(No Model.) 2 Sheets—Sheet 1.

H. J. WELLS.

ELECTRIC LIGHTING SYSTEM.

No. 515,806. Patented Mar. 6, 1894.

FIG. 1.

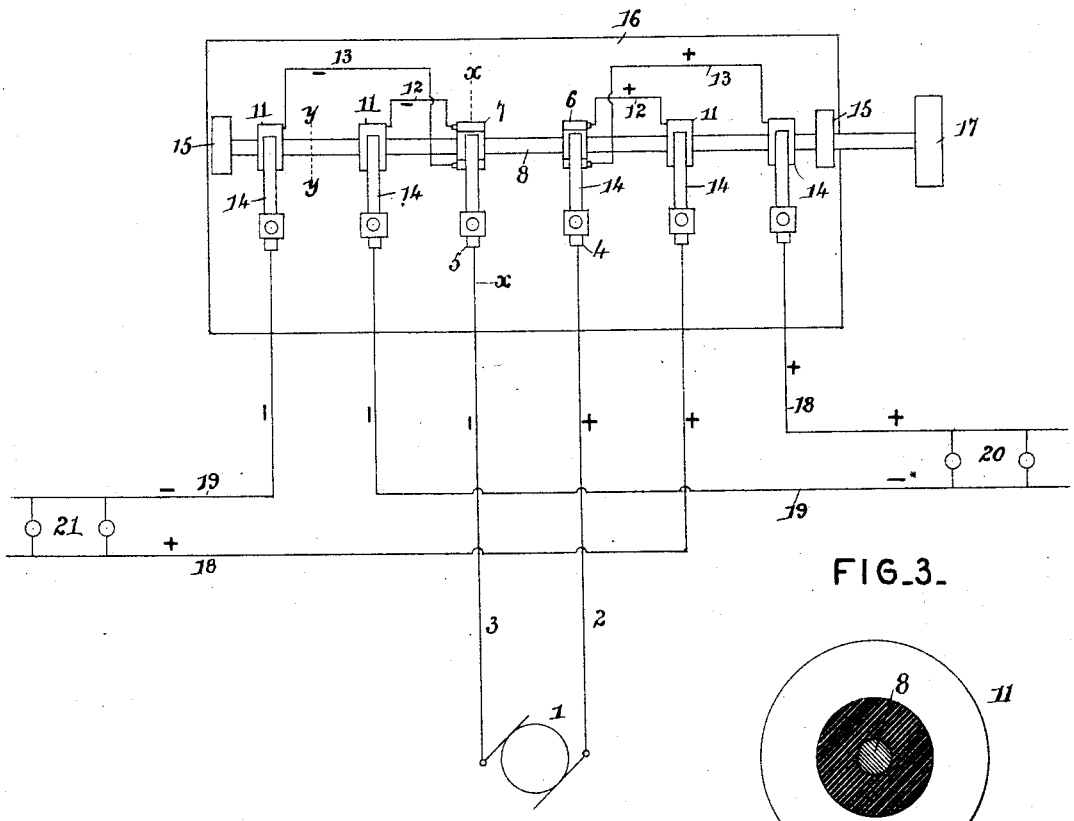
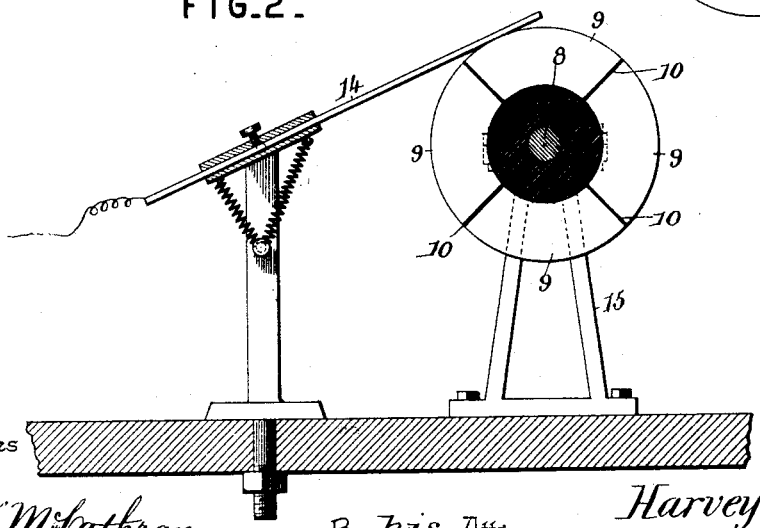


FIG. 3.

FIG. 2.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 4.

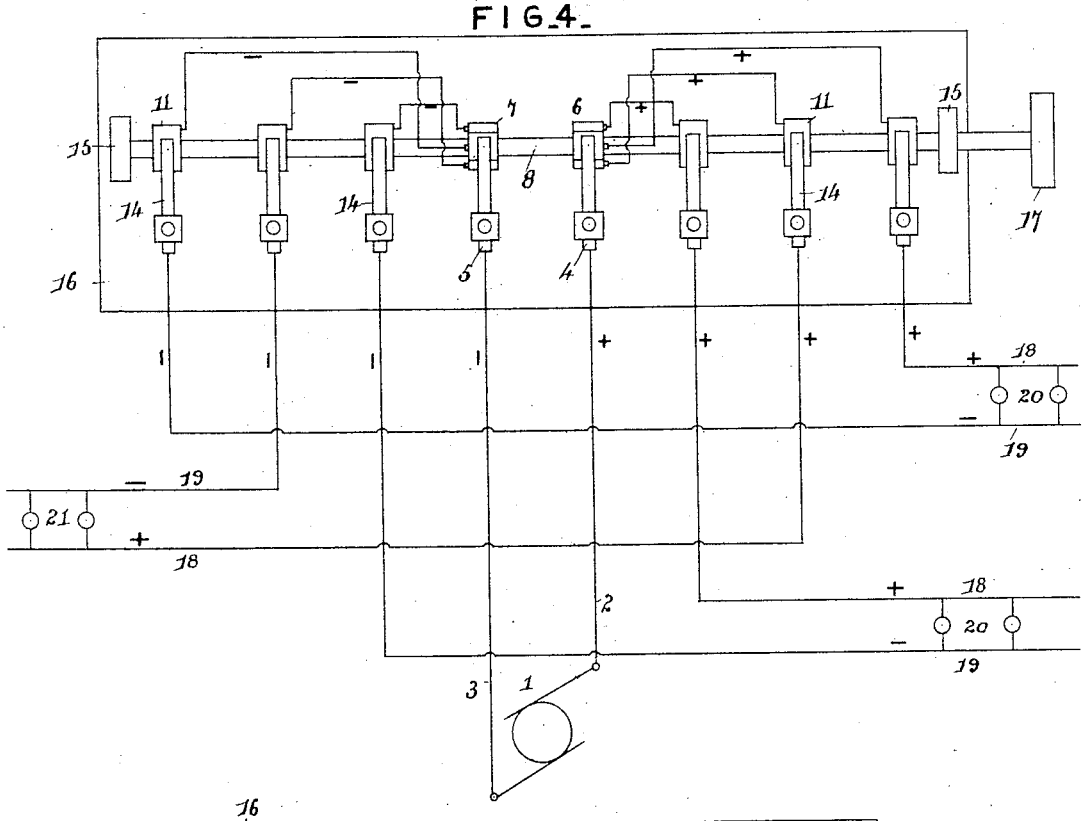
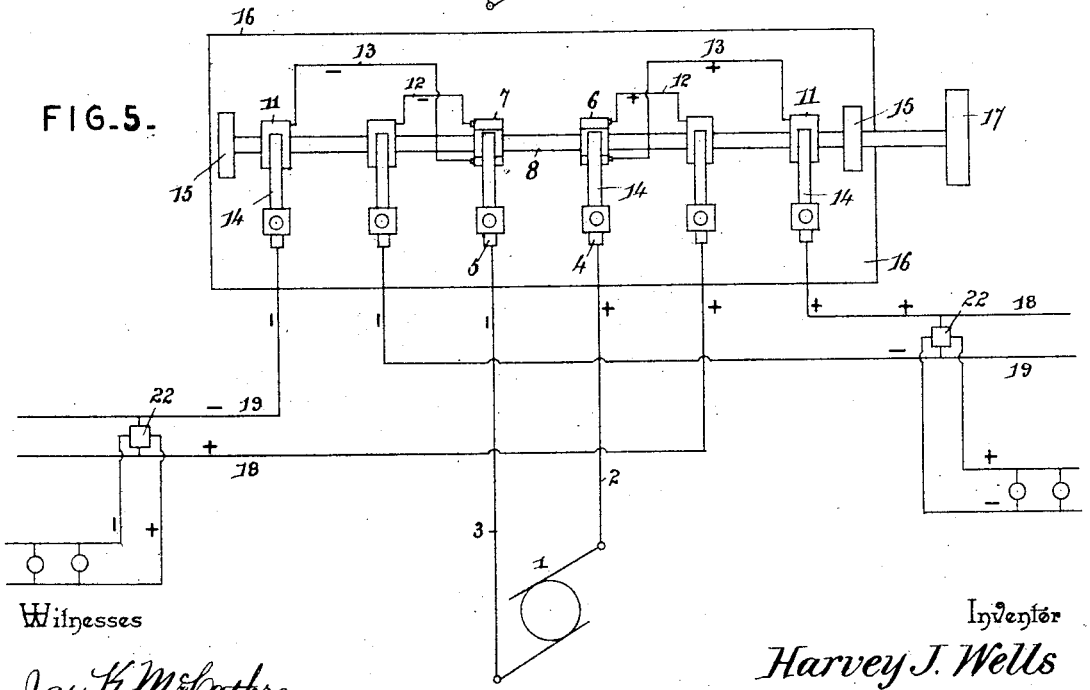


FIG. 5.



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UNITED STATES PATENT OFFICE.

HARVEY J. WELLS, OF OSCEOLA MILLS, PENNSYLVANIA.

ELECTRIC-LIGHTING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 515,806, dated March 6, 1894.

Application filed August 20, 1892. Serial No. 443,630. (No model.)

To all whom it may concern:

Be it known that I, HARVEY J. WELLS, a citizen of the United States, residing at Osceola Mills, in the county of Clearfield and State of Pennsylvania, have invented a new and useful Method of and Means for Electrical Distribution, of which the following is a specification.

This invention relates to means for distributing electrical energy; and it has for its object to provide certain improvements in electrical distribution, whereby the transfer of energy from one to two or more circuits alternately can be effected with much greater economy than by most apparatus ordinarily employed to secure the same result.

To this end the main and primary object of this invention is to provide for grouping the positive and negative terminals and wires of separate and independent circuits, whereby a single current of given voltage may be utilized to its fullest capacity without loss of energy, on the several circuits formed by such grouping, and in the specific arrangement thus contemplated for diverting the current to one or more separate circuits and thus allowing for a multiplication of the number of lamps controlled by a single generator, providing a practical and efficient system for utilizing the current during the period when the same is not passing through the lamps in one circuit, as will be well understood by those skilled in the art.

In the drawings:—Figure 1 is a diagrammatic view of one form of generator shown in connection with the improved apparatus and illustrating the arrangement of circuits. Fig. 2 is a transverse section on the line *x. x.* of Fig. 1, shown on an enlarged scale. Fig. 3 is a similar section on the line *y. y.* Fig. 1. Fig. 4 is a diagrammatic view showing the employment of a triple circuit. Fig. 5 is a similar view showing the use of transformers in connection with the device.

Similar numerals of reference are employed to indicate corresponding parts in the several figures.

Referring to the drawings, the numeral 1 designates a generator, which as shown is represented as being a dynamo, but it will be understood that said generator may consist of a secondary battery or any other medium or source of electrical generation and having extending therefrom a positive wire 2, and a negative wire 3. The positive wire 2 connects with the end of a brush 4, and the negative wire 3 with a similar adjacent brush 5. As shown these brushes are automatically movable or yielding in their support but it will be understood that any well known or preferred form of brush and brush support may be employed. The brushes 4 and 5 contact respectively with pulsators 6 and 7, mounted on a shaft 8 and consisting of a series of conducting pieces or contact sections 9 separated by interposed insulations 10, each pulsator being insulated from the shaft 8. On the said shaft 8 is also mounted a series of constant pole transmitters 11, which as shown are arranged in groups on opposite sides on the outer portions of said shaft and connected by wires 12 and 13 with the alternate parts or sections 9, of the pulsators 6 and 7. These transmitters are made of continuous or unbroken conducting material and are continuously engaged by brushes 14, similar in construction to the brushes 4 and 5 heretofore set forth. It will be seen that the current shifting pulsators and the constant pole transmitters are revolved at a uniform rate of speed by being mounted upon a single shaft, said shaft having bearing in journals 15, supported by a base 16, and provided with a drive wheel 17. It will be understood that the transmitters are also insulated from the shaft 8, and therefore each transmitter is independent of the other and the pulsators, and said pulsators are independent of each other and the said transmitter. It will be seen that the positive and the negative constituents of the continuous supply current are independently acted upon by the device set forth and when they enter the brushes 4 and 5 they are delivered to the pulsators 6 and 7 and resolved into independent pulsating currents of a positive and negative character. In this condition the said pulsating currents run to the transmitters, and taken from the latter on opposite sides of the pulsators. That is, the positive current from one of the positive transmitters is led out therefrom by a wire 18 in one direction, and the negative current from

one of the negative transmitters on the opposite portion of the shaft is conducted by a wire 19 across in the direction of the wire 18 carrying the positive current and forming a circuit 20, which, as shown, feeds a series of lamps in multiple arc, and on the opposite side a similar circuit 21 is in like manner formed. This formation of circuits may be continued indefinitely, and as shown by Fig. 1, two of such circuits are formed, and by Fig. 4 a triple circuit is illustrated. It will be understood that the circuits 20 and 21 may serve also as distributers of current for motors or any other purpose desired. While the circuit 20 is in action, the circuit 21 is inactive, but as the said action is so rapid as to be inappreciable, the lamps in the inactive circuit are not in the least affected. This is due to the fact that the carbons remain in a state of incandescence for a time after the circuit becomes inactive and do not have time to darken or extinguish before the circuit is made and again becomes active.

A further advantage of this invention is, that it is not necessary to equalize the number of lamps, or the resistance of the coils of motors, in the two circuits, as eight or more lamps can be worked in one circuit and only two in the opposite circuit, and the two lamps will burn regularly without becoming burned out which is due to the pulsating currents generated.

A further advantage of this invention is that it only requires six ampères of current to maintain sixteen candle power lamps, while in previously existing systems required five ampères to maintain eight sixteen candle power lamps. Thus it will be seen that the economical saving in percentage of ampèrage is vastly in favor of the present device.

In Fig. 5 the apparatus is shown in connection with a suitable transformer 22, by means of which the currents from the transmitters are conveyed by the wires or conductors 18 and 19 and delivered in the form of currents of a higher or lower potential than the original entrance current thereto.

Many varied advantages will arise from time to time in addition to those stated, and will become apparent to those using the device.

Having thus described the invention, what is claimed as new is—

In an apparatus for electrical distribution, the combination with a generator and its leads; of a single rotary shaft, separate and independent pulsators mounted on said shaft and having separate contacts, a brush contact connected with each lead of the generator and engaging each pulsator, constant-pole transmitters mounted in groups on the shaft at each side of each pulsator and having continuous contact faces, the transmitters of each group being connected with separate contacts of the pulsator belonging to such group, and the separate working circuits having their wires leading from a transmitter in each group respectively, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HARVEY J. WELLS.

Witnesses:
JOHN H. SIGGERS.
E. G. SIGGERS.