

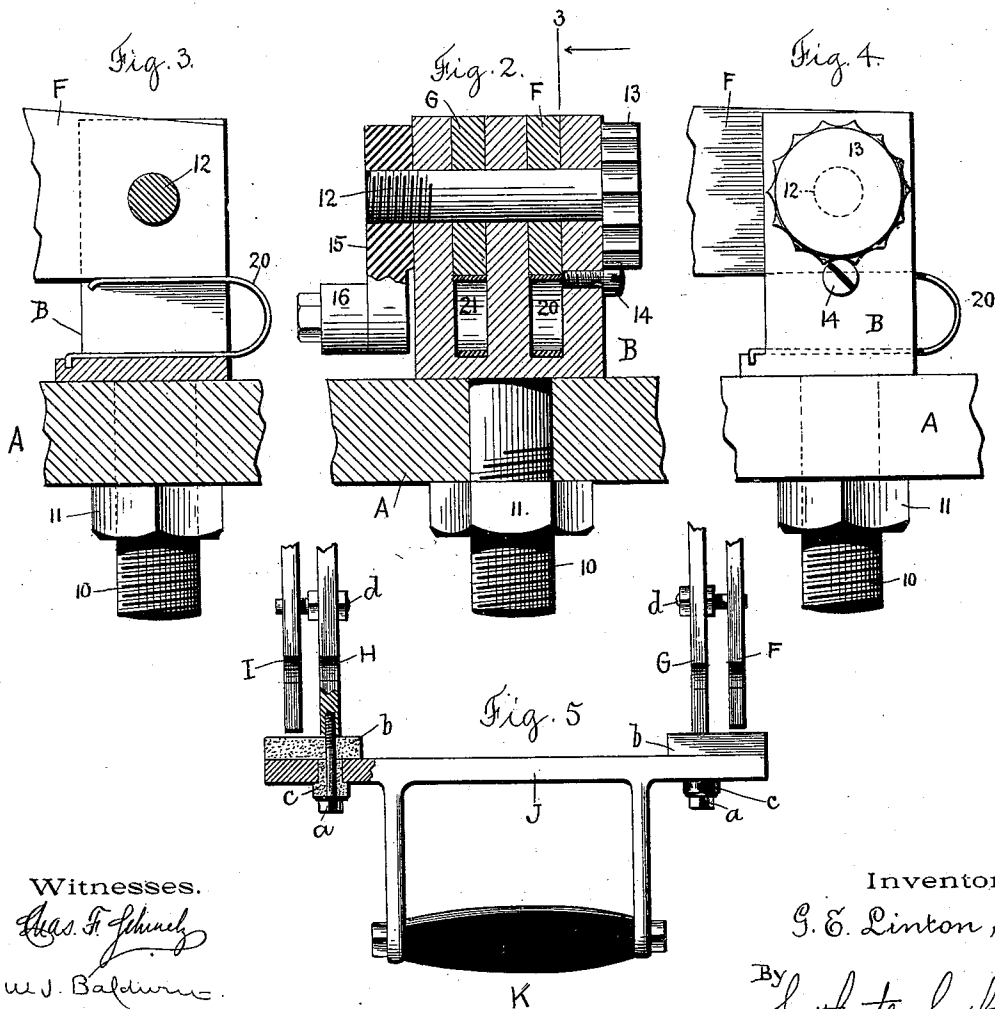
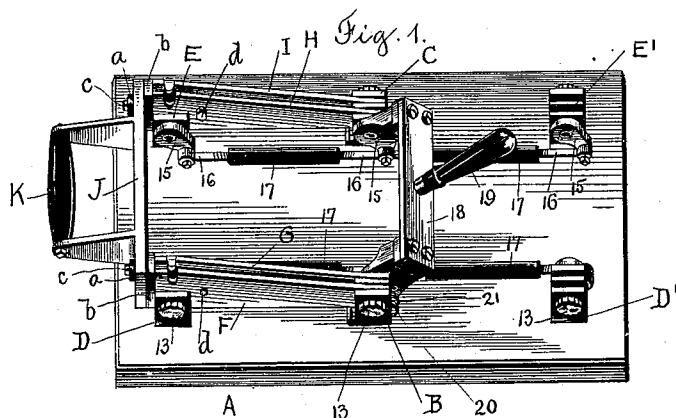
(No Model.)

2 Sheets—Sheet 1.

G. E. LINTON.
ELECTRIC SWITCH

No. 546,820.

Patented Sept. 24, 1895.



Witnesses.

Wm. F. Schuch

W. J. Baldwin.

Inventor.

G. E. Linton,

By *Southgate & Southgate*
Attorneys

(No Model.)

2 Sheets—Sheet 2.

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Fig. 6.

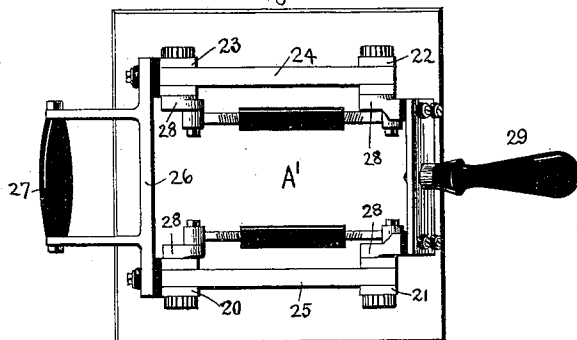


Fig. 7.

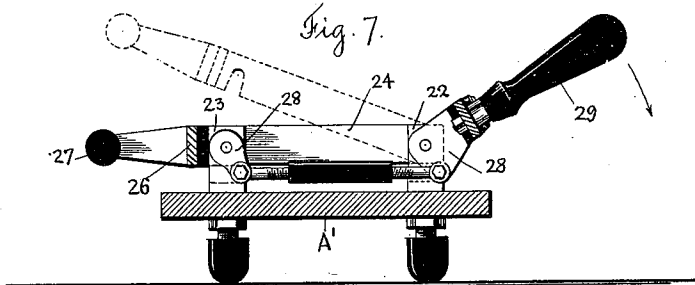
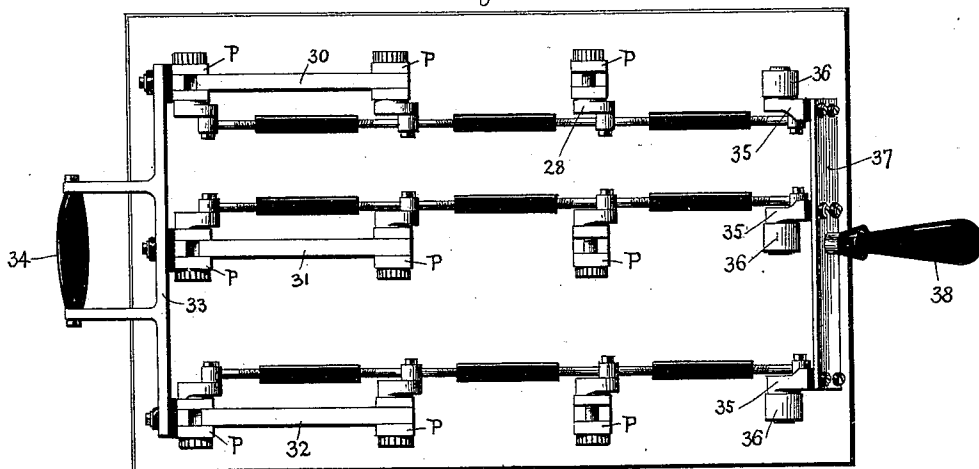


Fig. 8.



Witnesses.

Chas. F. Fehrmel

W. J. Baldern

Inventor.

G. E. Linton,

By *Southgate & Southgate*
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE E. LINTON, OF WORCESTER, MASSACHUSETTS.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 546,820, dated September 24, 1895.

Application filed January 4, 1895. Serial No. 533,807. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. LINTON, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Electric Switches, of which the following is a specification.

The object of my invention is to provide a strong, simple, and efficient form of electric switch, and the especial object of my invention is to provide means for clamping the contact-pieces into close engagement with the switch-knife, whereby the efficiency of the device may be increased and its resistance lessened.

To these ends my invention consists of the parts and combinations of parts, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying two sheets of drawings, Figure 1 is a perspective view of a double-throw double-pole switch constructed according to my invention. Fig. 2 is a sectional view of one of the central contact-pieces. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 2. Fig. 4 is a side elevation of the construction shown in Fig. 2. Fig. 5 is a detail view showing the means which I preferably employ for connecting and actuating the switch-knives. Fig. 6 is a plan view of a double-pole single-throw switch. Fig. 7 is a longitudinal sectional view of the same, and Fig. 8 is a plan view of a double-throw triple-pole switch.

An electric switch which is constructed according to my invention consists, essentially, of a movable switch-knife, a plurality of contact-pieces, and independent means, as a clamping-handle, for clamping said contact-pieces into engagement with the switch-knife.

The clamping devices which I preferably employ have been especially designed for use in connection with multipolar switches; but it is obvious that certain features of construction, as hereinafter described, may be employed with advantage in single-pole switches.

Referring to Figs. 1 to 5, which illustrate a double-throw double-pole switch, A designates a base-plate, which is preferably constructed of marble or other insulating material. Mounted upon the base-plate A are central

split contact-pieces B and C. Upon one side of the central contact-pieces are a set of contact-pieces D and E, and upon the opposite side of the central contact-pieces are a second set of contact-pieces D' and E'. Pivoted in the central contact-pieces are a pair of switch-knives, which may be turned into engagement with the set of contact-pieces at either side.

In constructions which are designed for carrying exceptionally heavy currents I preferably employ multibladed or duplicate-bladed switch-knives, which will provide increased areas of contact.

As shown in the drawings, F and G designate the blades of the switch-knife which is pivoted in the contact-piece B, and H and I designate the blades of the switch-knife which is pivoted in the contact-piece C. At their outer ends the blades G and H are connected together by means of a cross-bar J, fastened to the blades by small bolts a, which extend through suitable insulating blocks and bushings designated by the reference-letters b and c, respectively. The cross-bar J is provided with an operating-handle K. The blades G and H are provided with bolts or studs d, which extend through the outer blades of the switch-knives. By means of this construction it will be seen that the switch-knives may be moved simultaneously by the operating-handle K, carried by the insulated cross-bar J, and at the same time the outside blades F and I may have a slight lateral movement. The split or slotted contact-pieces are substantially duplicates of each other and are each provided with a central bolt or stud 10, which extends through the base-plate and is secured in place by means of a nut 11. Threaded bolts 12 extend loosely through each of the pole-pieces and are provided with heads 13, which can be secured in the desired position by means of suitable locking devices—as, for example, by small screws or studs 14. A crank-shaped nut 15 is threaded upon and engages each of the bolts 12, and these nuts are connected together by means of threaded rods 16, which screw into insulating parts or sections 17. The central crank-nuts 15 are rigidly connected together by means of an insulated cross-bar 18, having an operating-handle 19. Secured in place in each of the

central contact-pieces I provide two similar U-shaped springs 20 and 21. Each of the springs 20 and 21 has one end secured in a slot formed in an extending portion of the contact-piece, as shown most clearly in Figs. 3 and 4, and has its opposite end in engagement with one of the blades of the switch-knife. As the ends of the switch-blades are substantially square, the U-shaped springs may bear upon and engage the base or either side of the switch-blade, and hence these springs will tend to hold the switch-knives either in engagement with the end contact-pieces or in a normal central position. When the switch-knives have been turned by means of the handle K to engage the desired set of contact-pieces, the contact-pieces may then be clamped into engagement with the switch-knives by means of the clamping-handle 19. When it is desired to again shift the switch, the contact-pieces may be unclamped by moving the handle 19 in the opposite direction, and the switch-knives will then be free to be moved into any other desired position.

In Figs. 6 and 7 I have illustrated one form of a double-pole single-throw switch. In this construction the base-plate A' is provided with four split contact-pieces 20, 21, 22, and 23. Two single-bladed switch-knives 24 and 25 are pivoted in the contact-pieces 21 and 22. The switch-knives 24 and 25 are connected at their outer ends by means of an insulated cross-bar 26, carrying an operating-handle 27. The split contact-pieces are each provided with crank-nuts 28, which are connected together by insulated connecting-rods, as hereinbefore described, and may be operated by means of an insulated cross-bar having a clamping-handle 29. In some cases a set of crank-nuts or clamping devices cannot be conveniently directly connected together by means of an insulated cross-bar, and in such cases I preferably provide independent means for mounting the clamping-handle upon the base-plate. In Fig. 8 I have illustrated a double-throw triple-pole switch in which such a construction is employed. Referring to this figure, A² designates a base-plate having contact-pieces P, arranged as shown. Three switch-knives 30, 31, and 32 are pivoted in the central contact-pieces and are connected together by means of an insulated cross-bar 33, having an operating-handle 34, substantially as hereinbefore described. The crank-nuts for clamping the contact-pieces P are connected to cranks 35, which are mounted on and pivoted in independent stands 36. The cranks 35 are connected together by means of an insulated cross-bar 37, having an operating-handle 38.

While I have illustrated switch-knives which are directly pivoted in one set of the contact-pieces, I am aware that a sliding or longitudinally-moving contact-piece may be

used in place of a pivoted switch-knife, and where I use the term "knife" in the claims I do not wish to be understood as limited to the use of a pivoted or swinging blade.

Instead of using the contact-pieces of the switch for supporting or pivoting the switch-knives, it is obvious that the switch-knives may be pivoted or supported upon the base-plate independently of the contact-pieces.

I am aware that other changes may be made in the construction of my improved switch by those who are skilled in the art, and I do not wish, therefore, to be limited to the construction which I have shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In an electric switch, the combination of a switch-knife, a plurality of contact pieces, a clamping device mounted in each of said contact pieces, a handle for moving the switch-knife, and an independent handle mounted on a fixed part of the switch for actuating the clamping devices, substantially as described.

2. In an electric switch, the combination of a switch-knife, a plurality of contact pieces, a clamping bolt and nut mounted in each of said contact pieces, a handle for moving the switch-knife, an independent handle, and insulated connections for actuating said clamping devices, substantially as described.

3. In an electric switch, the combination of a switch-knife, a plurality of split contact pieces, an independently adjustable bolt and nut for clamping each of said contact pieces into engagement with said knife, means for holding each clamping device in its adjusted position and means for simultaneously actuating said clamping devices, substantially as described.

4. In an electric switch, the combination of a pivoted switch-knife having a plurality of independent sections or blades, a plurality of contact pieces, means for clamping said contact pieces into engagement with said switch-knife and a connection between the blades of said switch-knife for causing said blades to turn simultaneously while allowing them to have an independent lateral movement, substantially as described.

5. In a double-throw switch, the combination of a switch-knife pivoted in a central contact piece, a contact piece located at each side of said central contact piece, a clamping device for each of said contact pieces, and means for simultaneously actuating said clamping devices, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEO. E. LINTON.

Witnesses:

PHILIP W. SOUTHGATE,
LOUIS W. SOUTHGATE.