(No Model.)

H. M. BYLLESBY & P. LANGE.

CIRCUIT CONTROLLER FOR ELECTRIC CIRCUITS.

No. 366,374. Patented July 12, 1887.

Fig. 1.

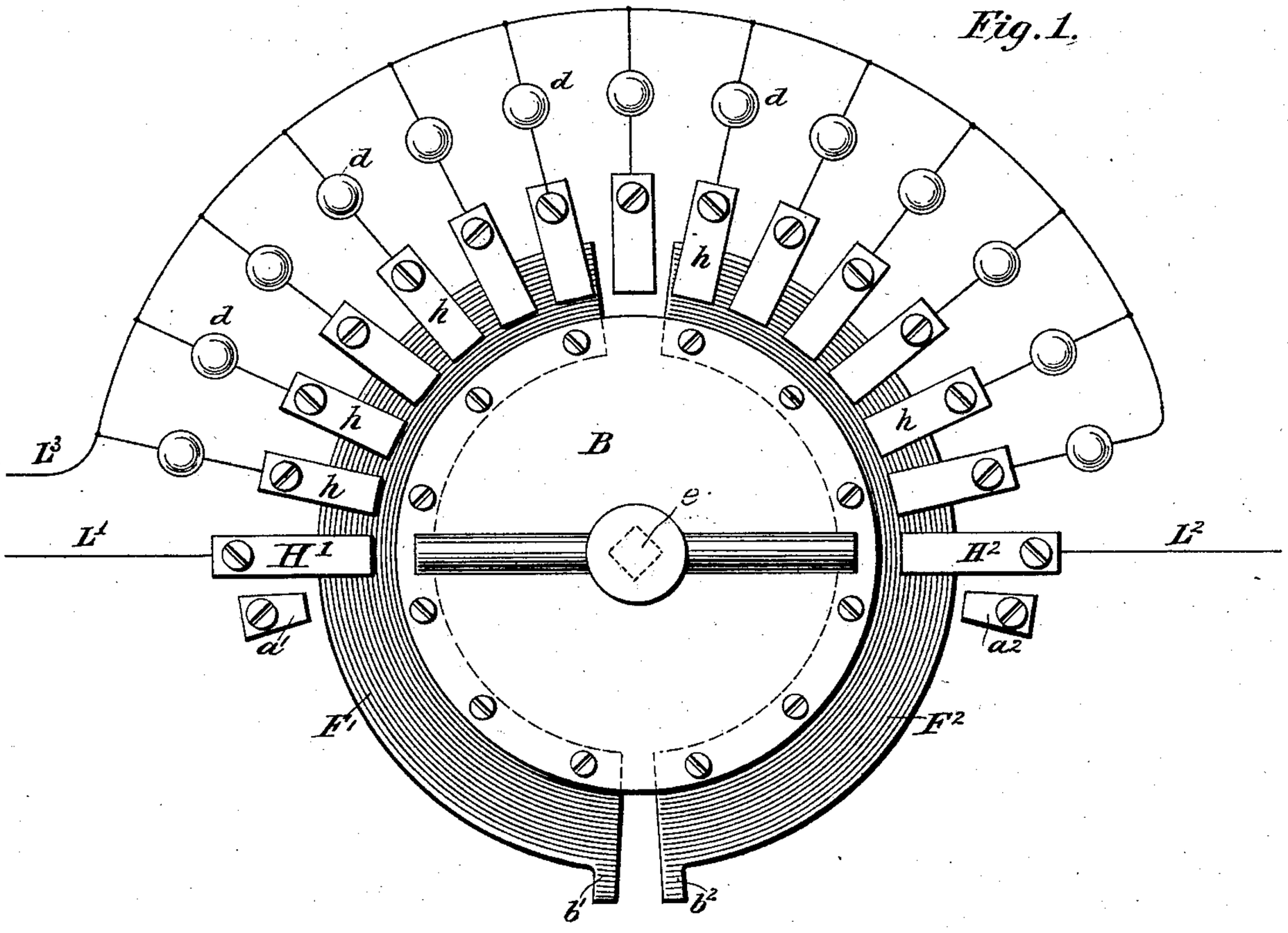
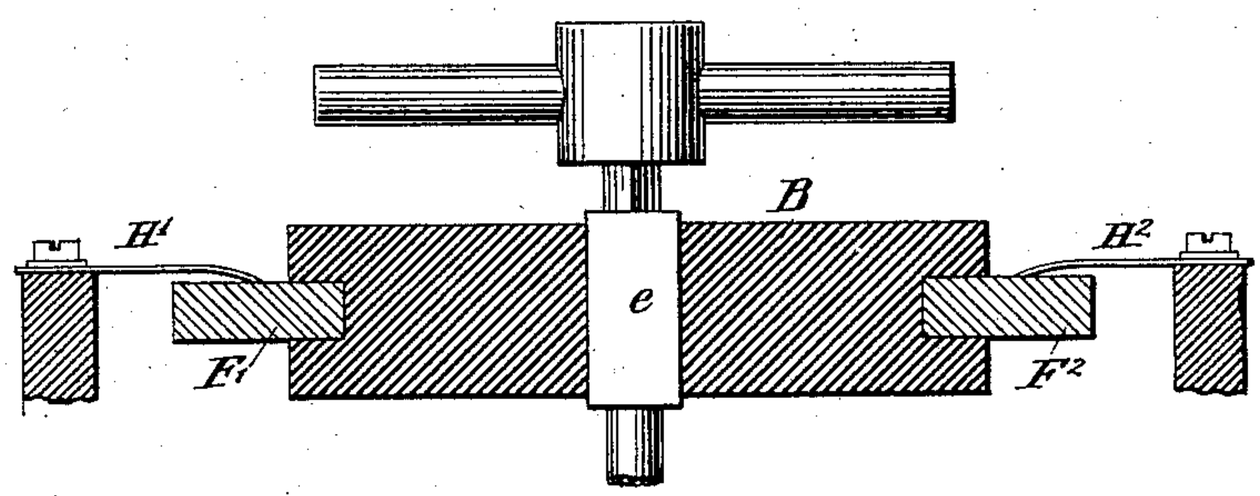


Fig. 2.



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UNITED STATES PATENT OFFICE.

HENRY M. BYLLESBY AND PHILIP LANGE, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS TO GEORGE WESTINGHOUSE, JR., OF SAME PLACE.

CIRCUIT-CONTROLLER FOR ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 366,374, dated July 12, 1887.

Application filed December 7, 1886. Serial No. 220,911. (No model.)

To all whom it may concern:

Be it known that we, HENRY M. BYLLESBY, a citizen of the United States, and PHILIP LANGE, a subject of the Emperor of Germany, both residing in Pittsburg, in the county of Allegheny, in the State of Pennsylvania, have invented certain new and useful Improvements in Circuit-Controllers for Electric Circuits, of which the following is a specification.

The invention relates to apparatus employed for controlling the connections of electric-lighting and other similar circuits, and for regulating the number of lamps or modifying the consumption of electric energy in any given circuit.

The invention is especially applicable to the so-called "three-wire" systems of electrical distribution, but may also be employed with advantage in electric-lighting circuits in general.

The invention will be specifically described in its connection with a three-wire system, and its most useful function in such a system is to provide convenient means for placing a certain portion of the whole number of lamps upon one side or the other of the system—that is to say, between the positive wire and the neutral conductor, or between the latter and the negative wire, according as they may be required upon one side or the other to balance the consumption of energy in the two parts of the system.

In the accompanying drawings, Figure 1 is a plan of an apparatus embodying the invention, and Fig. 2 is a section of the same.

Referring to the drawings, L′, L², and L³ represent, respectively, the positive, negative, and the neutral conductors of a three-wire system of electrical distribution. Now, it frequently occurs in practice that the number of lamps in actual use upon the respective sides of the system varies, so that the consumption of electrical energy, or, as it is technically termed, the "load," upon one side becomes greater than that upon the other. It then becomes necessary either to insert an artificial resistance upon the opposite side to balance the excess of lamps in use, or to transfer a certain proportion of lamps from one side to the other of the system. To accomplish this a certain number of lamps, *d d d*, &c., are so situated that they may be placed in circuit between either the positive or negative and the neutral conductor by means of the switch. To this end a plate, B, of non-conducting material, is fixed upon a shaft, *e*, which permits the shaft to be turned either toward the right hand or the left hand until arrested by a fixed stop, *a′* or *a²*, which engages with a corresponding projection, *b′* or *b²*. The plate B carries two circuit-closing plates, F′ and F², semicircular in form, and adapted to make electrical contact with one or more of a series of detached contact-plates, *h h*. These contact-plates, which may be of any convenient or required number, are respectively connected with conductors including one or more lamps, *d*, and leading through these to the neutral conductor L³. The positive conductor L′ is connected with a plate, H′, at one end of the series of plates *h h*, and the negative conductor is connected with a similar plate, H², at the opposite end of this series. The support B is capable of being moved in a right-hand direction sufficiently far to include the entire series of contact-plates *h h*, but is prevented from touching the plate H′ by reason of the stop *a²*. In like manner the support may be moved toward the left hand a sufficient distance to include all the contacts, but is prevented from touching the plate H² by the stop *a′*. In this manner a short circuit between the plates H′ and H² is rendered impossible.

It will be evident that the number of active lamps included between the conductors L′ and L³ will be those connected with the particular plates of the series *h h* at any time in contact with the plate F′, the remainder being in circuit between the lines L² and L³ through the plate F². As the load upon one side or the other of the system preponderates, a balance may be effected by simply transposing the lamps *d d*, or a sufficient number of them, from one side to the other of the system. It should be noticed that the breadth of the plates *h* is less than the distance which separates the ends of the arms F′ and F², so that it is impossible contact should be made with any single plate by both arms at the same time.

We claim as our joint invention—

1. The combination of a series of contact-plates, conductors leading therefrom, respect-

ively, artificial resistances included in said conductors, a conductor with which all of said conductors are permanently connected, two insulated circuit-closing plates of equal length applied to said contact-plates, a support carrying the same, whereby either of the latter plates may be brought in contact with one or more of the first-named contact-plates, and conductors electrically connected with said circuit-closing plates, respectively.

2. In a three-wire system of electrical distribution, the combination of a semicircular series of contacts, two semicircular circuit-closing plates, means for placing either circuit-closing plate in contact with any given number of said contacts, a connection from the respective circuit-closing plates with the positive and negative conductors of the system, and incandescent electric lamps included between the respective contacts and the neutral conductor.

3. In a three-wire system of electrical distribution, the combination, with the positive, negative, and neutral conductors, of a series of translating devices, a switch consisting of contact-plates respectively connected with the positive and negative conductors, and means for connecting either plate with the neutral conductor through a greater or less number of the translating devices.

In testimony whereof we have hereunto subscribed our names this 4th day of November, A. D. 1886.

HENRY M. BYLLESBY.
PHILIP LANGE.

Witnesses:
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