

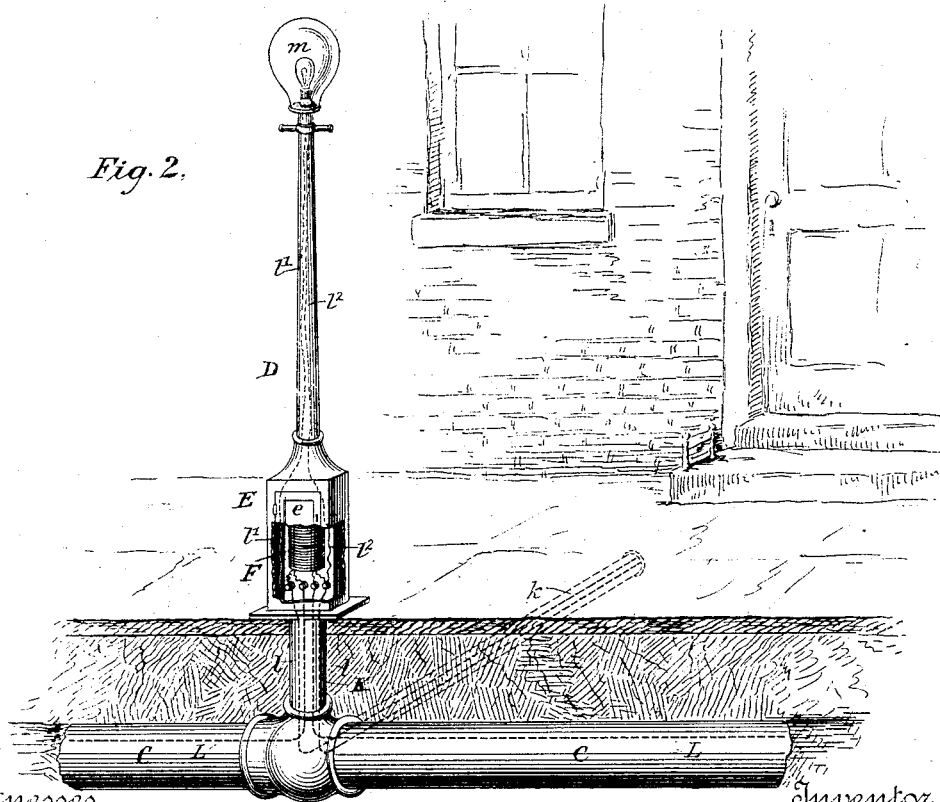
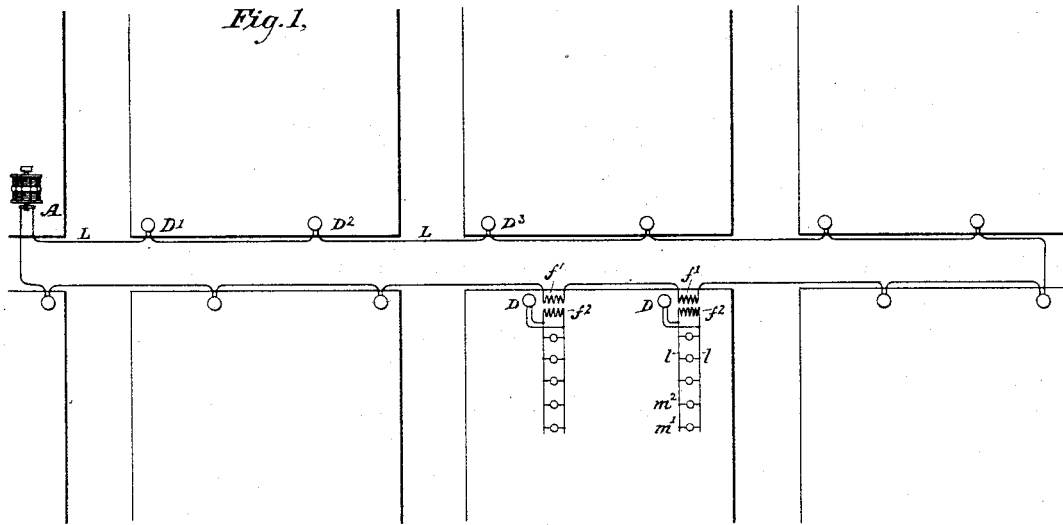
(No Model.)

G. WESTINGHOUSE, Jr.

SYSTEM OF ELECTRICAL DISTRIBUTION.

No. 342,552.

Patented May 25, 1886.



Witnesses

*Geo. W. Breck*  
*Carrie E. Ashley*

Inventor

*George Westinghouse Jr.*

By his Attorneys

*Cope & Edgecomb*

# UNITED STATES PATENT OFFICE.

GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

## SYSTEM OF ELECTRICAL DISTRIBUTION.

SPECIFICATION forming part of Letters Patent No. 342,552, dated May 25, 1886.

Application filed February 16, 1886. Serial No. 192,069. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE WESTINGHOUSE, Jr., a citizen of the United States, residing in Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Systems of Electrical Distribution, of which the following is a specification.

My invention relates to an organization of circuits and apparatus for supplying electric energy from a suitable source and transmitting it to various more or less remote points where it is to be expended.

The invention relates, particularly, to those systems of electrical distribution in which the currents generated are of much higher potential than is required for consumption, and these are transmitted through suitable conductors adapted to convey currents of very high potential and a given quantity to points in the near vicinity of the translating devices. Such currents are transmitted through the primary conductors of suitable inductoriums or converters, and the secondary or induced currents from these are employed directly for operating translating devices; or in other cases they are again transmitted through other converters for the purpose of inducing tertiary currents. The converters are usually constructed to transform currents of high potential and of comparatively small quantity into currents of lower potential and a greater quantity; but the relative values of the quantities and potentials may be variously modified, according to the requirements of the service. In carrying out such a system it is desirable that the converters be located at points convenient of access to authorized persons, but so arranged as to avoid any danger of accident from the currents of high potential being carried into occupied buildings; and to this end an important feature of my invention consists in providing for them suitable boxes in the posts employed for supporting the lamps in streets. The converter placed in any post is employed not alone in connection with the lights supported by that particular post, but also for supplying currents for the neighboring buildings. A convenient organization is secured by extending the main conductors through suitable conduits placed beneath the sidewalks of streets or in a curb-

stone-conduit especially adapted to the purpose, and leading the conductors from the same at intervals to lamp-posts placed along the streets at the points to be illuminated. Through such conductors the currents are transmitted to the primary coils of the converters. The secondary coils are included in a circuit which supplies the lamps supported by the particular post in which the converter is placed, and also those located in the neighboring buildings.

In the accompanying drawings, Figure 1 is a diagram showing a general organization of the apparatus embodying the important features of the invention; and Fig. 2 shows certain details in the construction of the lamp-post and the box for receiving the induction-coil or converter.

Referring to the figures, A represents a suitable generator for producing alternating electric currents, and this is driven from any suitable source of power. The currents from the generator are transmitted through a main conductor, L, which is laid in a suitable subway or conduit, C, beneath the sidewalk or in other convenient location in the street. At suitable points along the street, say the corners of the blocks, there are placed lamp-posts, D' D', &c. Each of these posts is constructed with a box or closet at its base, as shown at E, in which it is designed that there shall be placed a converter, F, of any suitable well-known construction. The main conductor L is led from the main conduit through a branch or T pipe, K, to the primary coil  $f'$  of such a converter at each post, and back again into the conduit. The circuit of the main line is thus complete through the primary of each induction-coil or converter. The secondary coils  $f''$  of the converters are connected in the circuit of conductors  $l$ , which are led back through the pipe K into the main conduit, thence through subsidiary conduits  $l$  into the neighboring buildings, through which they are extended in any suitable manner. The energy transmitted through the conductors  $l$  is employed for operating translating devices, such, for instance, as incandescent electric lights, as indicated at  $m' m''$ . Each lamp-post is also provided with one or more lights,  $m$ , and branch conductors  $l'$  and  $l''$  lead from the secondary coils to these lights, placing them

in multiple are with the others. Any other convenient method of connecting the lights in circuit may, however, be adopted, as found desirable.

- 5 The box E in the lamp-post is preferably closed by a door, *e*, and it may be secured by a lock to prevent unwarranted access thereto. The heat developed in the converter itself by reason of the constant magnetization and demagnetization to which it is subjected while
- 10 the system is in operation will be sufficient to expel moisture therefrom and keep the chamber in which it is placed perfectly dry at all times.
- 15 I do not wish to have it understood that the application of this invention is in any way restricted to the application of induction coils or apparatus for converting alternating currents. The improvements are applicable to
- 20 any system wherein a high electro-motive force is required, and other electrical apparatus, such, for instance, as an electric motor, cut-outs, and various other devices, might be placed in the box.
- 25 I claim as my invention—
1. The combination, substantially as hereinbefore set forth, with a source of electricity and conductors leading therefrom, of a subway through which said conductors extend, a series of lamp-posts, branch conduits leading
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from the main subway to said lamp-posts, respectively, a converter in each lamp-post having its primary coil included in circuit with the main line, subsidiary conduits leading from the main conduit to neighboring buildings, conductors leading from the secondary coil of each converter through such subsidiary conduits, and a conductor leading from the secondary coils upward through the posts, substantially as described.

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2. The combination, substantially as hereinbefore set forth, with a main conduit and a series of lamp-posts at intervals along the length of the same, of branch conduits leading to said lamp-posts, a box in each lamp-post, a converter in each box, having its primary coil included in the main line extending through the conduit, conductors leading from the secondary coil of the converter upward through the lamp-post and to neighboring buildings, and translating devices included in the last-named conductors.

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In testimony whereof I have hereunto subscribed my name this 11th day of February, A. D. 1886.

GEO. WESTINGHOUSE, JR.

Witnesses:

R. H. WHITTLESEY,  
C. M. CLARKE.