

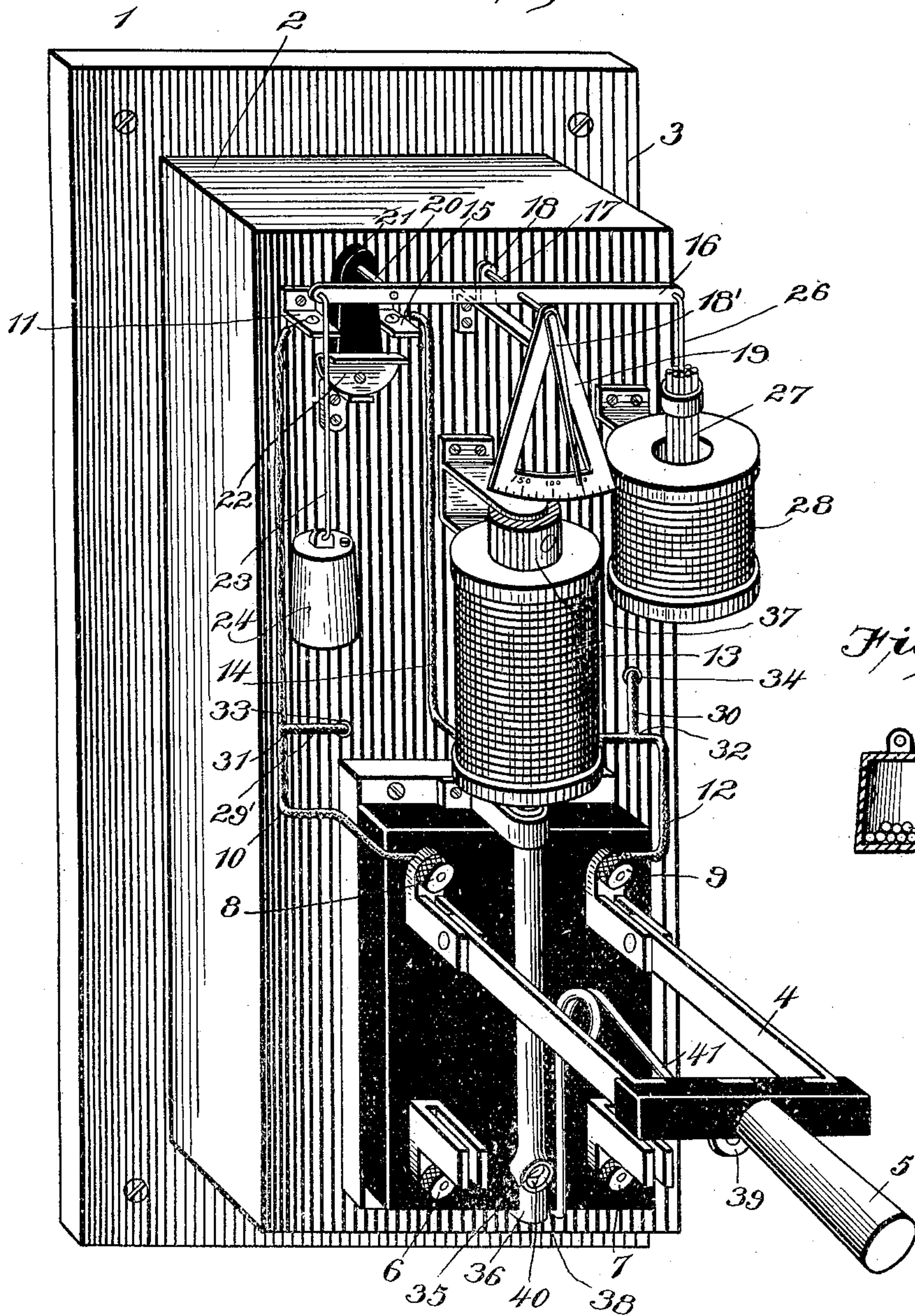
No. 822,084.

PATENTED MAY 29, 1906.

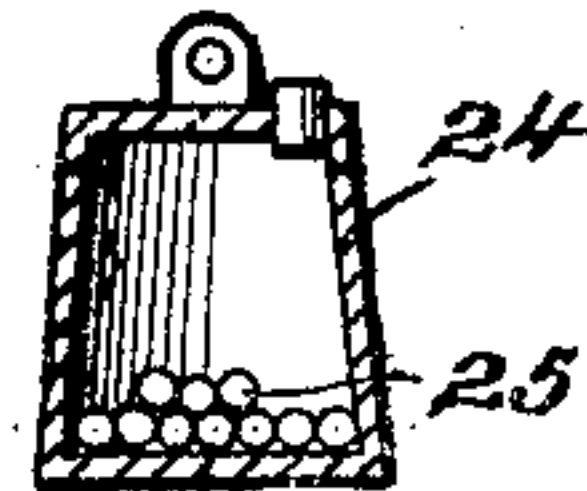
G. G. STOUT.  
ELECTRIC CIRCUIT BREAKER.  
APPLICATION FILED MAR. 30, 1905.

3 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 5.*



Witnesses

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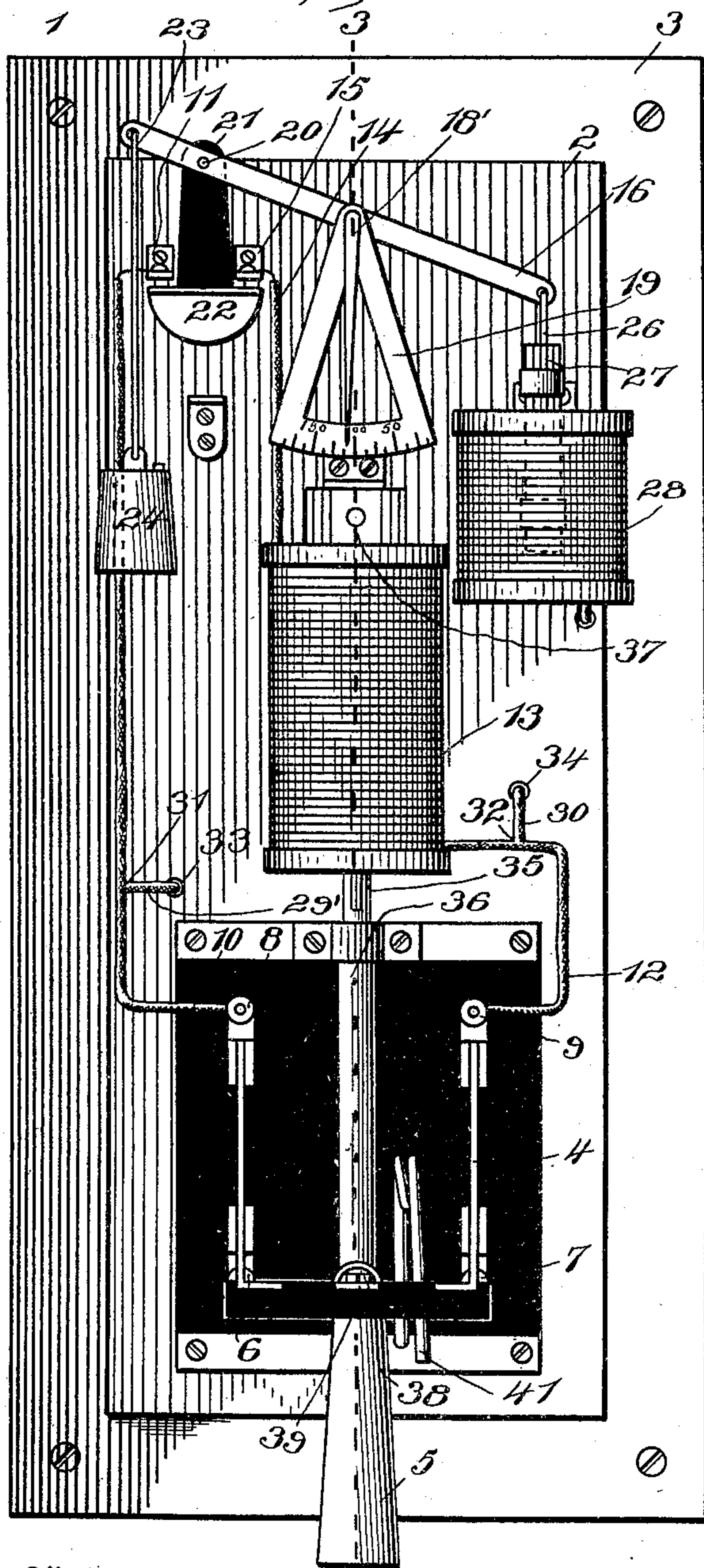
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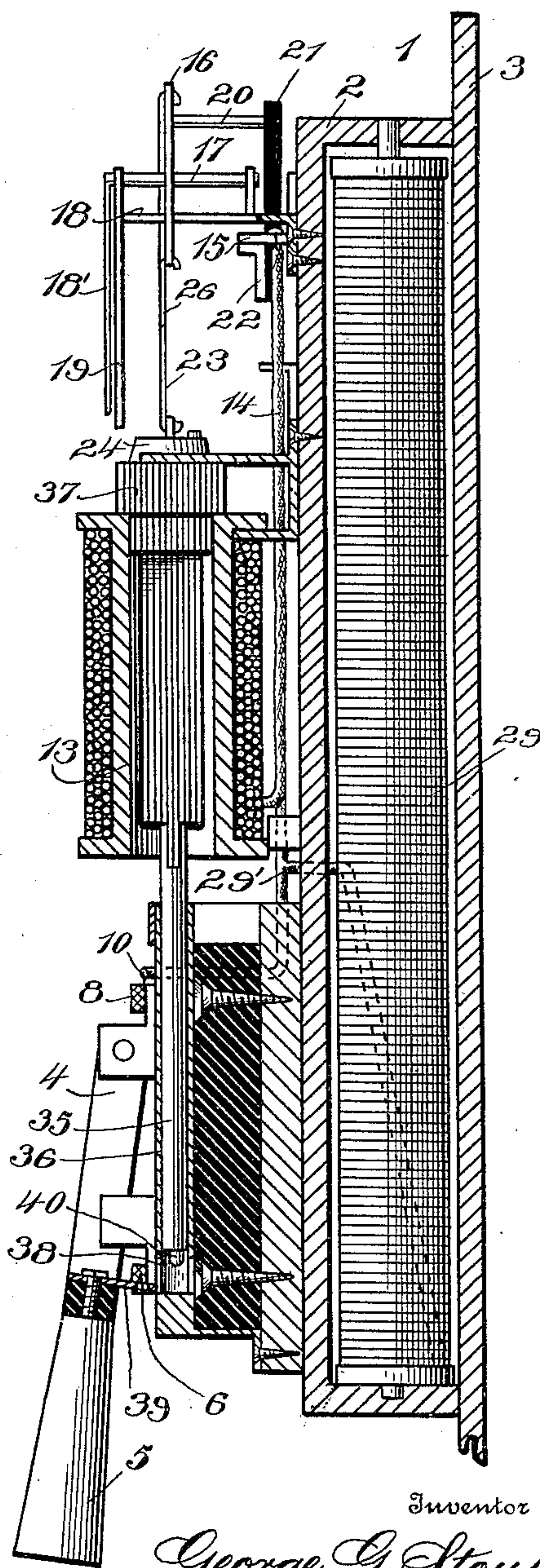
Fig. 2.



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Fig. 3.



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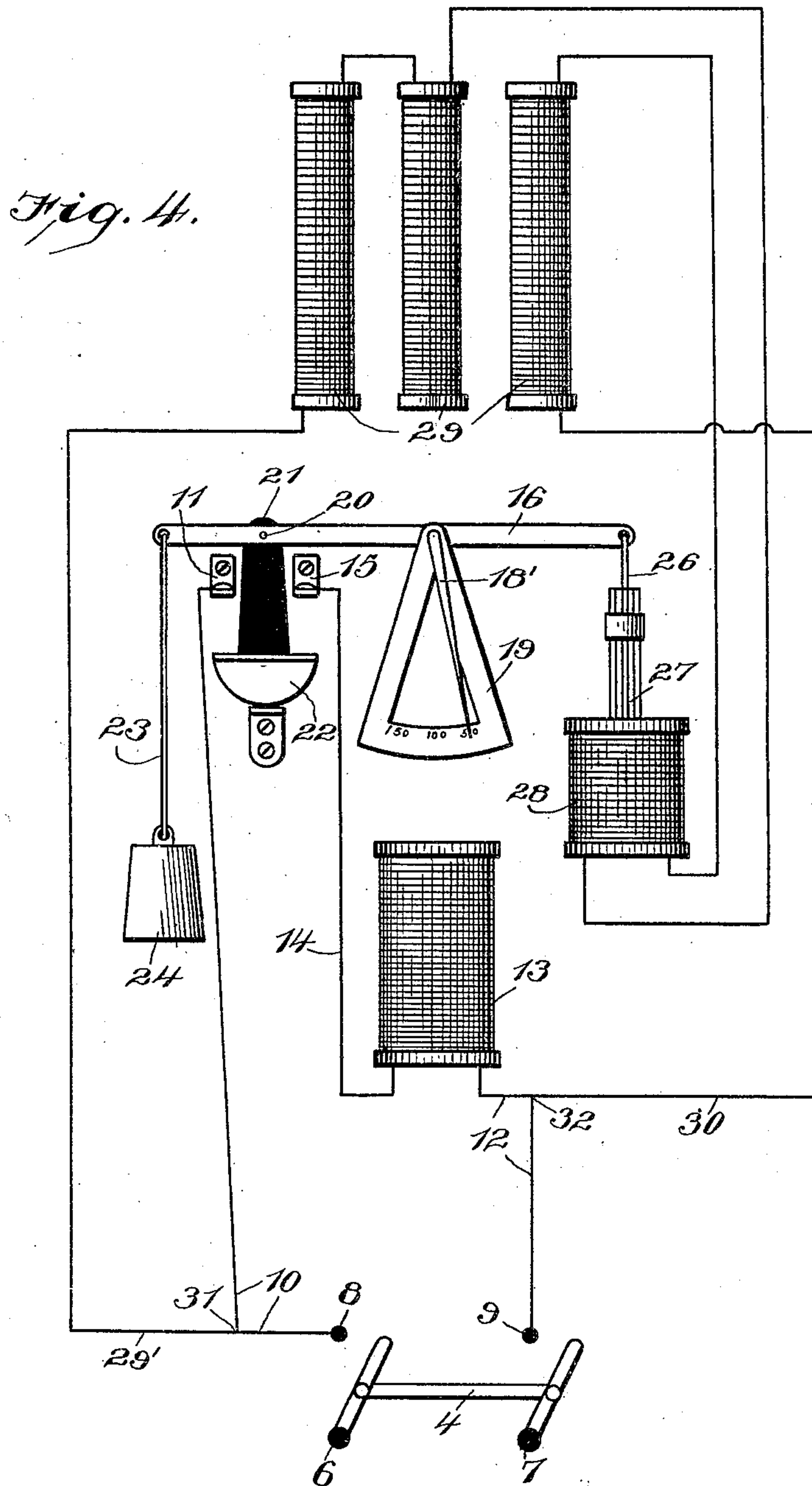
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3 SHEETS--SHEET 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

GEORGE GALE STOUT, OF PARKERSBURG, WEST VIRGINIA.

## ELECTRIC-CIRCUIT BREAKER.

No. 822,084.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed March 30, 1905. Serial No. 252,827.

*To all whom it may concern:*

Be it known that I, GEORGE GALE STOUT, a citizen of the United States, residing at Parkersburg, in the county of Wood and State of West Virginia, have invented certain new and useful Improvements in Electric-Circuit Breakers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to main-line electric-circuit breakers arranged for automatically breaking the circuit when the excess of current flows on the circuit from lightning or from the primary coils of transformers burning through their insulation, thereby raising the voltage to a dangerous degree, or whenever from any cause there is an excess of current, which would endanger property by fire or endanger the occupants of any building into which the secondary circuit enters.

My invention has for its object to provide a device for the above purpose which is capable of the finest adjustment, so as to be operated by a current of any predetermined voltage, and which indicates by a simple meter the voltage of the current flowing on the circuit.

With all these objects in view my invention consists in the novel arrangement of the automatic switch-releasing mechanism.

My invention also consists in the novel circuit-closing construction for releasing the switch.

My invention also consists in the novel means of adjusting the device to be operated by a current of any voltage; and my invention also consists in the novel construction of the switch and switch-holding rod.

My invention also consists in certain other novel features of construction and in combinations of parts which will be first fully described and afterward specifically pointed out in the appended claims.

Referring to the accompanying drawings, Figure 1 is a perspective view of the circuit-breaking device, showing switch released. Fig. 2 is an elevation showing switch closed. Fig. 3 is a vertical section taken on line 3 3 of Fig. 2, showing switch in the act of being released. Fig. 4 is a diagrammatic view show-

ing wiring, and Fig. 5 is a vertical section through adjusting-weight.

Like numerals of reference indicate the same parts throughout the several figures, in which—

1 indicates the device, which comprises the box 2, mounted on the base 3 in any convenient and suitable manner.

4 indicates the switch of the usual form, having the handle 5 and binding-posts 6, 7, 8, and 9, said switch being of such a character as to provide a long gap to avoid arcing.

Connected to the binding-post 8 is a wire 10, which passes up and is connected to the contact 11, and connected to the binding-post 9 is a wire 12, which is connected to the large magnet-coil 13, and passing from said magnet-coil 13 is a wire 14, which passes up and is connected to the contact 15.

16 indicates a balance-beam which is fulcrumed on the rocking rod 17, carried in the bracket 18, and connected to the outer end of said rocking rod 17 is the indicating-arm 18', and 19 indicates the meter-quadrant, which is graduated, as shown. Carried on said balance-beam 16 is a pin 20, on which is carried the link 21, of wood fiber or other suitable non-conducting material, and pivoted to the lower end of said link is the pivoted contact 22. As shown in Fig. 1, the link 21 passes down between the contacts 11 and 15 and is guided thereby, which construction always holds the pivoted contact 22 directly below said contacts 11 and 15, and the pivoted feature of the contact 22 always insures a good contact between the contact 22 and contacts 11 and 15 when said pivoted contact 22 is raised in the manner as will be hereinafter fully described.

Connected to the balance-beam 16 beyond the link 21 is a link 23, to which is connected a weight 24, which, as shown in Fig. 5, is preferably hollow and designed to carry shot 25, which are run in or taken out as desired in order to secure the proper balance.

Connected to the opposite end of the balance-beam 16 is a link 26, connected to a magnet core or armature 27, which hangs suspended in a small resistance-coil 28, as shown, said coil 28 being connected in series with the resistance-coils 29, which are in multiple on the circuit, located in the box 2, said coils being connected across the poles of the switch by wires 29' and 30, connected to the wires 10 and 12 at the points 31 and 32, said wires



passing through openings 33 and 34 in the face of the box, as shown in Figs. 1 and 2.

35 indicates the switch-locking bolt, which is carried in a tube 36 and which extends well up into the core of the magnet-coil 13, that portion of the bolt within the core of the magnet being considerably enlarged, as shown in Fig. 3, on the top of which coil is carried a short pole-piece 37. The tube 36 is provided with an opening 38 near the bottom end thereof, and the switch 4 is provided with a perforated extension 39, constructed to enter said opening 38, as shown in Fig. 3, the locking-bolt 35 being provided with a hemispherical point 40, designed to pass through the perforated extension 39 on the switch to lock the switch in a closed position.

41 indicates a spring having a normal tendency to open the switch, said spring of sufficient tension to throw open the switch when released by the locking-bolt 35 and to give a quick break of long gap to avoid arcing, as shown in Fig. 1.

Having thus fully described the several parts of my invention, its operation is as follows: When the switch is closed, the locking-bolt 35 enters the perforated extension 39 and locks said switch in a closed position against the spring 41. The resistance-coil 28 being connected across the poles of the switch by wires 29' and 30, as shown and as before described, the magnet-core 27, suspended within said coil, is drawn down into said coil according to the voltage of the current. If, for instance, the device is adjusted to open the switch when the voltage is in excess of one hundred and ten volts, a sufficient quantity of shot is poured into the weight 24 to balance the beam at a hundred or a hundred and five volts about in the position shown in Fig. 2. As soon, therefore, as the voltage reaches one hundred and ten volts (or any other predetermined voltage) the magnet-core 27 is drawn down within the coil 28, which raises the opposite end of the beam and brings the pivoted contact 22 in contact with the fixed contacts 11 and 15, instantly closing the circuit which is connected across the poles of the switch and magnetizing the pole-piece 37 in the top of the large coil 13, which instantly draws the switch-locking bolt out of engagement with the perforated extension 39 on the switch and allows the spring 41 to throw open the switch, giving a quick break of long gap in the circuit.

As is evident from the foregoing specification, taken in connection with the accompanying drawings, this circuit-breaker is capable of the finest adjustment, while the current does not pass through the large coil which operates the switch-locking bolt only when the voltage reaches the danger-point, and only momentarily, as the circuit is then instantly broken. The locking-bolt, there-

fore, and its coil are not influenced by any variation of the current, and consequently the coil is not subject to being burned out.

Having thus fully described my invention, I do not wish to be understood as limiting myself to the exact construction as herein set forth, as various slight changes may be made therein which would fall within the limit and scope of my invention, and I consider myself clearly entitled to all such changes and modifications.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In an electric-circuit breaker, the combination with a switch, of a resistance-coil connected across the poles of said switch, a magnet-core loosely suspended within said coil, a balance-beam connected to said suspended core and actuated thereby in such manner that the voltage may be determined, a magnet-coil connected across the poles of said switch with an open-circuit switch, a locking-bolt associated with said latter coil, a movable contact adapted to be moved by said balance-beam to close said open circuit and cause said latter coil to actuate said switch-locking bolt to release said switch.

2. In an electric-circuit breaker, the combination with a switch, of a resistance-coil connected across the poles of said switch, an armature associated with said coil, a magnet-coil connected across the poles of said switch with an open-circuit switch, connecting means between said open-circuit switch and said armature, a switch-locking element associated with said last-mentioned coil, said open-circuit switch being adapted to be closed by the movement of said armature which causes said last-mentioned coil to actuate said switch-locking element to release said switch.

3. In an electric-circuit breaker, the combination with a switch, of a series of resistance-coils connected in series to each other and in multiple on the circuit, a magnet-core loosely suspended within one of said resistance-coils, a balance-beam connected to said suspended core and actuated thereby in such manner that the voltage can be determined, a magnet-coil connected across the poles of said switch with an open-circuit switch, a locking-bolt associated with said latter coil, a movable contact adapted to be moved by said balance-beam to close said open circuit and cause said latter coil to actuate said switch-locking bolt to release said switch.

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

GEORGE GALE STOUT.

Witnesses:

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W. T. RITTENHOUSE.