and *o*. Fig. 12 is a plan with rails broken away. Fig. 13 is a similar view showing switches.

A represents the exit end of a despatch-tube, from which the carriers emerge and pass to the different receivers B, C, D, and E, of which any desired number may be used, as the requirements of service demand.

A' is the inlet or transmitter end of the tube system, which is provided with a gate or otherwise, as desired. The said receivers have track-groove connections *b*, *c*, *d*, and *e*, respectively, with the tube end A, or some of said connections may run into one another, as shown for *b* and *c*. (See Figs. 1, 2, 3, 4, and 5.) From the exit end of said receivers are the skeleton run-arounds or loops *b'*, *c'*, *d'*, and *e'*, respectively, with track-grooves G,



leading to transmitter device F. Some of the skeleton run-arounds or loops may join each other, as indicated for  $b' c'$  and  $e' d'$ , and terminate in the branches G G G G, which re-  
5 unite in F.

At the junction of the track-grooves  $c$  and  $e$  are the switches  $f$ ,  $h$ , and  $g$ , representing correspondingswitches at the junctions of the track-grooves  $b$  and  $c$  and  $d$  and  $e$ , respec-  
10 tively.

$m$ ,  $n$ ,  $l$ , and  $o$  represent switches at the junctions of the track-grooves and the run-around loops  $b$  and  $b'$ ,  $c$  and  $c'$ ,  $d$  and  $d'$ , and  $e$  and  $e'$ , respectively. Both the top and bottom track-  
15 grooves for said receivers and switch equipment therefor are alike, and the description of one answers for both.

The switches  $f$ ,  $g$ , and  $h$  are shown in Figs. 2, 3, 4, and 5 in their different positions to  
20 direct the carriers to the receivers B, C, D, and E. I will first describe the action of the switches  $f$ ,  $g$ , and  $h$ , all of which are alike. Each is composed of the oscillating tongue 1, secured to the pin 2, which is free to move in  
25 the hub 3. (See more plainly Figs. 6, 7, 8, and 9.) To the opposite end of the pin 2 is secured the arm 4.

5 is the trip-pin lever, which is pivoted at 6 and is provided with the trips 7 and 8. Said  
30 trips extend through the slots 9 and 10 into the path of the wheels of the carrier. The tripping-lever 5 is also provided with the slotted arm 11, which engages with the arm 4.

The operation is as follows: When the  
35 switch is in the position shown in Figs. 6 and 7, to direct the carrier into the straight groove the trip 7 is raised into the path of the wheels of the carrier. In the plan, to designate when the trip is in the raised position, it is entirely  
40 black. When in the depressed position, it is in outline. When the carrier passes, its wheels depress the trip 7, causing the tripping-lever 5 to oscillate to the position shown in Figs. 8 and 9. The slotted arm 11, being  
45 engaged with the arm 4, carries it to oscillate the pin 2 and the tongue 1 to carry the switch to the position shown in Figs. 8 and 9, or setting it to guide the carrier into the curved groove, and the trip 8 is raised up into the  
50 path of the wheel of the carrier in the curved groove. When a carrier passes, the trip 8 is depressed and the switch is restored to the position shown in Fig. 7. It will be seen that the switch is composed of upper and lower  
55 parts of the same construction.

In Fig. 10 is shown the lock to prevent the switch being moved from a set position by any jar, and consists of the two springs 12 12,  
60 against which the arm 4 is pressed to secure it in position.

The switches  $m$ ,  $n$ ,  $l$ , and  $o$ , Figs. 11, 12, and 13, are the same in construction, and consist of the tongue  $f$ , secured to the pin  $f'$ , at the opposite end of which is secured the arm  
65  $f^2$ , and is held in the position shown in Fig. 12 by the spring  $f^3$ . When the wheel of the carrier comes in contact with the tongue  $f$ , it

forces it over to the position shown in Fig. 13 and passes by into the receiver. The spring then contracts and restores the tongue  
70 to its former position to guide the carrier into the skeleton run-around as it comes out of the receiver, which is at an angle to cause the carrier to pass out.

The operation is as follows: The switches  
75 being in the position shown in Fig. 2, the carrier as it merges from the end of the tube A is directed by the tongue 1 of the switch  $f$  into groove  $c$ , where it comes in contact with its tripper 8, reversing the switch  $f$ . Then  
80 continuing on its course it is prevented from continuing in groove  $c$  and is diverted by tongue 1 of the switch  $g$  into groove  $b$ , and then coming in contact with its tripper 8 the switch  $g$  is reversed. The carrier then opens  
85 the switch  $m$  and passes on and into the receiver B, where it is brought to a stop by the compression of air. The receiver being at an angle, as shown in Fig. 11, the carrier passes out by means of gravity. The switch  $m$ , hav-  
90 ing been restored to its normal position, guides the carrier into the run-around  $b'$ , when the attendant runs it around to one of the branches G, where it can be unloaded, and when again loaded it is run onto the track F  
95 and into the receiver A' to be despatched. The action of the first carrier left the switches, as shown in Fig. 3, for the second carrier, which is prevented from entering the grooves  $c$  or  $b$   
100 by the tongue 1 of switch  $f$ , and therefore passes along the groove  $e$ , coming in with its tripper 7, and reverses the switch  $f$ . Arriving at the junction of the grooves  $d$  and  $e$ , it is directed by the switch  $h$  into the groove  $d$ ,  
105 where it comes in contact with the tripper 8, reversing the switch  $h$ , and continuing on, it opens the switch  $l$  and enters the receiver D, where it is brought to a stop. The switch  $l$ , having returned to its normal position, directs the carrier as it emerges from the receiver  
110 D into the run-around  $d'$ , where the attendant takes it in charge. The second carrier leaves the switches as shown in Fig. 4. The third carrier to arrive is directed by the switch  $f$  into the groove  $c$ , where it comes in contact  
115 with tripper 8, reversing the switch  $f$ . The carrier is prevented from entering the groove  $b$  by the switch  $g$ , and continuing on in the groove  $c$  opens the switch  $n$  and enters the receiver C, where it is brought to a standstill,  
120 and as it emerges from the receiver C is directed by the switch  $n$  into the run-around  $c'$ , where it is taken care of by the attendant. The third carrier left the switches as shown in Fig. 5. The fourth carrier is prevented from  
125 entering the groove  $c$  by the switch  $f$  and continuing along tube  $e$  comes in contact with tripper 7, reversing switch  $f$ , and proceeding is prevented from entering groove  $d$  by the switch  $h$ , which it also reverses by coming in  
130 contact with its tripper 7, and then passing on opens switch  $o$  and enters the receiver E, where it is brought to a standstill, and on emerging from said receiver it is directed by



the switch *o* into the run-around *e'*, leaving the switches in the same position as shown in Fig. 2, or set to direct the next arriving carrier into receiver B, the carriers having entered the receivers B, D, C, and E. Thus it will be seen that each arriving carrier sets the switches to direct the following carrier into a different receiver, thereby avoiding any possibility of a collision.

I have shown a tongue-switch; but any form of switch desired may be used, as well as any number of receivers.

It is obvious that the construction and arrangement of the parts may be greatly varied without departing from the spirit of my invention.

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

1. A pneumatic-despatch-tube system having transmitting and receiving ends, a cluster of receivers at any one receiver end provided with grooved track connections with the transmitter thereof, switches automatically controlled by the successively-arriving carriers for diverting them alternately to the separate receivers that compose the cluster, substantially as set forth.

2. In combination with station outlet and inlet ends of a pneumatic tube, a number of receivers having communication with said inlet and outlet ends, switches and actuating mechanism therefor, whereby each of the following carriers from the outlet end of the tube is diverted to and comes to rest in its respective receiver, substantially as set forth.

3. In combination with a pneumatic-despatch-tube system having outlet and inlet ends, a skeleton run-around leading from an outlet end to an inlet end, a cluster of receivers, switches and actuating mechanism to direct the carriers into and out of the separate receivers of the cluster as the carriers emerge from the outlet end and traverse the skeleton run-around, substantially as set forth.

4. In combination with the inlet and outlet ends of a pneumatic-despatch-tube system, a number of receivers having connection with a single outlet end provided with switches and actuating mechanism for said switches, whereby as the carriers emerge from the outlet end of said tube they are respectively diverted to different receivers substantially as set forth.

5. In a pneumatic-despatch-tube system having transmitting and receiving tube ends and a cluster of receivers provided with groove or track connection, a switch composed of upper and lower symmetrical parts located at the junction of the tracks or grooves which lead to different receivers and a pivoted lever having trips at each of its ends projecting into the path of the carrier to cause the carrier to set said switch substantially as set forth.

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

CHARLES F. PIKE.

Witnesses:

THOS. S. RODGERS,  
JOHN H. HUDSON.