

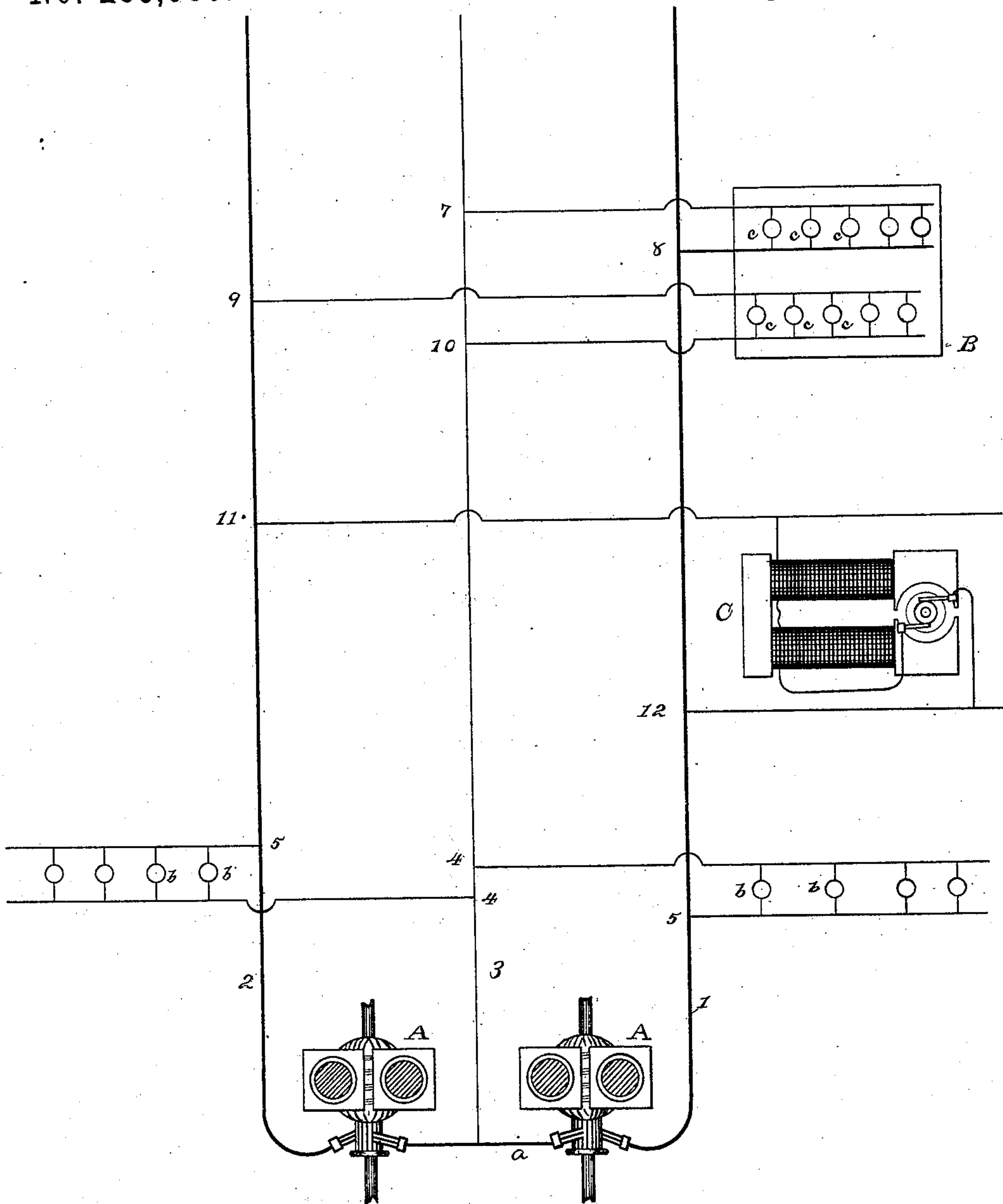
(No Model.)

T. A. EDISON.

SYSTEM OF ELECTRICAL DISTRIBUTION.

No. 283,986.

Patented Aug. 28, 1883.



ATTEST:

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UNITED STATES PATENT OFFICE.

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SYSTEM OF ELECTRICAL DISTRIBUTION.

SPECIFICATION forming part of Letters Patent No. 283,986, dated August 28, 1883.

Application filed January 22, 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
5 useful Improvement in Systems of Electrical Distribution, (Case No. 538,) of which the following is a specification.

My invention relates to such systems of distribution of electric energy for illumination,
10 motive power, &c., as are set forth in my application No. 520, (Serial No. 77,776)—that is, to a system in which a divided source of energy is employed supplying translating devices arranged in multiple series, one or more com-
15 pensating-conductors being provided whereby said translating devices are made independently controllable, and the system is divided into two or more parts. Such a system I term a "compensating" system of electrical distri-
20 bution. In such a system, as explained in the application referred to, when one or more translating devices are thrown out of circuit in one part of the system, so that the numbers in the different parts become unequal, the current which would otherwise be supplied to
25 said translating devices traverses said compensating-conductor in one direction or the other. It is, however, desirable that as little current as possible should ever traverse a
30 compensating-conductor, so that such conductors may be made as small as possible, and it is therefore desirable to preserve the balance of the system—that is, to keep equal numbers of translating devices in circuit between the
35 compensating-conductor and each main conductor, and also between two compensating-conductors, if more than one of such conductors are used. To accomplish this is the object of my invention.

40 This invention is intended to be applied to cases where a considerable number of translating devices are thrown into or out of circuit simultaneously—as, for instance, the lights in a theater or similar place—or where a single
45 translating device, consuming a large amount of current—such as a large electro-dynamic motor—is placed in and out of circuit, the balance of the system being thus destroyed and a large amount of current being caused to trav-
50 erse the compensating-conductor; or in a store

or any other place employing a greater or less number of lamps which are not turned off simultaneously, but one or more at a time in different parts of the place, my invention is
55 equally applicable.

Said invention consists in providing in a compensating system such connections that when one or more translating devices are thrown out of circuit the balance of the parts
60 of the system will be self-preserved, and but little current will traverse the compensating conductor or conductors in either direction.

My invention may be practically carried into effect in the manner illustrated in the annexed
65 drawing, which is a diagram of a compensating system embodying said invention.

A A are dynamo or magneto electric machines forming the source of energy of the system and placed in series, being connected
70 by a wire, *a*.

1 2 are main conductors extending from the source of energy, and 3 is the compensating-conductor, connected to the wire *a* and dividing said source into two parts. Multiple-arc
75 circuits 4 5 extend from the main circuit, each multiple-arc circuit being connected to the compensating-conductor and to one of the main conductors. Each of such multiple-arc
80 circuits contains translating devices *b b*, each translating device on one side of the system being, it is evident, in series with one on the other side. When a translating device is
85 thrown out of circuit on one side, a certain amount of current traverses the compensating-conductor. This illustrates what has hitherto been the ordinary arrangement of a compen-
90 sating system. To constantly preserve the balance or general average of the two parts of the system, I employ the connections now to be de-

95 B represents a building or any place in which all the lamps *c c* are under the same control. I divide all said lamps, making as nearly an equal division as possible, between the two multiple-arc circuits 7 8 and 9 10. The circuit
100 7 8 is connected to main conductor 1 and compensating-conductor 3, and circuit 9 10 to main conductor 2 and to said compensating-conductor. By this arrangement, if all the lamps *c* are simultaneously thrown into or re-

moved from circuit, there is practically no
 change in the relative number of translating
 devices in the two parts of the system, little or
 no current traverses the compensating-con-
 5 ductor, and a constant balance of the system
 is automatically preserved. The building B
 may, however, be one in which the lights are
 thrown on and off a few at a time—as, for in-
 stance, in a store where at certain hours a
 10 large number of lights are required, while at
 other times less numbers are required and
 lights are extinguished in different parts of
 the store. In this case the lamps *c c* are ar-
 15 ranged on the two circuits 7 8 and 9 10 in such
 manner that as lamps are gradually extin-
 guished about as many will be thrown off on
 one circuit as on the other, keeping the num-
 bers nearly equal and preserving the general
 average in the two parts of the system; or, if
 20 in this store this should not be the case, some
 other store, with its circuits similarly ar-
 ranged and supplied from the same main cir-
 cuit, would, in extinguishing its lights, pro-
 duce the desired compensation and preserve
 25 the balance.

C represents a large electro-dynamic motor,
 consuming a large amount of current, and of
 such resistance that it may be placed directly
 across the multiple-arc circuit 11 12. If such
 30 motor were placed across one of the ordinary
 circuits 4 5 of the system, its removal would
 cause all such current to traverse the compen-
 sating-conductor. Therefore I place it in a
 multiple-arc circuit, 11 12, connected to the
 35 two main conductors 1 2, but not to the com-
 pensating-conductor 3. Thus its removal from
 circuit still keeps the balance on the opposite
 sides of the system equal, and does not affect
 the amount of energy which traverses the com-
 40 pensating-conductor.

It is evident that where it is desired to place
 more than two translating devices in series,
 and the system is divided into more than two
 parts, two or more compensating-conductors

being used, my invention is equally applica- 45
 ble. For, if two compensating-conductors are
 employed, the lamps *c* would be nearly equally
 divided between three separate circuits, two
 of which are connected each to a main con-
 ductor and a compensating-conductor, and the 50
 third to the two compensating-conductors,
 while the motor C would still be connected to
 the two main conductors, as in the drawings,
 and these arrangements could of course be car-
 ried out with any number of compensating- 55
 conductors.

What I claim is—

1. In a compensating system of electrical
 distribution, the electric lamps of a building,
 divided between the two or more parts of the 60
 system, substantially as and for the purpose
 set forth.

2. In a compensating system of electrical
 distribution, the combination, with the main
 and compensating conductors, of two or more 65
 multiple-arc circuits containing electric lamps,
 entering the same building, and connected to
 the main and compensating conductors in such
 manner that the lamps of the building are di-
 vided between the parts of the system and the 70
 balance of the system is constantly preserved,
 substantially as set forth.

3. In a compensating system of electrical
 distribution, the combination, with the source
 of energy and main conductors, of lamps ar- 75
 ranged in multiple series, compensating-con-
 ductors extending from between the lamps to
 the source of energy, and translating devices
 arranged in separate circuits between the main
 conductors without connection with such com- 80
 pensating-conductors, substantially as set
 forth.

This specification signed and witnessed this
 13th day of January, 1883.

THOS. A. EDISON.

Witnesses:

H. W. SEELY,
 EDWARD H. PYATT.