

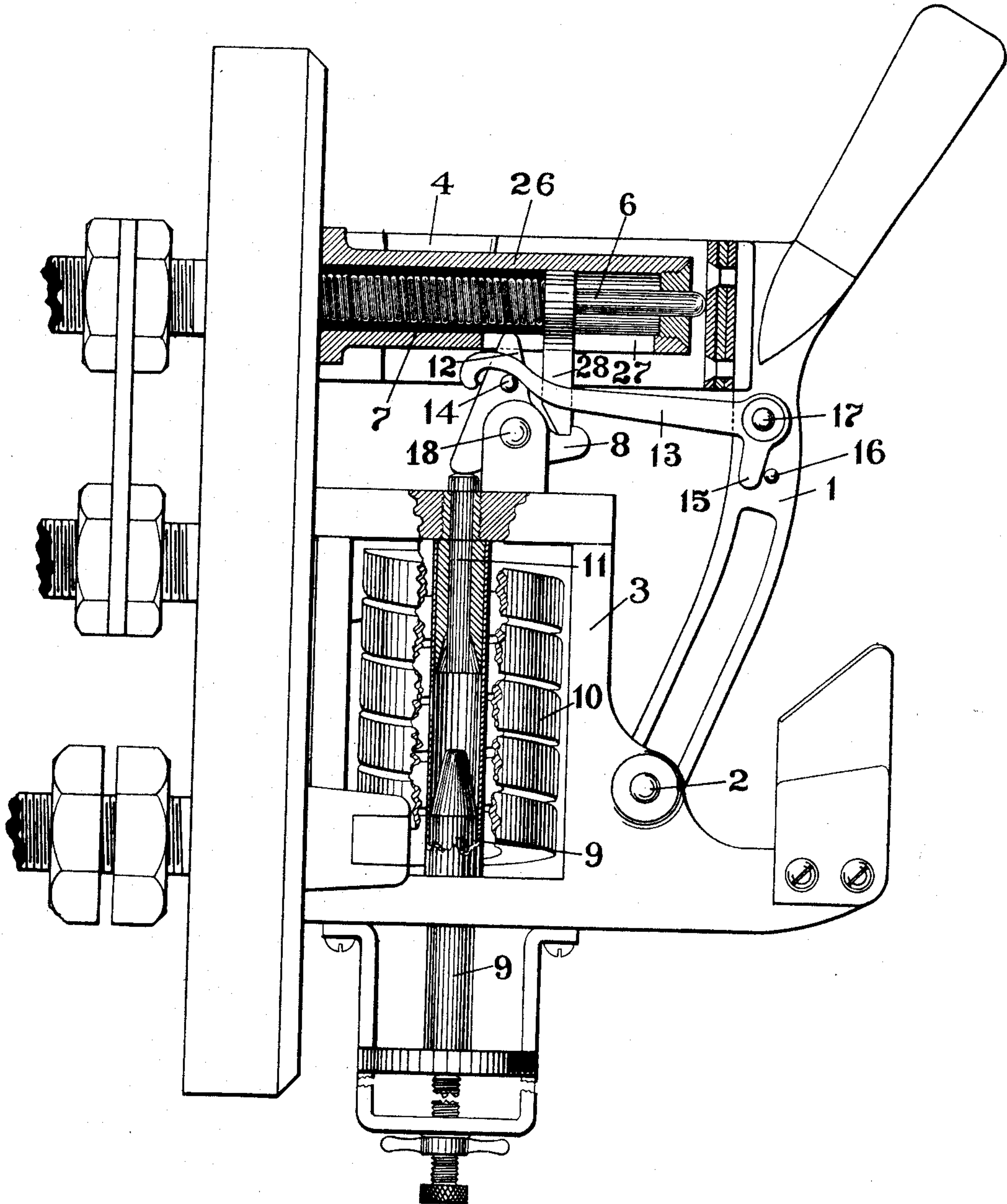
No. 629,397.

Patented July 25, 1899.

W. M. SCOTT.
AUTOMATIC MAGNETIC CIRCUIT BREAKER.

(Application filed Jan. 28, 1898.)

(No Model.)



WITNESSES:

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AUTOMATIC MAGNETIC CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 629,397, dated July 25, 1899.

Application filed January 28, 1898. Serial No. 668,289. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. SCOTT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Automatic Magnetic Circuit-Breaker, of which the following is a specification.

My invention relates to automatic magnetic circuit-breakers; and the object of my invention is to afford improved means of breaking the circuit either automatically upon a predetermined condition of the current or arbitrarily by the application of manual force. I accomplish this object by the mechanism illustrated in the accompanying drawing, in which the figure is a side elevation, in part section, of my device.

In the drawing the switch-arm 1, carrying the movable contacts and the handle 24 for manual operation, is pivoted at 2 to the magnetic jacket 3. One of the stationary contacts is indicated at 4, and the other not shown. The movable contact engaging therewith is indicated by 25. The bridge supporting the movable contacts is shown in section at 5. The piston 6 and the spiral spring 7, adapted to actuate it to exert its force against the upper part of switch-arm 1, are inclosed in cylinder 26. (Shown in section.) This cylinder is provided with a slot in its lower portion to receive the projection 28 of piston 6 and the upper member 12 of latch 8. The piston 6 is adapted to be forced against the thrust of the spring 7 into engagement with the latch 8 by the movement of arm 1 in closing the switch. The latch 8 is pivoted at 18 to the upper part of the magnetic jacket 3 and is adapted to be actuated by the force of the movement of the core 9, movable in the solenoid-coil 10. The force of the movement of the core is communicated to the latch through the extension-pin 11. Upon the actuation of the latch, as described, the piston 6 is released and driven forward against the switch-arm 1, driving it outward to cause the separation of the movable from the stationary contacts. An additional impetus is given to the piston after its release by the impact upon it of the upper member 12 of the latch 8, proportioned to the energy with which the movable core is actu-

ated, thus securing an efficiency of operation in direct proportion to the amount of current causing its actuation.

It will be noted that heretofore in circuit-breakers of this class the restraining means have usually been connected directly with the switch-arm or movable contact part, while in my invention I apply the restraining means to the spring-actuated opening means independently of the switch-arm. The said arm is adapted to be normally held in a closed position by the friction between the stationary and movable contacts, as in the case of an ordinary knife-switch, and is adapted to be manually operated to cause the separation of the stationary and movable contacts independently of the operation of the spring actuating means.

In circuit-breakers used with currents of high potential it is desirable to provide against injurious arcing by securing a quick opening when manually operated, as well as when automatically operated. I secure this end by providing the lever 13, pivoted at 17 to the switch-arm 1, said lever having a catch at its free end adapted to engage with pin or projection 14 in the upper part of latch 8. The lug 15 of said lever 13 is adapted to be encountered by the pin or projection 16 to limit the pivotal movement of the lever 13. Upon the manual operation of the switch-arm outwardly toward an opening position the lever 13 engages the projection 14 on latch 8, actuating the latch 8 to release the piston 6, which thereupon impinges the switch-arm 1, assuring a positive and quick separation of the movable from the stationary contacts.

I may modify my device by omitting the spring to actuate the piston 6, relying upon the thrust communicated to said piston by the member 12 of latch 8 to cause the opening of the circuit-breaker, or I may dispense with the upper member 12 of the latch and rely solely on the spring actuation of the piston upon its release.

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

1. In combination with an electric switch, means for causing the opening of the same, means independent of the switch for normally restraining the opening means and means for

actuating the restraining means, substantially as described.

2. In combination with an electric switch, means for causing the opening of the same, means independent of the switch for normally restraining the opening means and automatic magnetic means for actuating the restraining means, substantially as described.

3. In combination with an electric switch, spring-actuated means for causing the opening of the same, means independent of the switch for normally restraining the opening means and automatic magnetic means for actuating the restraining means, substantially as described.

4. In combination with a manually-operative electric switch, spring-actuated means for causing the opening of the same, means independent of the switch for normally restraining the opening means and automatic magnetic means for actuating the restraining means, substantially as described.

5. In combination with a manually-operative switch, automatic magnetic means for opening the same with a force proportionate to the amount of current causing its actuation, substantially as described.

6. In combination with a manually-operative

switch, spring-actuated means for opening the same, latching means independent of the switch for normally restraining the spring-actuated opening means, and automatic magnetic means for actuating the latching means, substantially as described.

7. In combination with a manually-operative switch, spring-actuated means for opening the same, latching means independent of the switch for normally restraining the spring-actuated opening means, automatic magnetic means and manually-operative means for actuating the latching means, substantially as described.

8. In combination with a manually-operative switch, spring-actuated means for opening the same, latching means independent of the switch for normally restraining the spring-actuated opening means, automatic magnetic means for actuating the latching means, and a lever pivoted to the manually-operative member adapted to engage said latch to actuate the same upon the manual operation of the switch.

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Witnesses:

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