(No Model.)

C. C. STIRLING.

SWITCH FOR ELECTRIC CIRCUITS.

No. 382,332. Patented May 8, 1888.

Fig. 1.

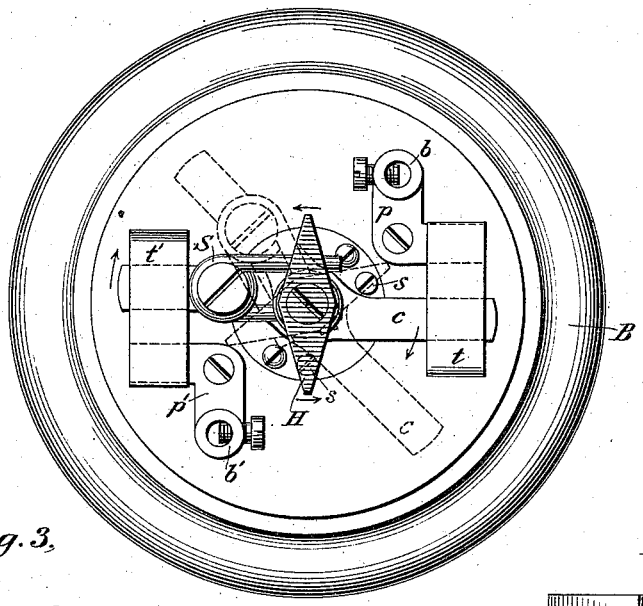


Fig. 3.

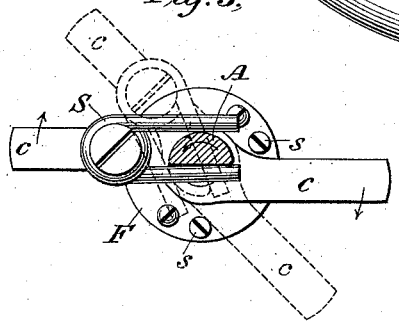


Fig. 4.

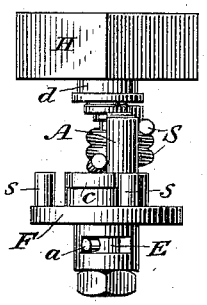
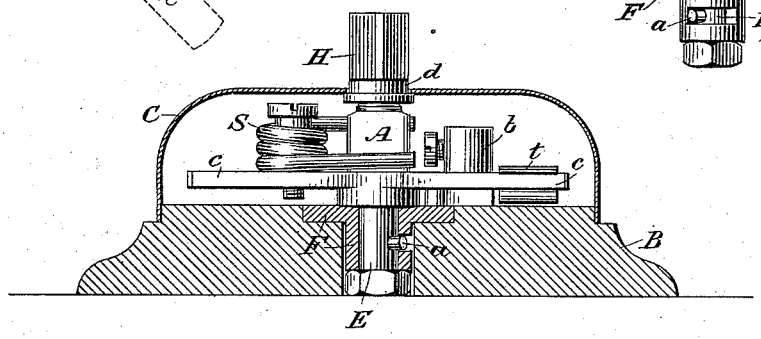


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

CLARENCE CANFIELD STIRLING, OF HARTFORD, CONNECTICUT, ASSIGNOR TO CHARLES E. DUSTIN, OF SAME PLACE.

SWITCH FOR ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 382,332, dated May 8, 1888.

Application filed June 21, 1887. Serial No. 241,979. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE CANFIELD STIRLING, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Switches for Electric Circuits, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to construct a switch for electrical purposes, which shall be as simple, cheap, and compact as possible.

The invention consists of a spindle having a cut-away portion forming a cam and a circuit-controlling bar arranged in co-operative proximity to circuit-terminals, the said bar having a spring fastened to it at one side of its pivot, which spring bears upon the cam portion of the spindle, before alluded to; and it consists, also, in details of construction hereinafter to be set forth, and which will be pointed out in the claims.

Figure 1 represents a plan view of my invention; Fig. 2, a side elevation thereof, partly in section; Fig. 3, a plan view showing the circuit-controlling bar, the spring attached thereto, and the cam portion of the spindle; and Fig. 4 shows an elevation of the same at right angles to the plane of Fig. 2.

In the several figures of the drawings the same letters of reference indicate the same parts.

B represents a circular base upon which my switch is adapted to be mounted. This base is recessed, as shown, to receive a circular plate and bushing F, which receives and journals the end of a spindle, E, upon the outer end of which is secured a handle, H, for manual operation. The spindle E has an enlarged portion which is cut away at one side to form a cam, A, which is adapted to work against a bifurcated spring, S, attached to the bar *c* by means of a screw passing through it. The bar *c* is loosely swiveled about the spindle E, and is adapted to complete the circuit between the circuit-terminal springs *t* and *t'*, which are attached to metal pieces *p* and *p'*, screwed to the base-plate and bearing binding-screws *b* and *b'*, by which the circuit-wires are fastened to the apparatus.

In order to limit the play of the bar *c*, two stops, *s* and *s*, are secured to the plate F. The extension of this plate, forming the bushing for the spindle E, has a slot cut in the same, (clearly shown in Fig. 4,) in which a pin, *a*, attached to the spindle, works for the purpose of limiting the play of the spindle, and preventing it, by means of the handle H, from being turned backward when the stop is at the end of the slot. The spindle E is reduced at its lower portion, which has a screw-thread cut upon it for receiving a nut which holds the spindle in place. The nut is countersunk in the base B, as shown in Fig. 2.

The parts may be disposed in a manner different from that which I have set forth without departing from the spirit of my invention, and the construction varied in many ways and still be within the scope of the invention. I reserve the right myself in practice to make all these changes should I see fit.

The handle H is made of insulating material, and may be removably fastened to the spindle E in any suitable manner. Loose about the spindle E, above the cam portion A, is placed a collar, *d*, also of insulating material, for insulating the spindle from the metal casing C, which houses the apparatus. The handle and casing can therefore be handled by any one without danger of receiving shocks, as they are completely insulated from the conductive portion of the apparatus.

In case the operation of my apparatus should not be understood from the foregoing, I will proceed to state it briefly. The dotted and full lines in Figs. 1 and 3 show the two positions of the circuit-controlling bar *c* and its operating-spring S. If the handle H is turned in the reverse direction to the hands of a watch, the cam A will ride along the two prongs of the spring S and force the same apart until the right-line portion of the cam is at right angles to the prongs of the spring. This point corresponds to the dead-point. The bar *c*, being loosely pivoted about the spindle upon which the cam is located, has not started to leave its normal position between the termi-

nals *t* and *t'*. As soon, however, as the dead-point is passed, in turning the handle H in a reverse direction to the movements of the hands of a watch, the two prongs of the spring will seek a position so as to relieve the tension thrown upon them by being forced apart by the cam, and will thus assume the position shown in the dotted lines with one prong of the spring bearing upon the right-line portion of the cam and the other on the curved portion, and inasmuch as the spring is fastened to the bar *c*, to one side of the point at which it is swiveled, it will throw this bar in the position of the dotted lines shown by a sudden snapping action. The reverse movement of the cam will throw the bar *c* and the spring in the position shown by the full lines, when the cam is turned to the position shown in the full lines. It will be seen by this that no matter how slowly the handle may be moved the making and breaking of the circuit always take place with a quick snapping action, and thus prevents to a great extent an arc being formed between the bar *c* and the terminals, the break being instantaneous, as before stated. It will be observed, also, that the bar *c* does not commence to move until the cam has reached the limit of its movement, and that the bar moves reverse to the direction in which the handle is turned.

I claim—

1. A switch for an electric circuit, comprising the following: a spindle having a cut-away portion to form a cam, a circuit-controlling bar loosely swiveled about said spindle, a spring mounted upon said bar at one side of the spindle bearing upon said cam, and circuit-terminals arranged in co-operative proximity to said circuit-controlling bar.

2. A switch for an electric circuit, consisting of a cam, a circuit-controlling bar, a spring mounted upon said bar to one side of its pivot, bearing upon said cam and actuating said bar when the cam is operated, and circuit-terminals arranged in co-operative proximity to the aforesaid bar.

3. The combination, in an electrical switch, of a spindle having a cut-away portion constituting a cam with a handle upon its outer end, a circuit-controlling bar loosely swiveled about said spindle, a bifurcated spring secured to the latter to one side of its pivot and bearing upon the cam portion of the spindle, and circuit-terminals arranged in co-operative proximity to said circuit-controlling bar.

4. The combination, in an electrical switch, of a spindle having a cut-away portion constituting a cam with a handle upon its outer end, a circuit-controlling bar loosely swiveled about said spindle, a bifurcated spring secured to the latter to one side of its pivot and bearing upon the cam portion of the spindle, circuit-terminals arranged in co-operative proximity to said circuit-controlling bar, and a base upon which the above is mounted having a plate for journaling the spindle carrying limiting-stops for the bar.

5. A switch for an electric circuit, comprising the following: a spindle having a cut-away portion to form a cam, a circuit-controlling bar loosely swiveled about said spindle, a spring mounted upon said bar at one side of the spindle bearing upon said cam, means for journaling said spindle, a pin upon the same co-operating therewith for preventing it from being turned backward, and circuit-terminals arranged in co-operative proximity to said circuit-controlling bar.

6. The combination, in an electrical switch, of a spindle having a cut-away portion constituting a cam with a handle upon its outer end, a circuit-controlling bar loosely swiveled about said spindle, a bifurcated spring secured to the latter to one side of its pivot and bearing upon the cam portion of the spindle, circuit-terminals arranged in co-operative proximity to said circuit-controlling bar, and a base upon which the above is mounted having a plate for journaling the spindle carrying limiting-stops for the bar, and a pin upon said spindle taking into a slot in said plate for preventing the spindle from being turned backward.

7. The combination of the base B, a spindle, E, swiveled in a plate set in said base, a pin, *a*, upon the spindle E, taking into a slot in said plate for limiting the play of the spindle, a circuit-controlling bar, *c*, loosely swung about the spindle, a bifurcated spring, S, fast thereto, a cam portion, A, of said spindle, upon which the latter bears, a handle, H, upon the outer end of the spindle for manual operation, circuit-terminals *t t'*, limiting-stops *s s*, and a casing, C.

In testimony whereof I have hereunto set my hand and seal, this 24th day of November, 1886, in the presence of the two subscribing witnesses.

CLARENCE CANFIELD STIRLING. [L. S.]

Witnesses:
JOHN N. MOORE,
DANIEL J. GLAZIER.