

L. MORSE.
ELECTRIC SWITCH.

Patented Aug. 8, 1893.

Fig. 1.

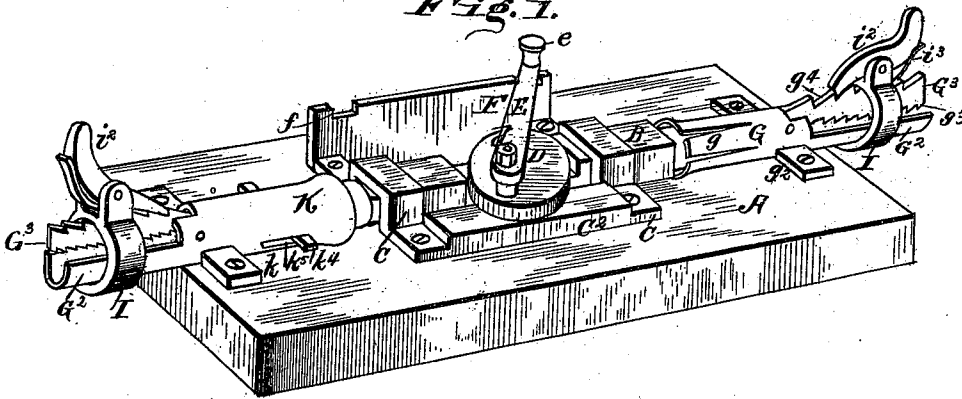


Fig. 2.

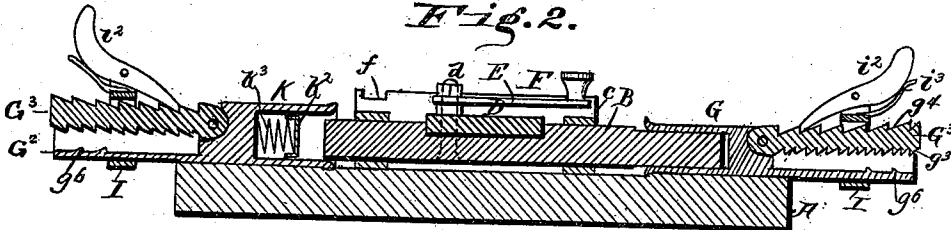


Fig. 3.

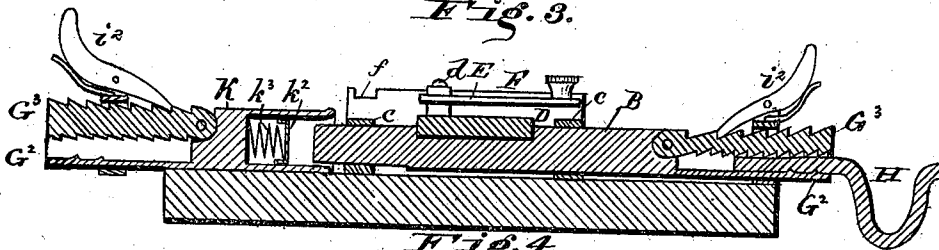


Fig. 4.

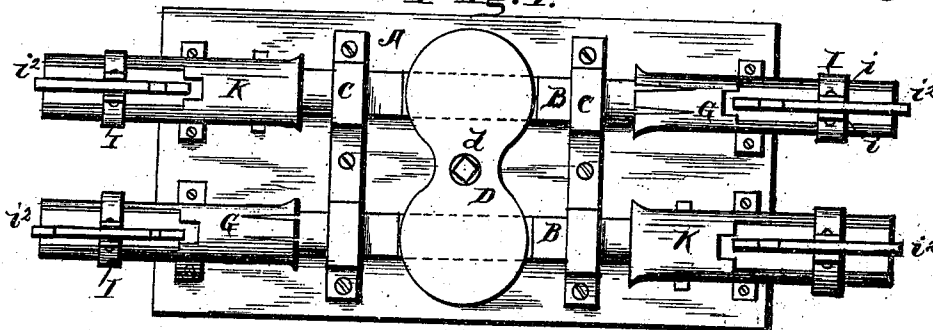


Fig. 5.

A schematic diagram of a mechanism. It features two horizontal cranks, labeled C and G , which are pivoted at their outer ends to fixed supports. The cranks are connected by a connecting rod with two links, labeled m and m^3 . The pivot point of crank C is labeled B . The pivot point of crank G is labeled A . The connecting rod links m and m^3 are connected to the cranks at points B and A respectively. The mechanism is shown in a horizontal orientation.

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UNITED STATES PATENT OFFICE.

LANSING MORSE, OF BROOKLYN, NEW YORK.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 502,825, dated August 8, 1893.

Application filed August 22, 1892. Serial No. 443,741. (No model.)

To all whom it may concern:

Be it known that I, LANSING MORSE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification, reference being had therein to the accompanying drawings.

The objects of my improvements are to construct a positively acting electric switch of simple and inexpensive construction having a longitudinally movable bolt or contact carrier adapted to be slid horizontally in connection with contact members in line with the ends of said carrier. I attain these objects by the construction illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of an electric switch constructed in accordance with my invention. Fig. 2 is a longitudinal central section of the same. Fig. 3 is a longitudinal central section of a slightly modified form of electric switch, the modification consisting in attaching one of the wire holding jaws to the longitudinally movable switch-bolt. Fig. 4 is a top view of a double wire switch constructed in accordance with my invention. Fig. 5 is a top view of a modification of the means to operate the longitudinally movable switch-bolt.

In said drawings A represents the support base block of the switch. Said block is preferably of porcelain or other well known non-conducting material. To the top of said block, about the center thereof, the switch-bolt B is located. Said bolt is guided by two arched metal straps C that are secured on top of the block A. Said straps are also preferably united together on one side by a bar C² that pivotally receives the pivot bolt *d* of an eccentric D used to longitudinally slide the switch-bolt B, that has a mortise cut in its top to receive the eccentric D. Said eccentric is controlled and operated by a lever E that has one end secured to the eccentric by means of the bolt *d* that is pivotally connected with the bar C². The opposite end of said lever is provided with a handle *e* of insulating material and the portion adjacent to said handle is received into one of the notches *f* of the lever-retaining plate F. The latter is preferably

attached to the ends of, or formed integral with the metal straps C.

One end of the switch-bolt B is received into a sleeve G that has its inner end preferably slotted longitudinally to form spring fingers *g* that constantly retain one end of the switch-bolt in electrical connection with the sleeve although said bolt may be easily moved longitudinally along the inner surface of the fingers *g*. The sleeve G is secured on top of the block A by means of screws passing through lugs *g*² projecting from the sides of said sleeve. The outer end of the sleeve has its top longitudinally slotted, or removed, to give to its lower half or jaw a trough-like form G² to receive one of the wire conductors H used with the switch. The interior of said trough is preferably provided with teeth *g*⁶, and to the inner end of said trough is pivoted a jaw G³ that has serrations *g*⁵ on its under side for engagement with the conductor H. To promptly adjust and retain said jaw G³ in engagement with said conductor, an internally smooth ring I is made to encircle the jaws G² and to retain said ring at a proper distance from the pivot of the jaw G³, said ring has lugs *i* projecting from its periphery to which is pivoted a dog *i*² that has its inner end in engagement with teeth or notches *g*⁴ made in the top edge of the jaw G³. A spring *i*³ secured to the ring and having its outer end pressing against the turned up tail of the dog retains the latter in engagement with the notches *g*⁴. And as the jaw G³ is vertically wider toward its outer end, when the ring is toward that end, the conductor becomes strongly retained clasped between the jaws. In front of the opposite end of the switch-bolt B, there is secured to the block A, a sleeve K, by means of screws passing through lugs *k* projecting from its sides. The interior diameter of said sleeve is larger than the diameter of the bolt B at that end, so that electrical connection when it occurs, will take place only with its end and not with its sides. Said electrical connection is preferably made with a disk *k*² placed within the sleeve and having its periphery bearing against the inner surface of said sleeve. The disk is forced a short distance from the solid bottom of the sleeve by a coiled spring *k*³ to insure contact

and prevent sparking when the switch-bolt is withdrawn from the sleeve. The disk k^2 is retained and guided within the sleeve by lugs k^4 passing through short slots k^5 in the sides of sleeve K. Said sleeve is provided with a trough-like jaw G^2 , a serrated jaw G^3 and a ring and dog as described for the sleeve G.

In Fig. 3 the jaws G^2 G^3 are attached directly to one end of the switch-bolt B, and a bend or loop is preferably made in the conductor H so that said loop will be easily bent and thus lengthened or shortened in operating the bolt.

In Fig. 4 the eccentric is made double to operate at the same instant two switch-bolts with sleeve K that are placed at diagonal corners of the block A.

In Fig. 5 the switch-bolt B is longitudinally guided by a metal strap C secured to the block A, but its inner end is connected with the sleeve G by means of toggle-levers m m^2 and operated by a handle m^3 connected thereto at the point where said levers are hinged to each other.

Having fully described my invention, I claim—

1. In a circuit controlling device or switch, the combination of a circuit terminal having its inner end longitudinally slitted and its outer end provided with a trough-like jaw and a pivoted jaw provided with teeth on its top and bottom edge, a ring and pivoted dog riding on the pivoted jaw, a second circuit terminal provided with a trough-like jaw, a toothed pivoted jaw, and a ring and dog thereon, with a longitudinally sliding switch-

bolt permanently in electric connection with one of the circuit terminals, and means to slide said bolt substantially as described.

2. In a circuit controlling device or switch, the combination of a horizontally sliding switch-bolt permanently in electrical connection at one end with a pair of jaws closed by a ring, and at the other end with a circuit-terminal having a pair of jaws at its outer end, and in its inner end a cavity of larger diameter than the end of the switch-bolt substantially as described.

3. In a circuit controlling device or switch, the combination of a horizontally sliding switch-bolt permanently in electrical connection at one end with a circuit terminal, and at the other with a circuit terminal having a pair of jaws at its outer end, and within the inner end a cavity of larger diameter than the end of the switch-bolt, and a disk and spring within said cavity substantially as described.

4. In a circuit controlling device or switch, the combination of a horizontally sliding switch-bolt, with circuit terminals in line with said bolt, each terminal having a trough like jaw, a pivoted jaw provided with teeth on its upper edge a ring encircling said jaws and a spring dog pivoted to said ring substantially as described.

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

LANSING MORSE.

Witnesses:

FREDERICK EDER,
CHAS. D. EVANS.