(No Model.)

J. H. R. WARD & W. J. JENKS.

ELECTRIC LIGHTING SYSTEM.

No. 342,549. Patented May 25, 1886.

Fig. 1.

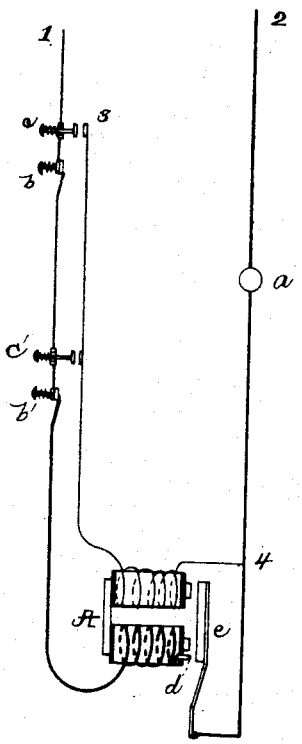
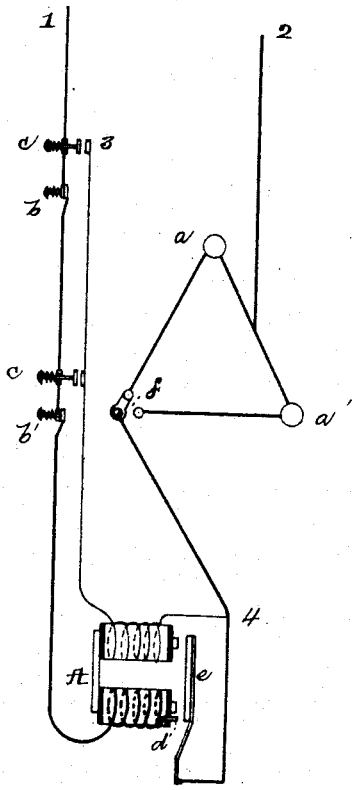


Fig. 2.



ATTEST:
E. L. Rowland
A. D. Kiddle.

INVENTORS.
John H. R. Ward
William J. Jenks
By Dyer & Tyler
Attys

UNITED STATES PATENT OFFICE.

JOHN H. R. WARD, OF STOUGHTON, MASSACHUSETTS, AND WILLIAM J. JENKS, OF NEW YORK, N. Y., ASSIGNORS TO THE NEW ENGLAND WIRING COMPANY, OF BOSTON, MASS.

ELECTRIC LIGHTING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 342,549, dated May 25, 1886.

Application filed November 16, 1885. Serial No. 182,909. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. R. WARD, of Stoughton, Norfolk county, Massachusetts, and WILLIAM J. JENKS, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Electric Lighting Systems, of which the following is a specification.

The object of this invention is to enable one or more electric lamps to be lighted or extinguished from two or more different points. This is often desirable, for instance, in the case of a lamp in the hallway of a house, which it is desired to light and extinguish from one or more rooms in the house and also from a point in the hallway itself. It is impossible, of course, to place more than one ordinary circuit making and breaking switch directly in the lamp-circuit. We employ an electro-magnetically-operating switch capable of being controlled from any desired number of different points.

Our invention is illustrated in the annexed drawings, in which Figure 1 is a diagram of a part of a system embodying said invention, and Fig. 2 a diagram illustrating a modification thereof.

1 2 is a circuit which in Fig. 1 includes an electric lamp, *a*. This is usually a derived circuit of a multiple-arc system of electric lighting. The conductor of this circuit is broken at switches *b b'*, situated at those points from which it is desired to operate the lamp, such switches being kept normally closed by springs. At the same points are placed other normally-open switches, *c c'*, which are adapted to connect circuit 1 2 with another circuit, 3 4.

A is an electro-magnet whose coils are included partly in the lamp-circuit 1 2 and partly in the branch circuit 3 4, and the latter circuit is permanently connected with 1 2 at any point between the magnet and the lamp. The circuit 3 4 is of very high resistance.

Conductor 1 terminates at a contact, *d*. Conductor 2 is connected with the spring-retracted armature *e* of magnet A, which armature is adapted to make and break contact with *d*. The parts being in the position shown, the lamp-circuit is broken and the lamp extinguished. To light the lamp, either switch *c* or *c'* is pressed, closing high-resistance circuit 3 4, which gives magnet A sufficient energy to attract its armature, whereupon circuit is closed at *d e* and the lamp is lighted. As soon as pressure is removed at *c* or *c'*, 3 4 is broken; but the energy communicated by the low-resistance circuit 1 2 is sufficient to hold the armature against the magnet and keep 1 2 closed. To extinguish the lamp, *b* or *b'* is pressed, breaking the circuit 1 2, and the armature is then released, and said circuit is permanently broken at *d e*.

In Fig. 2 a switch, *f*, is shown, which is used to change the connection of the switching devices so that they affect either lamp *a* or lamp *a'*. The operation of these devices is of course the same as before.

Instead of having one leg of the magnet in the high-resistance and the other in the low-resistance circuit, there may evidently be a compound winding on both legs in the same proportion.

What we claim is—

1. The combination, with an electric-light circuit, of an electro-magnet having an armature controlling said circuit and having two sets of coils, and two or more switches controlling the circuit of each of said sets, substantially as set forth.

2. The combination, with an electric-light circuit, of a magnet having a portion of its coils in said circuit and a portion in a separate circuit, and an armature controlling said electric-light circuit, one or more normally-closed switches for said electric light circuit, and one or more normally-open switches for said separate circuit, substantially as set forth.

3. The combination, with an electric-light circuit, of a magnet having a portion of its coils in said circuit and a portion in a high-resistance shunt therefrom, and an armature controlling said electric-light circuit, two or more normally-closed switches for said electric-light circuit, and two or more normally-open switches for said shunt-circuit, substantially as set forth.

This specification signed and witnessed this 31st day of October, 1885.

JOHN H. R. WARD.
WILLIAM J. JENKS.

Witnesses:
CLARENCE HALE,
CHAS. A. TRUE.

Correction in Letters Patent No. 342,549.

It is hereby certified that Letters Patent No. 342,549, granted May 25, 1886, upon the application of John H. R. Ward, of Stoughton, Massachusetts, and William J. Jenks, of New York, New York, for an improvement in "Electric Lighting Systems," was erroneously issued to "The New England Wiring Company, its successors or assigns;" that said Letters Patent should have been issued to *The New England Wiring Company, their heirs or assigns;* that this correction has been made in the records of the case in the Patent Office, and that the said Letters Patent should be read to conform thereto.

Signed, countersigned, and sealed this 15th day of June, A. D. 1886.

[SEAL.]

H. L. MULDROW,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.