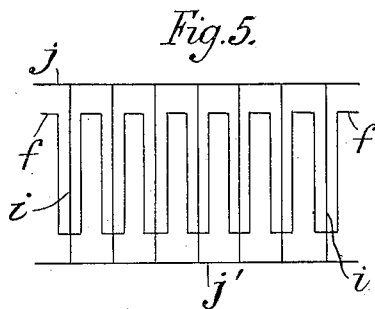
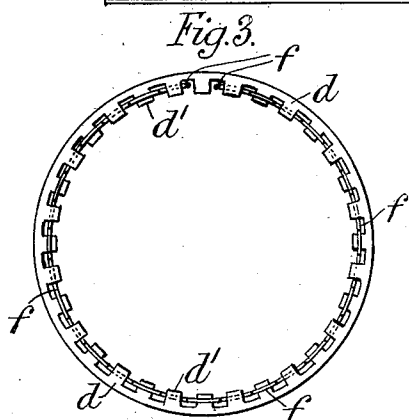
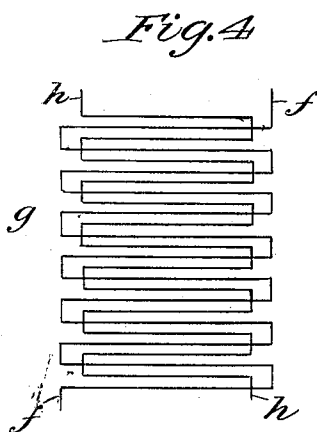
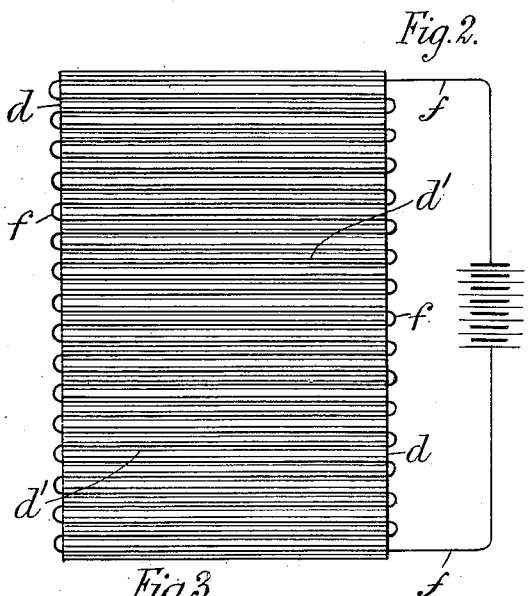
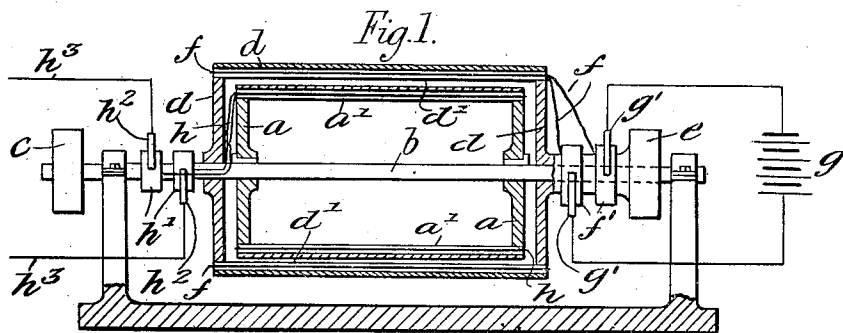


G. MARCONI.
 MEANS FOR GENERATING ALTERNATING ELECTRIC CURRENTS.
 APPLICATION FILED JAN. 27, 1914.

1,102,990.

Patented July 7, 1914.



Witnesses
 M. S. MacIntyre
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Inventor
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UNITED STATES PATENT OFFICE.

GUGLIELMO MARCONI, OF LONDON, ENGLAND, ASSIGNOR TO MARCONI WIRELESS TELEGRAPH COMPANY OF AMERICA, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

MEANS FOR GENERATING ALTERNATING ELECTRIC CURRENTS.

1,102,990.

Specification of Letters Patent.

Patented July 7, 1914.

Application filed January 27, 1914. Serial No. 814,666.

To all whom it may concern:

Be it known that I, GUGLIELMO MARCONI, a subject of the King of Italy, residing at Marconi House, Strand, London, England, have invented new and useful Improved Means for Generating Alternating Electric Currents, of which the following is a specification.

The object of this invention is to provide improved apparatus for generating alternating currents and especially currents of high frequency such as are employed in wireless telegraph and telephone transmitters.

The drawings show diagrammatically apparatus constructed in accordance with my invention.

Figure 1 is a diagrammatic section. Fig. 2 is a developed view of the inside of the outer cylinder shown in Fig. 1, and Fig. 3 is an end view of the outer cylinder with the end removed. Fig. 4 is a representation of the windings of these two cylinders and Fig. 5 shows an alternative arrangement.

a is a cylinder keyed to a shaft b which is driven by a pulley c fixed to it.

d is an outer cylinder loose upon the shaft b and driven by the pulley c in an opposite direction. The interior of the cylinder d has equally spaced ridges or teeth d^1 formed upon it along generating lines and the wire f is wound backward and forward between these teeth as seen in Fig. 2.

The ends of the wire f are connected to a pair of rings f^1 to which current is led from a source g of continuous current by brushes g^1 . The inner cylinder is similarly provided with inwardly projecting ridges or teeth a^1 between which a wire h is wound backward and forward in a similar manner to that employed for the wire f . Portions of the two wires f and h will therefore appear as in Fig. 4 when the relative positions of the two cylinders are such that the parts of the wire f lie half way between the parts of the wire h . On rotating one cylinder relative to the other, or on rotating both cylinders in opposite directions, a rapidly alternating current is induced in the winding h the ends of which are connected to rings h^1 on the cylinder a . This current is conveyed to the working circuit h^3 by the brushes h^2 .

Fig. 5 is a diagram similar to Fig. 4, but it shows an alternative arrangement of winding the secondary circuit. The primary cir-

cuit f is wound as above described, but the secondary circuit consists of a number of parallel wires i lying between the ridges of the cylinder a and connected together in parallel by a wire j at one end connected to one of the rings h^1 and a wire j^1 at the other connected to the other ring h^1 . In this case there are half as many wires i and therefore ridges in the cylinder a as there are wires and ridges in the cylinder d .

In order to prevent the cylinder d from flying to pieces by centrifugal force it is well to coil around its exterior fine wire such as piano wire, but this is not shown in the drawings. In order also to obtain a greater relative speed between the cylinders and therefore a higher frequency of alternation in the circuit h^3 I prefer to rotate not only the outer cylinder but also the inner cylinder, and if the pace of the inner cylinder be great I protect it with coils of thin wire in a manner similar to that employed for the outer cylinder.

What I claim is:—

1. In a high frequency electric alternator, the combination of a cylinder, equally spaced inwardly projecting ridges formed on its interior surface along generating lines, a winding comprising a number of parallel wires lying between the ridges, a second cylinder mounted within and coaxially with the first cylinder, equally spaced inwardly projecting ridges formed upon the second cylinder along generating lines, a second winding comprising a number of parallel wires lying between the ridges of the second cylinder, one of said windings being adapted to be excited by a direct current, and the other of said windings having terminals adapted to be connected to an external circuit, and means whereby one of the cylinders may be rotated.

2. In a high frequency electric alternator, the combination of a cylinder, equally spaced projecting ridges formed on its interior surface along generating lines, a winding comprising a number of parallel wires lying between the ridges, a second cylinder, mounted within and coaxially with the first cylinder, equally spaced inwardly projecting ridges formed on the interior surface of the second cylinder along generating lines, a second winding comprising a number of parallel wires lying between the ridges of the second

cylinder, one of said windings being adapted to be excited by a direct current, and the other of said windings having terminals adapted to be connected to an external circuit, and means whereby the two cylinders may be rotated in opposite directions.

3. In a high frequency electric alternator, the combination of a cylinder, equally spaced projecting ridges formed on its interior surface along generating lines, a winding comprising a number of parallel wires lying between the ridges, a second cylinder, mounted within and coaxially with the first cylinder, equally spaced inwardly projecting ridges
10 formed on the interior surface of the second
15

cylinder along generating lines and equal in number to those of the first cylinder, a second winding comprising a number of parallel wires lying between the ridges of the second cylinder, one of said windings being adapted to be excited by a direct current, and the other of said windings having terminals adapted to be connected to an external circuit, and means whereby the two cylinders may be rotated in opposite directions. 20

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