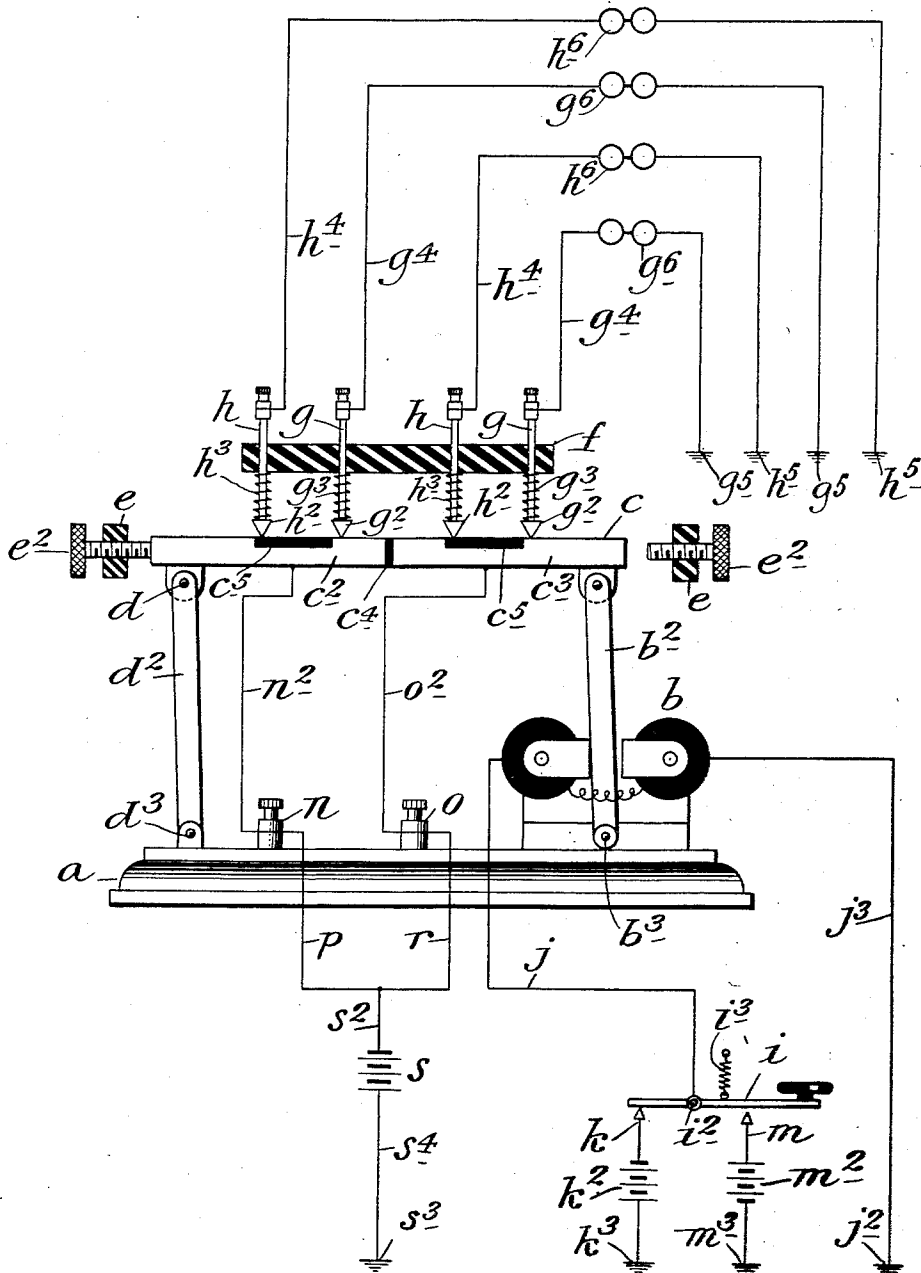


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 MULTIPLE CIRCUIT CONTROLLER.
 APPLICATION FILED JUNE 18, 1910.

1,016,329.

Patented Feb. 6, 1912.



WITNESSES:

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MULTIPLE-CIRCUIT CONTROLLER.

1,016,329.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed June 18, 1910. Serial No. 567,623.

To all whom it may concern:

Be it known that I, CHARLES K. JONES, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Multiple-Circuit Controllers, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to electrical apparatus, and particularly to movable circuit controllers, and the object thereof is to provide a device or apparatus of this class which is simple in construction and operation and by means of which a number of circuits may be controlled by the operation of a single polarized relay.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, said drawing being a diagrammatic view showing an apparatus involving my improved circuit controller, and the separate parts thereof being designated by suitable reference characters.

In the practice of my invention I provide a base plate *a* of insulating material on which is mounted a polarized relay *b* provided with a vertically arranged armature arm *b*², which is pivoted at *b*³ and to the upper end of which is pivoted a shift bar *c* arranged parallel with the base plate *a*, and the opposite end of which is also pivoted at *d* to a vertically arranged arm *d*² which is pivoted to the base plate *a* at *d*³. At the opposite end of the shift bar *c* are insulating supports *e* through which are passed set screws *e*², by means of which the movement of the shift bar *c* may be regulated. The top surface of the shift bar *c* is smooth and even and said shift bar, in the form of construction shown is composed of two parts *c*² and *c*³ of conducting material, said parts being insulated at *c*⁴ and in the top portion of the separate parts *c*² and *c*³ of the shift bar *c* are placed oblong insulating members *c*⁵.

Arranged parallel with the shift bar *c* and adjacent thereto is an insulated support *f* through which are passed longitudinally movable contact devices *g* provided at their lower ends with heads *g*² adapted to bear on the top surface of the shift bar *c* and between which and the support *f* are placed spiral springs *g*³ by means of which

the heads *g*² of the contact devices *g* are normally held in connection with the top surface of the shift bar *c*, and similar contact devices *h* are also passed through the support *f* and provided with contact heads *h*² which also normally bear on the top surface of the shift bar *c* and between which and the support *f* are placed springs *h*³.

Connected with the contact devices *g* are conductors *g*⁴ which are grounded at *g*⁵, and in which are placed electro-magnets *g*⁶, and connected with the contact devices *h* are conductors *h*⁴ which are grounded at *h*⁵, and in which are placed electro-magnets *h*⁶. I have also shown at *i* an ordinary telegraphic or electric key pivoted at *i*² and normally held in a predetermined position by a spring *i*³, and the key *i* is placed in connection with the polarized magnet *b* by a conductor *j*, and said polarized magnet is grounded at *j*² by a conductor *j*³, and adjacent to the key *i* are two contact devices *k* and *m* which are connected with batteries *k*² and *m*² grounded at *k*³ and *m*³.

The base plate *a* is provided with two binding posts *n* and *o*, with which are connected conductors *n*² and *o*², and the conductors *n*² and *o*² are connected respectively with the parts *c*² and *c*³ of the shift bar *c*, and other conductors *p* and *r* are also connected with the binding posts *n* and *o*, and the conductors *p* and *r* are connected with the battery *s* by means of a conductor *s*² and the battery *s* is grounded at *s*³ by a conductor *s*⁴.

In the normal position of the parts as shown in the drawing the key *i* is in connection with the contact *k* and an electric circuit is established from ground at *k*³ through battery *k*², contact *k*, key *i*, conductor *j*, the polarized relay *b* and the conductor *j*³ to ground at *j* thus energizing the relay *b*. When the key *i* is depressed the electrical circuit is made from ground at *m*³ through battery *m*², contact *m*, key *i*, conductor *j*, the polarized magnet *b* and the conductor *j*³ to ground at *j*², thus operating the relay *b* and drawing the armature arm *b*² into its abnormal position.

In the normal position of the relay *b* as shown in the drawing two circuits are established as follows:—from the ground at *s*³ through conductor *s*⁴, battery *s*, conductor *s*², conductors *p* and *r*, binding posts *n* and *o*, conductors *n*² and *o*², the parts *c*² and *c*³ of the shift bar *c*, the contact devices *g*,

the conductors g^4 , the magnets g^6 and to the ground at g^5 , thus energizing magnets g^6 and thereby accomplishing any purpose that may be desired, such as operating the armature of a relay or controlling electric lights, and it will therefore be seen that both of the circuits formed by the wires g^4 and both of the magnets g^6 are operated at the same time, and when the armature arm b^2 of the relay b is in the position shown in the drawing. When the key i is depressed the two remaining circuits formed by the conductors h^4 are operated in the following manner. The circuit is established from ground at s^3 through conductor s^4 , battery s , conductor s^2 , conductors p and r , binding posts n and o , conductors n^2 and o^2 , the separate parts c^2 and c^3 of the shift bar c , contact devices h , conductors h^4 , magnets h^6 and to the ground at h^5 , and the magnets h^6 are thus energized for any purpose that may be desired, such as the operation of the armature of a relay or the controlling of electric lights. It will be understood that the circuit through the conductors h^4 is established by the shifting of the bar c to the right, this operation being performed by depressing the key i and reversing the operation of the polarized magnet b thus drawing the armature arm b^2 thereof to the right, so that the contact devices h will be brought into connection with the parts c^2 and c^3 of said shift bar and the contact devices g will be brought into contact with the insulating members c^5 of said shift bar.

It will be observed that two of the conductors h^4 are employed and two of the conductors g^4 are employed to form four circuits, but my invention is not limited to the number of these conductors, or circuits, nor to the number of the separate parts of the shift bar c and corresponding contact devices g and h , and any desired number of circuits may thus be formed by increasing the number of said parts. My invention is

also not limited to the means herein shown and described for supporting the shift bar c , and said shift bar may be supported in any desired manner, all that is necessary in this connection being that said shift bar be so arranged as to be operated by the relay b .

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

1. In an apparatus of the class described, a shift bar and a polarized relay for moving said shift bar in opposite directions, said shift bar being composed of separate insulated conductors and being provided with a contact bearing surface in which are placed insulators, and a plurality of contact devices normally bearing on said surface.

2. In an apparatus of the class described, a shift bar, and means for moving said shift bar longitudinally in opposite directions, said shift bar being composed of separate insulated conductors and being provided with a contact bearing surface in which are placed insulators, and a plurality of contact devices normally bearing on said surface.

3. In an apparatus of the class described, a shift bar movable longitudinally in opposite directions, said shift bar being composed of separate insulated conductors and having a contact bearing surface in which are placed insulators, an insulating support parallel with said shift bar, and contact devices mounted in and movable through said support and adapted to bear on said surface.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 16th day of June 1910.

CHARLES K. JONES.

Witnesses:

C. E. MULREANY,
B. M. RYERSON.