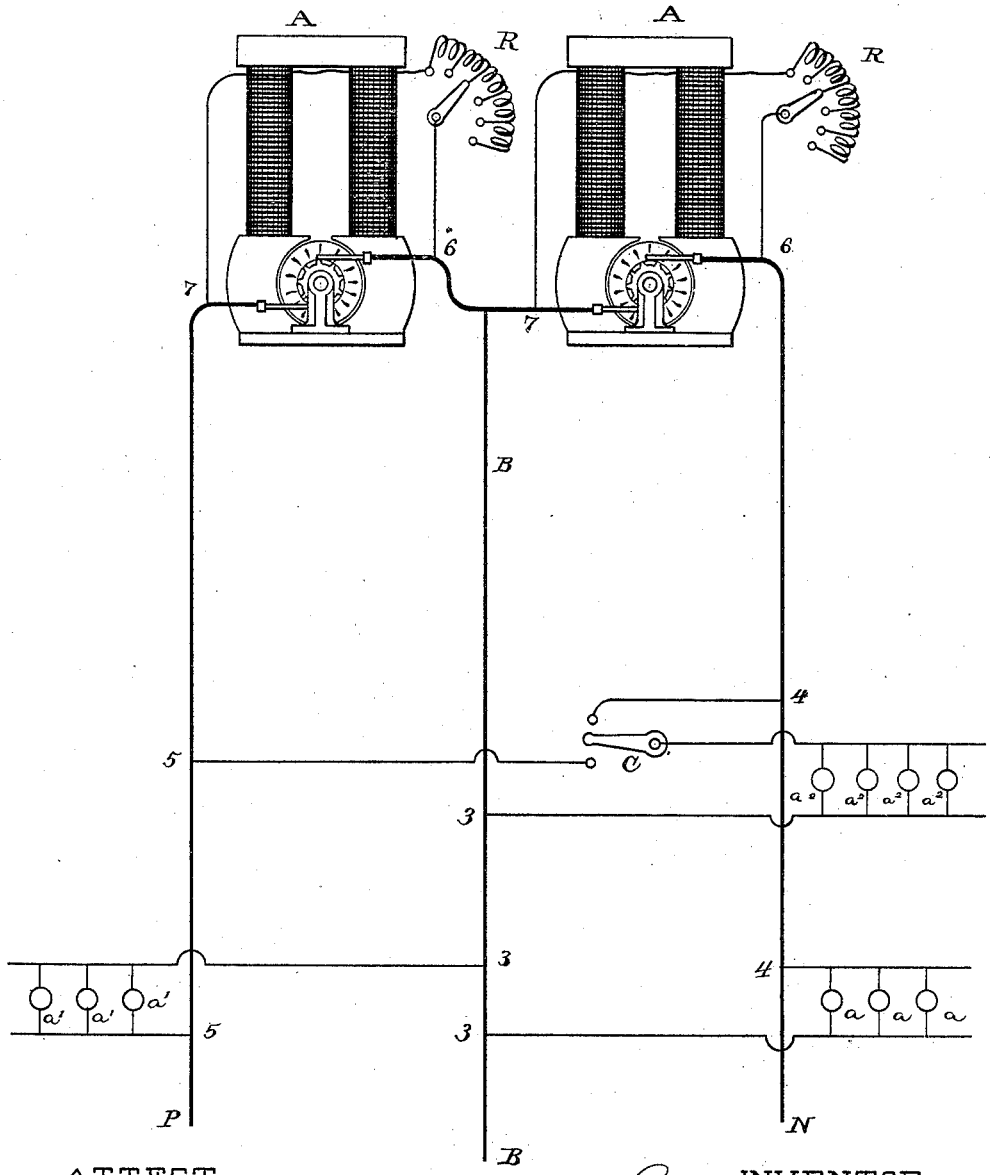
(No Model.)

T. A. EDISON.

SYSTEM OF ELECTRICAL DISTRIBUTION.

No. 283,984. Patented Aug. 28, 1883.



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SYSTEM OF ELECTRICAL DISTRIBUTION.

SPECIFICATION forming part of Letters Patent No. 283,984, dated August 28, 1883.

Application filed March 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Systems of Electrical Distribution, (Case No. 551,) of which the following is a specification.

My invention relates to "compensating" systems of electrical distribution such as are set forth in my Patent No. 274,290, dated March 20, 1883, in which a divided source of energy is employed and one or more compensating-conductors extend from the points of division of said source and are connected between the translating devices arranged in multiple series across the main conductors.

The objects of my invention are to keep the electro-motive force equal in both or all the divisions of the system, and to prevent as much current as possible from traversing the compensating conductor or conductors.

In accomplishing these objects I provide each division of the source of energy with means for regulating its electro-motive force independent of the other divisions. Where two or more dynamo-electric machines are connected in series, each forming one division of the source, an adjustable resistance is preferably placed in the field-circuit of each machine for regulating its electro-motive force. Thus, if the drop in electro-motive force is greater on one main conductor than on the other, if one machine runs faster than the other, or if in any way the electro-motive force on one side becomes greater than on the other, the resistances in the field-circuits of the machines are independently adjusted to compensate for the difference, so that the same electro-motive force is constantly maintained. This keeps the lamps in the different divisions equal in candle-power, and also assists in preserving the balance of the system, keeping the current equal on the main conductor, and preventing it from flowing in the compensating conductor or conductors. If more than one generator is included in each division of the source of energy, such generators could all be regulated simultaneously by one or more adjustable resistances.

As stated in the application above referred to, the translating devices of the system are preferably arranged in such manner that the number on one side of the compensating-conductor will constantly remain about the same as that on the other.

In order to assist still further in preserving this equality, I may employ, in connection with a translating device or group of such devices, a switch or other means whereby such device or group may be transferred from one side of the system to the other, should the numbers become so unequal as to render such a change desirable.

The accompanying drawing is a diagram of a compensating system employing the above-described improvements.

A A are dynamo-electric machines connected in series and feeding into main conductors P N.

B is the compensating-conductor connected between the generators. The lamps or other translating devices, *a*, are placed across multiple-arc circuits 3 4, connected with compensating-conductor B and main conductor N, and translating devices *a'* are placed across the circuits 3 5 between said compensating-conductor and main conductor P. Each generator A has its field-coils in a muliple-arc circuit, 6 7, and each of such multiple-arc circuits contains an adjustable resistance, R. It is evident that by separately adjusting these resistances the electro-motive force on each side can be regulated separately, and consequently the candle-power of all the lamps in the system can be kept equal and at the proper point.

C represents any suitable switch or circuit controller. It is evident that by throwing such switch in one direction or the other the lamps a^2 may be connected with either side of the system, being either in a circuit, 3 4 or 3 5, as desired. It is evident that each house or building in the system, or any group of translating devices or single translating device may be provided with similar connections, whereby it can be placed in connection with either side of the system to maintain the balance.

In the system described in my application No. 538, (Serial No. 82,564,) in which the lamps of a building or locality are divided be-

tween two circuits, one connected with each side of the system, each of such circuits could of course be arranged to be thrown from one side of the system to the other, as in the present case. If the source of electric energy is divided into more than two parts and more than one compensating-conductor is used, each division of said source would be provided with its independent regulator, and the groups of translating devices could be provided with means for throwing them into connection with either part of the system—that is, for connecting them with a compensating-conductor and either main conductor, or between two compensating-conductors.

I do not claim herein the broad idea of regulating independently a number of electrical generators connected in series, as this is claimed in my prior application, No. 424, (Serial No. 68,641;) but

What I do claim is—

1. In a compensating system of electrical distribution, substantially as set forth, the combination, with the divided source of energy, of independent means for regulating the electro-motive force of each division of said source, substantially as set forth.

2. In a compensating system of electrical distribution, substantially as set forth, the combination, with the two or more dynamo or magneto electric machines connected in series and forming a divided source of energy, of an adjustable resistance in the field-circuit of each machine, substantially as set forth.

3. In a compensating system of electrical distribution, substantially as set forth, the combination, with a translating device or group of such devices, of means whereby such device or group can be connected with one division or another of the system, as desired, substantially as set forth.

4. In a compensating system of electrical distribution, substantially as set forth, the combination, with a multiple-arc circuit, including one or more translating devices, and having one terminal connected with a compensating-conductor, of means whereby the other terminal may be connected with either of the main conductors, substantially as set forth.

This specification signed and witnessed this 5th day of March, 1883.

THOS. A. EDISON.

Witnesses:
WM. H. MEADOWCROFT,
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