

(No Model.)

2 Sheets—Sheet 1.

M. WUERPEL.

ELECTRIC APPLIANCE FOR RAILWAY SWITCHES.

No. 405,519.

Patented June 18, 1889.

Fig. I.

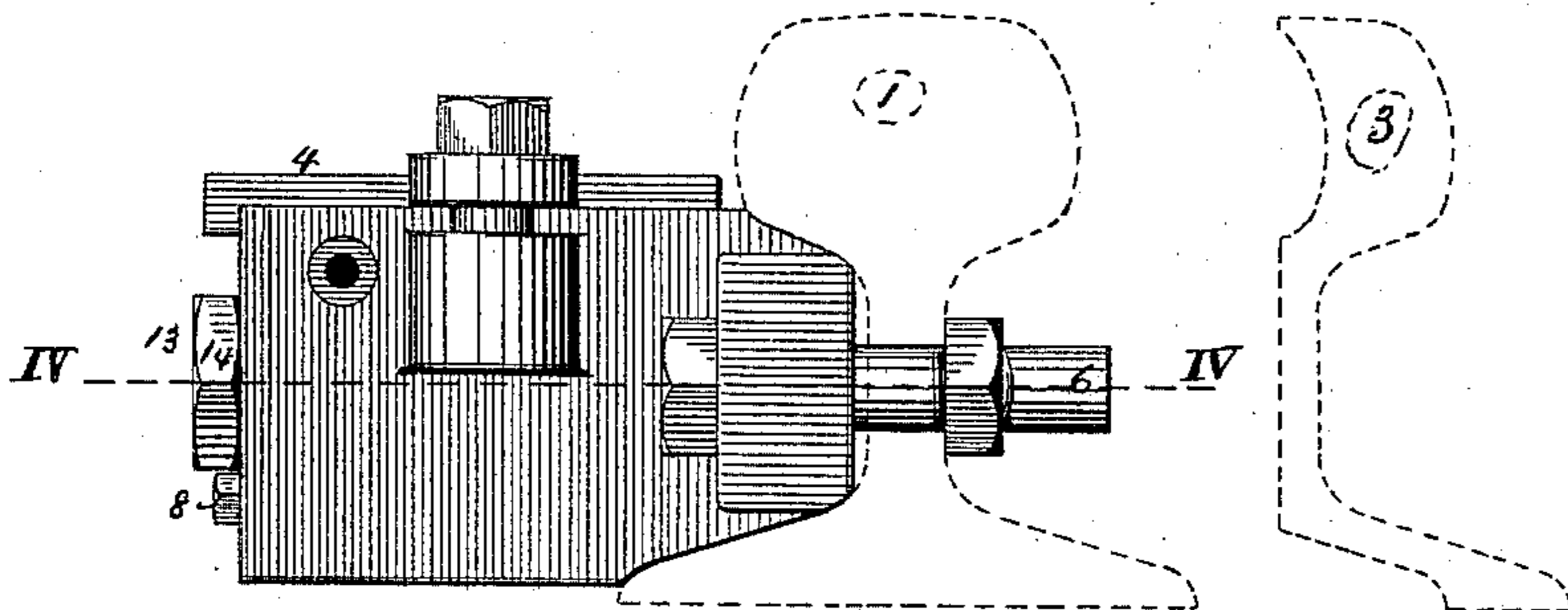


Fig. II

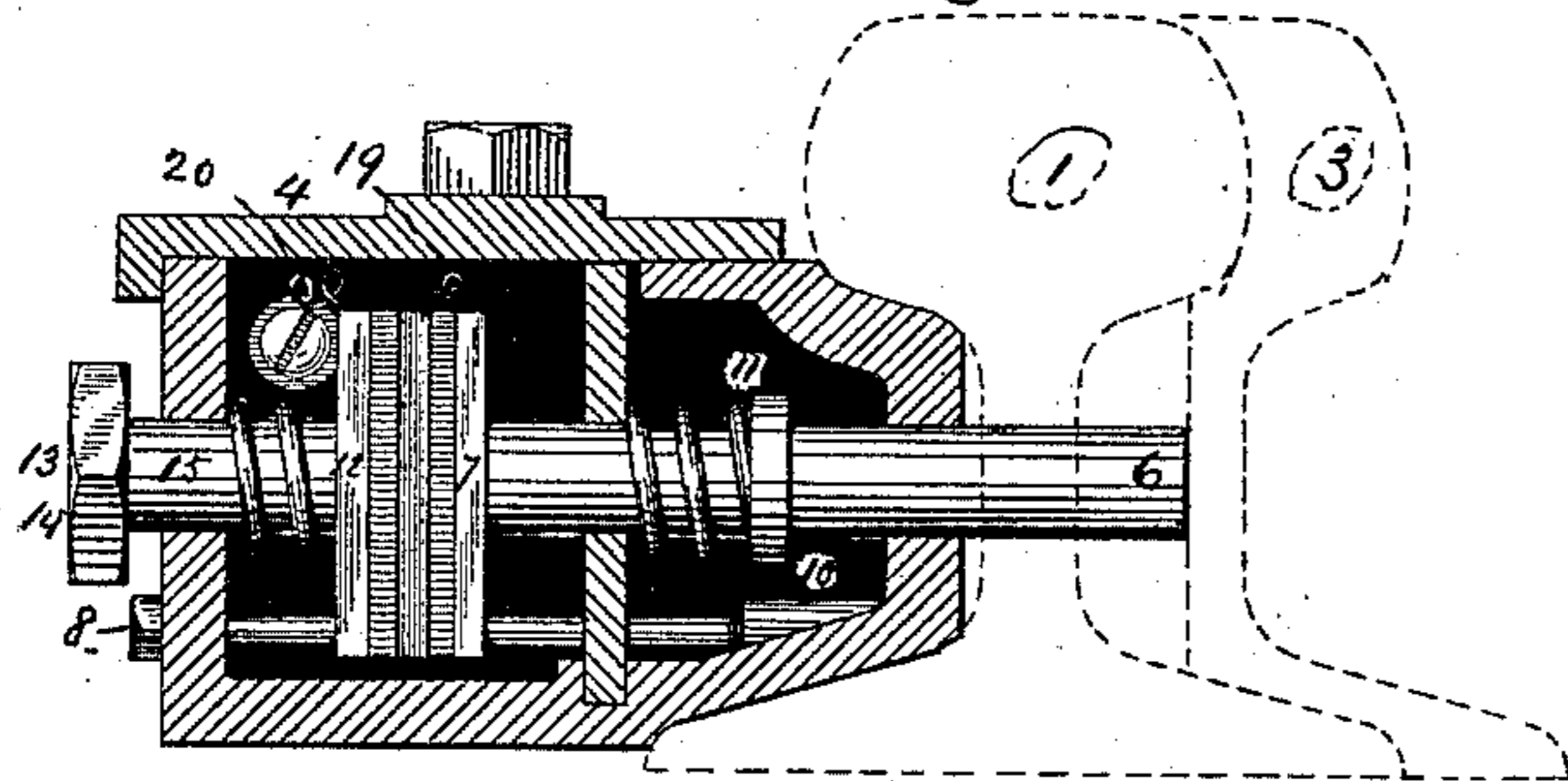


Fig. III.

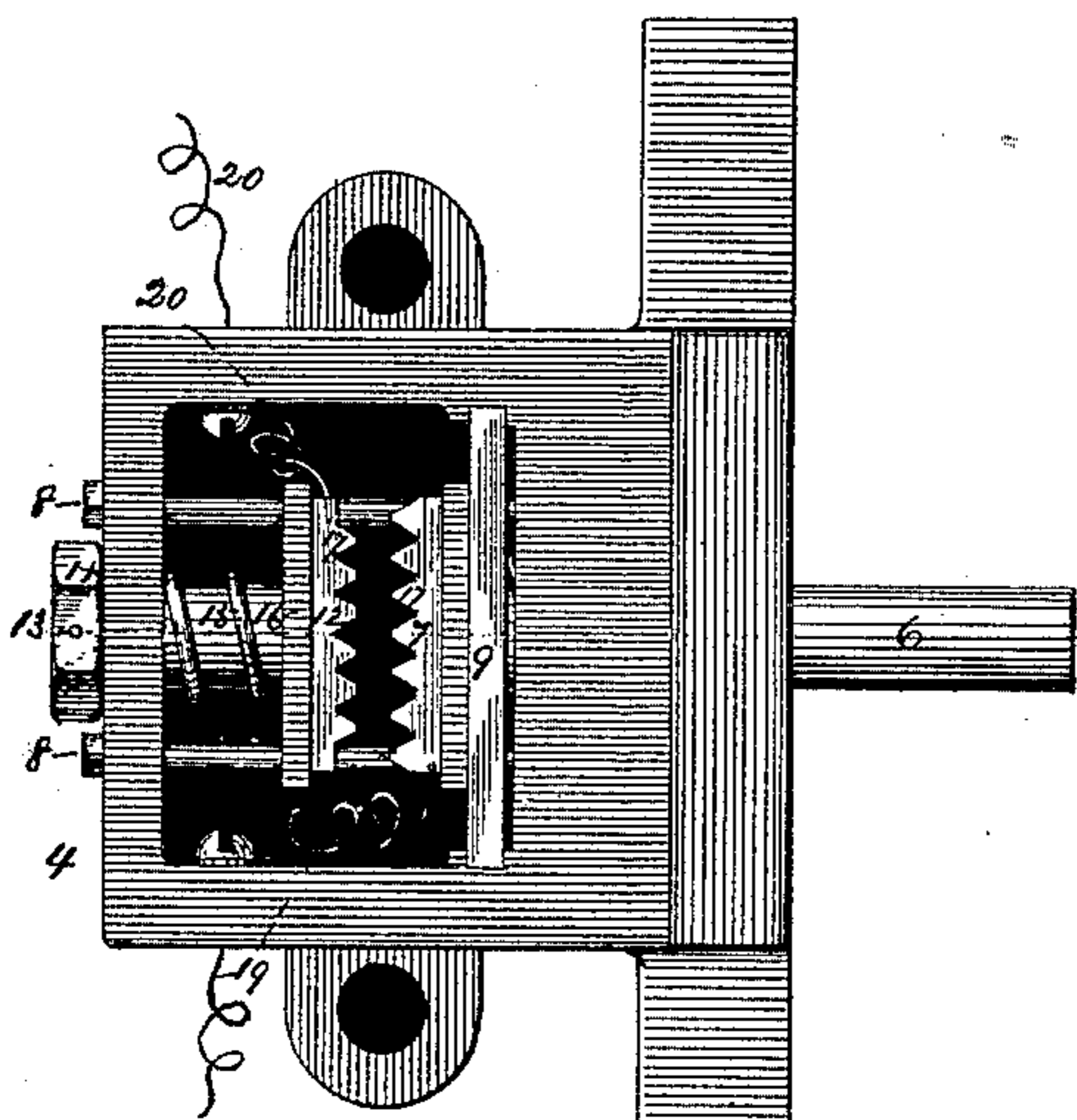
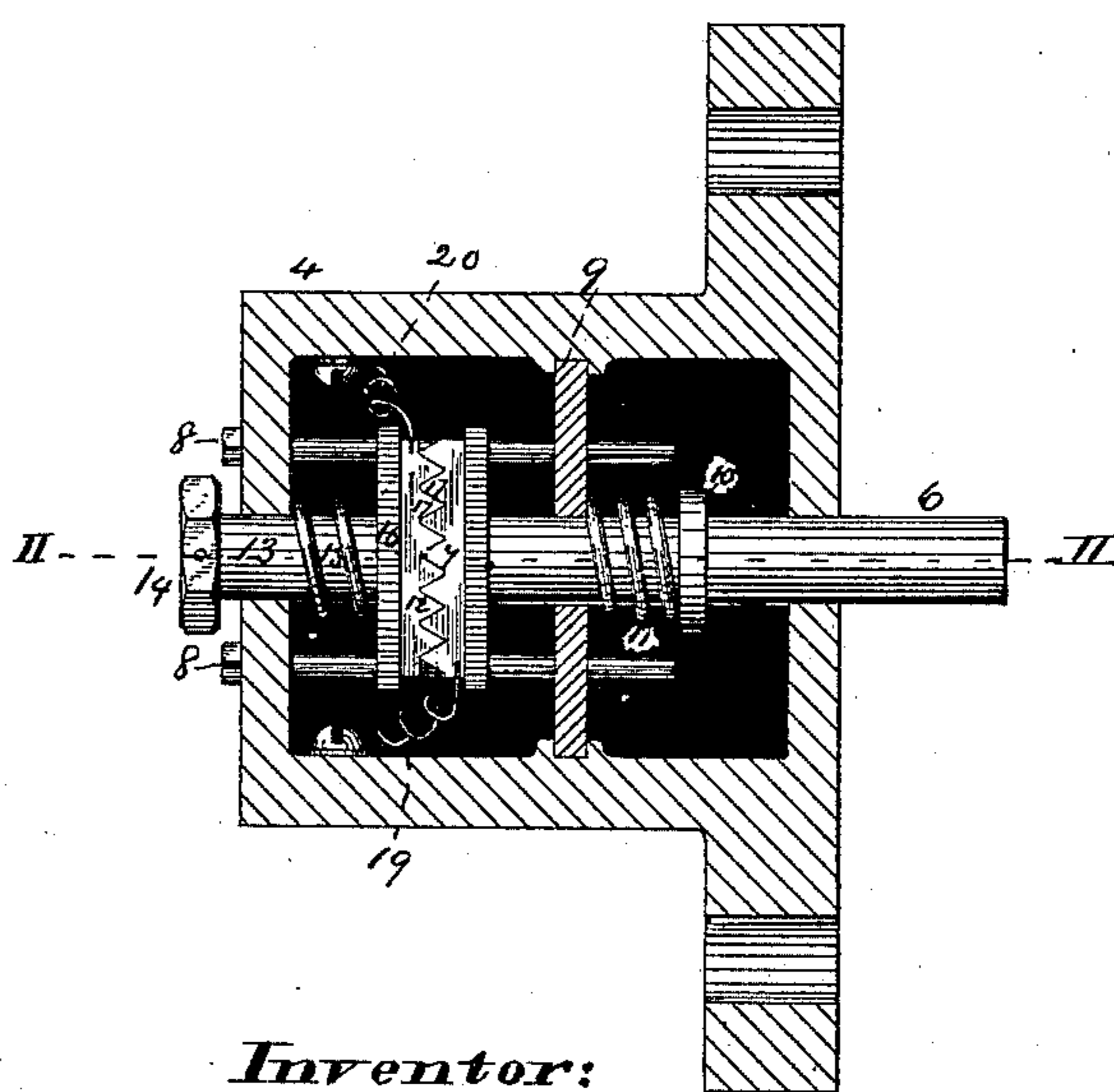


Fig. IV.



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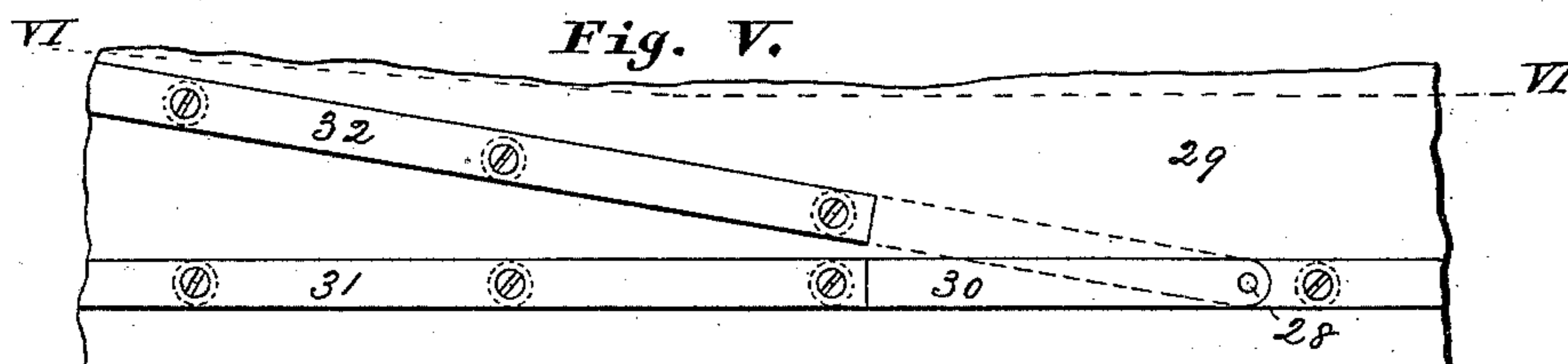


Fig. VI.

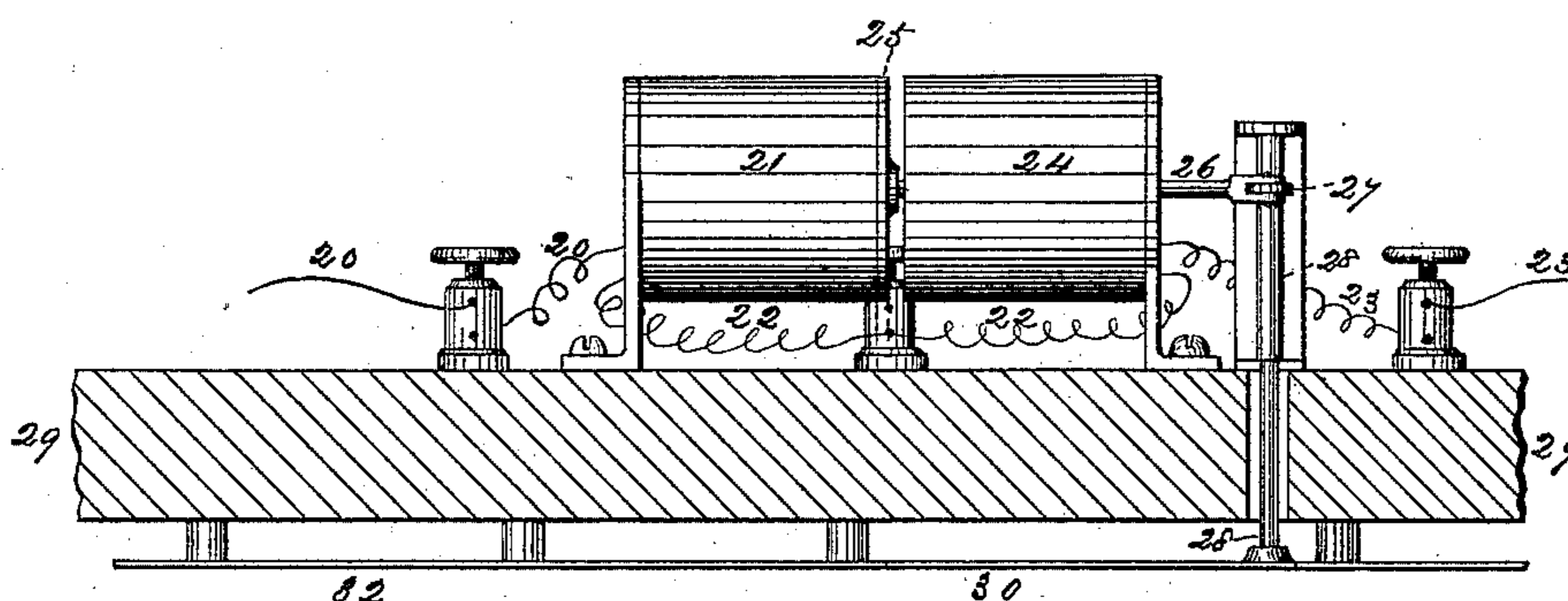


Fig. VII.

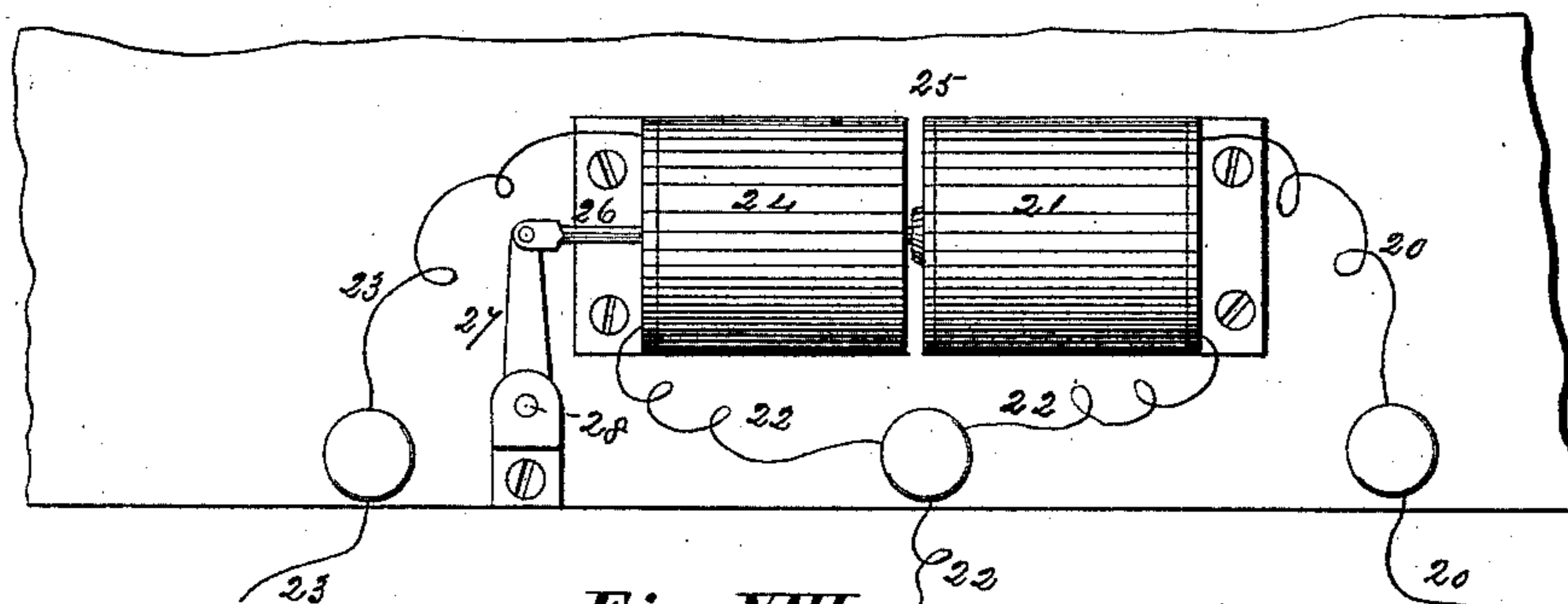
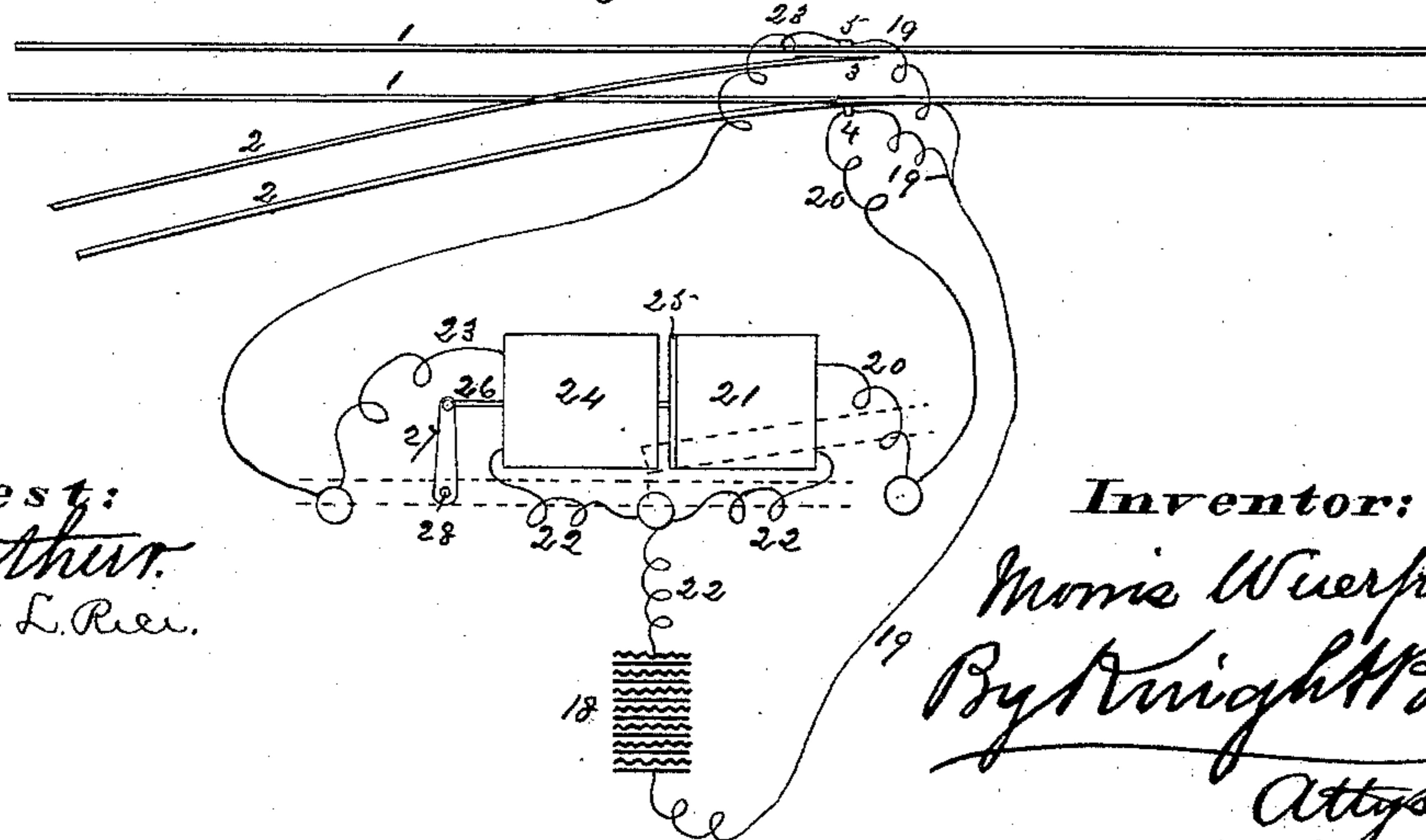


Fig. VIII.



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UNITED STATES PATENT OFFICE.

MORRIS WUERPEL, OF ST. LOUIS, MISSOURI.

ELECTRIC APPLIANCE FOR RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 405,519, dated June 18, 1889.

Application filed April 30, 1888. Serial No. 272,353. (No model.)

To all whom it may concern:

Be it known that I, MORRIS WUERPEL, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Electric Appliances for Railway-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This is a device to indicate the position of the moving rail of a switch. It is shown applied to a split switch.

Figure I is a side view of the part of the device that is attached to the fixed rail of the switch. Fig. II is a vertical section at II II, Fig. IV. Fig. III is a top view with the cover removed. Fig. IV is a section at IV IV, Fig. I, except that the parts are shown in a different position—namely, in the position shown in Fig. II. Fig. V is an elevation of the indicator-board. Fig. VI is a section at VI VI, Fig. V, showing a top view of the electro-magnets. Fig. VII is a rear view of the indicator-board, showing the electro-magnets in elevation. Fig. VIII is a diagram illustrating the device.

At 1 are shown the fixed rails of the main line, at 2 the fixed rails of the side line, (see Fig. VIII,) and at 3 the moving rails of the switch. 4 and 5 are similar instruments bolted fast to the fixed rails of the main and side lines upon the side opposite to the switch-rail, a description of one (4) applying equally to the other.

35 6 is a pin carrying at its inner end an insulated metal block 7, working on guide-pins 8. The pin 6 works through the side of the case and through the rail to which the case is attached.

40 9 is a guide-plate, through which the pin 6 works.

10 is a collar on the pin 6.

11 is a spiral spring upon the pin 6 between the collar and the plate 9, tending to push the pin 6 and block 7 into the position shown in Figs. I and III.

12 is an insulated metal block supported on guide-pins 13 and 8. The pin 13 works through the wall of the case and carries a head 14, which limits the inward movement of the pin, and consequently of the block 12.

15 is a spiral spring upon the pin 13, bearing against the inner side of the case at one end and at the other against the guide-plate 16 of the block 13. The tendency of the spring is to push the block 13 into the position shown in Fig. III.

When the switch-rail is moved from the position shown in Fig. I to the position shown in Fig. II, the rail comes in contact with the pin 6 and pushes the block 7 from the position shown in Fig. III to the position shown in Fig. IV, thus throwing the two insulated blocks 7 and 12 into contact. The spring 15 acts as a relief-spring, allowing the retreat of the block 12. The contact-faces of the blocks are preferably formed with matching teeth or ribs 17, increasing the contact-surfaces. The parts may be so nicely adjusted that there will be no contact between the blocks 7 and 12 until the switch-rail reaches a true position, so that the device would act as a safety-indicator, showing whether or not the switch-rail was in a position of safety for the train. For instance, in a split switch, if the inclined point of the switch-rail does not come in contact with the side of the fixed rail, the flange of the car-wheel may run between them, and the switch will fail to perform its office.

18 is a galvanic battery, one pole of which is connected by a wire 19 with the block 7 in both of the instruments 4 and 5, respectively.

20 is a wire extending from the block 12 of the instrument 4 to the coil of an electro-magnet 21, the other end of the magnet-coil being connected by a wire 22 with the other pole of the battery. The block 12 of the instrument 5 is connected by a wire 23 with the coil of the electro-magnet 24, and the other end of this coil is connected by the wire 22 to the battery. Between the electro-magnets 21 and 24 is an armature 25 upon a rod or stem 26, extending axially through the magnets 24 with free endwise movement, and connected at one end with an arm 27 of the rock-shaft 28. The rock-shaft 28 passes through the signal-board 29 and carries an indicator finger or strip 30.

31 is a strip representing the main track or line and made fast to the face of the board, and 32 is a similar strip representing the side track or line. These strips converge toward the rock-shaft 28. The construction is such

that when the armature is drawn to one of the magnets 21 the finger 30 is in line with the strip 31, and when the armature is drawn to the other magnet 24 the finger is in line with the other strip 32.

The drawings represent the switch in position for cars to run through on the main line, the circuit being closed through the instrument 4 and broken through the instrument 5 and the armature attracted to the magnet 21. If the switch is moved, the circuit will be broken through the instrument 4 and the magnet 21 and will be established through the instrument 5 and magnet 24, and the finger 30 will be thrown into line with the strip 32, representing the side line or track, as seen by broken lines in Fig. V. Should, however, some obstruction prevent the switch-point coming to its proper and safe position, the current is not established through the instrument, and the indicator device apprises the operator of the defect.

I claim—

1. The combination of the two moving rails of a railroad-switch, a block 7, moved by each rail into contact with another block 12, wires connecting both of the blocks 12 with one pole of a galvanic battery, wires connecting the blocks 7 with the coils of different electromagnets, both of which have electric connection with the other pole of the electric battery, and an armature common to both magnets and connected with an indicating-finger, all arranged so that the circuit will be closed

whether the switch is open or closed, and thus show by means of an indicating device the position of the switch-rails, substantially as and for the purpose set forth.

2. In a circuit-closer for railway-switches, the combination of the rod 6, carrying at its inner end insulated block 7, having electrical connection with one pole of a galvanic battery and signaling device, a second rod 13, carrying insulated block 12, having electrical connection with the other pole of the galvanic battery, both blocks 7 12 having their contact-faces formed with matching teeth or ribs 17 for increasing their contact-surfaces, a movable switch-rail adapted to place the insulated blocks 7 12 into electrical connection, a spring on rod 6 for keeping the blocks normally separated, and a spring on rod 13 for affording a yielding contact, whereby the exact position of the switch-rails is constantly shown by the signaling device, as set forth.

3. In a circuit-closer for railway-switch signals, the combination of a box, the two terminals of the signal-circuit, the blocks 7 12, connected to the respective terminals, the rods 6 13, carrying said blocks and mounted in the box-springs on said rods, and guide-rods 8 on which the blocks slide, said rod 6 protruding for contact with the rail, all substantially as herein set forth.

MORRIS WUERPEL.

In presence of—

SAML. KNIGHT,
JOS. WAHLE.