

(No Model.)

2 Sheets—Sheet 1.

C. S. VAN NUIS.
ELECTRIC SWITCH.

No. 424,739.

Patented Apr. 1, 1890.

FIG. 1.

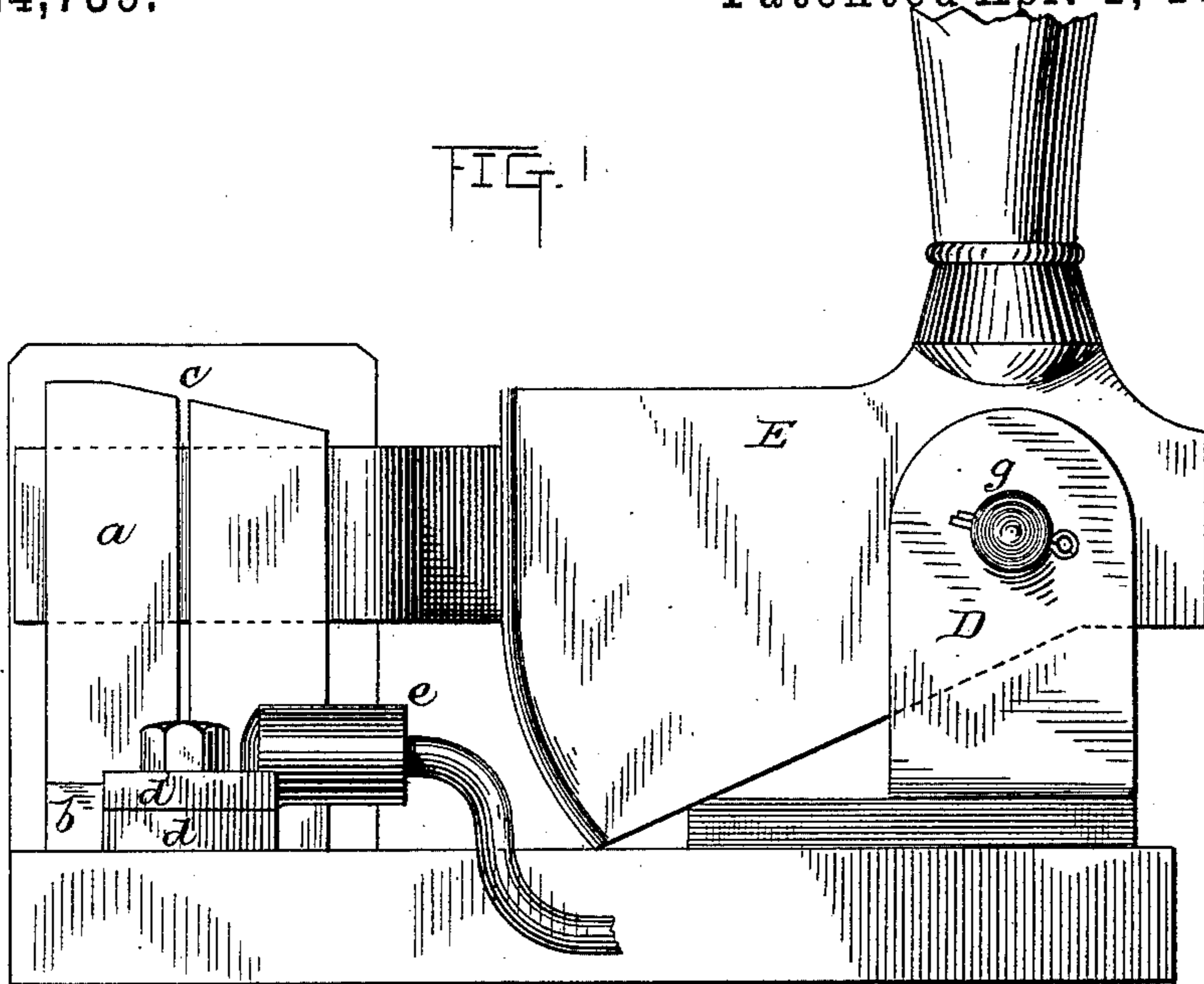
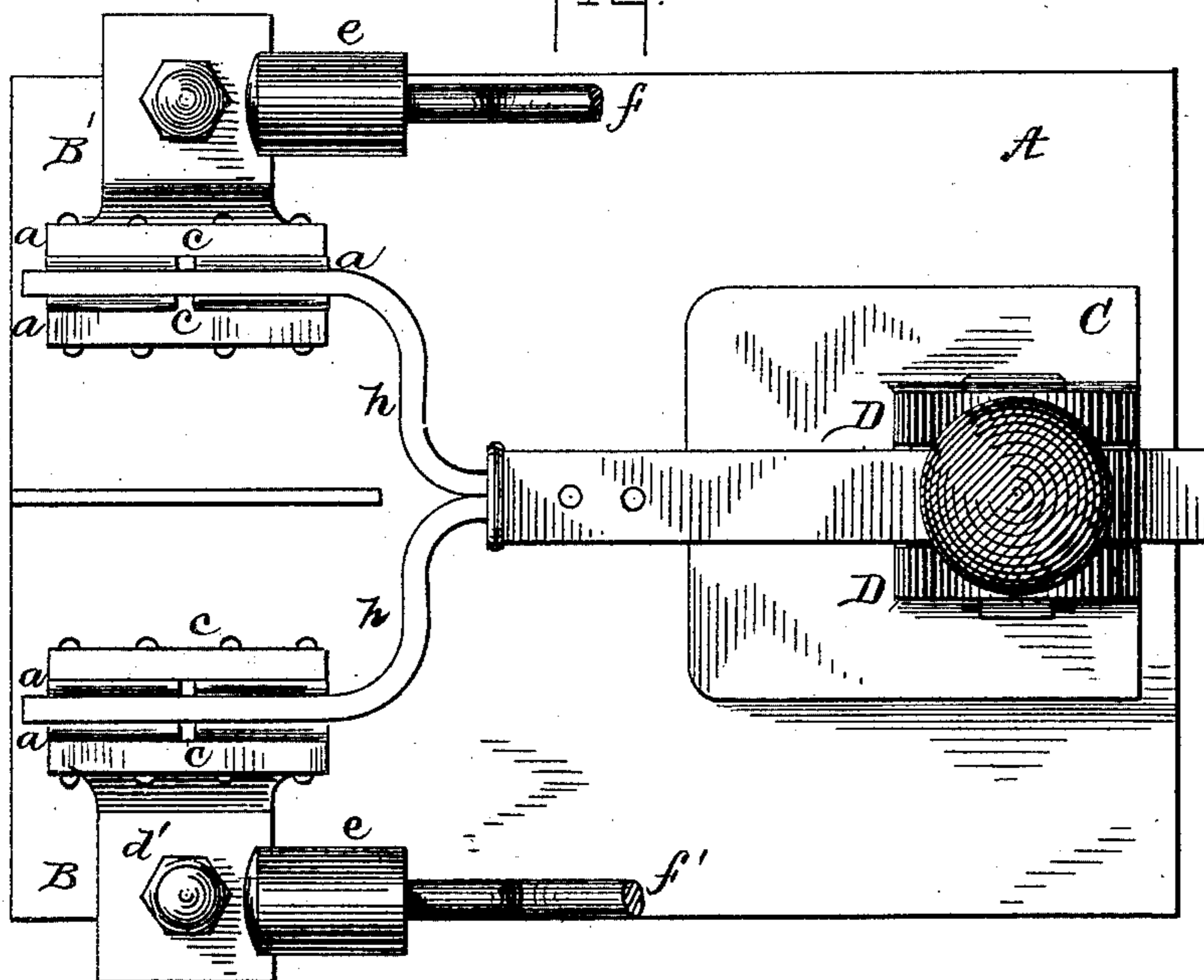


FIG. 2.



Witnesses
E. L. Rowland
W. E. Rizer

Inventor
Charles S. Van Nuis

By his Attorneys
Dyer & Jolly

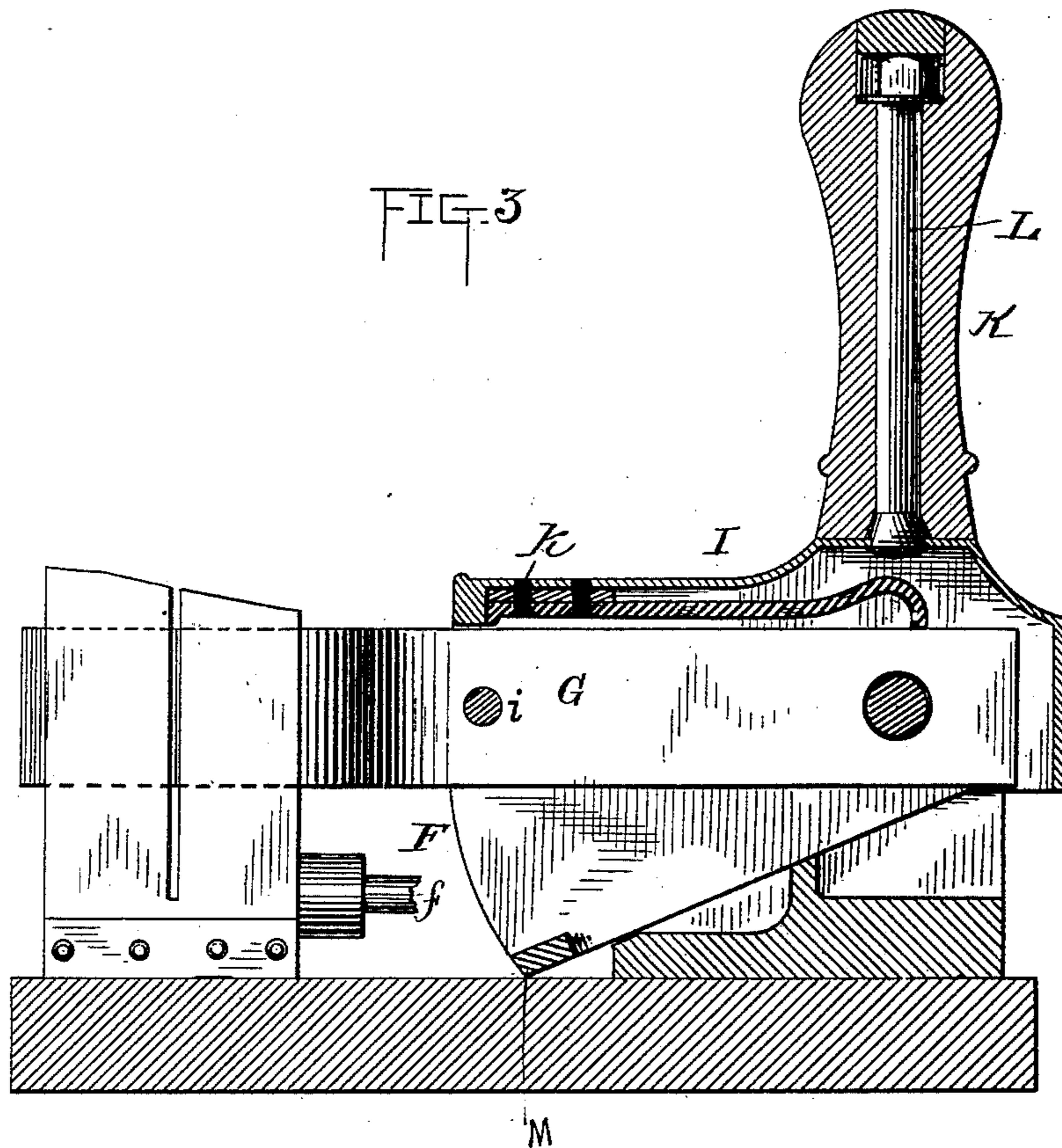
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2 Sheets—Sheet 2.

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ELECTRIC SWITCH.

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Witnesses
E. Roland
W. Elzer

Inventor
Charles S. Van Nuis
By his Attorneys
Dyer & J. J. J.

UNITED STATES PATENT OFFICE.

CHARLES S. VAN NUIS, OF NEW BRUNSWICK, NEW JERSEY.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 424,739, dated April 1, 1890.

Application filed September 28, 1889. Serial No. 325,435. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. VAN NUIS, of New Brunswick, in the county of Middlesex and State of New Jersey, have invented a certain new and useful Improvement in Switches for Electric Circuits, of which the following is a specification.

The object of my invention is to provide a cheap, simple, and durable form of switch for electric circuits, and especially for circuits which carry heavy currents, and to do away with injurious sparking and with the formation of an arc at the contacts where the circuit is broken.

In my improved switch the circuit is made and broken at two points simultaneously, and is broken by a quick snap-movement independent of the hand of the operator. Provision is also made by the interposition of an insulating-screen for the prevention of the passage of an arc from one set of contacts to the other.

My invention consists in the novel devices and combinations of devices employed by me in carrying into effect the above-named object, as hereinafter set forth and claimed.

My invention is illustrated in the accompanying drawings.

Figure 1 is a side elevation of a switch embodying my invention; Fig. 2, a top view of the same, and Fig. 3 a longitudinal vertical section of the same.

The switch is mounted upon a substantial base A, which is preferably made of some non-combustible insulating material, such as soapstone. Upon this base I mount two contacts B and B', each of which consists of a pair of spring-plates *a*, extending vertically from a metal block *b*, secured to the base A. Each plate *a* is split at *c* to increase the flexibility thereof. A lateral plate *d* extends out from each block *b*, and upon this is securely bolted a plate *d'*, from which extends a sleeve *e*. This sleeve *e* receives the wires of the circuit with which the switch is to be used, such wires being shown at *f f'*. Near the other end of the base A is secured a flat metal plate C, from which extend two vertical lugs D D. Between these lugs is pivoted on a pin or bolt *g* the carrier E, which consists of a hollow flat casting having a slot F at its larger end, which slot at its lower extremity is closed by

a stop M; also, pivoted on the bolt *g*, but independently of the carrier E, is the circuit making and breaking tongue G. This consists of two rigid metal strips *h h*, which are secured together firmly by bolts *i i'* within the carrier E, but are bent out beyond said carrier, each blade *h* being adapted to enter between the tongues *a a'* of one of the contacts B B'.

Between the contacts B B' is inserted in the base A a plate of refractory insulating material, which extends up between the two contacts B B' higher than the plates *a*.

Within the carrier E is placed a metal spring I, which is attached at one end at *k* to the upper side of said carrier, and at its free end rests upon the tongue G beyond the point at which said tongue is pivoted.

Secured to the carrier E is an insulating-handle K, preferably made of wood. This is firmly attached to the carrier E by means of a bolt L extending through the handle and countersunk in the head thereof.

The operation is as follows: The drawings show the switch in closed position. The blades *h h* of the forked tongue of the switch are each held between the spring-contact plates *a*, so that the circuit is completed from *f* to *f'* through the united blades of the switch. When it is desired to open the circuit, the handle K is drawn backward, which raises the carrier E, but without moving the switch-tongue G. The raising of the carrier E, however, puts tension on the spring I, which exerts a continually-increasing pressure on the inner end of the tongue G, and when the stop M engages the tongue G the further movement of the handle raises said tongue toward the ends of the spring-contacts *a a* until the friction at such contacts becomes too small to resist the tension of the spring I. Such spring suddenly throws the tongue G and blades *h h* upward through the slot F, so that the circuit is broken by a quick movement, which is independent of the handle, and therefore cannot be impeded by any act of the operator. Any injurious spark or arcing when the circuit is broken, which might occur on a slow movement of the switch, is thus prevented. The insulating-plate placed between the contacts prevents the passage of the arc when the circuit is broken from one of said

contacts to the other. This is a matter of considerable importance, since in a switch where the contacts cannot be placed at a great distance apart and with a current of 5 high potential there is always danger of an injurious arc passing from one contact to the other.

What I claim is—

1. In an electric switch, the combination of 10 two pairs of spring-plates, each pair forming a circuit-terminal, a forked metal blade whose extremities are arranged to enter between said pairs of plates, respectively, whereby circuit is completed through said blade, a spring 15 for throwing said blade, and a handle for placing tension on said spring, substantially as set forth.

2. In an electric switch, the combination of 20 the pivoted hollow slotted carrier, the independently-pivoted forked blade extending

from within said carrier, the contacts engaged by said blade, the spring within said carrier exerting pressure on said blade, the handle attached to said carrier, and the insulating-screen interposed between said contacts, substantially as set forth. 25

3. In an electric switch, the combination of a pivoted hollow slotted carrier, an independently-pivoted contact-blade extending from 30 within said carrier, a stationary contact engaged by said blade, a spring within said carrier exerting pressure on said blade, and a handle attached to said carrier, substantially as set forth.

This specification signed and witnessed this 35 27th day of September, 1889.

CHARLES S. VAN NUIS.

Witnesses:

D. H. DRISCOLL,

WILLIAM PELZER.