

(No Model.)

M. J. GRIFFITH.
CIRCUIT BREAKER.

No. 559,280.

Patented Apr. 28, 1896.

FIG. 1.

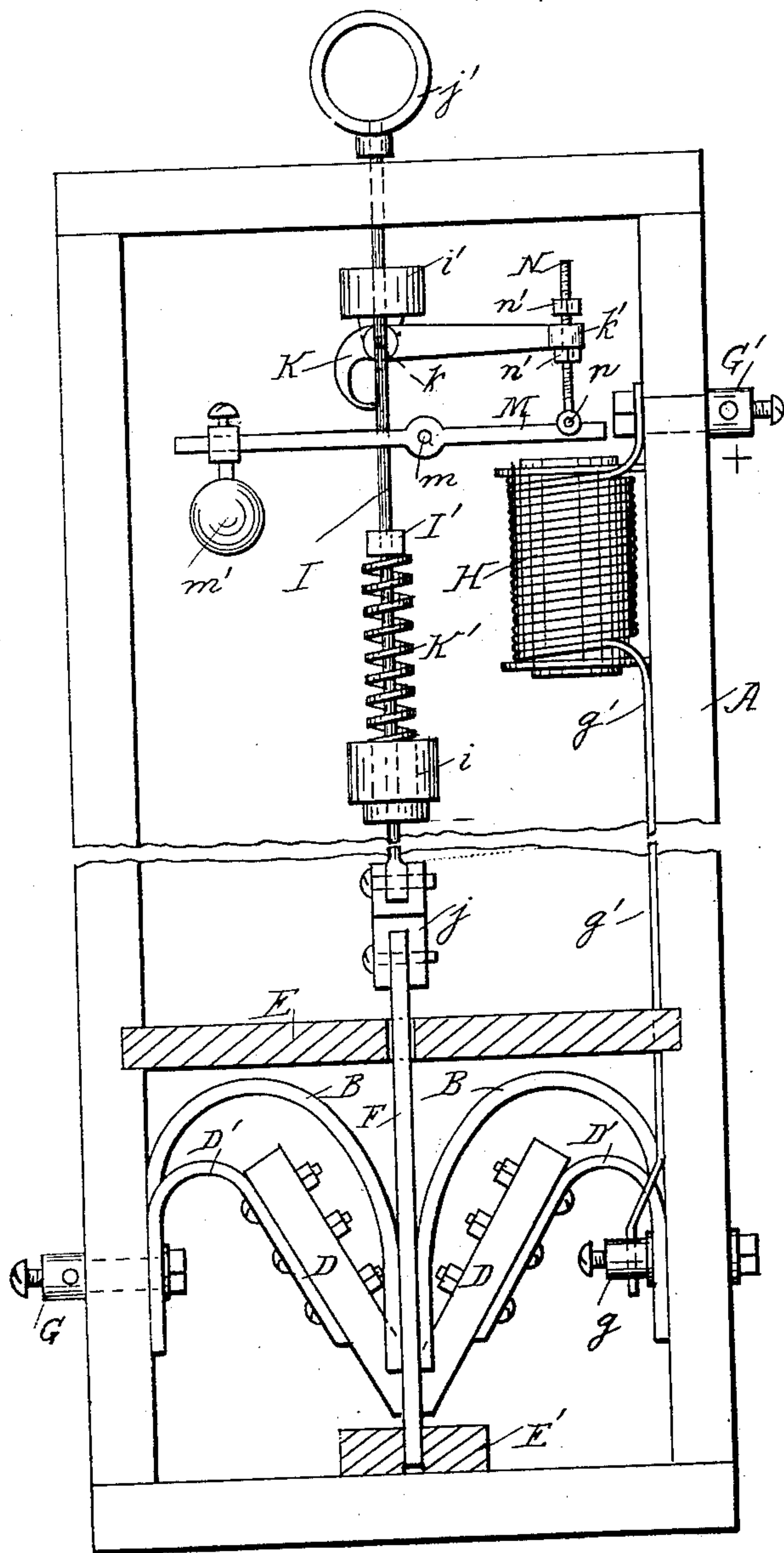
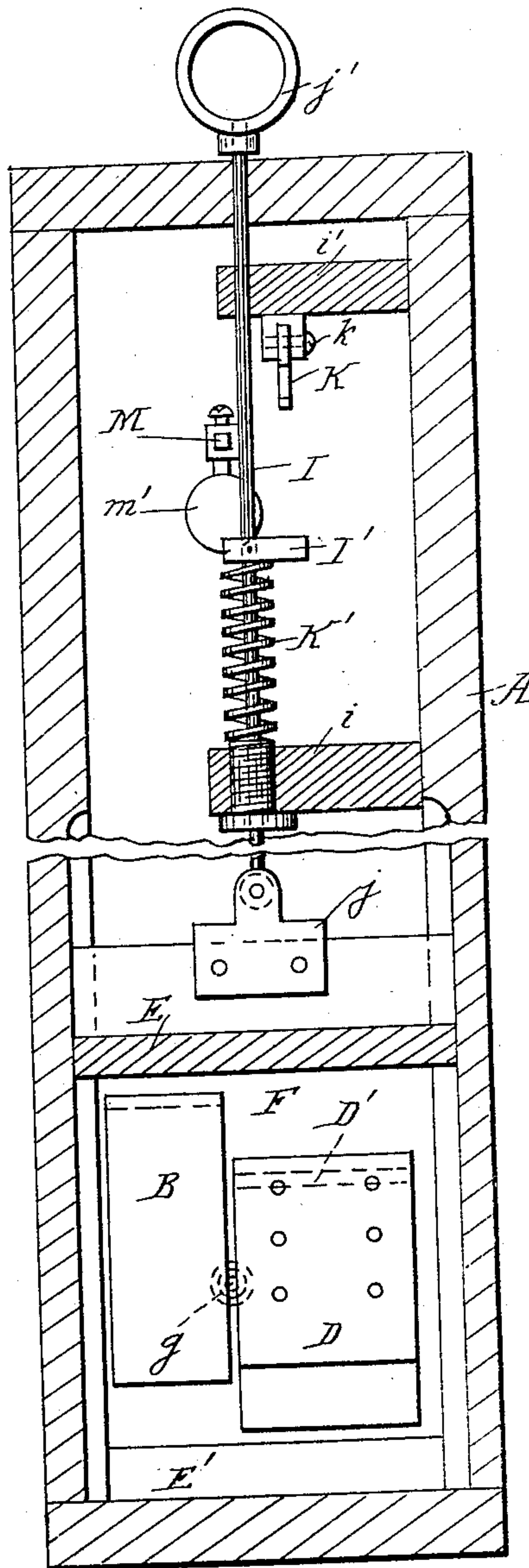


FIG. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

MORGAN JOHN GRIFFITH, OF WILKES-BARRÉ, PENNSYLVANIA.

CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 559,280, dated April 28, 1896.

Application filed August 28, 1895. Serial No 560,776. (No model.)

To all whom it may concern:

Be it known that I, MORGAN JOHN GRIFFITH, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Circuit-Breakers; and I do hereby 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.

This invention relates to circuit-breakers; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a front view of the circuit-breaker with the front of the case removed. Fig. 2 is a central vertical section through the circuit-breaker.

A is the inclosing case, which is preferably formed of insulating material, such as wood. Two pairs of contact-pieces are provided. One pair consists of two metallic springs B, secured to the opposite sides of the case, and the other pair consists of two carbon plates D, secured to springs D', which also are secured to the opposite sides of the case.

E is a guide, preferably formed of insulating material and secured horizontally in the case above the pairs of contact-pieces.

E' is a grooved block, preferably formed of insulating material and secured to the bottom of the case.

F is a plate of insulating material slidable in the guide E and operating to thrust apart the pairs of contact-pieces when depressed. The pair of springs B is preferably arranged a little above the carbon plates D, so that when the plate F is depressed the portion of the current passing through the metallic springs is cut off first.

G is a binding-post connected to the two contact-pieces on one side of the case, and g is a binding-post connected to the two contact-pieces on the other side of the case.

G' is a binding-post at the upper part of the case, and g' is a wire connecting the binding-posts G' and g.

H is an electromagnet included in the wire g'.

I is a rod slidable vertically in the guides i and i' and projecting through a hole in the

top of the case. The lower end of the rod I is connected to the plate F by a bracket j, and the upper end of the rod is provided with a ring j' for operating it.

I' is a lug which projects laterally from the rod I, and K is a hook pivoted to the guide i by the pin k and engaging with the said lug, so that the plate F is sustained when in its raised position.

K' is a spring interposed between the lug I' and the guide i' and operating to press the plate F downward.

M is the armature of the electromagnet H, pivoted in the case on the pin m, and m' is a weight slidable upon the projecting end of the armature.

N is a screw-threaded rod pivoted to the armature by the pin n. This rod passes through an eye k' on the shank of the hook and is provided with nuts n', arranged above and below the said eye. These nuts serve as tappets for operating the hook from the electromagnet.

This circuit-breaker is specially intended for use in connection with strong currents of electricity, such as currents of five hundred volts and one thousand amperes.

The plate F is raised by hand and is normally supported by the hook K, the weight m' being adjusted so that the plate cannot be released from the hook by sudden jar.

The circuit enters at the binding-post G', passes through the electromagnet H to the binding-post g, and thence through the pairs of contact-pieces B and D to the binding-post G.

When the current exceeds a certain strength, the armature M is drawn down by the electromagnet, the rod N operates the hook, and the plate F is released. The plate slides downward between the contact-pieces and engages with the groove of the block E'.

The devices for causing the circuit to be broken automatically can be dispensed with, if desired, and the plate F can be pushed down by hand.

By the use of two pairs of contact-pieces, as hereinbefore described, it is possible to wholly prevent arcing between the contact-pieces, so that the said contact-pieces are not burned and destroyed.

What I claim is—

1. In a circuit-breaker, the combination, with two pairs of spring-supported and separable contact-pieces arranged in parallel in the same circuit, one pair being provided with terminals of carbon and the other pair having metallic terminals arranged in advance of the aforesaid terminals, of a slidable plate of insulating material operating to separate the pairs of contact-pieces suddenly and one after the other, substantially as set forth.
2. In a circuit-breaker, the combination, with a pair of spring contact-pieces provided with terminals of carbon, of a pair of spring-metal contact-pieces arranged in advance of the aforesaid contact-pieces, and a slidable plate of insulating material operating to thrust apart the said pairs of contact-pieces one after the other, substantially as set forth.
3. In a circuit-breaker, the combination, with two binding-posts, of two pairs of spring-metal contact-pieces arranged side by side and connected to the said binding-posts, one pair of the said contact-pieces being provided with terminals of carbon arranged below the metallic terminals of the other pair of contact-pieces, and a vertically-slidable plate of insulating material operating to separate the pairs of contact-pieces one after the other when depressed, substantially as set forth.
4. In a circuit-breaker, the combination,

with a pair of separable contact-pieces, of an electromagnet included in circuit with the said contact-pieces, a plate of insulating material operating to force apart the contact-pieces when depressed, a catch normally supporting the said plate, an armature operating to release the said catch when attracted by the electromagnet, a rod provided with adjustable tappets and connecting the said armature with the said catch, and means for depressing the said plate automatically when released, substantially as set forth.

5. In a circuit-breaker, the combination, with a rod for operating circuit-breaking devices, of a pivoted hook normally engaging with a projection on the said rod, a pivoted armature provided with a slidable weight for adjusting it, a rod operatively connecting the said armature and hook, and an electromagnet operating to attract the armature and release the said rod from the said hook, thereby permitting the said circuit-breaking devices to be operated, substantially as set forth.

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

M. JOHN GRIFFITH.

Witnesses:

D. R. GRIFFITH,
ANNE GRIFFITH.