

NEW ZEALAND

"THE PATENTS, DESIGNS AND TRADEMARKS ACT 1021-22"

COMPLETE SPECIFICATION - (Patent No. 83496 - 30 Oct. 1940)

" IMPROVEMENTS IN AND RELATING TO ELECTRIC POWER DISTRIBUTION"

I, LLOYD MANDENO of 6 Highwic Avenue, Epsom, Auckland, S.E.3., in the Dominion of Kew Zealand, a Subject of the King of Great Britain, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described-and ascertained in and by the following statement:

THE INVENTION relates to the distribution of electric power, and has for its object the provision of improvements designed to simplify the distribution of electric power over wide areas, and also to reduce the number of protective and control devices used in connection therewith, thereby lessening the liability of break- downs or, and, interruptions of the system or network.

The distributing arrangement to be herein described, is particularly adapted for use in sparsely settled areas, as owing to reduced cost of construction of the net work, compared with general power reticulation schemes or networks, it brings within economic range, large numbers of isolated homesteads, which otherwise can not be economically supplied with electric power.

It also increases reliability of service by allowing the use of single wire lines for the intermediate distribution. On such single wire lines the risk of contact between adjacent conductors of the same circuit is entirely removed, so that long spans may be used without fear of clashing of conductors, either by the action of wind, the falling of trees, or the flight of birds.

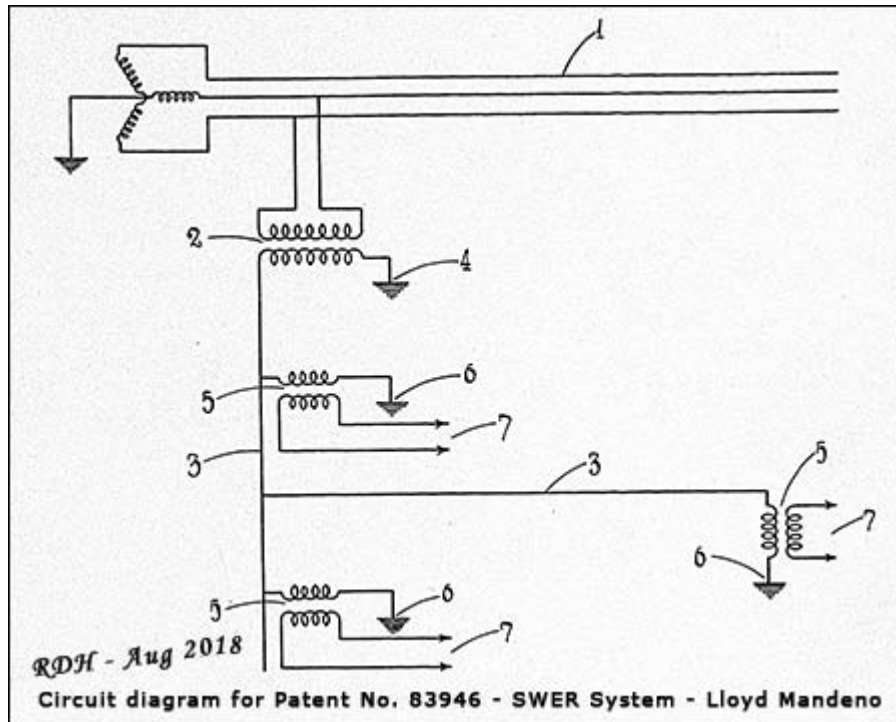
Further the use of an insulating transformer between the main point of supply to the system, and the final distribution transformers, will in many cases reduce the length of parallel which otherwise may be necessary between the lines of the Authority controlling the communication system of the territory, and the high tension, primary circuit of the power reticulation system. This is a point of considerable importance in assisting to eliminate the risk of inducing in the communication circuits, dangerous voltages through earth faults in the high tension primary power circuit.

The system to be herein described also permits the use of earth leakage relays on the primary high tension distribution system while still permitting the use of inexpensive single wire lines for spur lines stretching out and

traversing through sparsely settled districts, by reason of the fact that the primary intermediate circuits are entirely insulated from each other by means of the insulating transformers.

In effecting the improvements, there is provided a combination of a main high, tension primary distribution circuit; an intermediate single conductor earth return high tension circuit; a low tension distributing circuit; and an insulating transformer, connected between phases on its primary side, and interposed between said main high tension primary distribution circuit, and the intermediate single conductor earth return high tension circuit.

The improvements further include the use of an insulating transformer connected between phases on its primary side, in conjunction with an intermediate single conductor earth return high tension circuit.



The invention will however be more particularly described with the aid of the accompanying diagram wherein 1 represents a three phase main high tension primary distribution line, and 2 an insulating double wound transformer, the secondary winding of which is wound to give the voltage required in the intermediate high tension single conductor circuit 3, one terminal of the secondary winding of the transformer 2, being connected to earth as at 4, while the other terminal of said secondary winding is connected with the single conductor 3.

The transformers 5 through which the current passes from the intermediate high tension single conductor 3 at the required voltage to the low tension circuit 7 each have one terminal of the primary winding connected with the conductor 3, while the other terminal of said primary winding is connected to earth as at 6, the terminals of the secondary windings of the transformers 5 being connected in the low tension circuit 7 used to supply power to consumers.

HAVING NOW particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

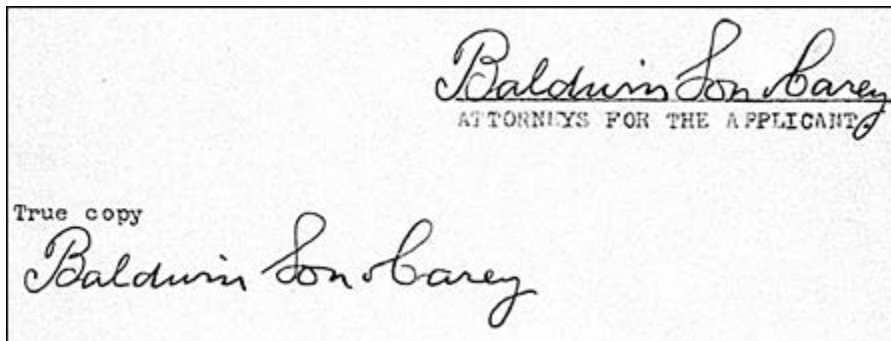
1. In electric power distribution, the combination of a main high-tension primary distribution circuit, an intermediate single-conductor earth-return

high-tension circuit;- a low-tension distributing circuit;- and an insulating transformer connected between phases on its primary side, and interposed between the main high-tension primary distribution circuits and the intermediate single- conductor earth-return high-tension circuit.

2. In electric power distribution, the use of an insulating transformer connected between phases on its primary side, in conjunction with an intermediate single conductor earth return high tension circuit,

3. The improvements in electric power distribution comprising the arrangements substantially as herein described, and as illustrated in the accompanying drawing.

DATED this Thirtieth day of October 1940



*Baldwin Son Carey*  
ATTORNEYS FOR THE APPLICANT

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(Searchable PDF version prepared by David Hyde - pseudonym 'David de la Hyde' )

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