

(No Model.)

S. S. WHEELER.

ELECTRIC SWITCH.

No. 385,782.

Patented July 10, 1888.

Fig. 1,

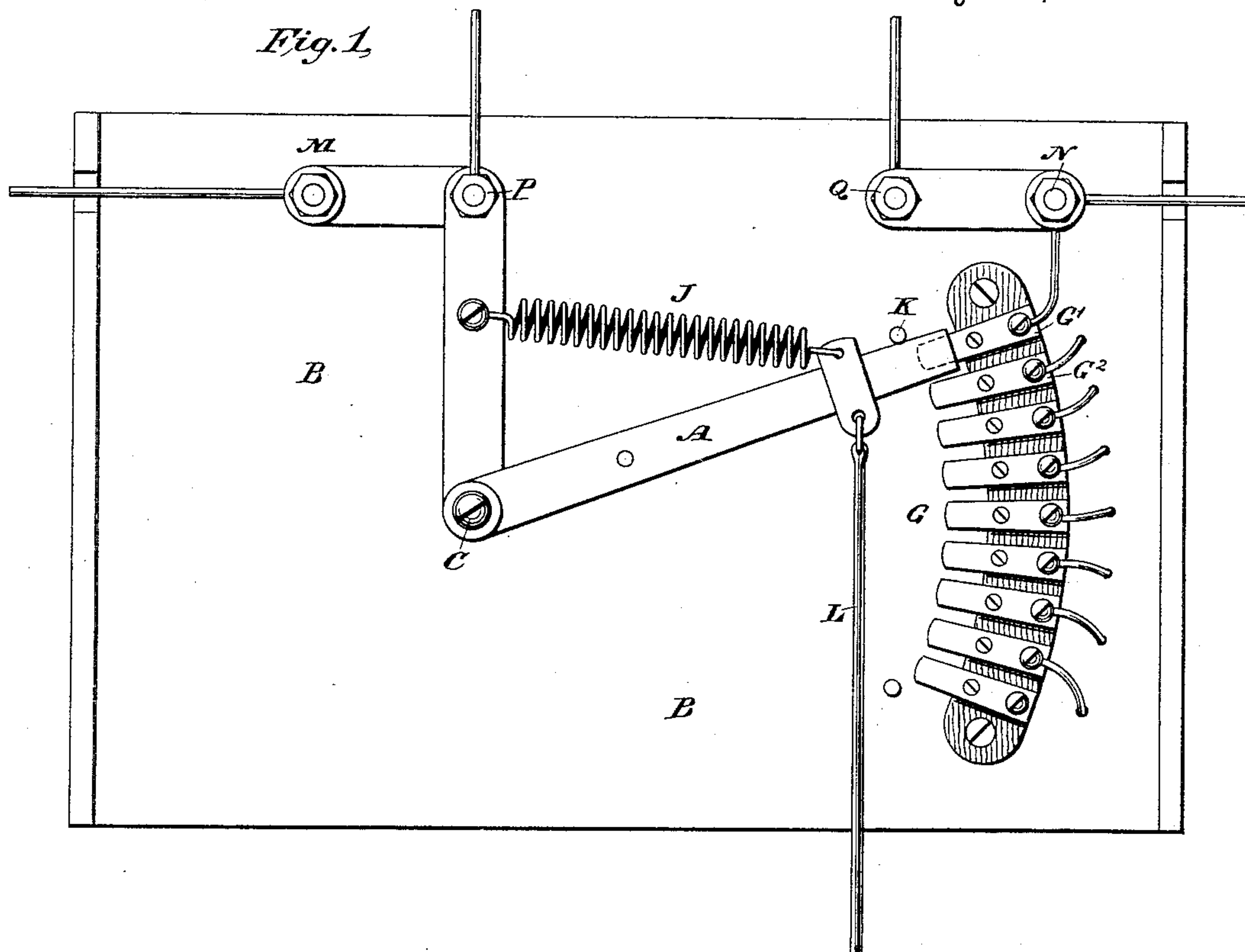


Fig. 2,

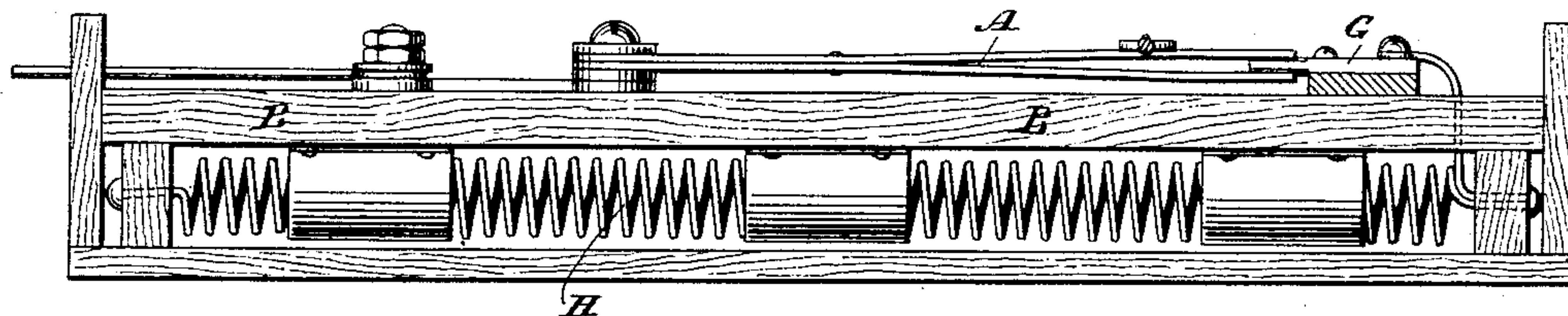
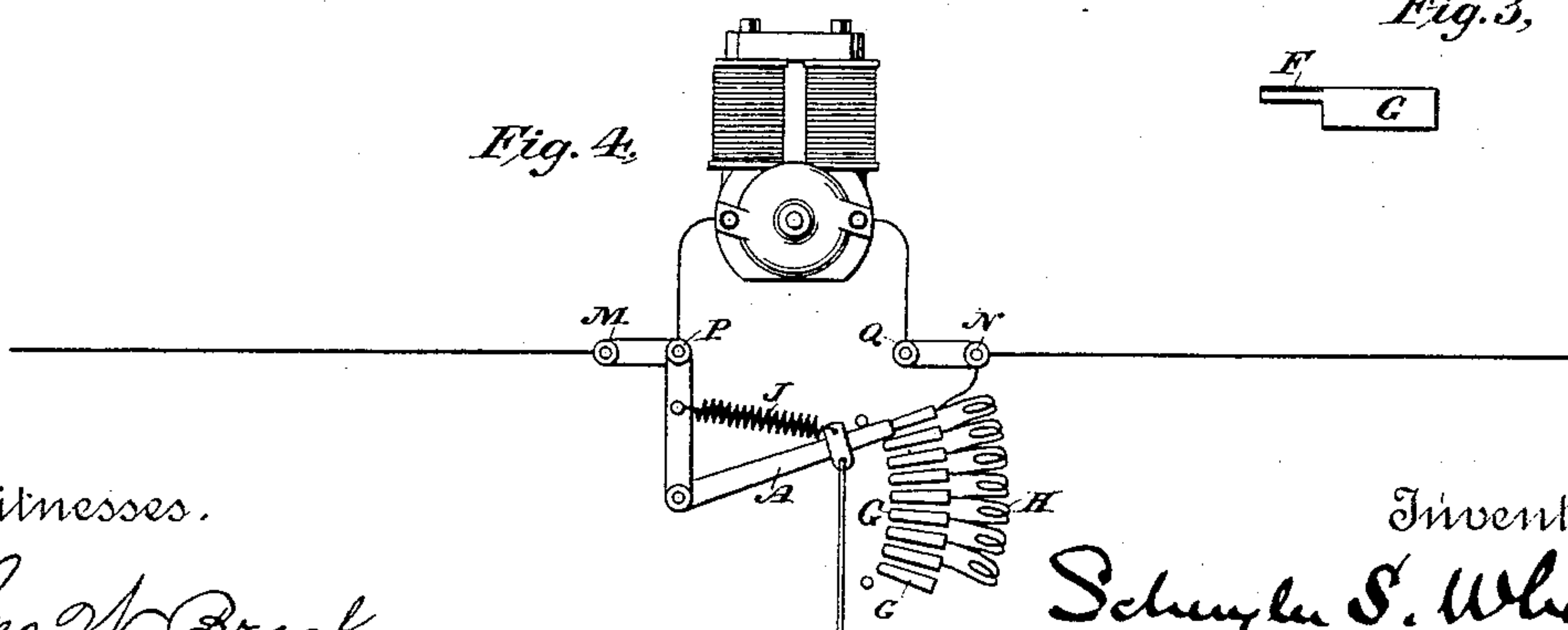


Fig. 3,



Fig. 4,



Witnesses.

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ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 385,782, dated July 10, 1888.

Application filed March 3, 1887. Serial No. 229,561. (No model.)

To all whom it may concern:

Be it known that I, SCHUYLER S. WHEELER, of New York, in the county and State of New York, have invented certain new and useful
5 Improvements in Electric Shunts or Switches, of which the following is a specification.

My invention relates generally to electric switches, and is especially applicable to switches for introducing a greater or less
10 amount of resistance into an electric circuit.

In the accompanying drawings, Figure 1 represents a plan view of a variable-resistance switch or shunt constructed according to my invention. Fig. 2 is a side view in section
15 of the same. Fig. 3 is a detail view of a modified form of contact-point which may be employed in my switch instead of the form shown in Fig. 1. Fig. 4 is a diagram representing the manner of connecting my shunt when employed to control the power or speed of a
20 motor.

In Figs. 1 and 2, A is the switch arm or lever, arranged to revolve or swing about the pivot C, attached or fixed to the board or base
25 B. The outer end of the switch-arm A is made in the form of a clip—that is to say, there are two parts or fingers which tend to press together. A convenient way of making this is to rivet together two strips of spring-brass, as represented. A series of contact-points,
30 G, is located upon the base B in an arc of a circle concentric with the pivot C, and are formed or arranged so as to be accessible or exposed upon both sides, as represented. These contact-points G may be made flat and raised off of the base by a strip of wood or
35 other suitable non-conducting material, as represented in Fig. 2, or may be cast in the form shown in Fig. 3. The contact-points G are connected together by resistance-coils H
40 stretched between cleats on the under side of the base B. The clip on the end of the arm A embraces and makes contact with both sides of these contact-points, as is clearly shown in
45 Fig. 2. The switch-arm A is held at one end of its swing against the stop K by the retractile spring J, and is drawn in the other direc-

tion by the cord or strap L, which may be attached to and operated by a suitable pedal, or may be worked by the hand. 50

In using the above-described shunt for regulating the power or speed of an electric motor upon an arc-light circuit, for example, the connections are made as represented in Fig. 4. The main wires of the arc circuit are firmly
55 connected to the binding-posts M and N, respectively, and the motor-terminals are similarly connected with the binding-posts P and Q, respectively. When the switch-arm A is held against the stop K by the spring J, it is
60 in contact with the first switch-point, G', and the motor is entirely short-circuited, the circuit passing directly through the switch without going through any resistance; but if the switch-arm is moved to the next switch-point,
65 G², one resistance-coil is introduced into the circuit and a certain difference of potential between the terminals of the motor is produced, and a certain portion of the current
70 passes through it, depending upon the resistance of the given coil. By moving the switch-arm still farther over the contact-points and introducing more resistance the amount of
75 current sent through the motor is correspondingly increased, and the power or speed of the motor is thus varied at will. The resistance-coils H are of course made to suit the strength of the current, the resistance of the motor, &c., in each particular case.

The advantages of my form of switch are, 80 first, there is no danger of the switch breaking connection, since if one finger of the switch-arm is accidentally forced out of contact the other will be pressed against the contact-points all the more firmly; second, the surface
85 of contact is doubled without increasing the size of the contact-points; and, third, a certain and steady pressure of contact is maintained without depending upon the tightness of the pivot C, which is usually employed to
90 give the required contact-pressure in switches; and, fourth, all of the resistance to the motion of the switch-lever is effective resistance—that is, all the work of moving the switch-arm is

expended in sliding it over the contacts, and none is lost on the pivot. The pivot may be merely a loose pin.

Having now described my invention, what I
5 claim, and desire to secure by Letters Patent,
is—

In an electric switch, the combination of one or more fixed solid contacts and a moving switch-arm consisting of two plates pivoted

at one end and embracing the solid contacts 10 with their free ends, and bearing thereon with spring-pressure, whereby close and reliable electric connection is produced, substantially as described.

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Witnesses:

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