

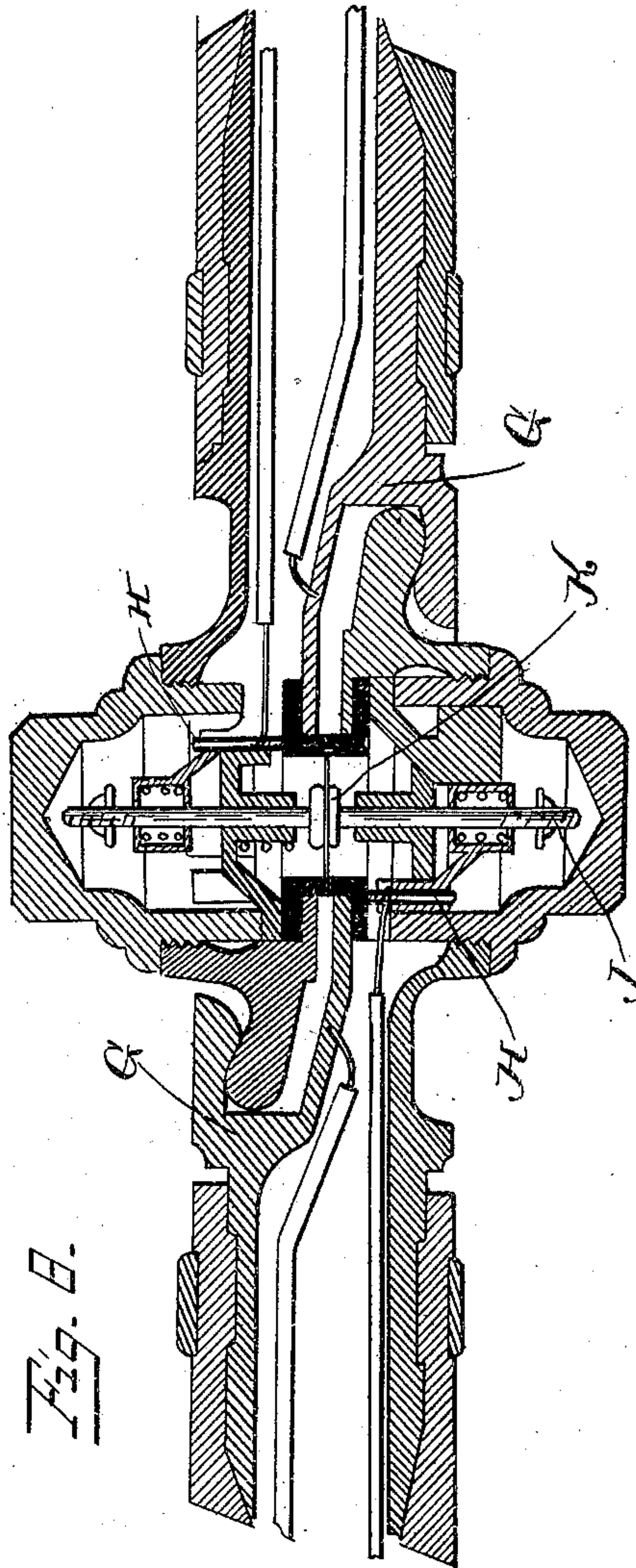
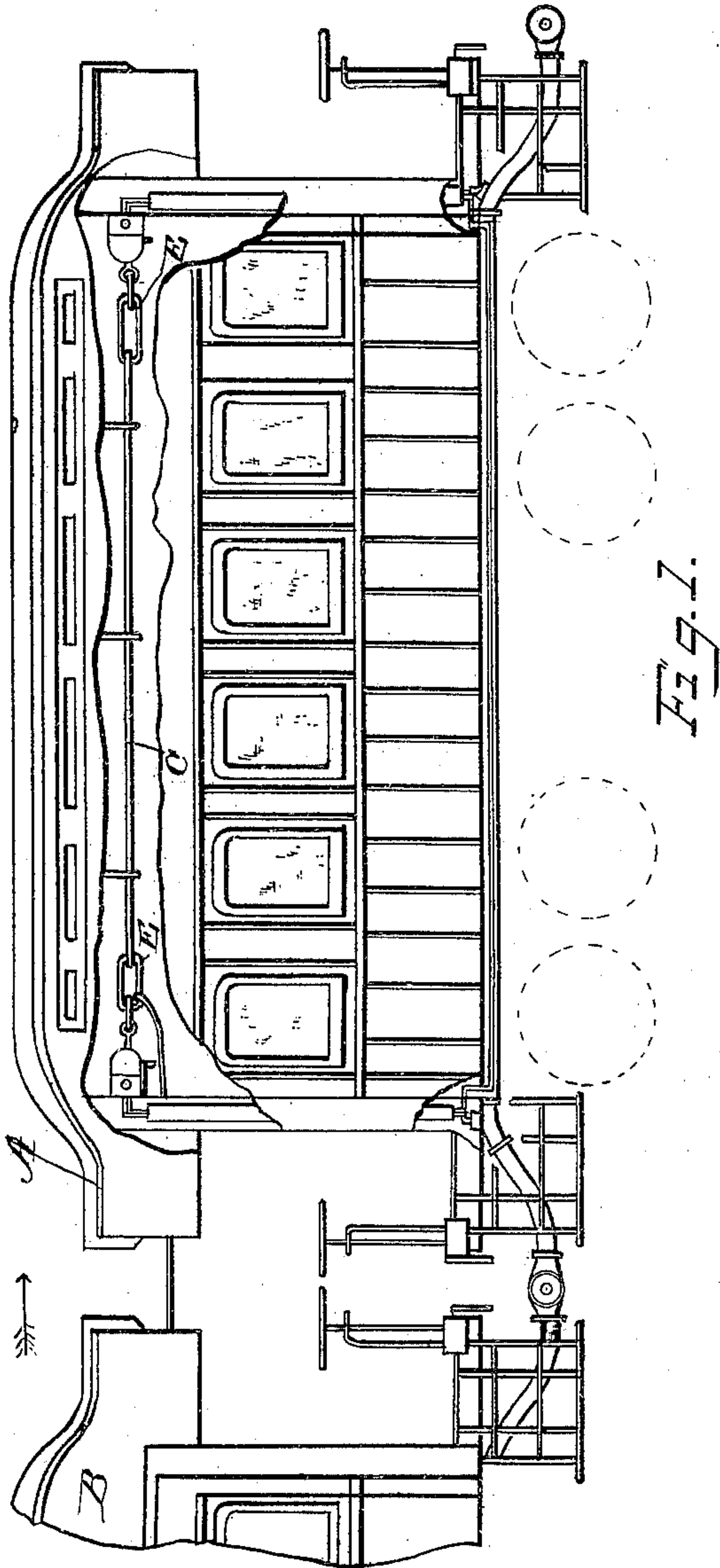
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5 Sheets—Sheet 1.

G. D. BURTON & C. H. MAGOON.
RAILWAY SIGNAL.

No. 368,512.

Patented Aug. 16, 1887.



Witnesses:
Ira B. Steward.
Edwin L. Bradford

Inventors—
Geo. D. Burton and
Charles H. Magoon
By Charles E. Barber
their Attorney

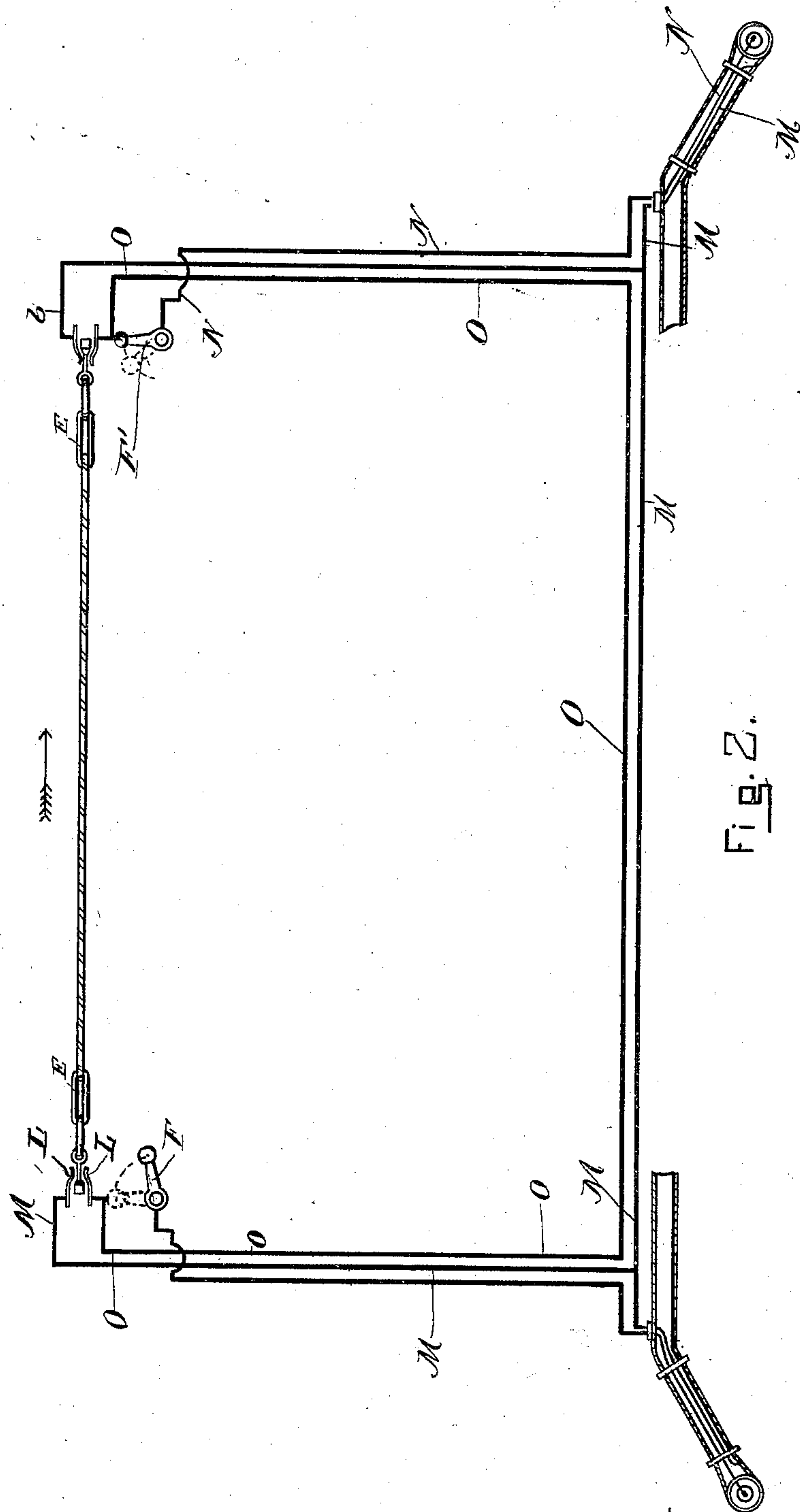
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Fig. 3.

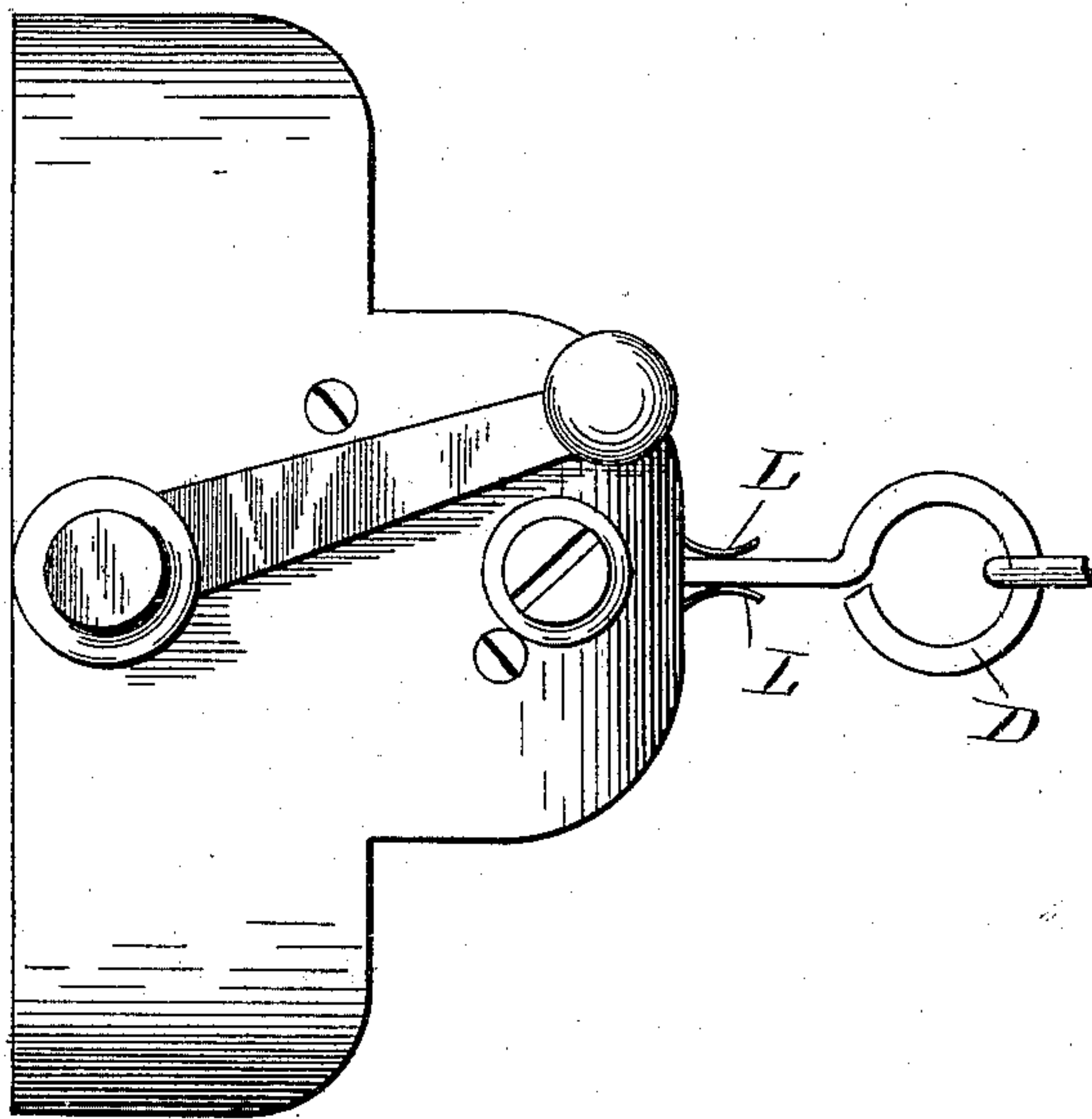


Fig. 5.

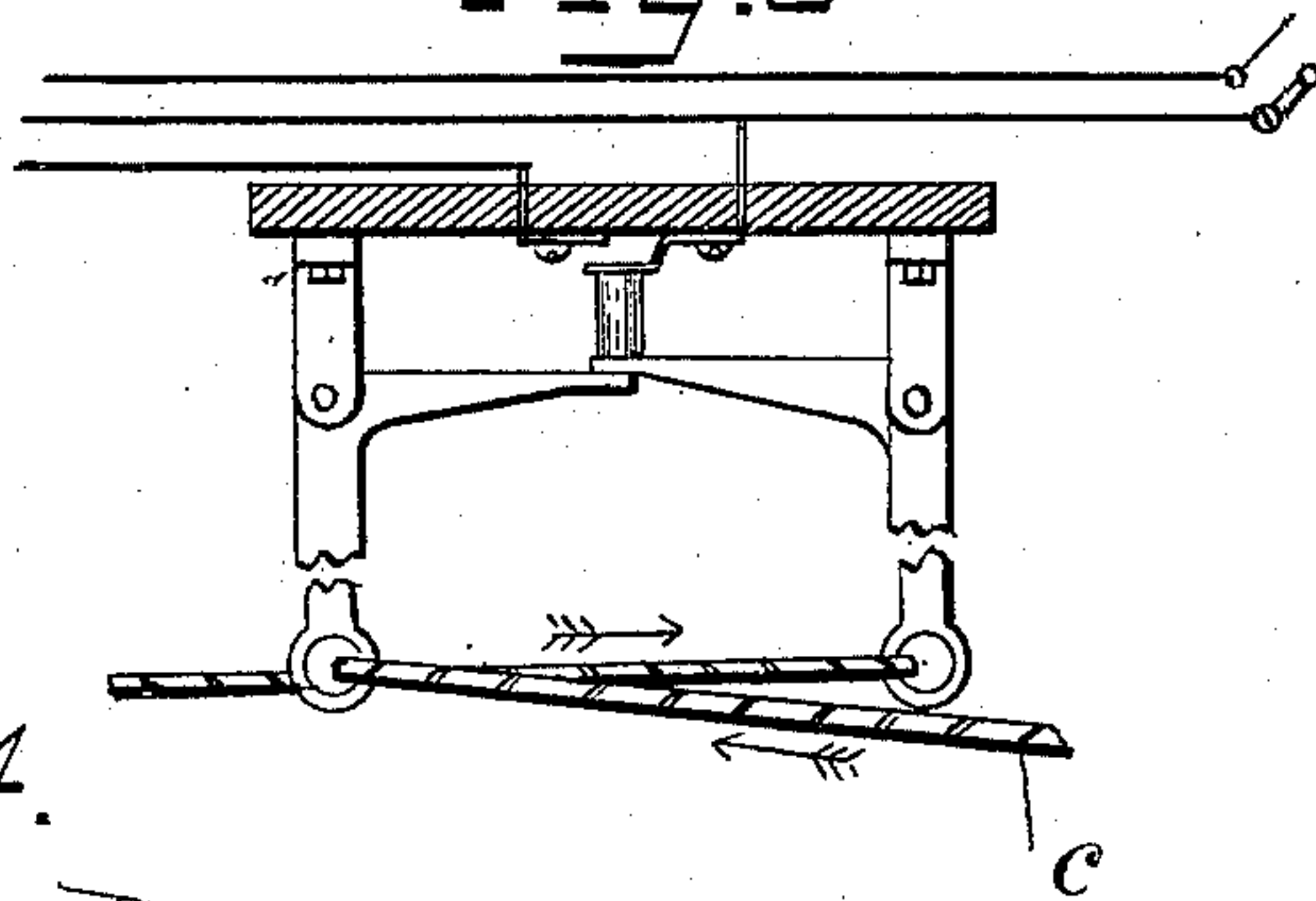
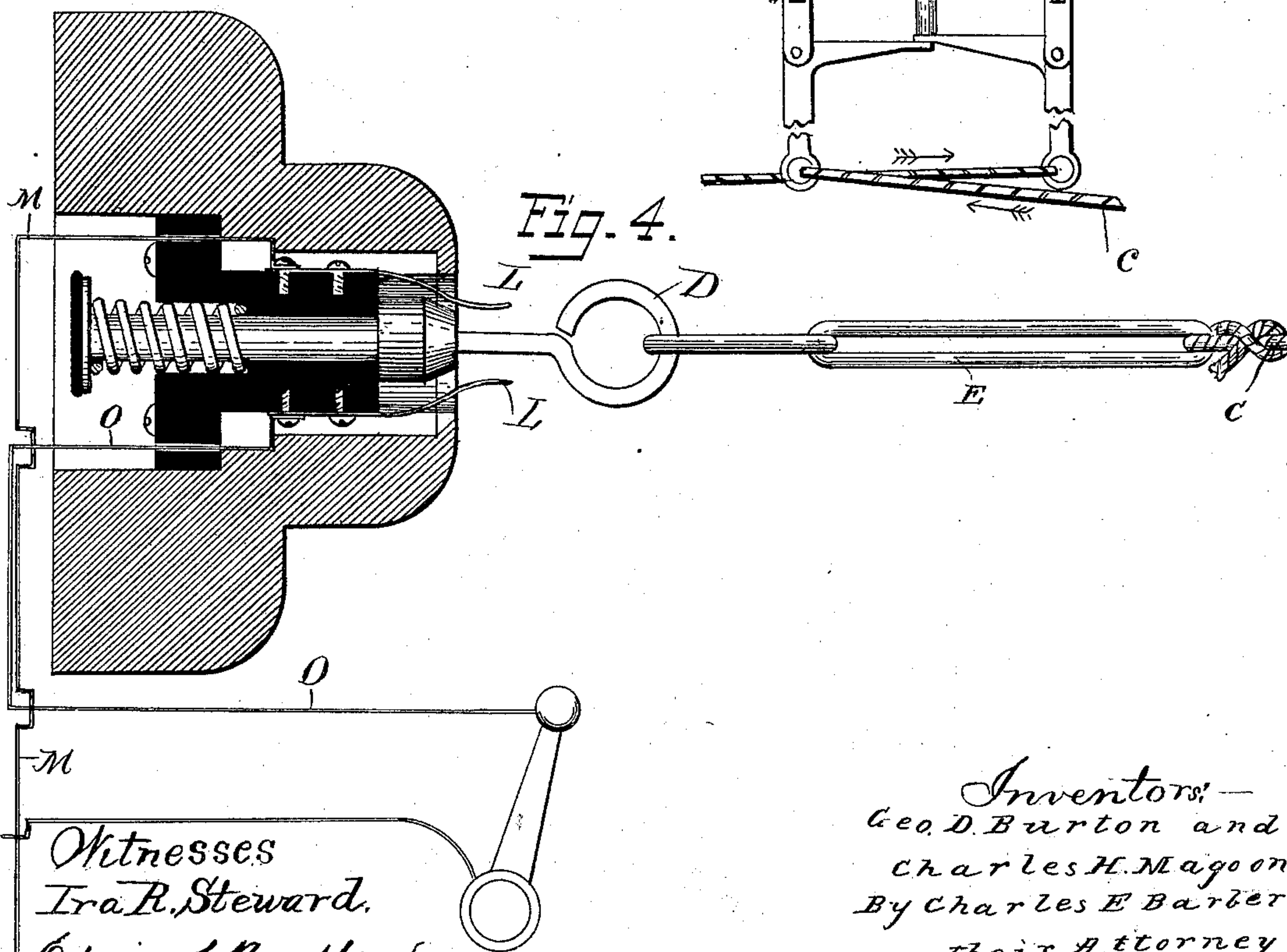


Fig. 4.



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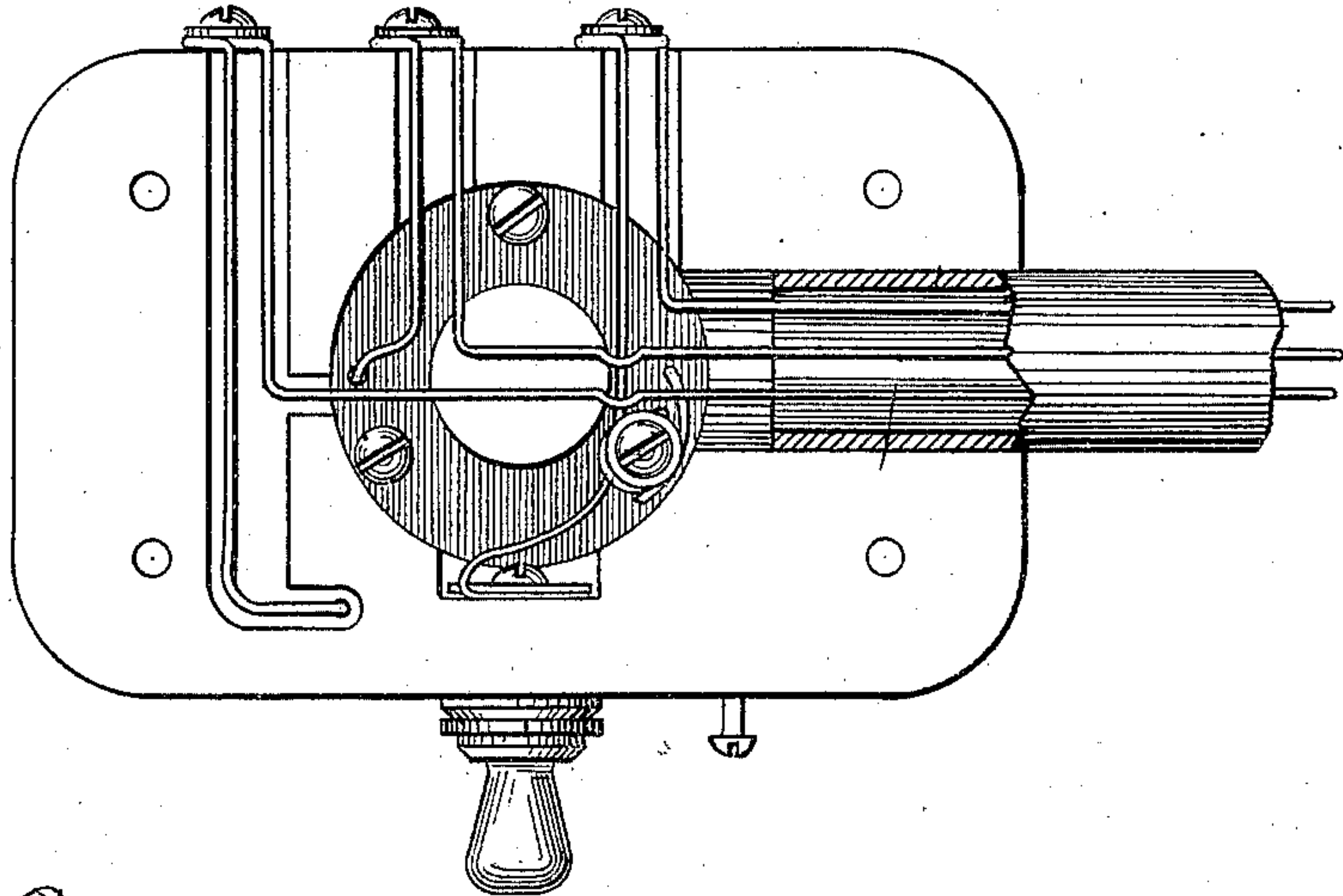


Fig. 6.

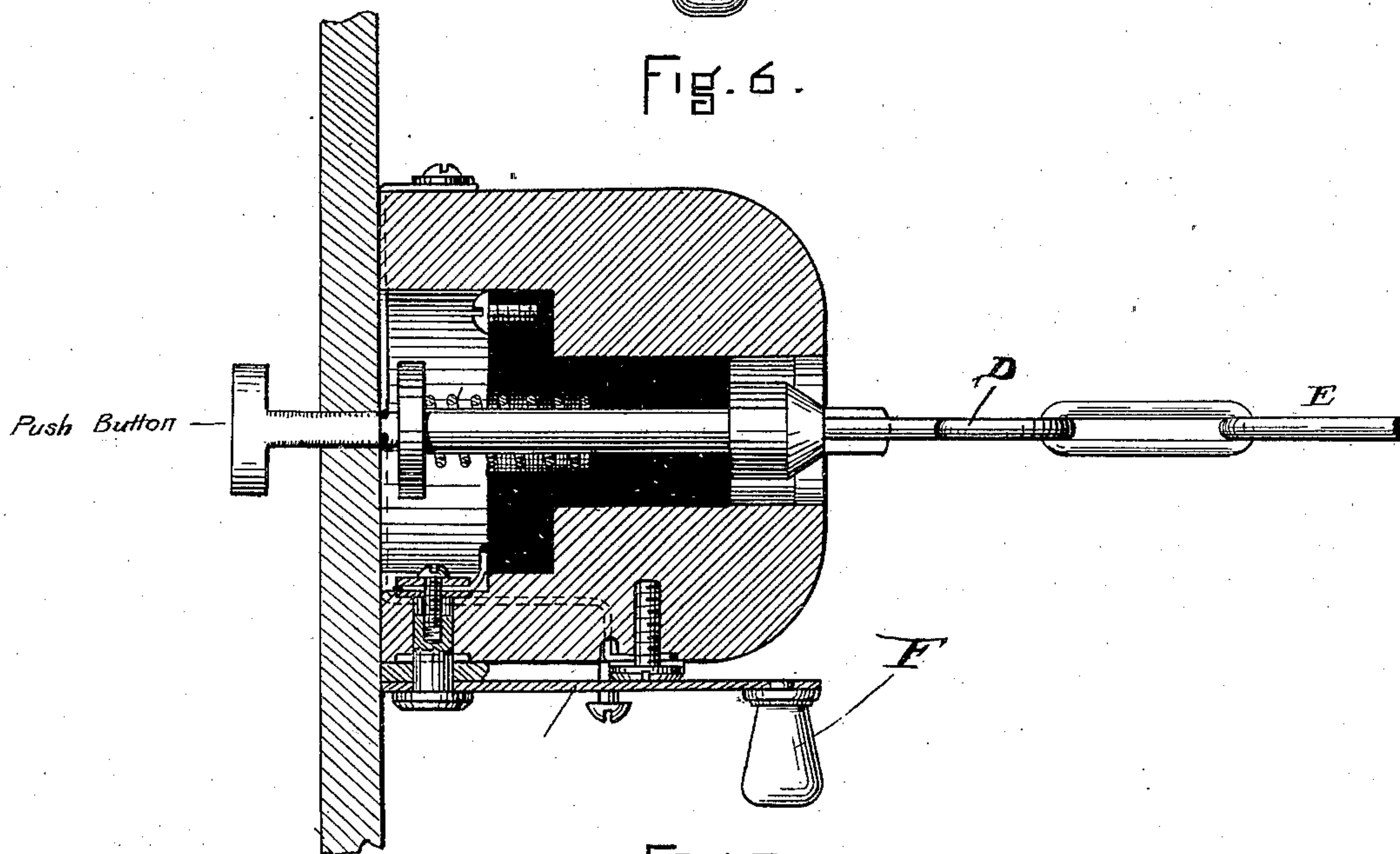


Fig. 7.

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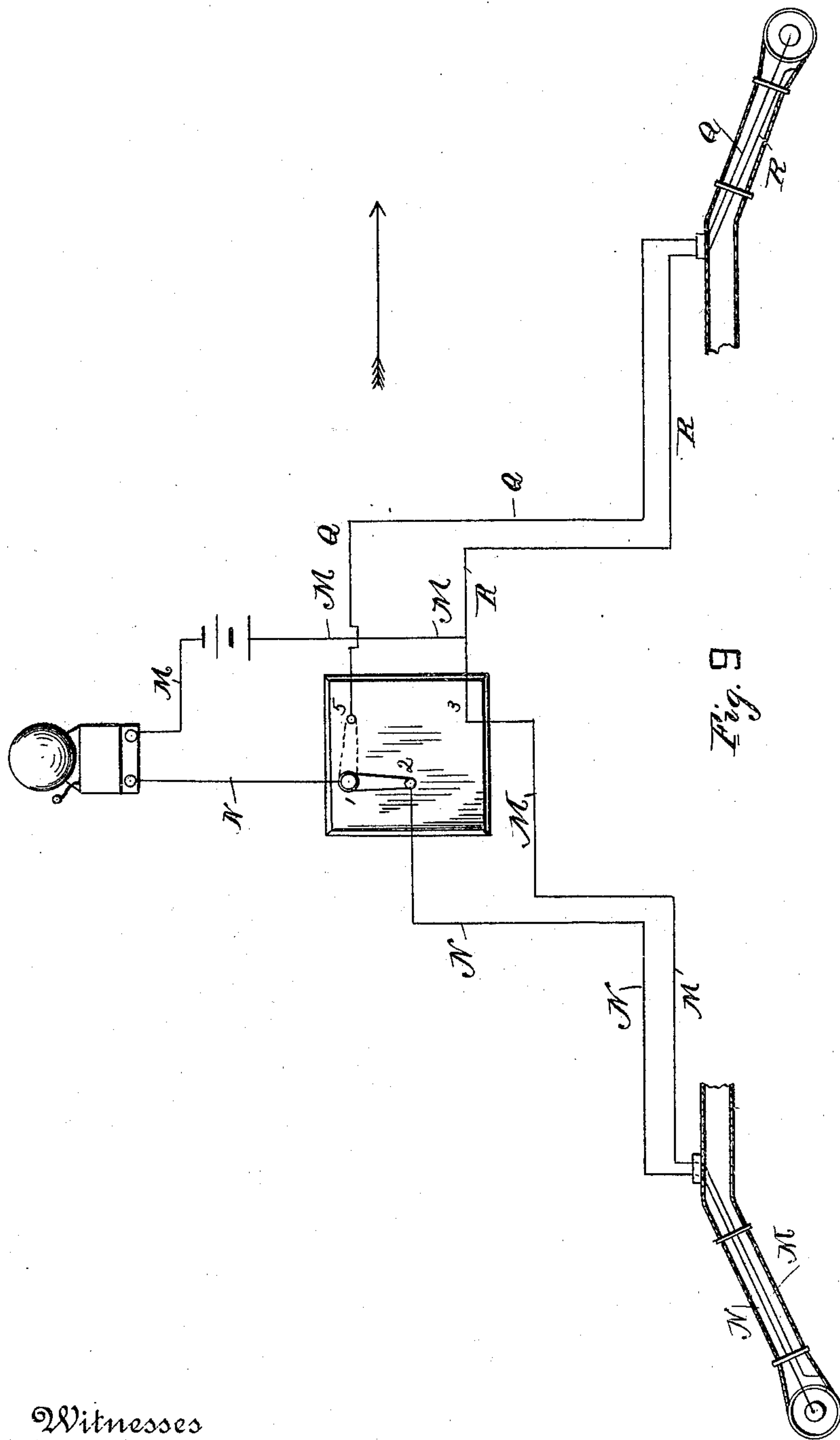


Fig. 9

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UNITED STATES PATENT OFFICE.

GEORGE D. BURTON, OF NEW IPSWICH, NEW HAMPSHIRE, AND CHARLES H. MAGOON, OF ST. JOHNSBURY, VERMONT; SAID MAGOON ASSIGNOR TO SAID BURTON.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 368,512, dated August 16, 1887.

Application filed June 23, 1886. Serial No. 205,994. (No m. del.)

To all whom it may concern:

Be it known that we, GEORGE D. BURTON and CHARLES H. MAGOON, citizens of the United States, residing, respectively, at New Ipswich, in the county of Hillsborough and State of New Hampshire, and at St. Johnsbury, in the county of Caledonia and State of Vermont, have invented a new and useful Improvement in Electrical Signaling Systems and Apparatus for Use Therewith, of which the following is so full, clear, and exact a description as will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings.

Figure 1 is a side elevation of a part of a train of cars with our improvement applied thereto, showing a portion of one of the cars broken away. Fig. 2 is a diagrammatical view of the wires in a car and their connections. Fig. 3 is an inverted plan view of the circuit-closer, showing a switch used therewith; Fig. 4, a cross-sectional view of the same. Fig. 5 is a modified form of circuit-closer, whereby the same circuit will be closed in whichever direction the cord is pulled. Fig. 6 is a detail view of the circuit-closer, with some of the parts broken away, and showing the pipe which extends down the side of the car and incloses the wires. Fig. 7 is a section thereof. Fig. 8 is a detail view of the pipe and hose-couplings, showing arrangement of the wires therein; and Fig. 9 is a diagrammatical view of the arrangement of the wires in a double-ended engine, the same being mounted so that a train of cars provided with our devices may be attached to either end thereof.

This invention relates to certain new and useful improvements in electrical railway-signals to be used on a train of cars, the particulars of which will be more fully hereinafter pointed out in the specification and set forth in the claims.

The letter A designates one of a series of cars provided with our improved electrical devices.

The letter B designates a car which is not provided with our improved electrical devices.

The bell-cord C is connected with two circuit-closers, one at either end of the car, and, according to the direction in which said cord is

pulled, one or the other of the said circuit-closers is actuated. The ends of the cord are not attached to the eyes D of the circuit-closers directly, but through the loop E. The reason of this is that should a car be hooked on the train which is not provided with our apparatus, then the ordinary bell-rope is run through and attached to this loop, and when said rope is pulled in the unprovided car it actuates the circuit-closer in the car which is provided with our improved devices, and in this way gives the signal.

Now, putting Figs. 2 and 9 together lengthwise, Fig. 2 representing the car and Fig. 9 the engine, let it be presumed that the bell-cord is pulled in the direction of the arrow in Fig. 2 and that the switch-arm F is turned off, as shown. The connection is then made between the metallic plates L L, and the circuit is completed through the bell, as follows: from the upper metallic plate L, along the wire M to the metallic portion of the forward coupling on the car of which we are speaking, then into the metallic portion of the coupling of the other car, along the wire M, up and through the bell, down the wire N to the switch-arm I, then to 2, then along N to the buttons in the couplings, to the first-named car, up to and through the switch-arm F', to the wire O, to the lower metallic plate L. Should the train be hitched onto the other end of the engine—namely, that end nearest the head of the arrow, as shown in Fig. 9—the circuit would be completed along the wire Q to the switch-arm 5, (the position of the arm then being from 1 to 5,) to 1, up N, through the bell, down M to the branch R, through the coupling, and so on through the train. Now, should a car be attached which is unprovided with our electrical devices, the bell-rope C in Fig. 1 is run through the car and is attached to the link E, so that any one in the unprovided car pulling the bell-rope will close the circuit nearest the head of the arrow in the provided car, and thus give the signal.

As shown in Fig. 8, the hose is provided with two wires, the one extending to and into the metallic casing of the respective couplings, and thus forming its circuit through said couplings, and the other extending into and through

an insulated metallic post, H, which is electrically connected with the bearing J, which carries the metallic button K, and so on through the opposite face of the coupling.

5 As shown in Fig. 7, the circuit-closer may be extended through the car and provided on its exterior with a push-button, so that should the brakeman be on the outside and wish to give a signal it will not be necessary for him
10 to enter the car, but he can simply push the push-button and the signal will be given.

In Fig. 5 we have represented a circuit-closer which is so constructed that in whatever way the bell-cord is pulled it will close the circuit.
15 One circuit-closer of this construction will do the work of two of the construction shown in Figs. 3 and 4.

Having thus fully described our invention, what we claim as new, and desire to secure by
20 Letters Patent, is—

1. In an electric circuit, the combination, with a base-board and metallic plates normally held out of contact with each other, of two oppositely-disposed bell-crank levers
25 mounted on said board and constructed, when actuated, to bring the plates into contact, and a bell-cord attached to said levers and running in opposite directions, whereby when the cord is pulled the metallic plates are brought
30 into contact.

2. In a system of train-signaling, the combination, with an engine provided with an electric bell, a battery, and a switch-board located therein, of a hose-coupling at either end,
35 each coupling containing two electric wires, which make the circuit through the battery and bell, one of said wires terminating in the metallic casing of the coupling and the other wire terminating in a button located in and
40 insulated from said casing.

3. In a system of train-signaling, the combination, with one or more cars provided with circuit-closers at either end, and an operating bell-cord connecting the two circuit-closers,
45 and two wires extending from said circuit-closers down to and through the hose-couplings of the respective cars and the engine, one of said wires completing its circuit through the metallic casings of the couplings and the other through buttons located therein, of an
50 alarm-signal and battery in the engine-cab, whereby when the cord is pulled the circuit is closed from the car where the cord is pulled up to and through the bell in the engine and the alarm is sounded. 55

4. In a system of train-signaling, the combination, with one or more cars provided with an operating bell-cord and a circuit-closer located therein and adapted to be operated by the cord irrespective of the direction in which
60 it is pulled, two wires extending from said circuit-closer down to and through the hose-couplings of the respective cars and engine, one of said wires completing its circuit through the metallic casing of the couplings and the
65 other through the buttons located therein, of an alarm-signal and battery in the engine-cab, whereby when the cord is pulled the circuit is closed from the car where the cord is pulled to and through the bell in the engine and an
70 alarm is sounded.

In testimony that we claim the above we hereunto set our hands in the presence of two subscribing witnesses.

GEO. D. BURTON,
CHARLES H. MAGOON.

Witnesses:

E. F. PERKINS,
D. BRESNEHAN.