

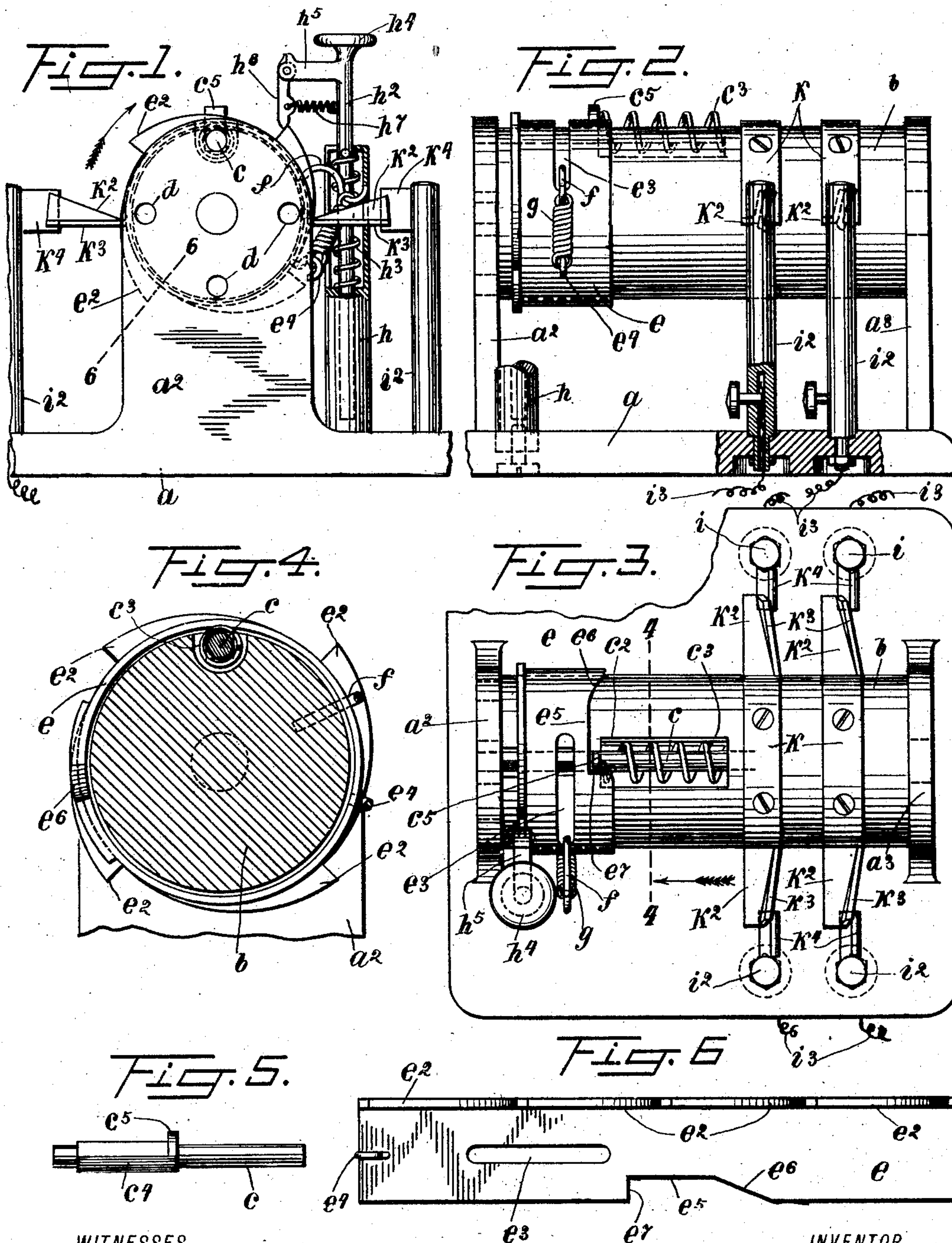
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Patented Oct. 14, 1902.

C. J. DORAN.
ELECTRIC SWITCH.

(Application filed Jan. 11, 1902.)

(No Model.)



WITNESSES

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CHRISTOPHER J. DORAN, OF JERSEY CITY, NEW JERSEY.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 711,246, dated October 14, 1902.

Application filed January 11, 1902. Serial No. 89,261. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER J. DORAN, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Electric Switches, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved electric switch which may be used wherever devices of this kind are required, but which is particularly designed for use in connection with a plurality of circuits; and with this and other objects in view the invention consists in an electric switch constructed as hereinafter described and claimed.

In the drawings forming part of this specification, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, Figure 1 is a sectional end view of my improved switch; Fig. 2, a sectional side view thereof; Fig. 3, a plan view; Fig. 4, a section on the line 4 4 of Fig. 3; Fig. 5, a side view of a detail of the construction; and Fig. 6, a plan view of a collar or sleeve which I employ, said collar or sleeve being extended so as to show the construction thereof.

In the practice of my invention I provide a base-board or support a , having two upright end members a^2 and a^3 , between which is mounted a switch-cylinder b , in the top portion of which and near the left-hand end thereof is mounted a longitudinally-movable bolt c , and said cylinder is provided in the top thereof with a longitudinal groove c^2 , in which is placed a spiral spring c^3 , through which the bolt c passes, and the outer end of which is secured to said bolt, and said spring is adapted to force said bolt outwardly or in the direction of the left-hand upright support a^2 . The said left-hand upright support a^2 is provided with four holes or openings d , which are arranged in a circle and into or through which the outer end of the bolt c is adapted to pass, and the distance between these holes or openings is ninety degrees.

Mounted on the left-hand end of the cylinder b is a sleeve or collar e , which is provided at its left-hand end with four segmental teeth

e^2 , and this collar or sleeve is shown extended in Fig. 6, the same being cut on the line 6 6 of Fig. 1 for this purpose, and said collar or sleeve is provided with a longitudinal slot or opening e^3 and at a predetermined distance therefrom and in line therewith with a hook e^4 . The inner end of said collar is cut out longitudinally, forming a longitudinal recess e^5 , one end of which is inclined outwardly, as shown at e^6 , and the other end of which forms an abrupt shoulder e^7 .

That portion of the bolt c which passes under the sleeve or collar e is formed angular in cross-section, as shown at c^4 in Fig. 5, and the slot or groove in the cylinder b through which said portion of said bolt passes is correspondingly formed, so as to prevent said bolt from turning, and said bolt is also provided adjacent to the point where the spring c^3 is connected therewith with a lug or projection c^5 . The sleeve b is also provided with a hook f , which passes through the slot e^3 , and a spring g is connected therewith and with the hook e^4 , which is secured to the collar or sleeve e . At or near the left-hand end of the base-plate a is mounted a tubular post h , in the top portion of which is placed a vertically-movable support h^2 , consisting of a rod which passes downwardly into the tubular support h , and placed in said tubular support is a spring h^3 , which operates to force the said support outwardly, and said support is provided at the top thereof with a band or member h^4 and below the same with an arm h^5 , to which is pivoted a dog h^6 , which operates in connection with the teeth e^2 of the collar or sleeve e , and in connection with said dog and with the support h is a spiral spring h^7 .

In the form of construction shown I provide at each side of the cylinder two circuit posts or poles, said circuit posts or poles on one side of said cylinder being designated by the reference-letter i and on the opposite side by the reference-letter i^2 , and each of these posts at each side is provided with a circuit-wire i^3 , and connected with the cylinder b are two segmental bands k , each of which is provided with a laterally-directed flat spring-arm k^2 , and each of the posts or poles i and i^2 is provided with a corresponding inwardly-directed inclined spring member k^4 , forming corresponding contact-points, and by turning the

cylinder *b* contact will be made between one of the posts *i* and one of the posts *i*² and with the corresponding segmental band *k*, and the circuit will be completed through said parts, and at the same time the same operation will take place between the other posts or poles *i* and *i*² and the other segmental plate *k*, and the circuit will be completed therethrough, and it will be apparent that one set of the poles or posts *i* and *i*² may be and correspondingly one of the segmental bands *k* or any desired number of said parts may be employed as may be desired.

The operation of the device will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof: The normal position of the parts is that shown in Fig. 1, and if the support *h*² be depressed the dog *h*⁶ will operate in connection with one of the teeth *e*² of the collar or sleeve *e*, and said collar or sleeve will be turned through one-quarter of a revolution. In this operation the spring *g* is expanded, and the bolt *c* is thrown inwardly or backwardly by the inclined shoulder *e*⁶ of said sleeve or collar, and when this occurs the said bolt is released from the end support *a*², and the cylinder *b* is turned through one-quarter of a revolution and enters the next hole or opening *d* in the end support *a*², and this operation breaks the circuit or circuits *b*, and another turn of said parts through one-quarter of a circle will again complete the circuit, as will be readily understood.

As thus constructed it will be seen that a quarter of a turn of the collar or sleeve *e* and a quarter of a turn of the cylinder *b* will break the circuits, while another quarter of a turn of said parts will complete said circuits, and it will of course be understood that the said cylinder *b* may be provided with any desired number of contact-arms *k*² radiating therefrom and that the distance through which the sleeve and cylinder are turned in order to break and complete the circuits may be regulated to any desired extent, this distance depending on the number of the teeth *e*² on the sleeve *e*.

This device is simple in construction and operation, and changes therein and modifications thereof may be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An electric switch comprising a base-piece, two vertically-arranged end supports connected therewith, a rotatable cylinder mounted in said supports and provided with a longitudinal spring-operated bolt adapted to lock the same to one of said supports, a rotatable collar or sleeve mounted on said

cylinder and adapted to operate said bolt reversely, circuit-poles on the opposite sides of said cylinder and provided with inwardly-directed contact devices and contact devices connected with said cylinder and adapted to operate in connection with the contact devices with which said poles are provided, the contact devices of the cylinder being in electrical connection, and means for rotating said collar or sleeve and said cylinder intermittently, substantially as shown and described.

2. An electric switch comprising a base-piece, end supports connected therewith, a rotatable cylinder mounted between said supports and provided with a spring-operated bolt adapted to engage one of said supports, a collar or sleeve mounted on said cylinder and adapted to operate said bolt, reversely, said collar or sleeve being provided with a longitudinal slot, a hook secured to said cylinder and projecting through the slot, a spring connected with said hook and with said collar or sleeve, said collar or sleeve being also provided at its outer end with ratchet-teeth, contact poles or posts at the opposite sides of said cylinder and provided with inwardly-directed contact devices and a segmental band connected with said cylinder and provided with oppositely-directed contact devices adapted to operate in connection with those with which posts are provided and means for rotating said collar and said cylinder, substantially as shown and described.

3. In an electric switch, a rotatable cylinder provided with a rotatable sleeve or collar having ratchet-teeth at one end thereof, and a vertically-movable member supported adjacent to said sleeve at one side of said cylinder and provided with a dog adapted to operate in connection with said ratchet-teeth, substantially as shown and described.

4. In an electric switch, a rotatable cylinder provided with a rotatable sleeve or collar having ratchet-teeth at one end thereof, and a vertically-movable member supported adjacent to said sleeve at one side of said cylinder and provided with a dog adapted to operate in connection with said ratchet-teeth, said cylinder being also provided with a spring-operated bolt adapted to engage one of the supports thereof and which is adapted to be operated reversely by said collar or sleeve, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 10th day of January, 1902.

CHRISTOPHER J. DORAN.

Witnesses:

F. A. STEWART,
F. F. TELLER.