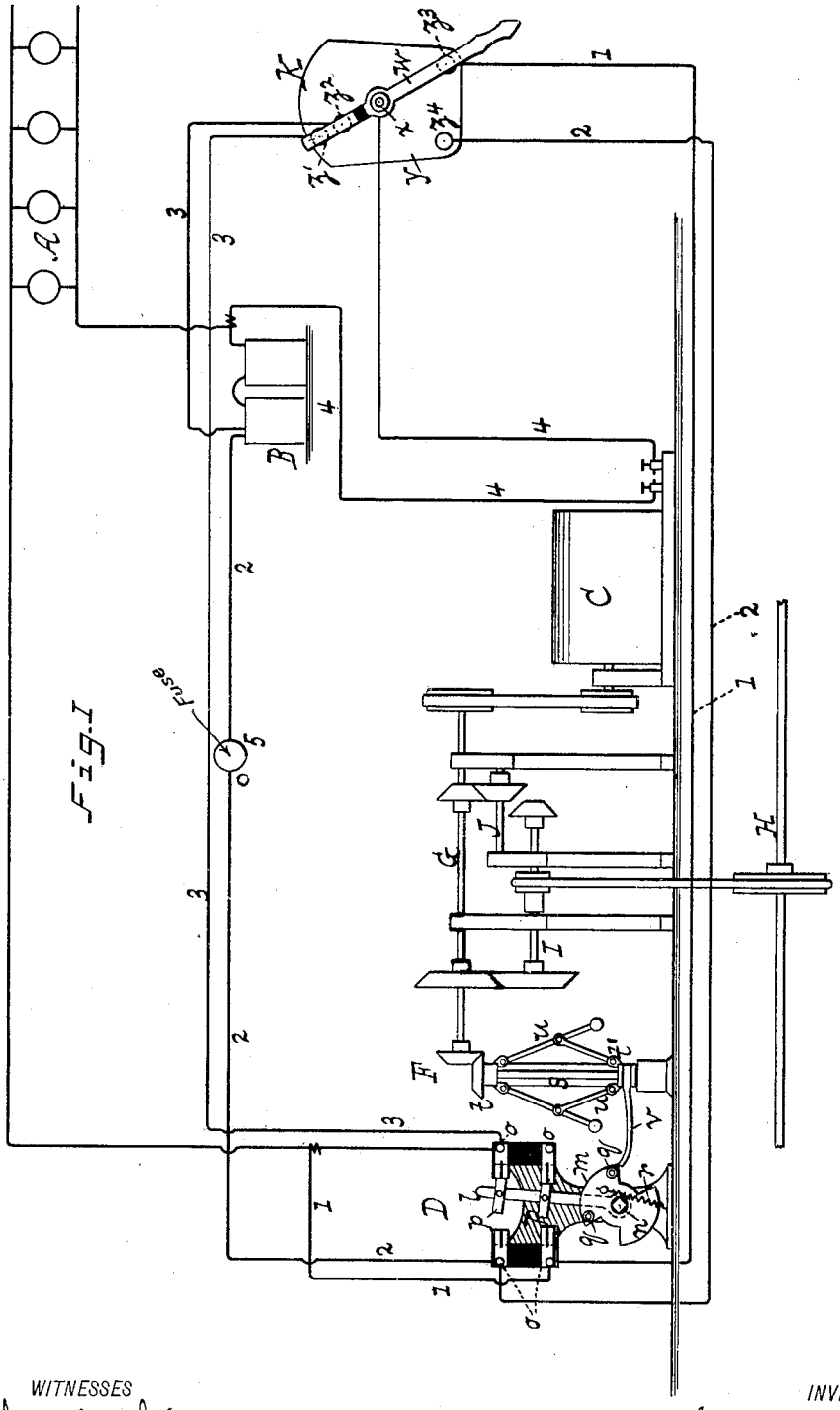
No. 660,047. Patented Oct. 16, 1900.

J. I. CONKLIN.

ELECTRIC LIGHTING SYSTEM.

(Application filed Mar. 28, 1900.)

(No Model.) 2 Sheets—Sheet 1.



WITNESSES

Chas. Wahlers

Joseph P. Conklin

INVENTOR

Joseph I. Conklin

by Benj. E. Bowl Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 660,047. Patented Oct. 16, 1900.

J. I. CONKLIN.

ELECTRIC LIGHTING SYSTEM.

(Application filed Mar. 28, 1900.)

(No Model.) 2 Sheets—Sheet 2.

Fig. IV

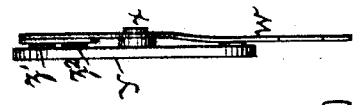


Fig. I

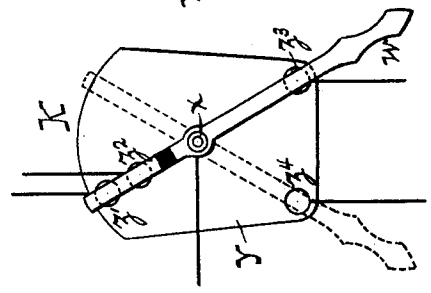


Fig. V

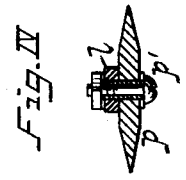


Fig. II

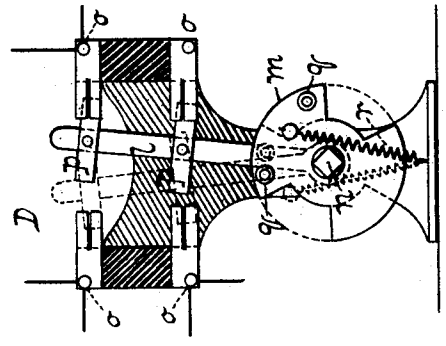
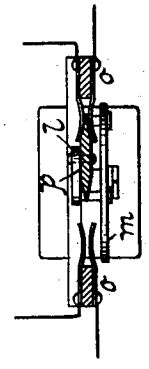


Fig. III



WITNESSES

Chas. Wahlers

Joseph P. Conklin

INVENTOR

Joseph I. Conklin

by Benj. G. Lamb

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH I. CONKLIN, OF NEW YORK, N. Y.

ELECTRIC-LIGHTING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 660,047, dated October 16, 1900.

Application filed March 28, 1900. Serial No. 10,457. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH I. CONKLIN, a citizen of the United States, and a resident of New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric-Lighting Systems, of which the following is a specification.

My invention relates to electric-lighting systems for railway-cars, and especially that class thereof for which I have obtained various Letters Patent of the United States—as, for example, No. 535,443, dated March 12, 1895.

The general object of my invention is to simplify the construction and operation of the system, to which end it consists in the employment of certain novel features hereinafter set forth and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 represents in side view an electric-lighting system embodying my invention. Fig. 2 is a detail face view of the automatic switch. Fig. 3 is a horizontal section thereof. Fig. 4 is a cross-section through the switch-lever of the automatic circuit-closer and one of the switch-keys carried thereby. Fig. 5 is a detail face view of the manual switch. Fig. 6 represents a side view thereof.

Similar characters of reference indicate corresponding parts in the several figures.

In the drawings the letter A indicates a series of lamps, B a storage battery, and C a dynamo, appertaining to the system.

D indicates an automatic circuit-closing switch, F a governor coacting therewith, and G a main shaft which is geared to both the dynamo and governor to operate the same. Power is transmitted to this shaft from the car-axle H through the medium of counter-shafts I and J in a known manner.

K indicates a manual switch, and z' z^2 z^3 z^4 indicate terminals concomitant to three circuits to be hereinafter described.

The automatic switch D includes a lever l and a reversing-cam m, both mounted on a stud n to oscillate freely thereon, and four double contact-springs o, three of which coact at one time with two keys p in the shape of cross-pieces upon the switch-lever, the fourth contact-spring being in this arrangement inoperative. The cam m carries tappets q to alternately engage the switch-lever l and a spring r for retaining it and the lever in either of two fixed positions.

The governor F includes a rotary spindle S, carrying two heads t t', one fixed and the other movable endwise thereon, toggle-jointed arms u, with suitable weights, and a finger v, projecting from the movable head toward the reversing-cam, so as to engage said cam.

The manual switch K includes a lever w on a stud x and a switchboard y, with four terminals z', z^2, z^3, and z^4 in fixed relation to the lever. The numerals 1, 2, 3, and 4 designate wires connected with said terminals z', z^2, z^3, and z^4 and the contact-springs o and forming three circuits, in which are located the lamps A, storage battery B, and dynamo C, one circuit connecting the storage battery and lamps, the second the dynamo and lamps, and the third the dynamo and storage battery. The automatic switch is employed to close the storage-battery circuit when the vehicle is moving slowly or is at rest, to close the dynamo-circuit and cut out the storage-battery circuit when the speed of the car is sufficient to generate a current for lamp-service, and in conjunction with the manual switch K to connect the dynamo to the storage battery for recharging the same.

5 is a fuse arranged in the wire 2.

In the operation of the system when the parts are in the position shown in the drawings, the car being at rest or moving but slowly, the automatic switch D closes the circuit of the storage battery B, beginning at one of the terminals, z', and passing to and through the double contacts o and keys p to lamps and to and through the battery to another terminal, z^2. When the speed of the car is sufficient to generate a current for lamp-service, the switch D is reversed by the action of the governor F and closes the circuit of dynamo C, beginning at one of the terminals, z^3, and passing through wire 1, to and through the double contacts o, keys p and through the lamps to and through wire 4, to and through dynamo C to fulcra x of lever w on the manual switch. It should here be noted that switch-lever w has an insulated contact at one end where it engages two of the terminals, z' and z^2, to obviate its interference with the dynamo-circuit.

In order to connect the dynamo C with the

storage battery B to recharge the latter, the lever w is reversed by hand and the current passes from one terminal z^4 through wire 2, to and through the double contacts o and keys p to and through battery, thence to and through dynamo to fulcra x of the manual lever, and through said lever to place of beginning. This arrangement charges the battery when the lamps are not in use.

I thus make use of three circuits which are controlled by the automatic switch D and manual switch K and without resistance or other like extraneous devices, and by this means produce not only a simple but an effective result in the demonstration of the system.

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

1. In an electric-lighting system for railway-cars, the combination, with a dynamo, storage battery and lamps, of a drive-shaft connected with the dynamo, a governor operated by said shaft, three circuits, one connecting the storage battery and lamps, the other the dynamo and lamps, and the third the dynamo and storage battery, a manual switch included in said circuits, an automatic circuit-closing switch independent of the governor and in conjunction with the manual switch controlling all three circuits, and a contact device carried by the governor for operating said independent circuit-closer, substantially as described.

2. In an electric-lighting system for railway-cars, the combination, with a dynamo, storage battery and lamps, of a drive-shaft connected with the dynamo, a governor operated by said shaft, three circuits, one connecting the storage battery and lamps, the other the dynamo and lamps, and the third the dynamo and storage battery, a manual switch included in said circuits and a circuit-closing switch operated by the governor and coöperating with the manual switch to control all three circuits, the same comprising a switch-lever and a reversing-cam carrying tappets to operate the lever and adapt it to be oscillated by the governor, substantially as described.

3. In an electric-lighting system for railway-cars, the combination, with a dynamo, storage battery, and lamps, of a drive-shaft connected with the dynamo, a governor operated by said shaft and carrying a movable finger, three circuits, one connecting the storage battery and lamps, the second the dynamo and lamps, and the third the dynamo and storage battery, a manual switch included in said circuits, and a circuit-closing switch comprising a switch-lever, a cam adapted to be moved in one direction by the governor-finger and carrying tappets to operate the lever, and a spring to hold the cam in either of two positions, substantially as described.

Signed at New York, in the county of New York and State of New York, this 15th day of March, A. D. 1900.

JOSEPH I. CONKLIN.

Witnesses:
CHAS. WAHLERS,
JOS. P. CONKLIN.