

(No Model.)

C. F. SPEED, E. W. BARKER & C. P. FRANK.
ELECTRIC SWITCH.

No. 517,773.

Patented Apr. 3, 1894.

Fig. 1.

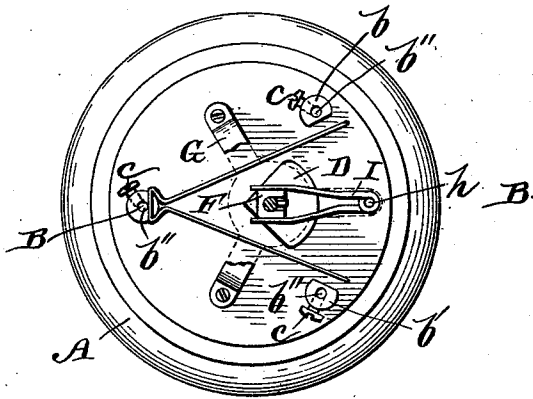


Fig. 2.

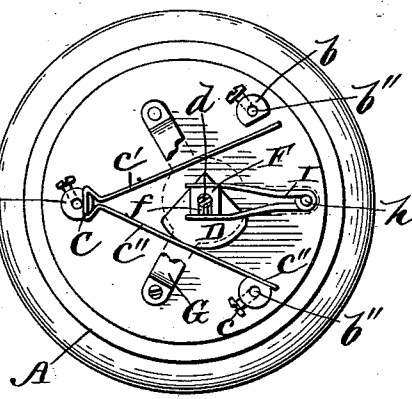


Fig. 3.

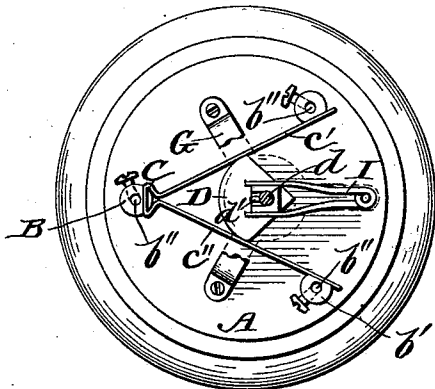


Fig. 4.

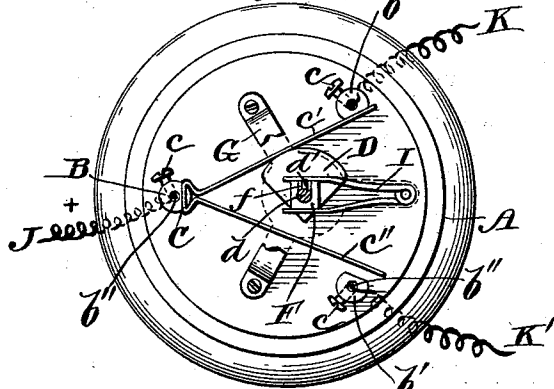


Fig. 5.

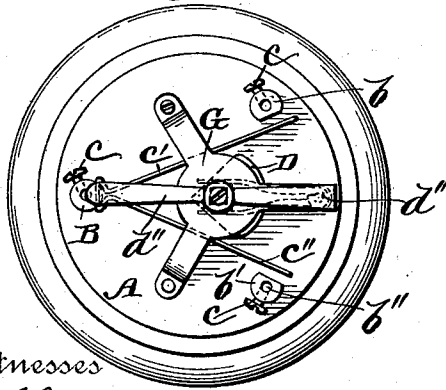
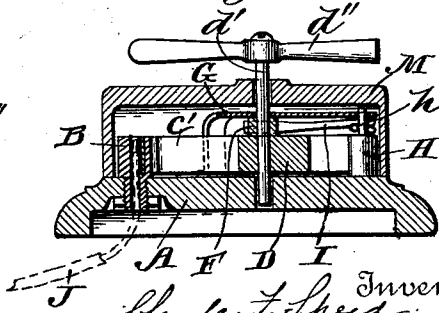


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES F. SPEED, EDWARD W. BARKER, AND CHARLES P. FRANK, OF
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ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 517,773, dated April 3, 1894.

Application filed December 1, 1893. Serial No. 492,490. (No model.)

To all whom it may concern:

Be it known that we, CHARLES F. SPEED, EDWARD W. BARKER, and CHARLES P. FRANK, citizens of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Electric Switches; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in electrical switches, and its objects are, first, to provide a three point switch capable of regulating two independent circuits and being so arranged that either one circuit or the other can be broken, or if desired both can be broken or both maintained and in breaking one circuit and starting the other, there will be no interval between the two in which neither circuit will be in operation and thus the lights or other devices controlled by one circuit will not cease to operate until those of the other circuit are started, and second, to feed two circuit wires connected to the switch, from a single feed pole thereon, either both at the same time, or either one separately. We accomplish these objects by the devices illustrated in the accompanying drawings, forming part of this specification, in which—

Figure 1. represents a top plan view of the devices embodying our invention, both circuits being broken, and the spider frame work being broken away. Fig. 2. represents the said devices with only the one light circuit closed. Fig. 3. represents said devices with both of said circuits closed. Fig. 4. represents said devices with the three light circuit closed. Fig. 5. represents a top plan view of said devices showing the spider frame work and operating handle in position and Fig. 6. represents a central vertical section through said devices as shown in Fig. 5.

A in the drawings represents the base plate of the switch which is provided with three circuit poles or binding posts B, b, b'. These poles are placed about equi-distantly from each other and pass through said base and are secured thereon by nuts engaging their lower screw threaded ends. These poles are

also each formed with central passages as at b'' to provide for the insertion of the circuit wires, the latter being secured within said passages by set screws c, c.

The binding pole or post B is slotted at its upper end to receive and hold the contact spring C in proper position, the arms c', c'' of said spring being so formed that they are normally out of contact with the poles or posts b, b', but are so arranged that they may be readily forced into engagement with either or both of said posts as desired. The devices for actuating these spring contact arms, consist of a sector D or other suitable movable device mounted on and carried by a vertical shaft d the latter being journaled in the base A and in a spider like frame G. This shaft d is provided with a projecting pin d' which fits into a slot or recess f of a square block F, rigidly mounted on the top of the cam D. By this construction the turning of shaft d will cause the pin d' to engage either one or the other side of the slot f, according to the direction of the rotation of the shaft, and thus rotate the sector or other suitable movable device in the same direction.

The shaft d is provided with an operating handle d'' by means of which it is operated. This handle has one end squared and the other rounded so that it may be ascertained at a glance what position the handle and consequently the cam is in. A small standard H mounted upon the base, is provided at its top with a vertical pin h about which is coiled the spring I whose arms extend to and engage respectively the opposite sides of the square block F and thus keep said block in any one of the four positions, when it is turned to any one of the said positions by the operating handle. The spider like frame G fits over and down upon the pin h and thus holds the spring I in position on said pin.

The feed wire J is connected to the pole B and the line wire K, for feeding three lights of a four light chandelier, is connected to the pole b, and another line wire K', for feeding the remaining one light of the chandelier, is connected to the post b'; suitable return wires being used for each circuit. When the cam is in the position shown in Fig. 1. the lights will all be out. Now by turning the handle

to either the right or the left as the case may require, either one light is started, see Fig. 2., or three lights, see Fig. 4. by the cam engaging one or the other of the arms c' , c'' and pressing them firmly against either one or the other of the binding posts b , b' . If turned to the position shown in Fig. 4 three lights will be started and upon turning again to the left the remaining light will be started, thus making the full four or the revolution may be continued and one light only left burning, there being no interval of darkness between the lighting of three or one lights as may be required. The next revolution to the left will break both circuits and consequently extinguish all the lights. By our particular construction, the direction of the rotation can be reversed at will with a consequential reversal of the order of lighting, which is very important, as by it either one circuit or the other can be started, if desired, without first starting the other.

The arms of the spring I by engaging the sides of the square block F cause the cam to spring into position even before the handle has completely turned to that position. This action is also assisted by the slot f which is of sufficient width to allow the pin d' to move laterally to a slight extent before engaging the walls of the said slot on one side or the other according to the direction of the rotation.

A cap or casing M is placed over the operating devices, the vertical shaft passing through it and the handle being attached after the cap or casing is in place.

By our construction any desired number of lights can be included in each circuit as desired.

We do not wish to limit our invention to switches for controlling electric lighting systems as it might be employed successfully for heating systems or in fact for controlling any electrical devices.

What we claim as our invention is—

1. In an electric switch two movable contact arms electrically connected with a feed pole, in combination with a plurality of contact poles of separate independent circuits, and a movable device located between the arms, which is so constructed and can be operated to cause a contact of said arms directly with one or two poles of the independent circuits, and admits of all or one of the circuits being put on or off at will, substantially as described.

2. In an electric switch, two movable contact arms electrically connected with a feed

pole, in combination with two contact poles of separate independent circuits, and a movable device located between the arms which is so constructed and adapted to be operated as to cause a direct contact of said arms with the poles of the independent circuits so as to make or break either or both of said circuits without causing an intermediate period of darkness between the shifting of the currents, substantially as described.

3. In an electric switch, two movable spring contact arms electrically connected with a feed pole, in combination with two contact poles of separate independent circuits, and a movable device located between the arms which is so constructed and adapted to be operated as to cause a direct contact of said arms with the poles of the independent circuits so as to make or break either or both circuits without causing an intermediate period of darkness between the shifting of the currents, substantially as described.

4. In an electric switch, the combination of a feed pole, movable contact arms connected therewith, contact poles of independent circuits in proximity to said arms, a movable sector adapted to cause the engagement of said arms with said contact poles together or separately without causing an intermediate period of darkness between the shifting of the currents, substantially as described.

5. In an electric switch, the combination of a feed pole, two movable spring contact arms connected therewith, contact poles of independent circuits in proximity to said arms, a movable sector located between the said arms and adapted to cause the engagement of said arms directly with the said contact poles together or separately without causing an intermediate period of darkness between the shifting of the currents, substantially as described.

6. In an electric switch the combination of a feed pole, two movable contact arms connected therewith, contact poles placed in proximity to said arms, an operating shaft, a sector mounted on said shaft and adapted to cause the engagement of said arms with said contact poles together or separately, substantially as described.

In testimony whereof we hereunto affix our signatures in presence of two witnesses.

CHARLES F. SPEED.
EDWARD W. BARKER.
CHARLES P. FRANK.

Witnesses:

W. B. PATTON,
E. R. BRUCE.