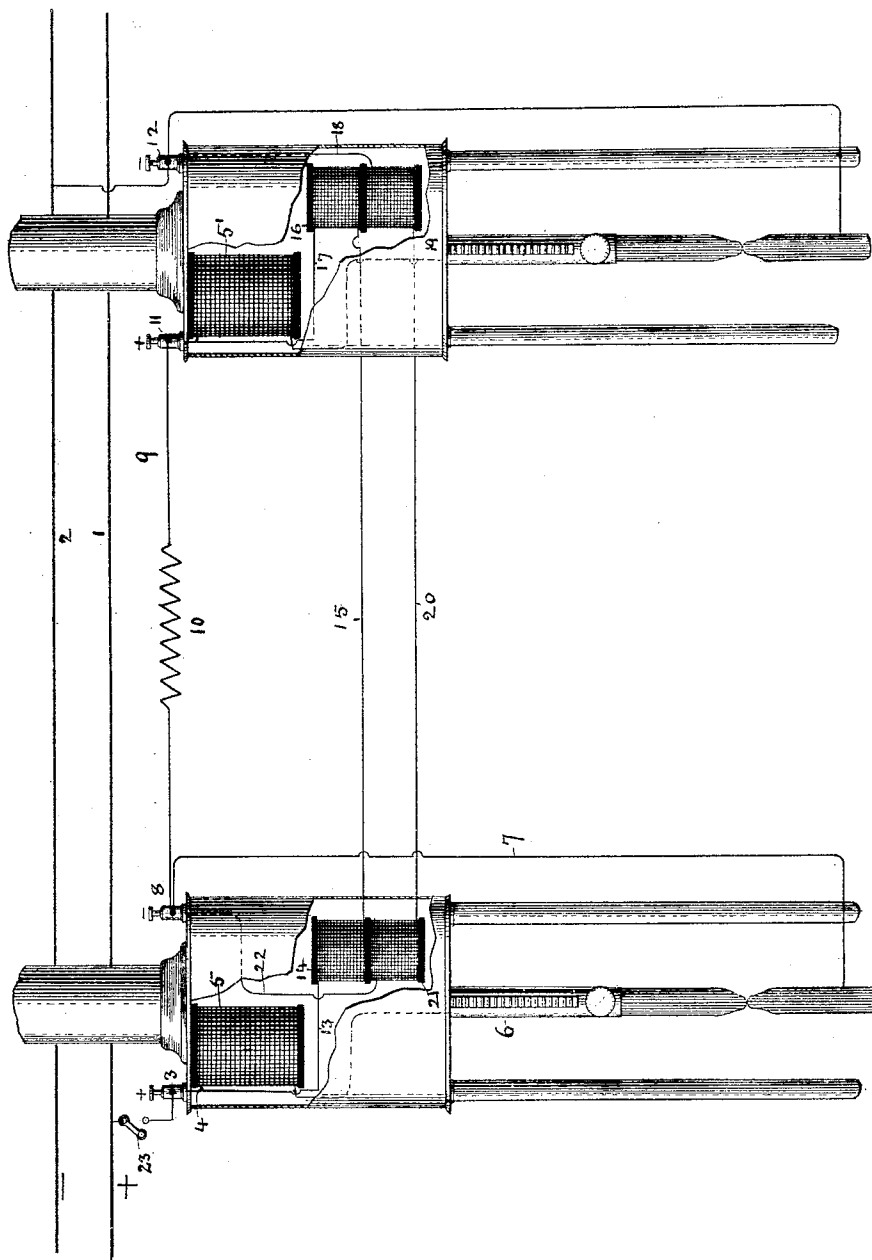


(No Model.)

R. S. DOBBIE.
ARC LIGHTING SYSTEM.

No. 461,569.

Patented Oct. 20, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT S. DOBBIE, OF BROOKLYN, NEW YORK.

ARC-LIGHTING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 461,569, dated October 20, 1891.

Application filed April 8, 1891. Serial No. 388,105. (No model.)

To all whom it may concern:

Be it known that I, ROBERT S. DOBBIE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Arc Lighting, of which the following is a specification.

The present invention relates to that class of systems in which two or more arc lamps are connected in series to a circuit.

The object of the invention is to provide an arrangement of circuits of such nature that all lamps thus placed in series shall feed together and shall not interfere with each other to cause unsteady movement of the carbons or even a complete failure of one or more of the arcs, as sometimes happens.

The invention consists in the improved system, and in the several combinations herein-after described.

The invention is illustrated in the accompanying drawing, the view being partly diagrammatical.

It is not considered necessary to illustrate in full the feeding and other mechanism of the arc lamp. The general arrangement of the main and shunt magnets and the feeding mechanism may be as in the well-known "Sperry lamp." The invention is not, however, limited in its application to this form of lamp.

1 2 is the supply-circuit, preferably a constant potential circuit, to which the arc lamps are connected. Two such lamps are shown connected in series; but three or more may be used, provided the potential in the circuit is sufficient. From the conductor 1 the wire branches to the positive terminal 3 of the first lamp, passing by wire 4 to the main or series magnet 5, thence to the carbon-carrying rod 6 through the carbons to wire 7 to the negative terminal 8, through wire 9, which includes, if necessary, a resistance 10, to the positive terminal 11 of the second lamp, thence through the main or series magnet and arc to the negative terminal 12, and thence to the opposite line-conductor 2. Branching from this main conductor is a wire 13, extending to the shunt-coil 14, thence by wire 15 to a shunt-coil 16 in the second lamp, thence by wires 17 and 9 to the negative terminal of the first lamp, thus putting said two

shunt-coils in series with each other and both in a shunt around the arc of the first lamp. From the terminal 12 a wire 18 extends to the shunt-coil 19, thence by wire 20 to shunt-coil 21, and by wires 22 and 9 to terminal 11, thus putting the latter two shunt-coils in series with each other and both in a shunt to the arc of the second lamp. 23 is a switch for making and breaking the circuit leading to the lamps.

It is preferable to have one of the coils in each lamp slightly preponderating over the other, as this will counteract any slight tendency which may exist of the carbons burning unequally. The more unequally the carbons tend to burn, the greater the preponderance will have to be. This preponderance cannot only be effected by the amount of wire on each spool, but by placing one of them so that it will have a greater effect upon its core in the solenoid. The two coils in each lamp can be precisely the same; but I prefer, as just stated, to make them unequal, and the larger part in lamp 1 is to be connected to the smaller part in lamp 2, and the larger part in lamp 2 connected to the smaller part in lamp 1.

Suppose the lamps to be out of operation and the carbons of the several lamps in contact. When the switch 23 is moved to close the circuit, the first effect will be to energize the main magnets 5, establishing the arc in the usual or in any suitable manner. When the arcs are established, current will be diverted by the first arc through the shunt-coils 14 16 and by the second arc through the shunt-coils 19 21. The effect of coil 14 is to act against the main magnet 5 to feed the carbon down. 14 is not, however, strong enough to feed the carbon when the latter has been consumed to such an extent that it should be moved forward. At the same time that 14 is acting against magnet 5, coil 16 at the second lamp is acting against the main magnet 5', but is not strong enough to feed the carbon. The second shunt-coil 21 at the first lamp acts on the same armature as coil 14 and in the same direction, and coil 19 at the second lamp acts in conjunction with coil 16. The operation will therefore be as follows: When the current diverted from the first arc, plus the current diverted from the

second arc, are together sufficient to move the feeding mechanisms, the carbons will be advanced, and since the same current acts under similar conditions at both lamps, owing to the connected shunt-coils, the two lamps will feed exactly together.

It will be evident from the description already given that when more than two lamps are in use the number of sections of the shunt-coil must be correspondingly increased—that is, there must be as many sections as there are lamps, one section at each lamp being in shunt to its own arc and the other sections being in shunts to the other arcs, as already indicated. The arrangement of the main and shunt coil may be largely varied without departing from my invention.

Without confining myself to the exact construction and arrangement above set forth, what I claim is—

1. The combination, with a circuit, of two or more arc lamps, each lamp having a shunt-coil consisting of several sections acting together and connected with a like coil or coils in the other lamp or lamps, substantially as described.

2. The combination, in an arc lamp, of a main and several shunt-coils, one of the latter coils being in shunt to the arc of said lamp and the rest of said coils being in or adapted to be connected in shunts to other arcs, substantially as described.

3. The combination of a circuit, several arc lamps connected in series thereto, each lamp having a main or series coil for moving the carbon to form an arc and as many shunt-

coils acting to feed the carbon as there are lamps, one coil in each lamp being in a shunt around its own arc and the other coils being in shunts to the other arcs, substantially as described.

4. The combination of a circuit and several lamps connected in series thereto, each lamp having a main coil, and a coil in a shunt around its own arc connected in series with a shunt-coil in each of the other lamps, and having other coils in shunts around each of the other arcs, and connected with coils at the other lamps, substantially as described.

5. The combination of several arc lamps, each having a main coil, and shunt-coils in as many sections as there are lamps, one section at each lamp being in shunt to its own arc and connected with coils at the other lamps, and the other sections at each lamp being connected with coils at the other lamps and in shunts to the arcs of said other lamps, substantially as described.

6. The combination, in an arc lamp, of means for establishing the arc, and a magnet or coil in sections for causing the carbon to be moved forward as it consumes, one section of said coil being in a shunt to the circuit of said lamp, said section being of insufficient strength to operate the feeding device, substantially as described.

This specification signed and witnessed this 3d day of April, 1891.

ROBERT S. DOBBIE.

Witnesses:

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