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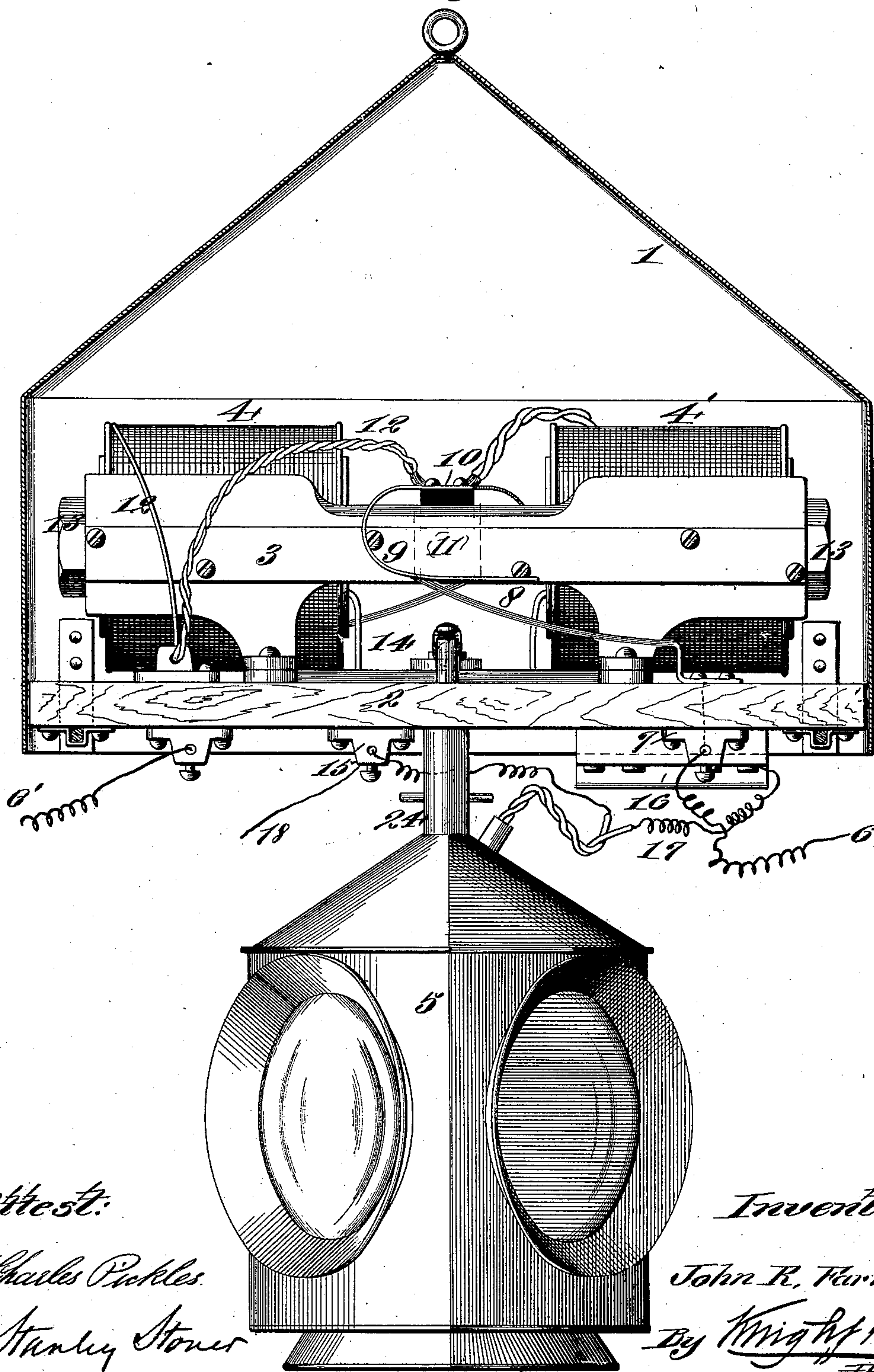
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J. R. FARMER.
ELECTRIC SIGNAL LAMP.

No. 567,338.

Patented Sept. 8, 1896.

Fig. 1.



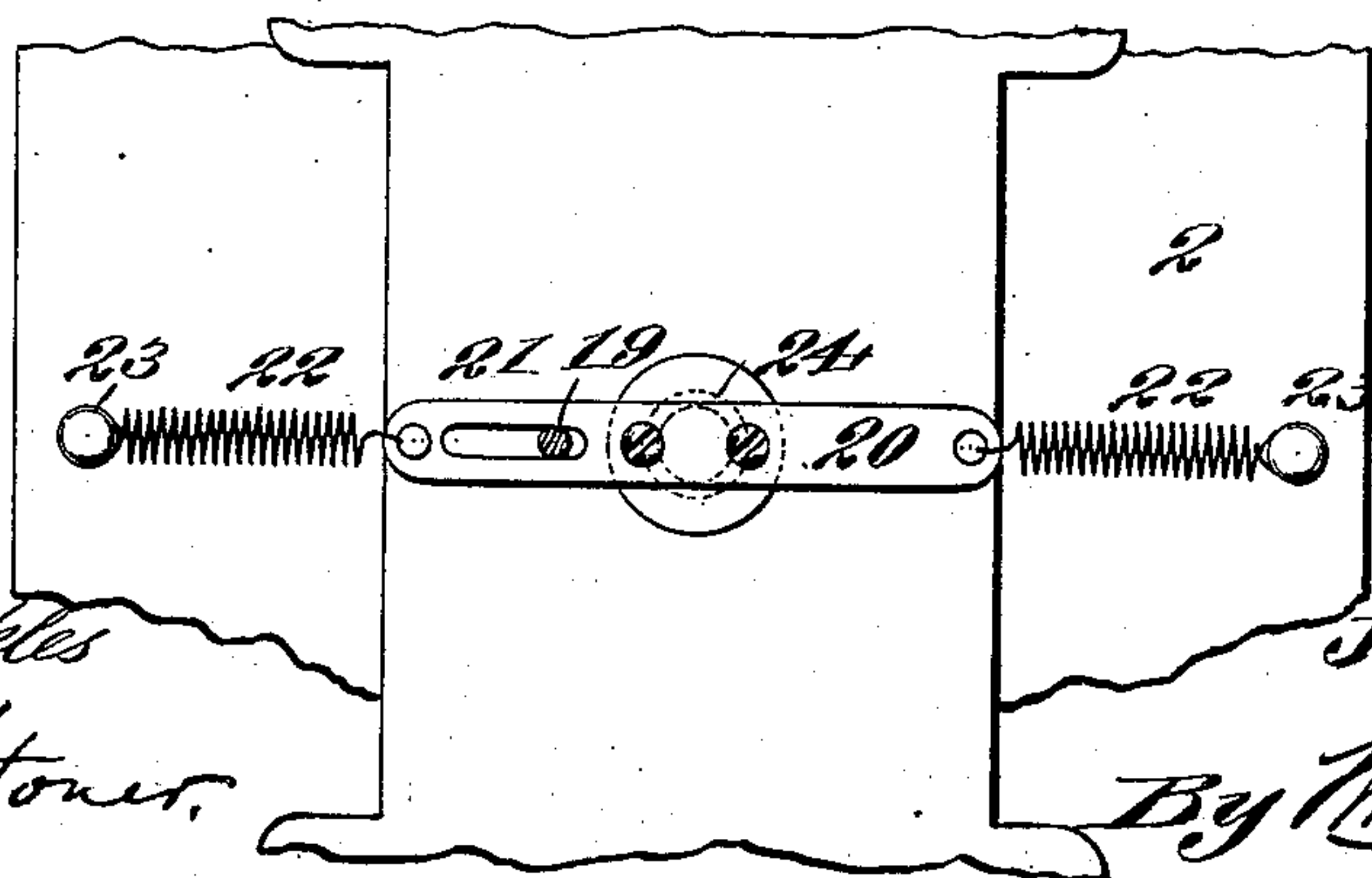
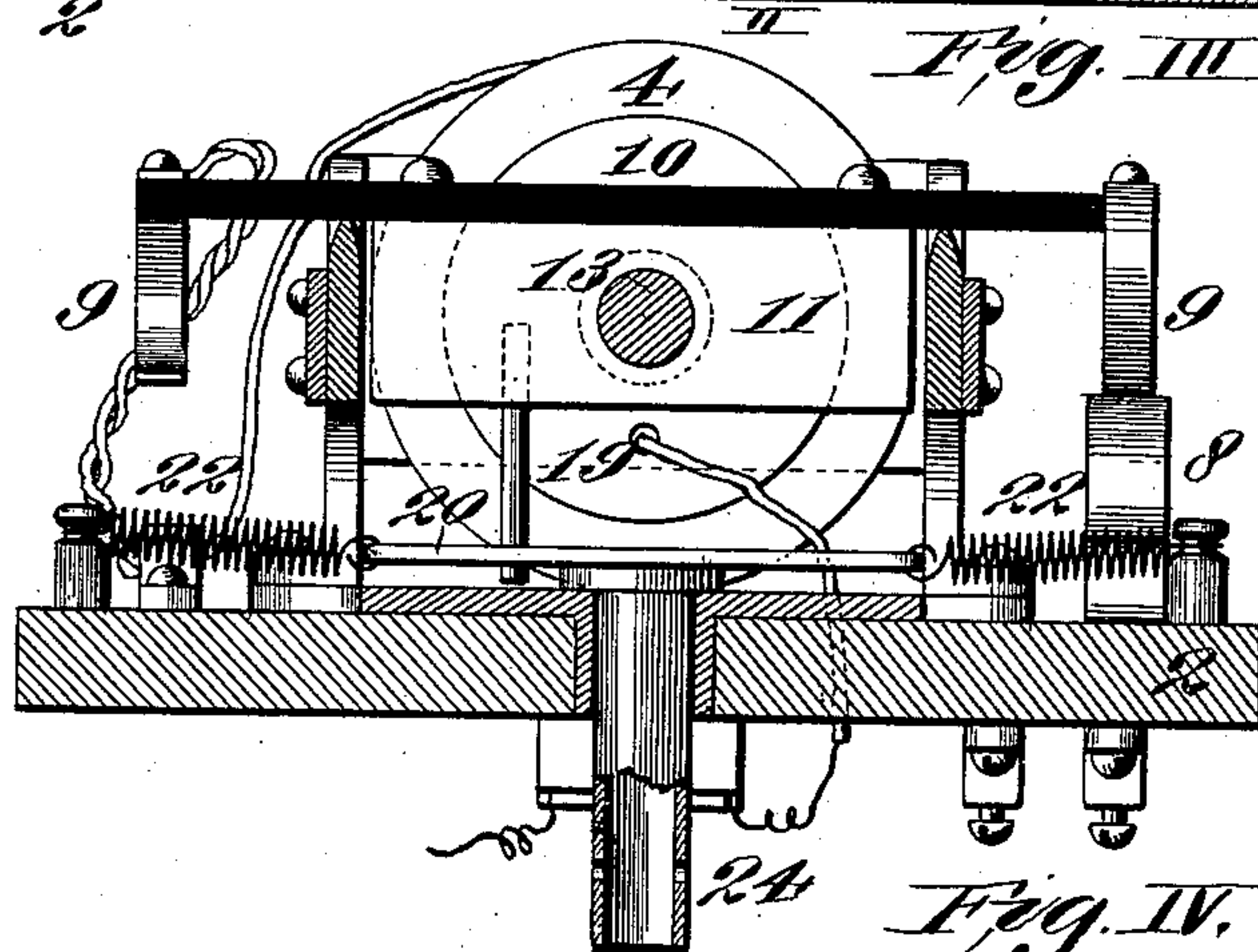
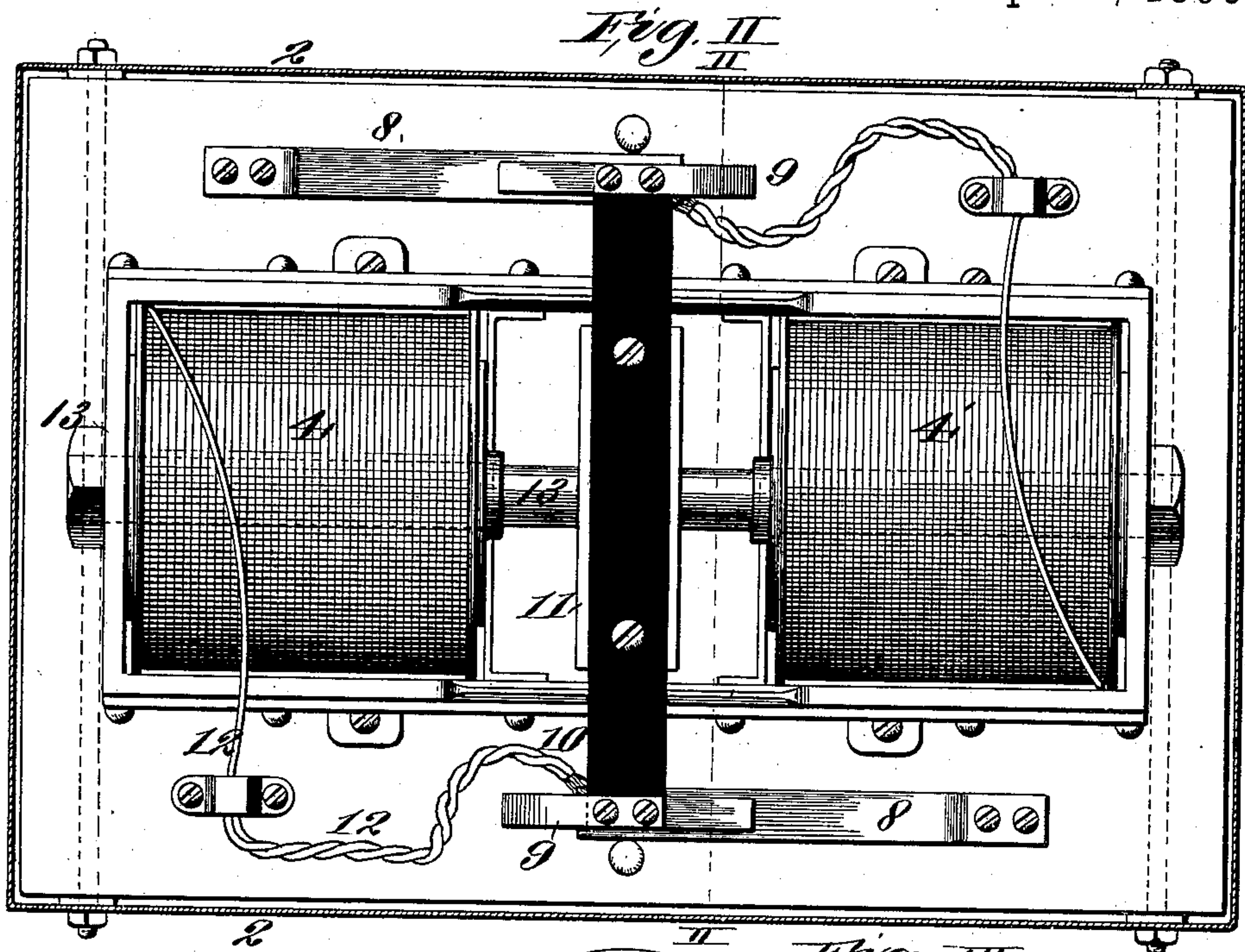
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Inventor

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Fig. V.

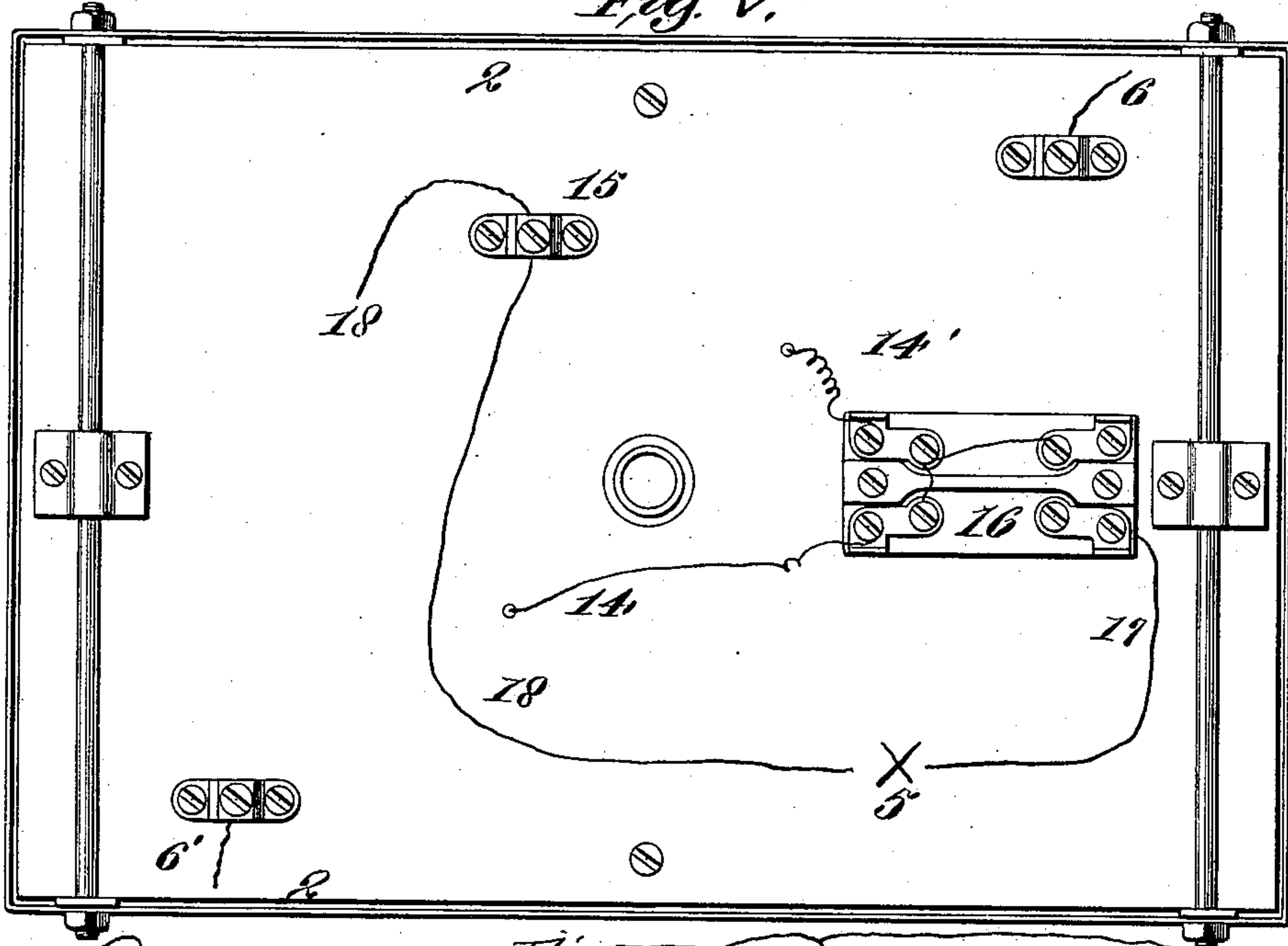


Fig. VI.

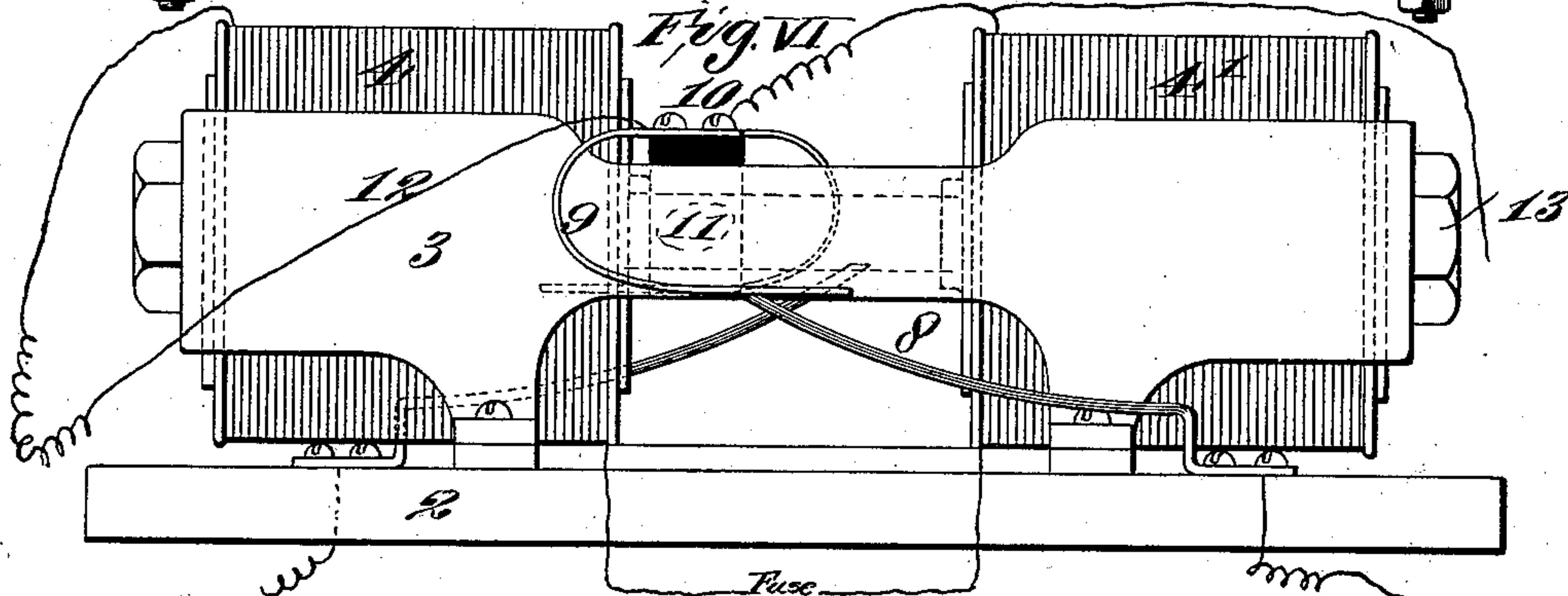
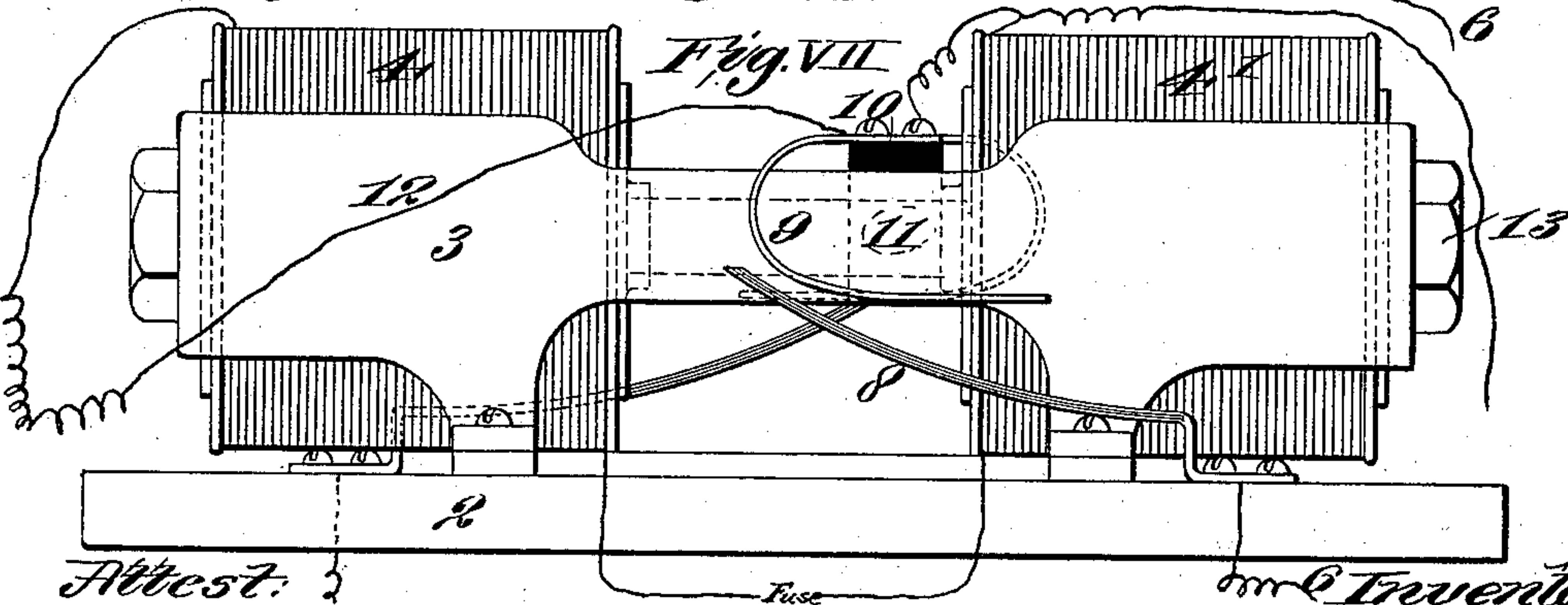


Fig. VII.



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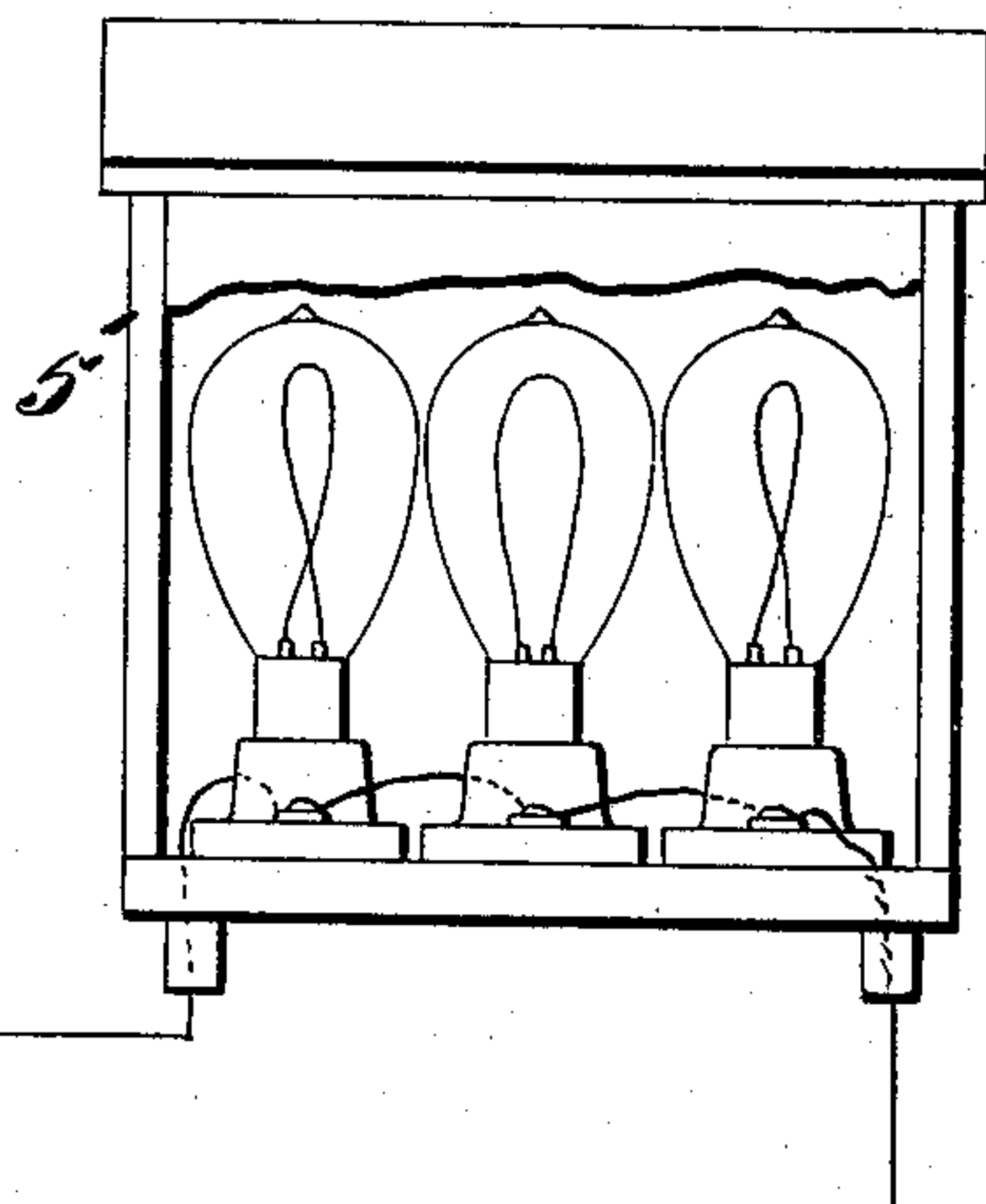
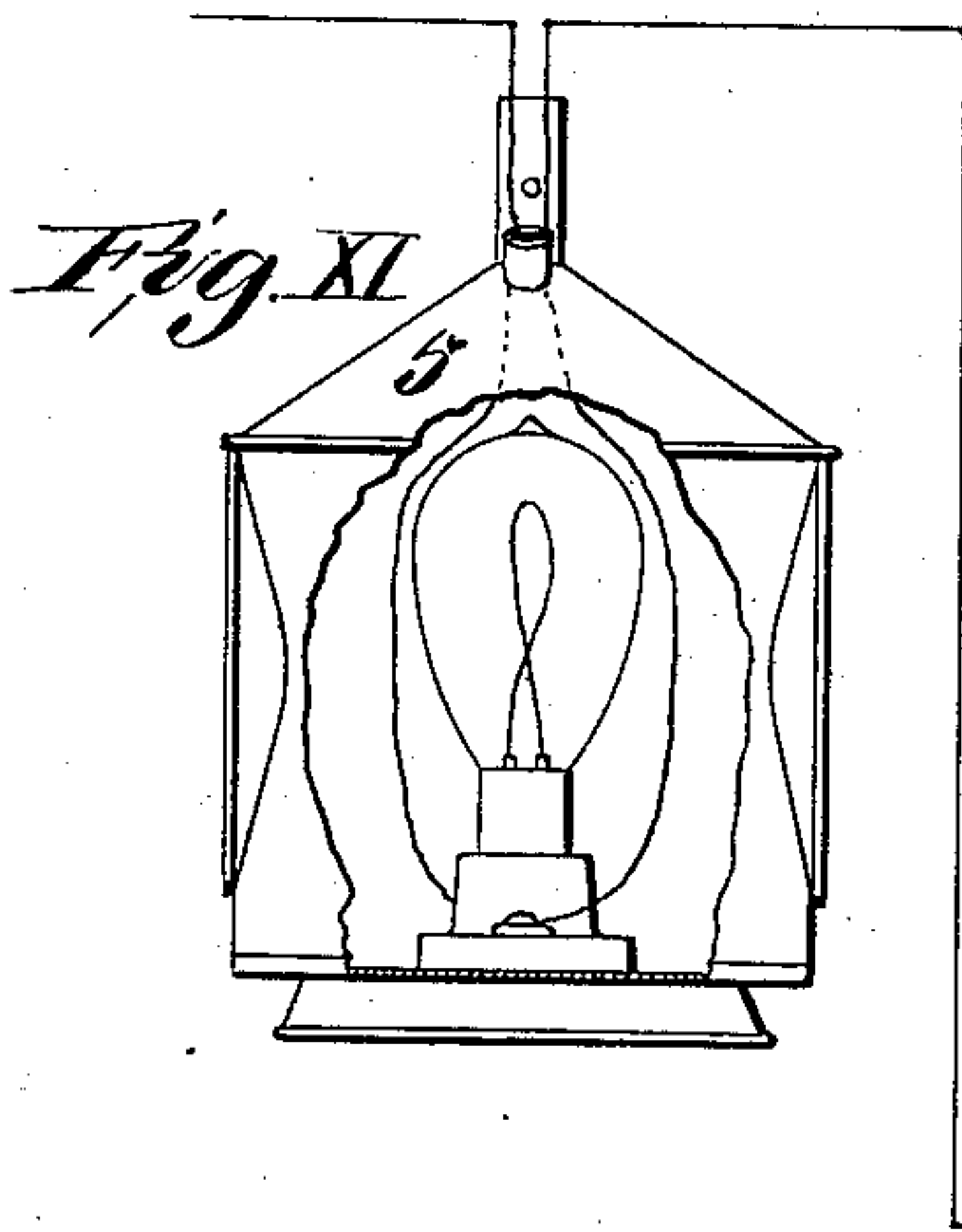
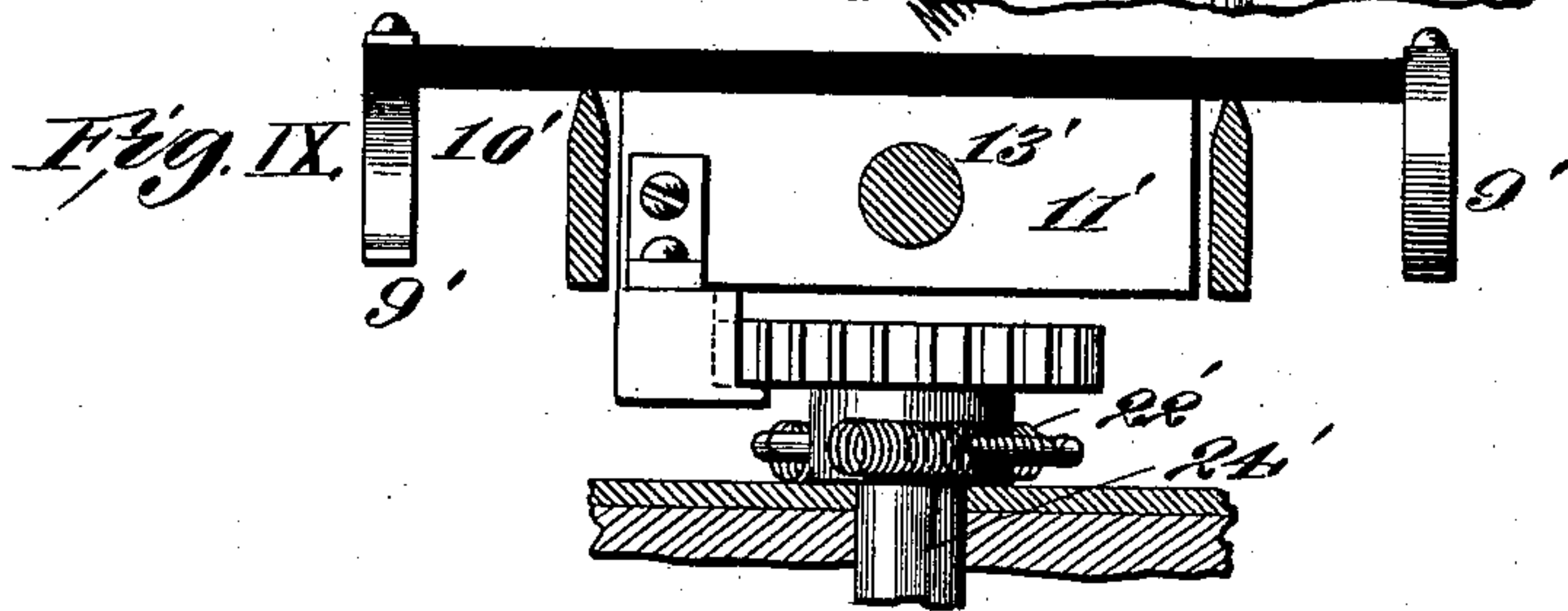
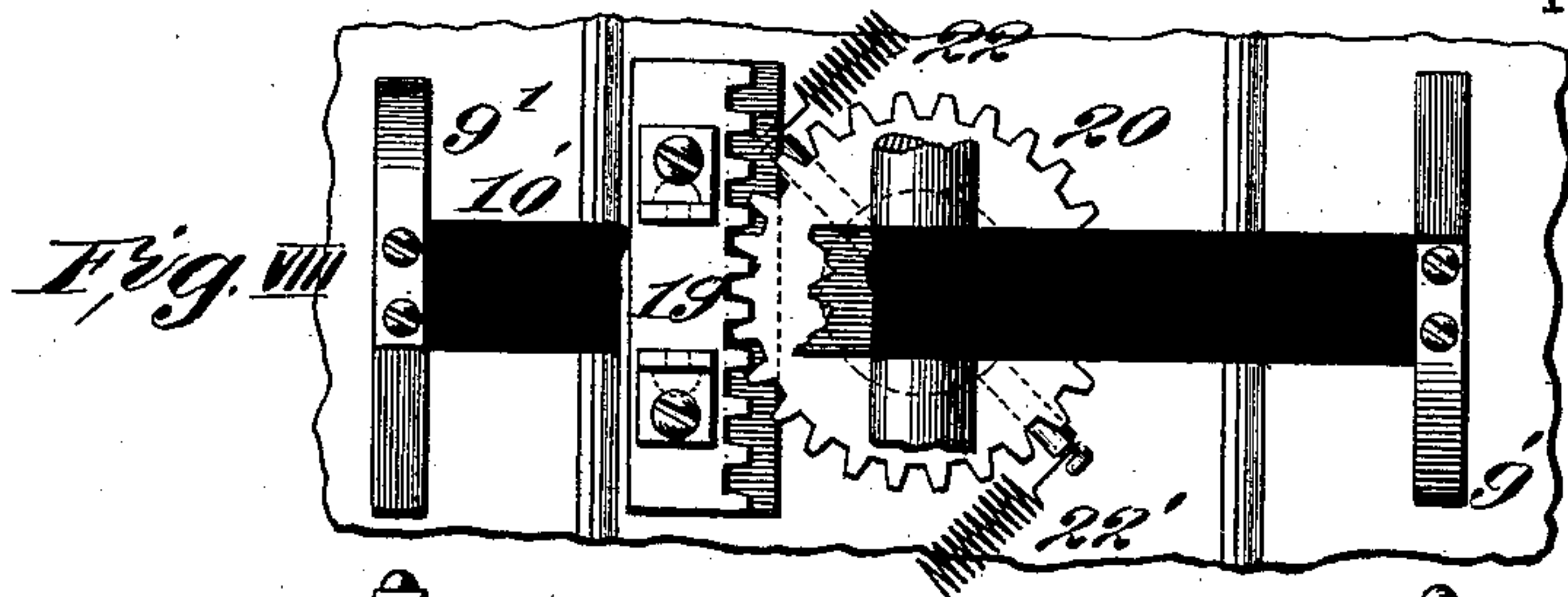
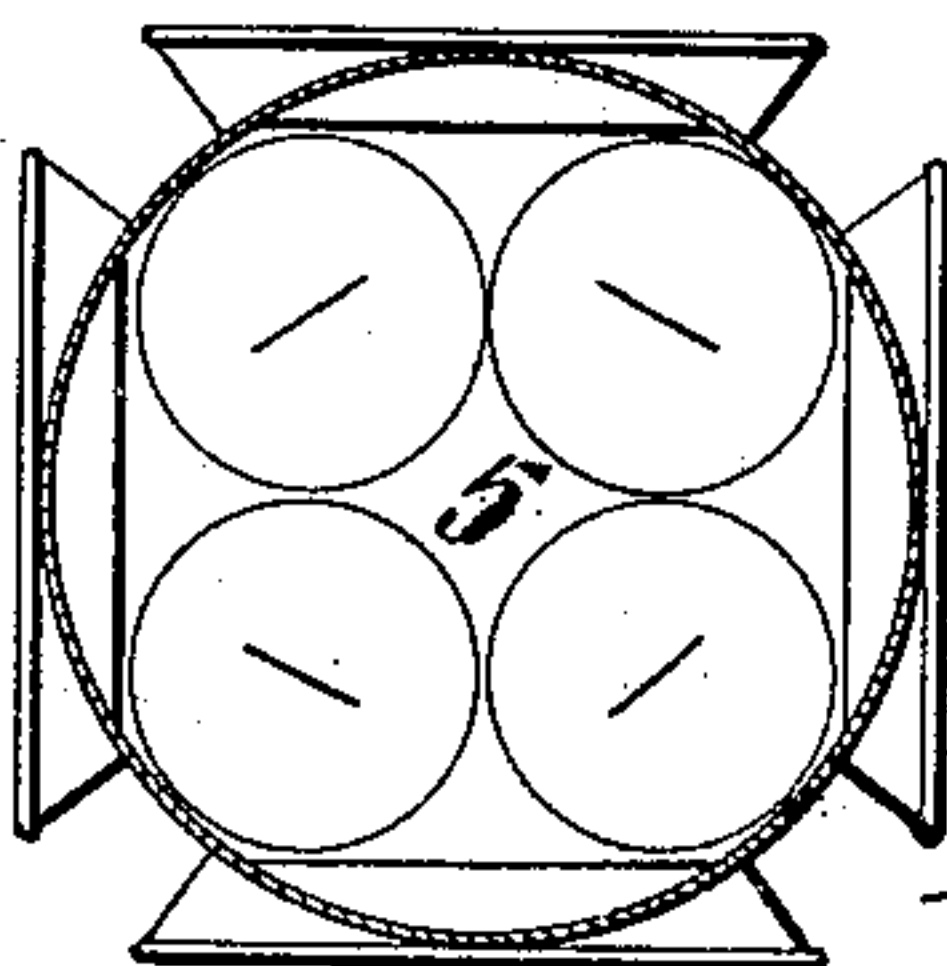


Fig. XII



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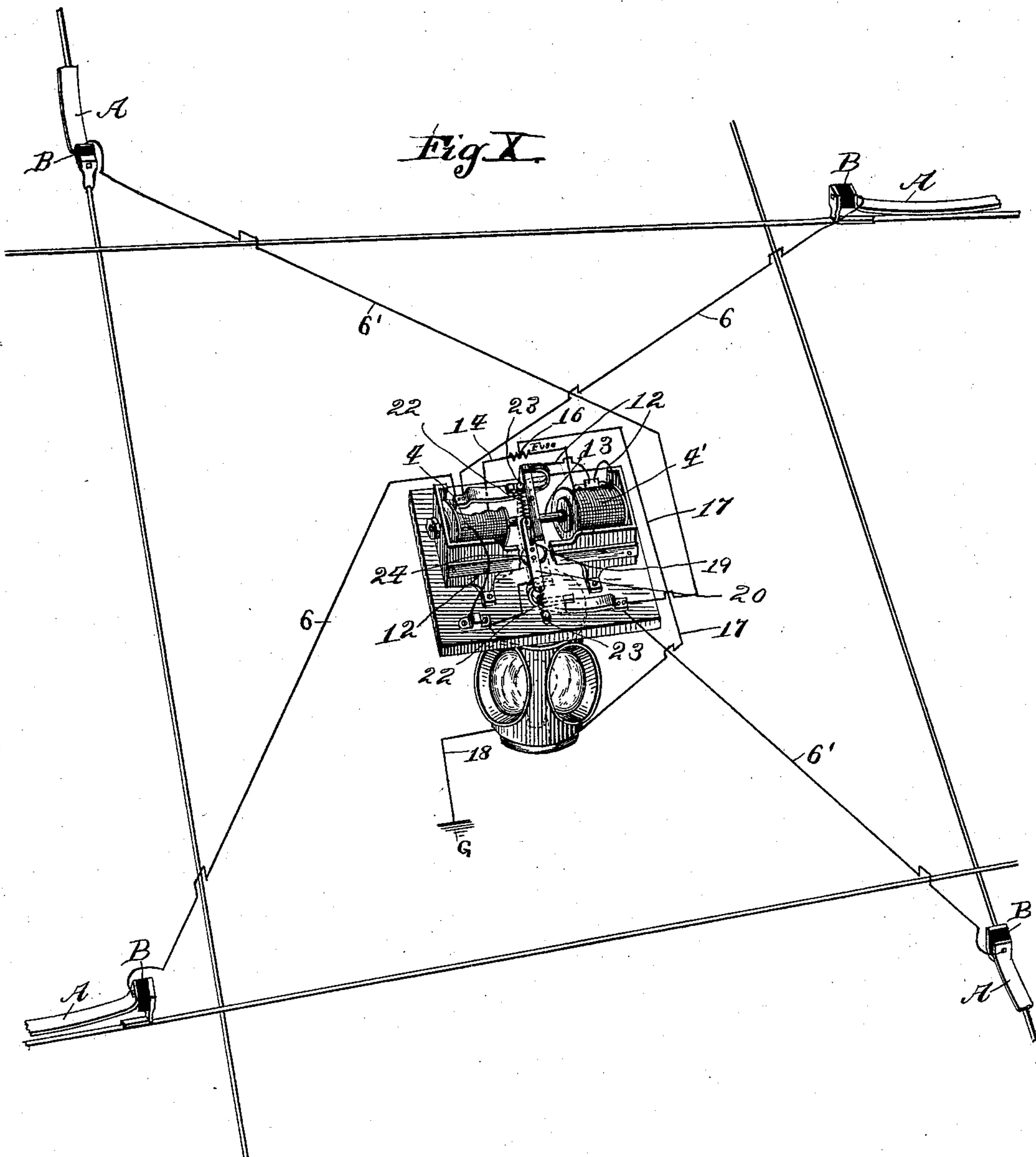
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No. 567,338.

Patented Sept. 8, 1896.



Witnesses:
Herbert Pradley
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Inventor
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by Knight Bros
Attorneys

UNITED STATES PATENT OFFICE.

JOHN R. FARMER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE FARMER ELECTRICAL COMPANY, OF SAME PLACE.

ELECTRIC SIGNAL-LAMP.

SPECIFICATION forming part of Letters Patent No. 567,338, dated September 8, 1896.

Application filed March 14, 1895. Serial No. 541,664. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. FARMER, of the city of St. Louis, State of Missouri, have invented a new and useful Improvement in Electric Signal-Lamps, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to that class of signal-lamps which show a danger or right-of-way light at the crossing of electric railways.

The object of my invention is to provide a lamp that will revolve automatically on the approach of a car by means of a simple mechanism operated by an electric connection formed by the trolley of the car, which closes a circuit through the magnet of the lamp and turns the lamp so as to throw a white light in the direction the car is moving and a red light in the direction of the cross-line.

Referring to the drawings, Figure I illustrates a side elevation of the lamp and the superimposed electromagnet. Fig. II illustrates a top view of the electromagnets, showing the wiring, contacts, and brushes. Fig. III illustrates a cross-section of the same portion of the device as shown in Fig. II through the line II II. Fig. IV illustrates a top view of the turning mechanism with the armature and magnets removed. Fig. V illustrates a bottom view of Fig. II, showing the fuse-block. Fig. VI illustrates in detail the electromagnets, showing the armature drawn to the left coil. Fig. VII shows the same view with the armature drawn to the right. Fig. VIII illustrates a modified form of turning mechanism. Fig. IX shows a cross-section of the same. Fig. X is a diagram showing a double-track cross-line with the lamp in the center of the crossing. Fig. XI is a diagram showing one lamp in the lantern and other lamps used for meeting the resistance. Fig. XII is a cross-section of the lantern, showing four lights therein.

The same numbers designate the same or similar parts throughout the several figures.

1 is the hood, placed over the device.

2 is a rectangular frame secured thereto and supporting a second frame 3, to which the electromagnets 4 are fastened.

5 is the lamp, suspended from the center of

the frame 2, having four lights, alternately white and red.

6 is the wire, through which the current of electricity is introduced. This current is turned through the device from the trolley-wire by means of any suitable construction of circuit closer and breaker A B, which may be of any suitable construction. I have illustrated the construction shown in my application, Serial No. 536,224, filed January 25, 1895.

7 is a binding-post. 8 is a brush in connection therewith.

9 is a contact-plate rigidly secured by means of the insulator 10 to the armature 11.

12 is a wire passing from contact 9 to the electromagnet 4.

13 is the core of the electromagnets. 14 is the wire leading from the said electromagnet to the fuse-block 16.

16 is a fuse-block. 17 is the wire leading therefrom to the lamp.

18 is a ground-wire.

19 is a crank-pin carried on the armature 11. 20 is a crank adapted to be turned by the pin 19, said pin moving in the sliding joint 21.

22 are springs secured to binding-screws 23 in the frame 2 and attached to the crank 20, they being adapted to keep the said crank in a fixed position unless it is turned by the crank-pin 19.

24 is a shaft secured to the crank 20 and turned thereby, said shaft supporting the lantern 5.

15 is the ground-wire binding-post.

The operation of the device is as follows: A current of electricity turned by the circuit maker and breaker A A, located on the wires of one of the cross-tracks (see Fig. X) and entering the device through the wire 6, passes through the binding-post 7 to the brush 8. If, as shown in Figs. I, II, and VI, this brush is in contact with plate 9, the current is conducted therethrough to the coil about the electromagnet 4. Upon this occurring the armature 11 is drawn over against 4. If, however, the current of electricity instead of being introduced through the wire 6 were introduced through 6', which is turned from the wire by the trolley through the circuit maker and breaker B B, as would be the case

when the car approached on the other cross-line, then the reverse action would occur, the electromagnet 4' would be used, and the armature would be drawn to it instead of to 4, as described. The current of electricity passes from the electromagnet-coil out through wire 14 to the fuse-block 16, thence to the lamp 5. With each movement of the armature 11 to one or the other of the magnets the pin 19, attached to said armature, makes a backward or forward motion. This pin rides in a slot 21 of a crank 20, said crank being secured to the shaft 24, which supports the lamp. The backward and forward motion of the crank-pin 19 thus imparts an oscillating motion through a limited arc of, say, one-eighth or one-quarter of a circle, which in turn moves the lamp 5 through the same arc. If the motion is through one-quarter of a circle, a white light, which has been thrown in the direction at right angles to that of an approaching car, will be turned into the direction of the car and a red light will be shown in the direction of the cross-line.

Figs. VIII and IX show a modified form of changing the longitudinal motion of the armature to rotary. Instead of carrying a pin 19 it is furnished with a rack 19'. This rack is adapted to turn a cog-wheel 20', to which the lamp 5 is secured. Both where a crank 20 and crank-pins 19 and a rack 19' and cog-wheel 20' are used springs 22 and 22' are secured thereto and are adapted to turn the lamp back to its normal position after having been turned therefrom by the action of the armature and magnet.

Fig. XI illustrates in diagram my method

of overcoming resistance by using lamps instead of using a resistance-coil. It shows only one light in the lantern 5, while three others, supposing that the current were of suitable strength for four, are situated elsewhere, as may be desired.

Fig. XII shows all four lights in the lantern 5.

I claim as my invention—

In an automatic signal for electric railway-crossings the combination of the crossing trolley-wires having adjacent thereto contacts to be charged by impingement of the trolley, a movable signal-lamp, an armature controlling the movements of said lamp, electromagnets moving said armature in opposite directions, a conductor leading to ground, conductors leading from the trolley-contacts to contacts at opposite ends of the armature, brushes carried by the armature and adapted to impinge on their respective contacts by opposite movements of the armature, conductors connecting the respective brushes with corresponding magnets, and wires connecting both magnets with the common ground connection, through the lamp so that when either trolley-contact and trolley-wire are bridged by a trolley-wheel, the contact, the corresponding magnet, and the lamp are connected in a series circuit branched from the main line and independent of the motor and the connection from the other track is mechanically interrupted, as explained.

JOHN R. FARMER.

In presence of—

STANLEY STONER,
W. FINLEY.