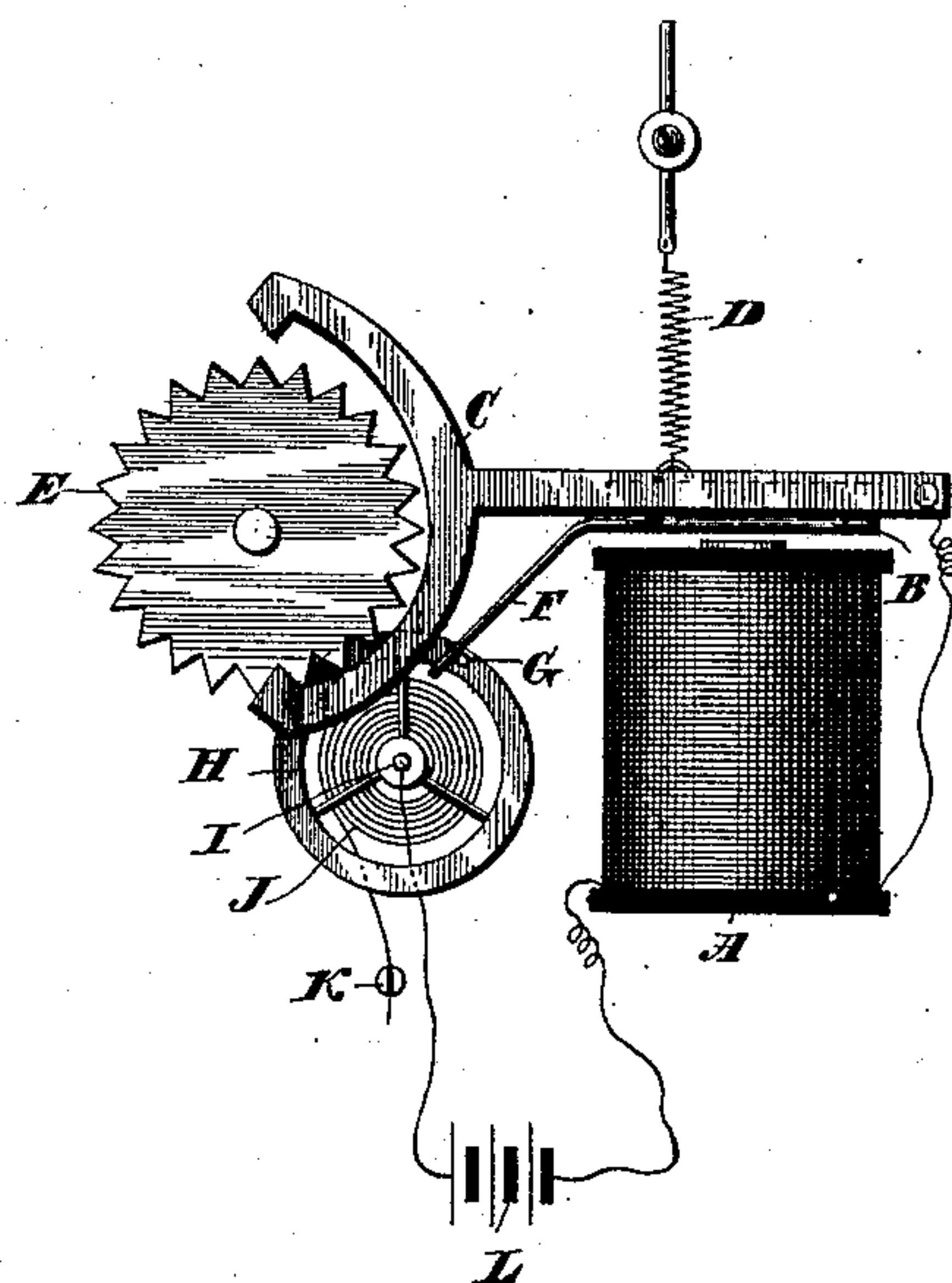


(No Model.)

C. C. SIBLEY.  
ELECTRICAL APPARATUS.

No. 381,856.

Patented Apr. 24, 1888.



WITNESSES:

Chas. B. Shumway,  
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INVENTOR

Clarence Clifford Sibley,

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Atty.

# UNITED STATES PATENT OFFICE.

CLARENCE CLIFFORD SIBLEY, OF NEW YORK, N. Y., ASSIGNOR TO THE  
NEW HAVEN CLOCK COMPANY, OF NEW HAVEN, CONNECTICUT.

## ELECTRICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 381,856, dated April 24, 1888.

Application filed November 23, 1886. Serial No. 219,594. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE CLIFFORD SIBLEY, residing at New York, in the county of New York and State of New York, have  
5 invented certain new and useful Improvements in Electrical Apparatus; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms a part of  
10 this specification.

My invention relates to an improvement in electrical apparatus, and more particularly to means for lengthening and regulating the interval between the vibrations of an automati-  
15 cally-vibrated armature, the object being to control an armature so vibrating, so as to employ it as a motor.

With this end in view my invention consists in a regulator for lengthening and controlling the interval between the vibrations of  
20 an automatically-vibrated armature.

My invention further consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed  
25 out in the claims.

The accompanying drawing is a plan view of one form which the regulator may assume.

The magnet A, armature B, anchor-shaped pallet C, adjustable retracting-spring D, and  
30 spur-wheel E are of ordinary construction, the armature being secured to the stem of the pallet. A platinum-tipped elastic wire, F, is also secured to the said stem and extends within the range of a platinum contact-pin,  
35 G, located in the rim of a balance-wheel, H, mounted upon a balance-staff, I, carrying a hair-spring, J, adjustable in tension in a split post, K, as shown.

The circuit is made from the battery L to  
40 the magnet A, anchor-shaped pallet C, contact-wire F, pin G, balance-wheel H, balance-staff I, and thence to the other pole of the battery. The closing of the circuit energizes the magnet, which then attracts the armature,  
45 drawing the pallet swiftly toward the balance-wheel, which rotates with the contact-wire and pin in contact until the armature and pallet reach the end of the stroke. By this time the balance-wheel has acquired sufficient momen-  
50 tum to keep on rotating, carrying the pin away from the wire, and hence interrupting

the current through the magnet, which, being demagnetized, releases the armature, which, with the pallet, is then retracted by the adjustable springs. Meanwhile this double mo-  
55 tion of the armature has advanced the spur-wheel a tooth. As soon as the momentum imparted to the balance-wheel by the pallet is expended, the hair-spring at once reverses the wheel and brings the pin in contact with  
60 the wire again, whereby the circuit is closed, the magnet energized, the armature attracted, a quick movement imparted to the pallet, and the balance-wheel rotated to break the circuit, hold it open for an interval, and then close it  
65 again, and so on.

It is to be noted that the pin G, forming a movable contact-point, is moved in an unobstructed arc, so that however much the impetus imparted to the wheel, and hence the arc  
70 of vibration, may vary under fluctuations of the operating current, the time of vibration will always remain constant under the well-known law. The interval between the makes and breaks may be determined and regulated  
75 by adjusting the hair-spring, the retracting-springs, and in other obvious ways. By thus lengthening and regulating the interval between the vibrations of an automatically-vi-  
80 brated armature such vibrations may be employed for and converted into motive force, whereas they have not hereto been available on account of their rapidity and the brevity of the interval between them.

Obviously the regulator may assume many  
85 forms, nor is it limited to a balance and spring arranged to secure an interval, which may be secured by the employment of a pendulum, or the employment of the equivalent of either. Nor is a retracting-spring, as herein shown,  
90 necessary. Its place may be taken by gravity or another mechanical arrangement. I would therefore have it understood that I do not limit myself to the exact construction and arrangement of parts herein shown and de-  
95 scribed, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters  
100 Patent, is—

1. An automatically operated armature car-



rying a contact-point, a movable contact-point normally in contact with that of the armature and mounted or suspended to be set in virtually free motion in an unobstructed arc by the impetus derived from the effective stroke of the armature, which thus breaks the circuit between the two points, the circuit being re-established when the movable point returns again to its position of contact with the contact-point of the armature, substantially as set forth.

2. An automatically-operated armature carrying a contact-point, a movable contact-point normally in contact with that of the armature and mounted or suspended to be set in virtually free motion in an unobstructed arc by the impetus derived from the effective stroke of the armature, which thus breaks the circuit between the two points, and a spring to restore the movable point to its normal position after its impetus is spent, substantially as set forth.

3. An automatically-vibrated armature carrying a contact-point, and a balance-wheel carrying a contact-point normally in contact with that of the armature and mounted to be set in motion in a wholly unobstructed arc by the impetus imparted to the wheel by the stroke of the armature, substantially as set forth.

4. An electrical apparatus having a contact-point suspended or mounted for movement in an unobstructed arc, and an auto-

matically-operated armature adapted to move such point so as to break a circuit which is closed when the point returns to its normal position, substantially as set forth.

5. An automatically-vibrated armature, a contact-point carried thereby, a balance-wheel, a pin carried by such wheel and normally in contact with the point carried by the armature, and a spring for reversing the wheel and re-engaging the point and pin after they have been separated by the actuation of the wheel under the stroke of the armature, substantially as set forth.

6. An automatically-vibrated armature, a pallet connected therewith, a contact-point connected with the armature, a balance-wheel, a contact-point carried thereby and normally in contact with that carried by the armature, the two points being separated to break the circuit under the stroke of the armature, and a spring connected with the balance-wheel to reverse it and re-engage the points after the momentum to the wheel has been spent, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CLARENCE CLIFFORD SIBLEY.

Witnesses:

FRANK EDWARD MORGAN,  
J. GILLET NOYES.