

P. THALASSINOZ.
 SYSTEM FOR CONVERTING DIRECT CURRENT INTO ALTERNATING CURRENTS OF DIFFERENT FREQUENCIES
 APPLICATION FILED MAR. 27, 1915.

1,179,239.

Patented Apr. 11, 1916.

2 SHEETS—SHEET 1.

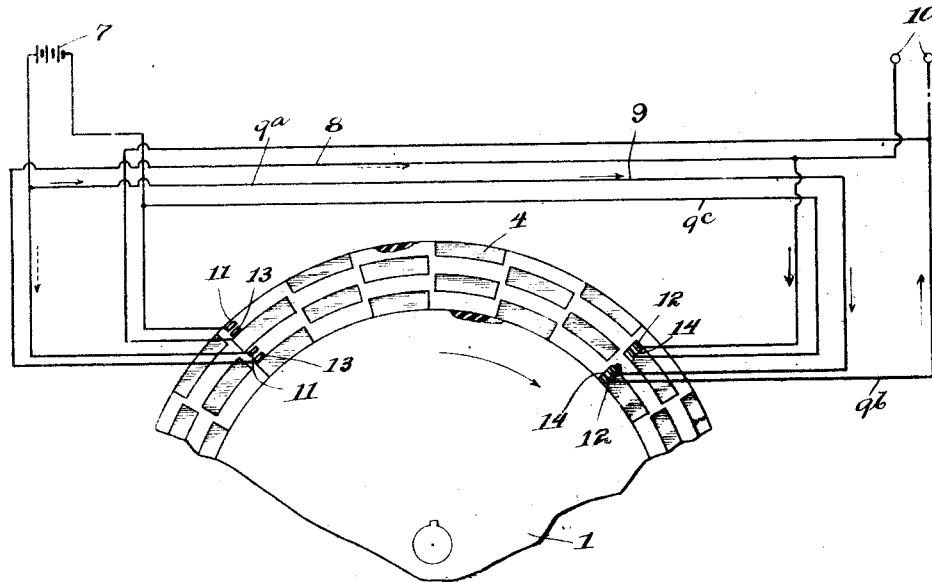


Fig. 1

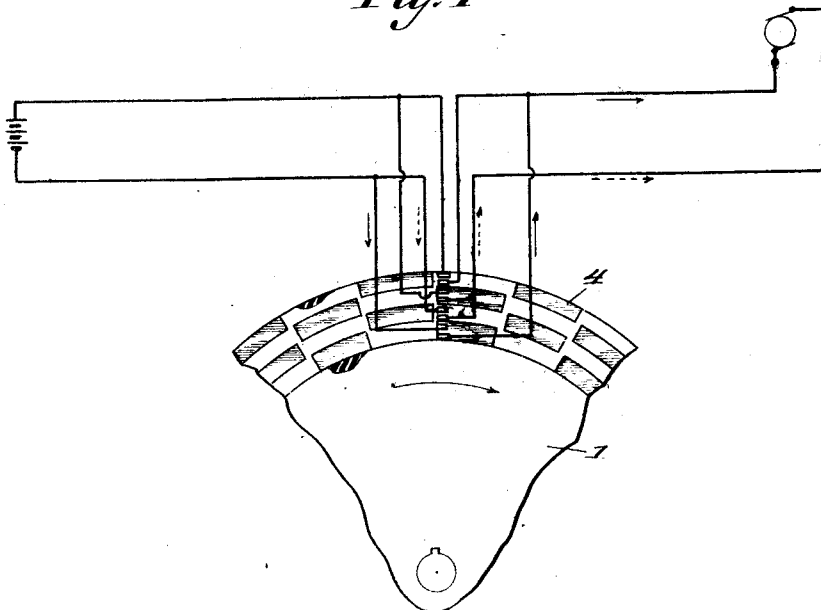


Fig. 2

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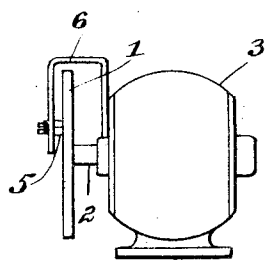
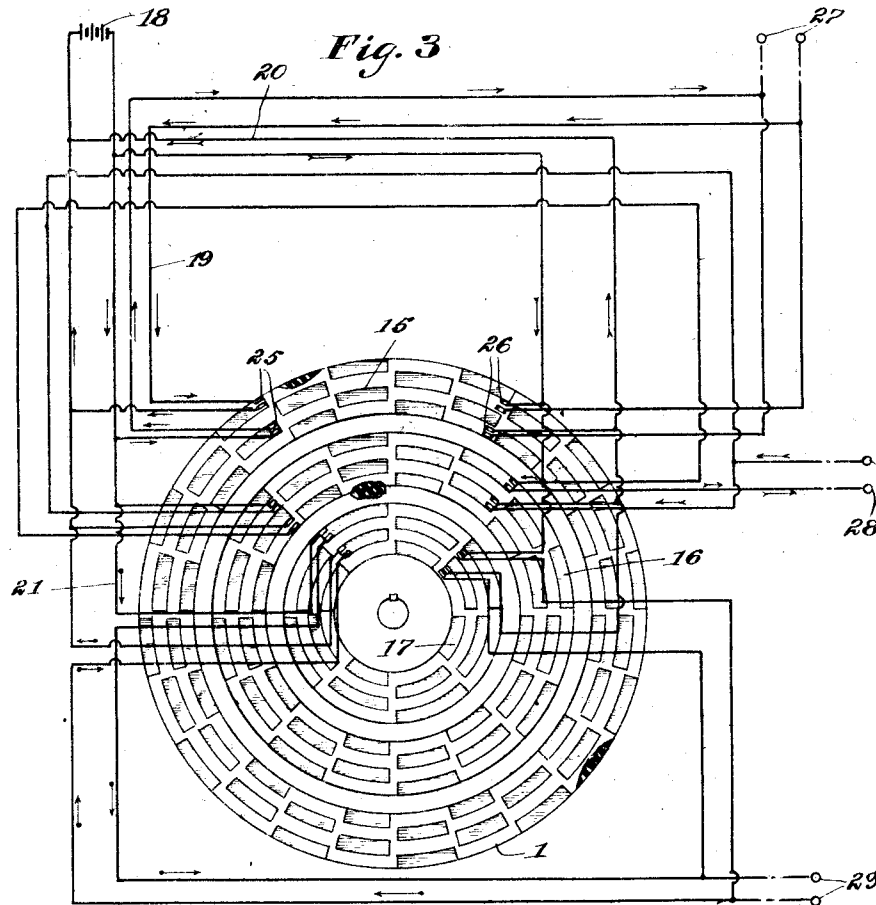


Fig. 4

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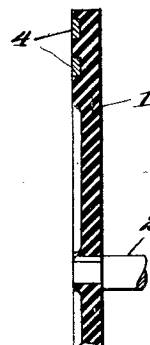


Fig. 5

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SYSTEM FOR CONVERTING DIRECT CURRENT INTO ALTERNATING CURRENTS OF DIFFERENT FREQUENCIES.

1,179,239.

Specification of Letters Patent.

Patented Apr. 11, 1916.

Application filed March 27, 1915. Serial No. 17,551.

To all whom it may concern:

Be it known that I, PETER THALASSINOZ, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Systems for Converting Direct Current into Alternating Currents of Different Frequencies, of which the following is a specification.

This invention relates to a system for converting direct current into an alternating current or for converting direct current into alternating currents of different frequencies.

It is often found that it is necessary in practice that one station should supply alternating current of different frequencies over independent circuits, owing to the fact that in electric lighting, relative high frequencies are necessary to prevent flickering of the light whereas in some types of electric motors it is an advantage to have a low frequency.

In my device, I can convert direct current into alternating currents and pass the same over independent circuits at different frequencies. My system works on the principle of a rotary converter, that is to say, I use the principle of a rotatable commutator for changing the direct current into alternating current or vice versa.

For a better understanding of my device, attention is called to the attached description and drawings, in which:

Figure 1 is a diagrammatic view showing in full arrows the path of the current during commutation and in dotted arrows the direction taken by the current upon further movement of the commutator. Fig. 2 is a view similar to Fig. 1 showing the brushes and circuits rearranged so that a plurality of brushes and circuits can be distributed around the disks. Fig. 3 is a view similar to Fig. 1, showing a multiplicity of distributing points supplied with alternating currents of different frequencies, the initial current being supplied from a single source. Fig. 4 is a side elevation of the commutator, shown attached to a driver, such as an electric motor. Fig. 5 is a vertical section through the commutator shown in Fig. 1.

In the drawings, the numeral 1 designates a disk of insulating material keyed upon a horizontally disposed shaft 2 driven

in any suitable manner such as by an electric motor 3.

Embedded in the disk 1, in concentric circles, are sets of segments of metallic strips 4 adapted to ride into engagement with brushes 5 supported by a bracket 6 that is in turn supported in any suitable manner in close proximity to one side of the disk. In the disk shown in the diagrammatic views of Figs. 1 and 2, I have shown embedded therein a plurality of concentrically arranged sets of segments 4 by means of which sub-stations or other distributing points can receive alternating current of low or high frequency depending upon the speed of the prime mover. The number of segments in each set must be a multiple of two as my system requires eight brushes bearing upon four concentrically arranged sets of segments, to convert direct current into alternating current. I wish it to be understood that the drawings in this respect are merely illustrative as it may be found in practice that the same can be accomplished with a less number of brushes and segments.

7, designates the source of direct current that may be a battery, as shown, or a direct current generator which is arranged in series with circuits 8 and 9 arranged in parallel relation and extending to a common distributing point or sub-station indicated by the binding posts 10. Each of the circuits mentioned has its continuity broken at spaced points 11 and 12 and the terminals thus formed are connected to pairs of brushes 13 and 14 arranged to alternately ride into engagement with the segments 4.

In Fig. 1 I have shown by full line arrows the direction of flow of current during commutation and in dotted line arrows the direction of flow of current upon further movement of the disk.

Attention is called to the fact that immediately one pair of brushes of a particular circuit leaves its associated segment, the other pair of brushes move into contact with their associate segment. The pairs of brushes of one circuit are spaced approximately 90° apart from the pairs of brushes of the other circuit, so that surface leakage, due to moisture across the disk of insulation is practically eliminated.

In Fig. 2 I have rearranged the pairs of

brushes and circuits so that a plurality of groups of brushes and circuits can be spaced equally around the disk, this being accomplished by having the brushes arranged in radial alinement. Parts in this view corresponding to the parts in Fig. 1 have the same reference numerals.

Referring to Fig. 1 it will be seen that when a pair of segments ride into engagement with the brushes of one circuit such as circuit 9, current will flow from one pole of the battery 7 by way of the conductor 9^a of the circuit through the brush of the inner set of brushes 13, through the associated segment to the adjacent brush from whence the current passes by way of the conductor 9^b to the point of consumption; from the point of consumption the current returns to the remaining pole of the battery by the way of the conductor 9^c and a pair of brushes 15 arranged therein. Further movement of the disk 1 causes the current to pass in a similar direction through the circuit 8 as illustrated by dotted arrows.

From the foregoing description, it will be seen that I have provided a system whereby current from a single source can be converted into independent alternating current of different frequency.

One of the advantages of my system would be in its application to the art of radiant energy and more particularly to the sending of wireless messages where it is absolutely necessary to produce different frequencies when the question of directive signaling is to be solved. With my system, as outlined in Fig. 3, I can connect thereto independent wireless sets at the binding posts 27, 28, and 29, and operate said sets on alternating currents of different frequencies for obtaining different wave lengths.

Having thus described the invention, what is claimed is:

1. In a system for converting direct into alternating current, a source of direct current, a pair of circuits connecting said source of current to a point of consumption,

said circuits being arranged parallel to each other, four brushes arranged in each of said circuits, the circuits being interrupted at said brushes, and means for alternately bringing the brushes of either circuit into electrical connection with each other.

2. In a system for converting direct into alternating current, a source of direct current, a pair of circuits connecting said source of current to a point of consumption, said circuits being arranged parallel to each other, four brushes arranged in each of said circuits, the circuits being interrupted at said brushes, means for alternately bringing the brushes of either circuit into electrical connection with each other, said means comprising a disk of insulating material upon which said brushes bear, and metallic segments embedded in the disk and adapted to ride into engagement with said brushes.

3. In combination a commutator comprising a disk of insulating material, and four sets of commutator segments arranged concentrically of the axis of said disks, the number of segments in each set increasing toward the periphery of the disk, the segments being completely insulated from each other, independent sets of brushes for each set of segments and an independent circuit for each set of brushes.

4. In combination a commutator comprising a disk of insulating material, and four sets of commutator segments arranged concentrically of the axis of said disk, the number of segments in each set increased toward the periphery of the disk and completely insulated from each other, an independent set of brushes on each set of segments, and circuits so arranged as to convey alternating currents of different frequencies from said brushes.

In testimony whereof I affix my signature in presence of two witnesses.

PETER THALASSINOZ.

Witnesses:

SAMUEL RICHARD,
THEO. H. McCALLA.