

(No Model.)

2 Sheets—Sheet 1.

N. SEIBERT.
SANDING DEVICE FOR CARS.

No. 502,053.

Patented July 25, 1893.

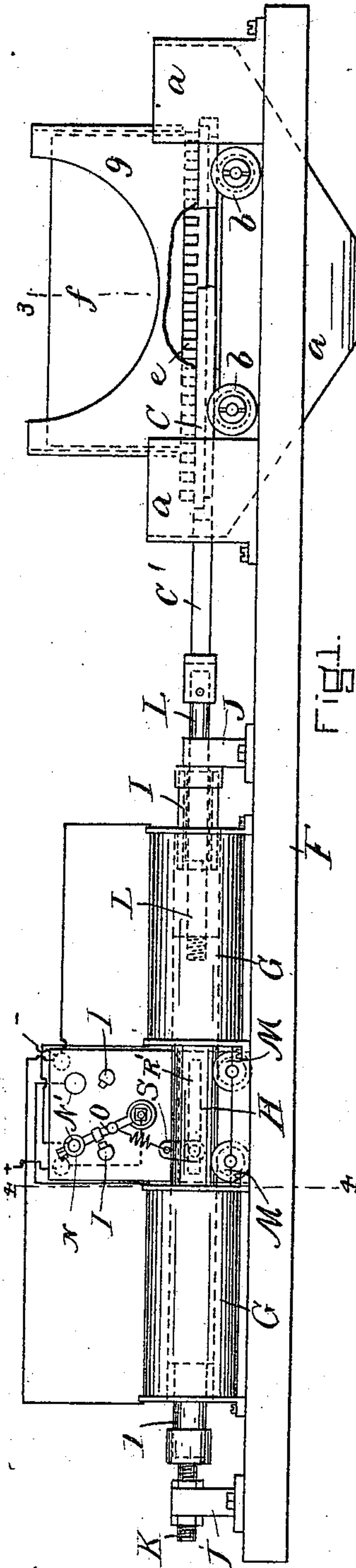


Fig. 1.

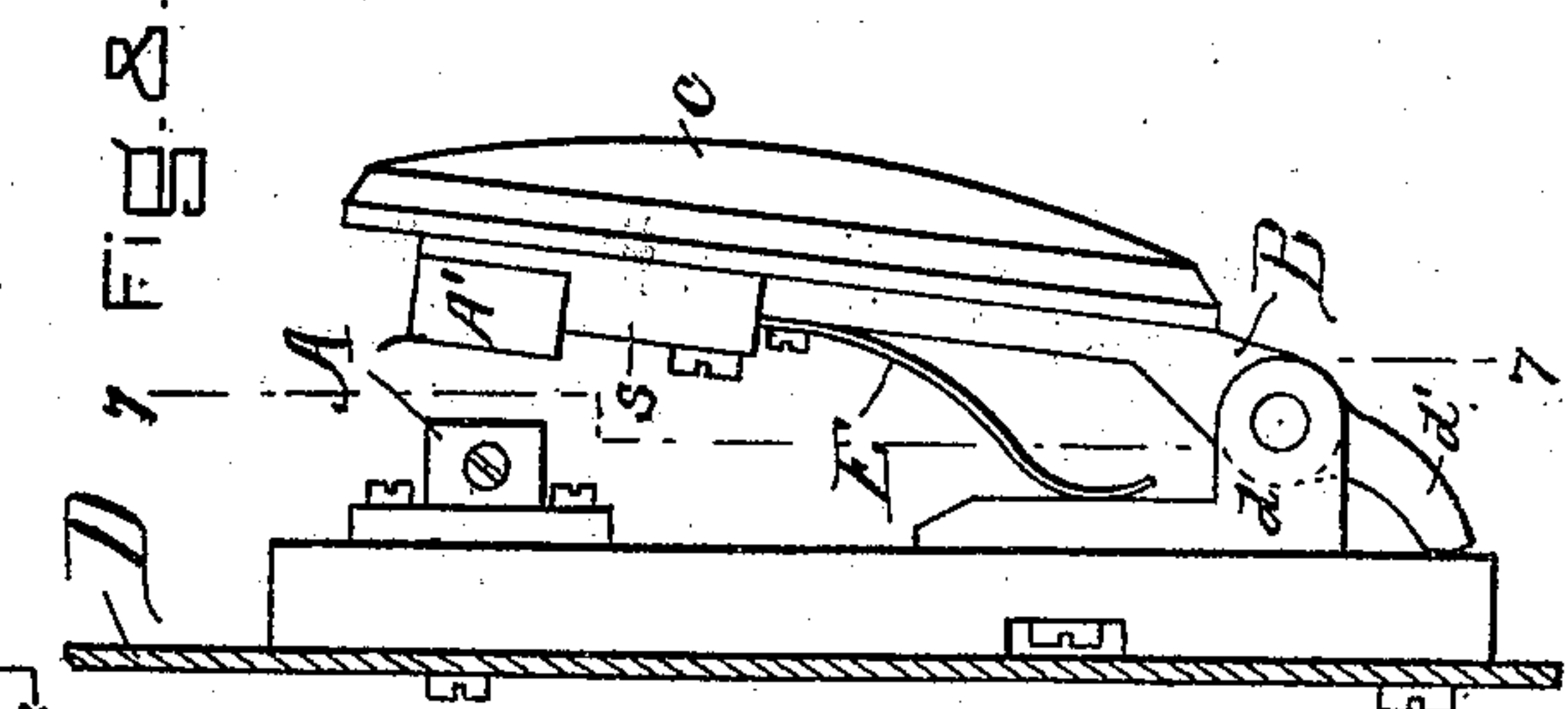


Fig. 2.

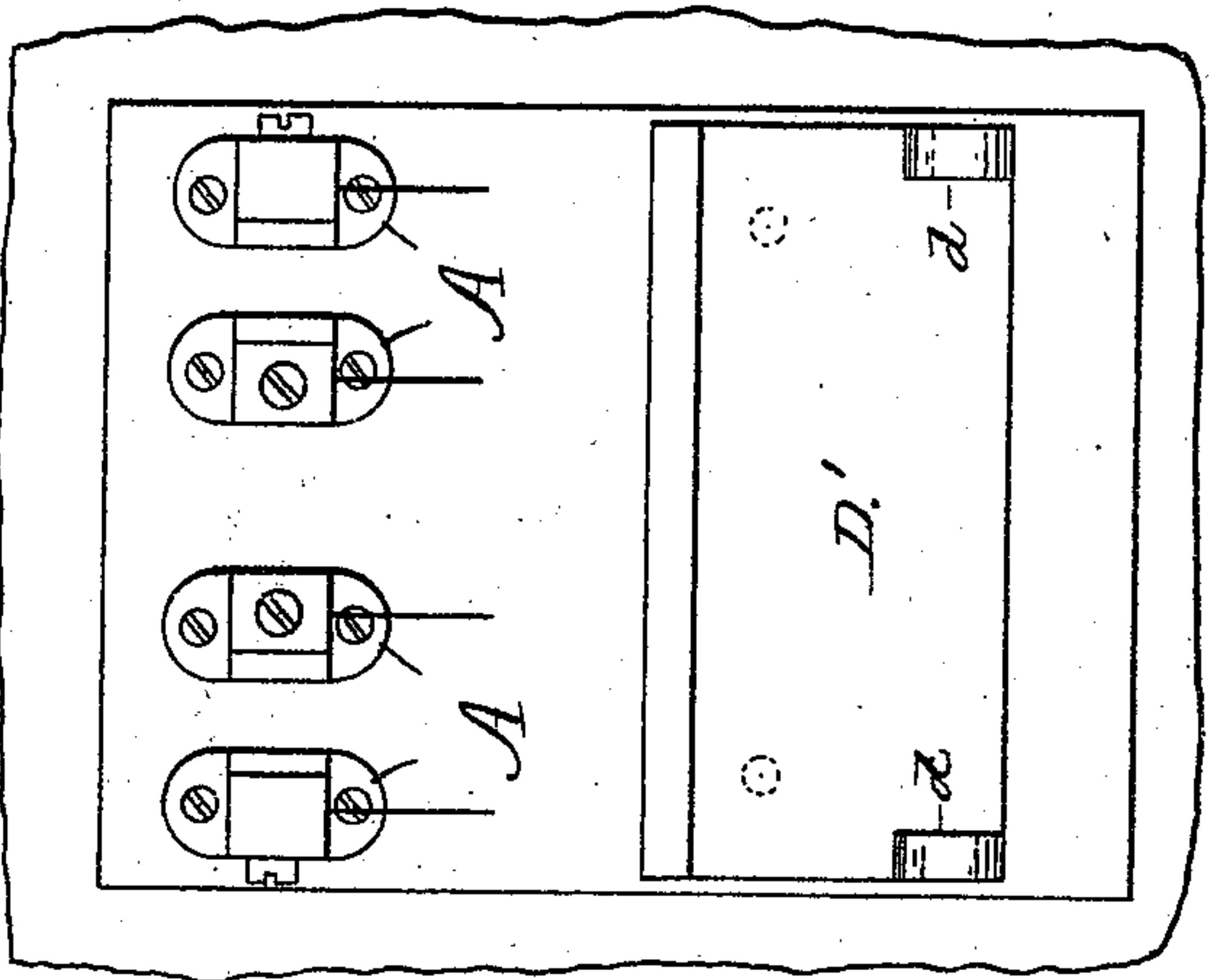


Fig. 3.

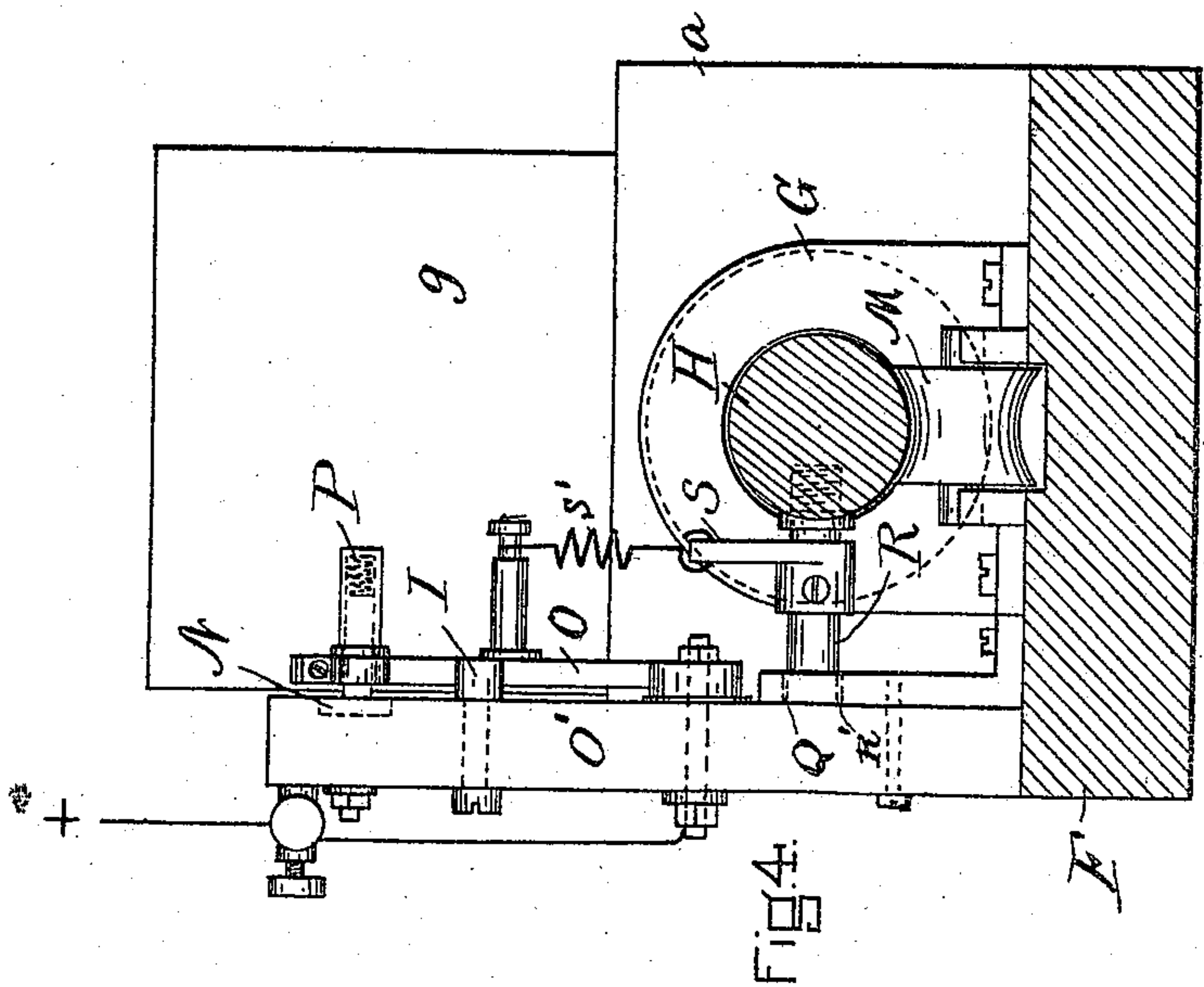


Fig. 4.

WITNESSES.

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2 Sheets—Sheet 2.

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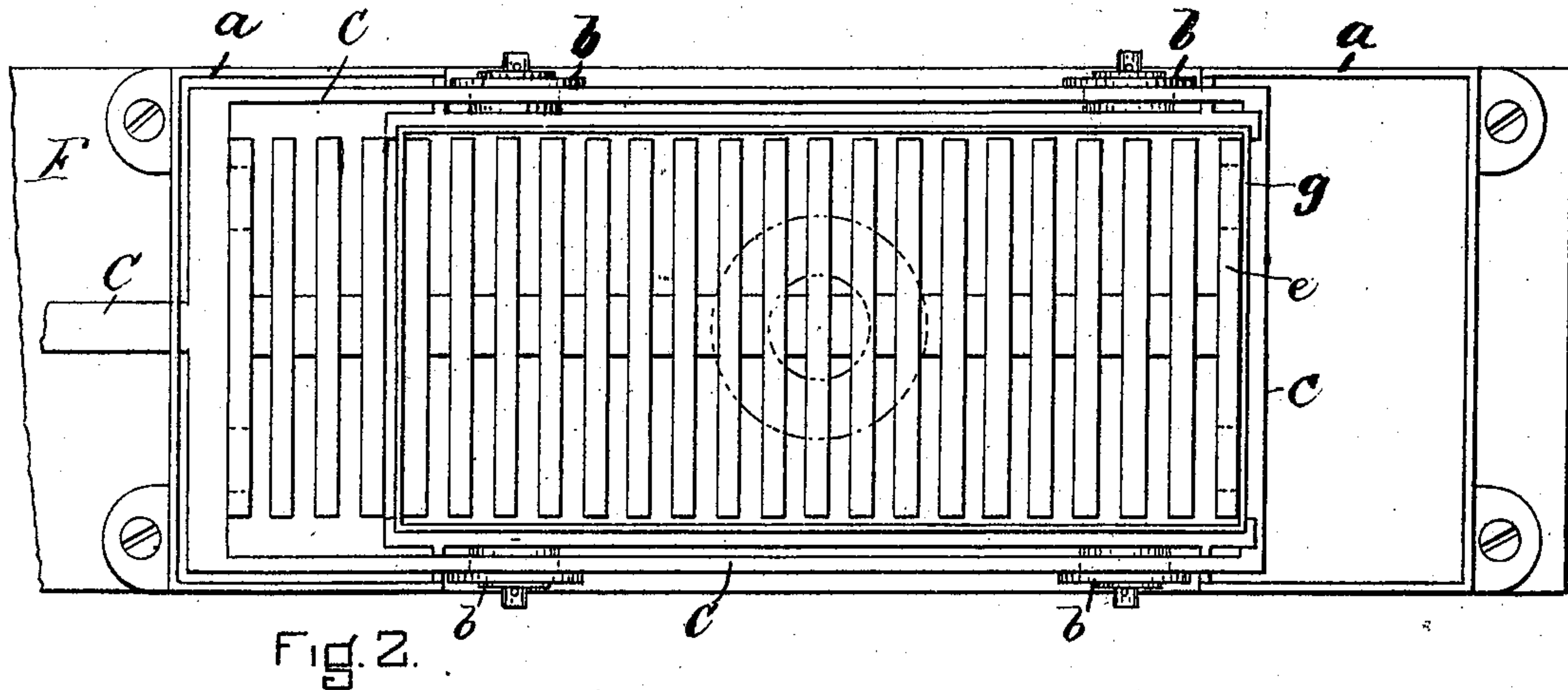


Fig. 2.

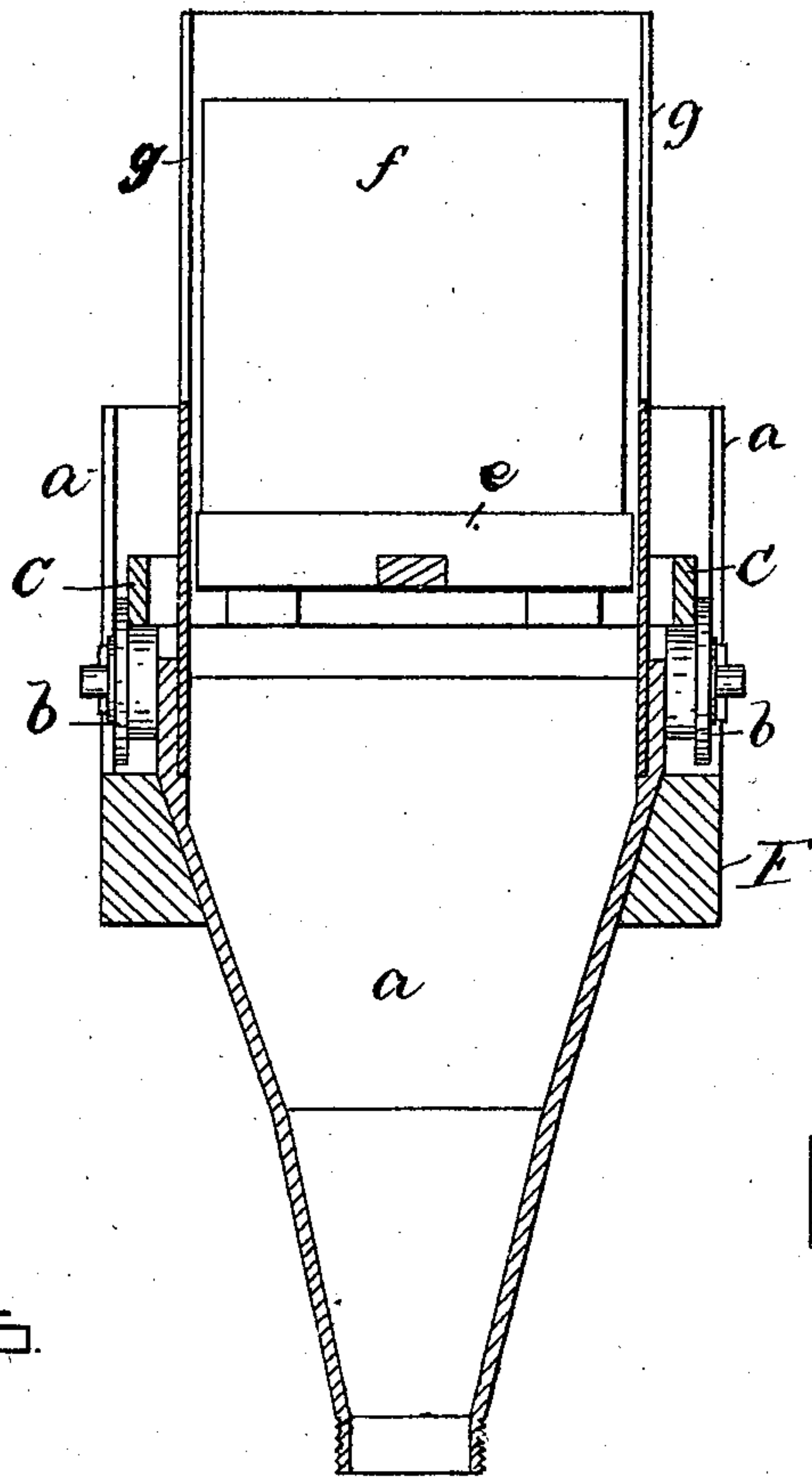


Fig. 3.

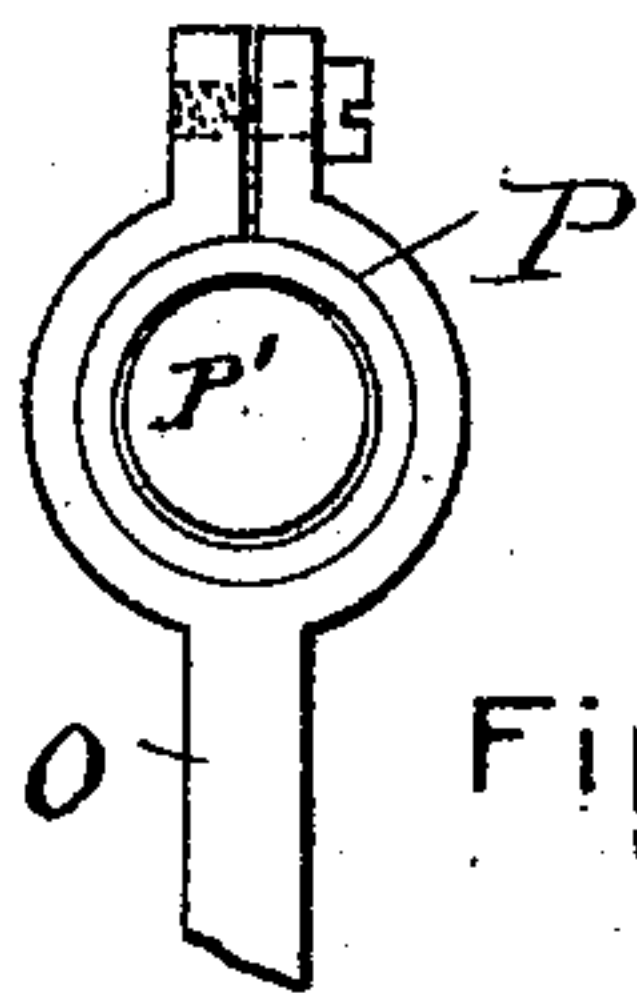


Fig. 5.

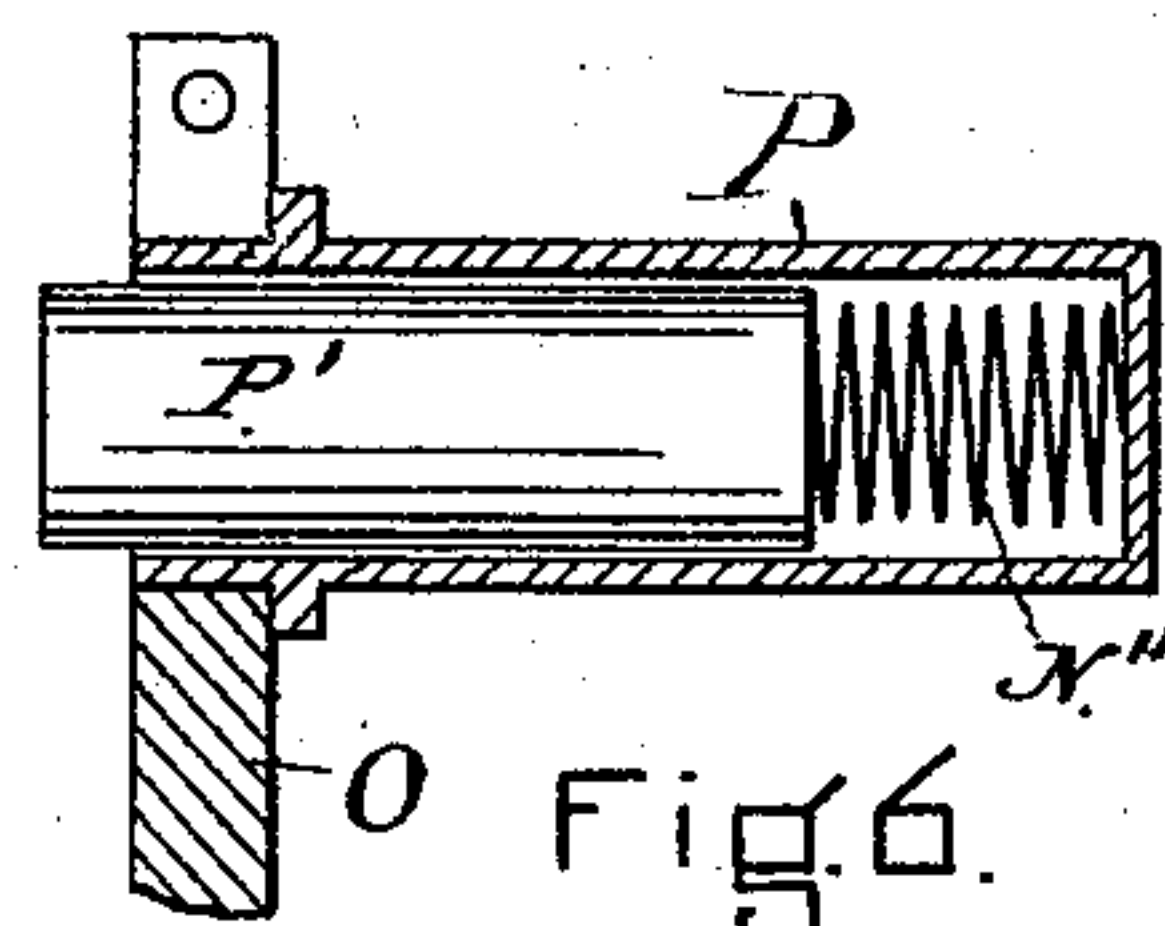


Fig. 6.

WITNESSES.

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UNITED STATES PATENT OFFICE.

NICHOLAS SEIBERT, OF BOSTON, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF NINETEEN TWENTY-FIFTHS TO GEORGE F. MALCOLM, OF ALLSTON, AND OLIVER ELIOT SIMMONS AND SIEGMUND LEIPZIGER, OF BOSTON, MASSACHUSETTS.

SANDING DEVICE FOR CARS.

SPECIFICATION forming part of Letters Patent No. 502,053, dated July 25, 1893.

Application filed November 3, 1892. Serial No. 450,906. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS SEIBERT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sanding Railway-Rails, as set forth in the accompanying drawings, forming part of this specification, in which—

Figure 1, is a side elevation of my sanding mechanism supported upon the frame timbers of a car. Fig. 2, is an enlarged top plan view of the sand box and its adjuncts. Fig. 3, is an enlarged sectional view on the line 3—3 of Fig. 1. Fig. 4, is an enlarged sectional view on the line 4—4 of Fig. 1. Fig. 5, is an enlarged end view of the carbon holder. Fig. 6, is a longitudinal sectional view of the same. Fig. 7, is a front view of a portion of the dash board of the vehicle showing the contacts. Fig. 8, is a side view of the same showing the pad by which contact is made and the electric circuit completed to operate the sanding mechanism.

My invention relates to means for sanding railway rails and in which the electric current which drives the motor on the car is utilized to operate the sanding devices to cause a mechanical grating, rubbing, grinding or other disintegration of natural or artificial stone or other gritty disintegratable material, into dust, grit or sand, and then supplying such disintegrated material to the track rails to increase the traction and prevent the wheels of the car slipping or sliding on said rails.

My present invention is an improvement on the Patent No. 473,090, issued to me April 19, 1892, and it consists essentially in electrically connecting the sanding devices with the main conductor which conveys the current from the dynamo to the car motor whereby the power thus obtained is utilized, when desired, to start the sanding devices in motion to detach particles of the sanding material and feed the detached portions to the track rails to increase the traction between the same and the wheels, whereby the latter are prevented from slipping or sliding upon the former.

My invention also consists essentially in so disposing of the contact devices between the sanding mechanism and the conductor from the trolley wire, that the motorman or attendant on the platform of the car may make and break the circuit through the sanding mechanism by a movement of his body, without removing his hands from his grip lever or brake handle.

My invention further consists of the constructions and combinations of devices which I shall hereinafter fully describe and claim.

To enable others skilled in the art to which my invention appertains to make and use the same I will now describe its construction and indicate the manner in which the same is carried out.

It is a fact only too well known, that many lives are lost and many persons are maimed because of the want of effective and positive appliances for stopping cars upon grades and where the rails are wet and slippery. When the rails are in this condition the car wheels will slide on them even when the brake is hard on and the power shut off. The motorman's attention and hands being occupied with his power lever and brake handle it is essential that whatever means are employed to check the momentum of the car they must be dependent for their operation upon some mechanism that may be operated without removing the hands from said lever or handle, and such a means I herein disclose in the following description and claims, and in the drawings.

In Fig. 1 the sanding mechanism is placed upon the car, preferably under the seats, and is supported by a longitudinally extending timber F, which may represent one or more of the frame timbers of said car bolted to the floor timbers thereof. Suitably supported upon this timber F, is a hopper *a* having a discharge chute extending through the floor of the car and provided with a coupling *h* to which a pipe or tube *i* is detachably connected, and has its lower end adapted to discharge the disintegrated material, sand and grit to the track rails.

A grate frame C of any suitable construction is mounted within the lower part of the hopper and is adapted to slide upon rollers *b* interposed between it and the timber F, and
 5 said grate frame has a stem or shank C' which projects through the hopper and is adapted to be coupled to or connected with the electrical devices by which the grating action hereinafter mentioned is accomplished.

10 Above the grate frame is supported a grate *e* having grate bars substantially as shown and adapted to rest upon bars 2 at the ends of the grate frame, and above and forming a continuation of the hopper is a receptacle in
 15 which the disintegratable substance, sandstone, or analogous material *f* is placed with its lower end resting upon the grate bars, whereby when the grate frame is reciprocated particles of the surface of the sandstone or
 20 disintegratable material are rubbed off or detached, and falling through the grate bars into the hopper are conducted directly to the track rails.

The means by which the reciprocation of
 25 the grate frame is accomplished comprise certain electrical appliances which may be thrown into and out of contact with a contact or conductor leading from the trolley wire or main conductor; and these appliances consist essentially of the following:

30 Upon the frame timber F are secured the solenoids G suitably wound with insulated wire, and having an iron core or magnet H, to which one end of a rod L is fitted, said rod
 35 passing through suitable boxes, bearings or guides J and having its opposite end secured to the grate frame.

K is an adjustable screw and I are buffers, and the guides J have slots in their base
 40 flanges to enable them to be moved to adjust the distance between the buffers and the iron core or magnet H, which latter is suitably supported and mounted to move upon rollers M, as shown in Figs. 1 and 4.

45 Mounted within an angular bracket Q at one side of the solenoids is a shaft R having a crank arm S upon its inner end, said shaft being adapted to move in a slot R' in the angular bracket. See dotted lines in Fig. 1.
 50 The crank arm is composed of any well known non-conducting material, and the switch board O' shown in Fig. 4 is preferably made of slate or like material, and is secured to the timber F by means of the angular
 55 bracket Q. The switch lever O is suitably fulcrumed upon the switch board and is connected with the crank arm S through the medium of a spring connection S' whereby when the current is sent through the solenoids in
 60 the manner hereinafter stated, the iron core or magnet H is moved endwise and draws the switch lever O along with it so that contact is broken at one point and established at another. A carbon holder P carried by the
 65 switch lever consists of a thin shell, say of brass tubing, and carries a stick of carbon P' which is held against the contacts N and N'

by a spring N'' acting against its rear or inner end, said carbon holder being held to the switch lever O, by means of a clamp connection as shown in Fig. 5. 70

In Figs. 7 and 8 I illustrate portions of the dash board or other portion of the car body, the constructions shown in said figures constituting one switch suitably connected by
 75 wires with the switch board which controls the solenoids and being connected by a wire or wires for transmitting a current from the trolley wire or main conductor of a street car service, or other electric force for operating
 80 the sanding devices. On the dash board D or adjacent portion which carries the contacts A, see Figs. 7 and 8, is a bracket D' having lugs or ears *d* between which is pivotally secured a lever B having a padded upper portion and a stop or lug *d'* at its lower portion,
 85 the said lever having at its upper portion on the side opposite the pad a contact or contacts A' while interposed between the back of the lever and the bracket D' is a spring E
 90 as shown in Fig. 8.

The operation of my invention is substantially as follows: The prepared sandstone or like material is placed in the box or receptacle *g*, upon the grate, and when sand or grit
 95 is required upon the railway rails the motorman presses his knee against the pad C and makes contact between the points A and A'. This connects the current of the trolley wire, or other source, with the switch board of the
 100 solenoids, the current passing to the positive wire see Fig. 1 thence down the wire indicated by the dotted line on the switch board, to the nut securing the movable switch lever O; thence up the lever to the contact *n*, to the
 105 opposite side on the wire leading to the inner portion of the coil of wire or solenoid nearest the sanding machine, which magnetizes the iron core and draws it into the solenoid. The crank *s* being attached by a spring to the
 110 movable switch lever O, draws the arm with the carbon *p* and breaks the connection on that side. At the same time the carbon *p*, makes a new connection at *n'* which reverses the iron core and moves it in the opposite direction. As the grate frame *c*, rod *l* and iron
 115 core are all connected together, it is evident that when the motorman desires sand to prevent his wheels from slipping, or to prevent the car from sliding upon a slimy or slippery
 120 rail, he need not release his hands from the power lever or brake handle, but simply pressing his knee against the padded switch *c*, the connection is made and the sanding device
 125 operated at once to grate off the sand and supply it to the rails through the pipe *z*.

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

1. The combination with a sanding mechanism carried by the car, of electric appliances and contacts on the car in electric connection with the current which drives the motor, and a device carrying a contact and disposed so 130

that it may be operated by the knee of the motorman to complete the circuit through the electric appliances and operate the sanding mechanism.

5 2. The combination with a sanding mechanism carried by the car, of a shifting magnet connected with the sanding mechanism, a switch board having contacts to which the current from the main conductor is led, and
10 a switch adapted to make and break contact with the switch board contacts to operate the sanding mechanism.

3. The combination with a sanding mechanism carried by the car, of shifting magnet
15 connected therewith, a switch board having contacts to which the main conductor leads, a switch movable over the switch board, and a hinged lever having a pad and contact for establishing the circuit to operate the mag-
20 net and sanding mechanism.

4. The combination with a sanding mechanism and electric appliances for operating the same, a movable pad hinged upon the dash board of the car and adapted to be op-
25 erated by the knee of the motorman to make contact with the electric appliances, whereby a current is transmitted from the trolley wire to a motor attached to the sanding mechanism to operate the latter.

30 5. The combination with a sanding mechanism carried by the car, a shifting magnet or motor connected therewith, electric appliances connected with the trolley wire and with the magnet for operating the latter by
35 a current derived from the former, and a switch secured to the dash board of the car and adapted to be operated by the lower por-

tion of the motorman's body to establish a circuit through the shifting magnet or motor whereby the sanding mechanism is operated
40 by a current derived from the main conductor or trolley wire.

6. The combination with a sanding mechanism carried by the car and comprising a reciprocating grate frame and fixed disin-
45 tegratable substance, of a shifting magnet connected with the grate frame, the solenoids in which the magnet is mounted, a switch board having contacts to which wires from the main conductor lead, a switch lever hav-
50 ing a carbon holder, a carbon therein adapted to make contacts, whereby a circuit is established to operate the sanding mechanism, substantially as herein described.

7. The combination with a fixed disintegrat-
55 able material, a reciprocating grate frame, and a hopper for delivering disintegrated portions of said material to the track rails, and a roller support for the grate frame, of the fixed solenoids, the shifting core or mag-
60 net therein connected with the grate frame, a roller support for the core or magnet, the switch lever O, the contacts N N' and carbon holder P, a crank arm slidable with the core or magnet, a spring connecting the same
65 with the switch lever, and wires leading from the trolley wire or main conductor for transmitting a current to actuate the core or magnet and sanding mechanism, substantially as herein described.

NICHOLAS SEIBERT.

Witnesses:

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