(No Model.)

W. F. LOTT.

COMBINED TELEGRAPH KEY AND CIRCUIT CLOSER.

No. 481,114. Patented Aug. 16, 1892.

FIG. 1.

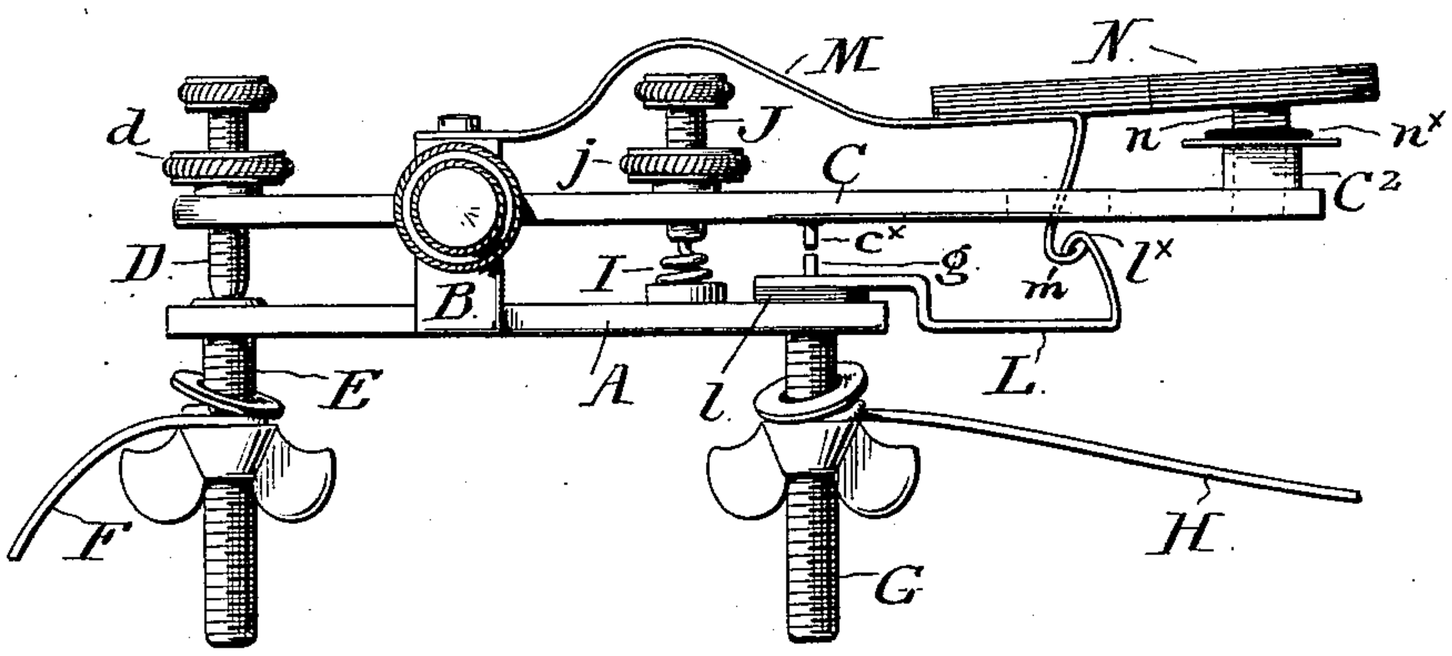
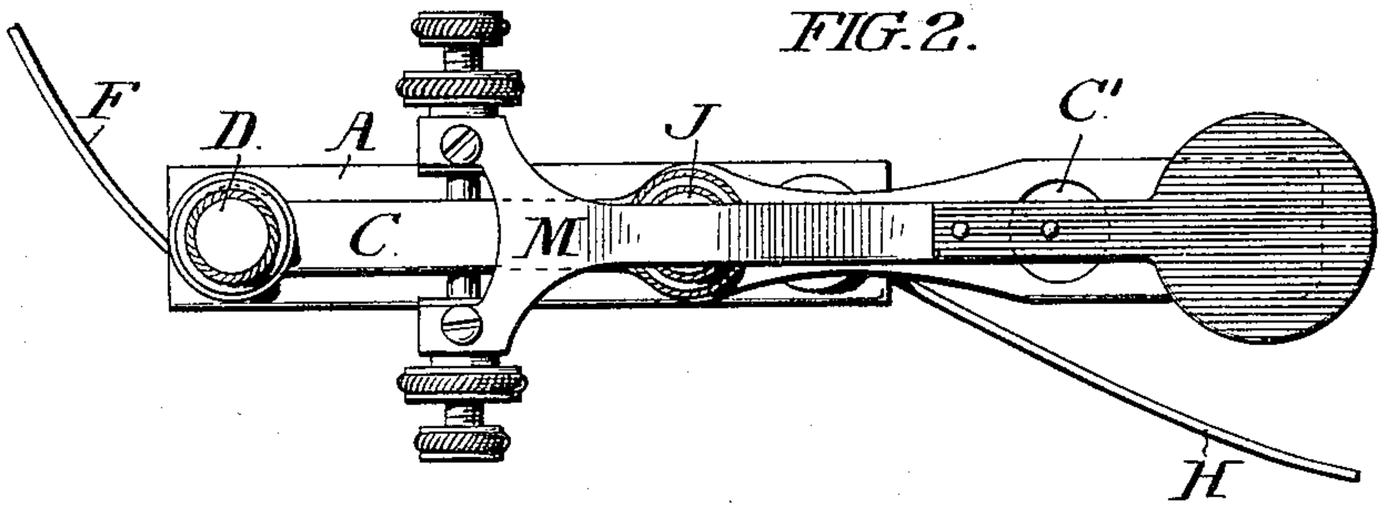


FIG. 2.



WITNESSES:

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WILLIAM FRANK LOTT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ROMUALD T. McDONNEL, OF SAME PLACE.

COMBINED TELEGRAPH-KEY AND CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 481,114, dated August 16, 1892.

Application filed April 26, 1892. Serial No. 430,772. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FRANK LOTT, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a Combined Telegraph Key and Circuit Closer, of which the following is a specification:

In transmitting a message by telegraphy, by the ordinary instrument, as is well known, a switch must first be thrown to open the circuit, and thereupon the manipulation of the key, by intermittently closing the circuit, transmits the signals desired, and, after the signals are transmitted, the switch must be thrown back to its original position to close the circuit.

In the employment of the telegraph appliances now most commonly used, the return of the switch to close the circuit is apt to be neglected through the inattention of the operator and the circuit is thus permitted to remain open, with the result that connection between the instruments situated at the respective ends of the line is interrupted.

It is the object of my invention to provide an improved appliance consisting of a combined telegraph key and circuit closer, in the employment of which, as a key, in the ordinary way, the switch is automatically opened by the initial stroke of the instrument in transmitting the message, and is automatically closed after the message is sent upon the removal of the finger of the operator; and to provide an appliance of this character which shall be simple and inexpensive in construction, reliable in action, and adapted to make very complete contact in its operation of closing the circuit.

In the accompanying drawings I show and herein I describe a convenient embodiment of my invention, the particular subject matter claimed as novel being hereinafter definitely specified.

In the accompanying drawings, Figure 1 is a view in side elevation, and Fig. 2 a top plan view, of an instrument embodying my invention, removed, however, for simplicity of illustration, from the desk on which it is ordinarily mounted.

In the drawings, A is a conducting base plate, B B a pair of uprights mounted thereon, and formed of suitable conducting material.

C is the key mounted for support and oscillation by means of any ordinary form of trunnion bearings upon the uprights B B and having the usual platinum depending stud $C^{\times}$.

D is a stop screw passing vertically through a suitably threaded aperture in the rear end of the key, and provided as is usual with a lock nut *d*.

E is a binding post connected with the rear portion of the base plate and in electrical contact therewith.

F is one of the line wires terminating at and engaged with said binding post.

G is the other binding post connected with the front portion of the base plate, but suitably insulated therefrom, and provided with a platinum point *g*, projecting through and above said base plate in axial alignment with the platinum point $C^{\times}$.

H is the second line wire terminating at and engaged with the binding post G.

Oscillation of the key upon its bearing, in one direction, is limited by contact of the screw D with the base plate, and in the other direction by the contact of the two platinum points. A spring is employed to normally maintain the key with its front end tilted up to keep the platinum points out of contact. This spring, which is designated I, is shown as being of a spiral variety and as maintained between, and bearing respectively against, the base plate and the lower end of a set screw J passing through a suitably threaded aperture in the key so that by the vertical adjustment of said screw J the tension of the spring may be regulated at will.

j is a nut to maintain the screw J in any desired position.

The parts so far described are of the general character well known to those familiar with the art to which my invention relates. When the key is down and the platinum points in contact the circuit extends from the line wire F to and through the base plate A, uprights B, key C, platinum points $C^{\times}$ and *g*, binding post G, and line wire H.

In the preferred embodiment of my inven-

tion illustrated in the drawings, L is a permanent finger in electrical contact with the binding post G. This finger, which is shown as consisting of a plate of metal, is as to its inner end provided with an aperture by means of which it is seated upon the platinum point *g* and in good electrical contact therewith, and is insulated from the base plate by a washer *l* of suitable material, the platinum point *g* being of course of sufficient length to allow of the setting thereon of said washer and finger. Said finger extends forward beneath the key C to a point near the front end of the latter, where it is bent upward and terminates in a hook $l^{\times}$, the bill of which extends rearwardly and downwardly.

M is a plate or switch band, as I term it, of metal or any suitable resilient conducting material, secured to and in electrical contact with the uprights B B, and extending forward above the key to a point near the front end of the latter, at which point it extends downward and terminates in a hook *m* the bill of which trends upward and forward. As a matter of convenience the downwardly extending portion of said band or plate passes through an opening of suitable size C′ formed in the substance of the key itself. The hook of this switch band and of the switch finger described, are set in such relation to each other that the constant upward tendency of the switch band operates to carry its hook *m* into contact with the hook $l^{\times}$ of the switch finger, and said hooks are normally in engagement.

To the front portion of the switch band is attached an operating knob N of rubber, or other suitable non-conducting material, adapted in its descent to bear against the key C. To prevent lateral movement of said knob I prefer to provide it with a depending stud *n* which passes through an aperture of corresponding plan in the body of the key.

The operation of the device will be readily understood: When the instrument is not in use the circuit of the line wires is normally closed through the binding post E, base plate A, uprights B, switch band M, switch finger L, platinum point *g*, and binding post G. When it is desired to transmit a message, the operator depresses the knob N which carries the hook *m* out of contact with the hook $l^{\times}$ and thus opens the circuit, and in the continued descent of the knob it comes into contact with the key, and further pressure deflects the key and carries the platinum point $C^{\times}$ into contact with the platinum point *g*. In the continued manipulation of the instrument, the knob and key are, by the pressure of the operator's finger, kept together against the stress of the switch band M, and oscillated in unison, the strength of spring of the switch band or plate being considerably less than that of the spring E. After the transmission of the message and the removal of the fingers of the operator, said switch band flies upward and carries its hook *m* again into contact with the hook $l^{\times}$ of the switch-finger, and thus automatically closes the switch.

I prefer to provide an upwardly extending collar C^2 to surround the opening in the key through which the stud *n* passes, to lessen the distance which the knob has to travel before making contact with said key. To better enable the operation of the knob and key in unison in the sending of a message I provide a cushion of rubber $n^{\times}$ upon the upper face of the collar C^2.

Having thus described my invention, I claim:

1. In combination with a knobless key,—its supports, the binding posts, and the contact posts, a switch finger in circuit with one binding post, a switch band in circuit with the other binding post and extending into such relation with the switch finger as to be normally held in contact therewith by its own resilience, and an operating knob, independent of the key, mounted on said band, depression of which knob brings it into contact with the key and carries the switch band out of contact with the switch finger, substantially as set forth.

2. In combination with a key, its supports, the binding posts, and the contacts, a switch finger, a switch band provided with a hook engaged behind said finger and normally retained in such position by the resilience of the band, and an operating knob mounted on said band, substantially as set forth.

3. In combination with a knobless key, its supports, the binding posts and the contacts, a switch-finger, a switch band secured to the rear part of the instrument, extending to the front part thereof and provided with a lateral extension engaged behind said finger, and an operating knob, independent of the key, mounted on said band and provided with a depending stud working in an opening in the key, substantially as set forth.

4. In combination with a key, its supports, the binding posts and the contacts, a hooked switch finger, a switch band secured to the rear part of the instrument, extending to the front thereof and provided with a depending hooked extension which passes through an opening in the key and engages with the hook of the finger, and an operating knob mounted on said band, substantially as set forth.

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 25th day of April, A. D. 1892.

WILLIAM FRANK LOTT.

In presence of—
F. NORMAN DIXON,
R. M. RUSSELL.