

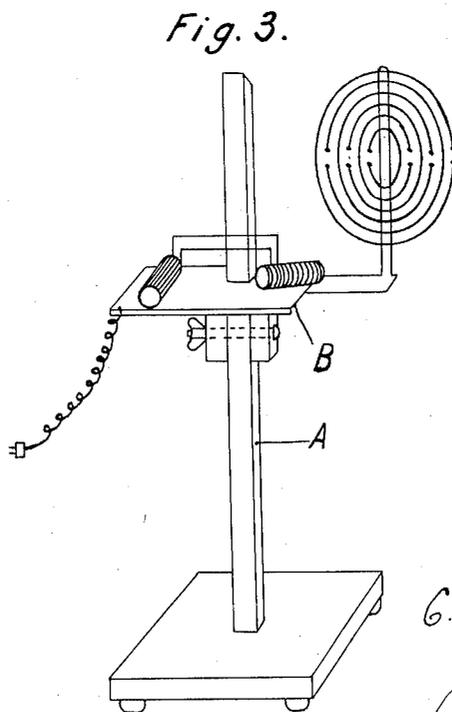
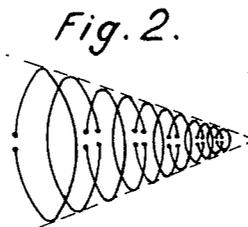
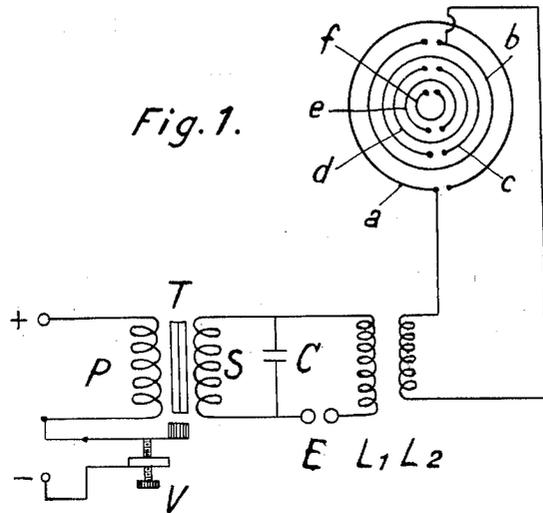
June 12, 1934.

G. LAKHOVSKY

1,962,565

APPARATUS WITH CIRCUITS OSCILLATING UNDER MULTIPLE WAVE LENGTHS

Filed Nov. 13, 1931



G. Lakhovsky  
INVENTOR

By: Marko Clerk  
ATTY.

# UNITED STATES PATENT OFFICE

1,962,565

## APPARATUS WITH CIRCUITS OSCILLATING UNDER MULTIPLE WAVE LENGTHS

Georges Lakhovsky, Paris, France

Application November 13, 1931, Serial No. 574,907  
In France May 2, 1931

7 Claims. (Cl. 250—33)

The present invention has for its object an apparatus capable of sending out simultaneously different wave lengths so that among these waves or their harmonics there is found almost always one or several capable of producing the best effect sought for any application whatever.

There is used for that purpose the property of open circuits having a fundamental or natural self induction and capacity to oscillate upon a well determined wave length if they are excited by electric impulses emanating from discharges of any source.

The radiating part of the system, producing waves of various lengths, is therefore constituted by a certain number of concentric open rings of different diameters, which are maintained insulated by any appropriate process. These rings may or may not be terminated by small spheres forming capacities.

These rings may be arranged either in the same plane or in different planes so as to form any surfaces, such as portions of cones, spheres, paraboloids, ellipsoids, etc. . . . these surfaces being of a nature to concentrate the waves in a determined direction in the manner of a reflector, for example.

These rings may be fed by any producing device whatever of high frequency, for example, a combination comprising a trembler coil (or any other transformer) and a high frequency circuit provided with a self-induction coil and a capacity.

One or several points of this high frequency circuit is or are connected to the end of one or several of the rings forming the radiating apparatus. The other rings not connected are excited by induction.

The complete apparatus (coil, high frequency circuits, rings, etc. . . .), may be mounted in a box or upon a small board capable of sliding along a guide or rocking so as to be able to be placed in the most convenient position.

In the accompanying drawing, by way of example, not limitative, there is shown:

Fig. 1 a diagram of the system.

Fig. 2 the position of the rings in the form of a cone.

Fig. 3 the apparatus mounted upon a foot or base.

In Fig. 1 there is seen at T the transformer or coil (P the primary, S the secondary of this coil), V, the screw of the trembler, C the condenser the discharge of which across the spark gap E produces oscillations in the self-induction coil  $L^1$ , which in its turn acts by induction upon

the self-induction coil  $L^2$ ; this self-induction coil  $L^2$  is connected on one side to the first exterior ring  $a$ , on the other side to the following ring  $b$ . It thus forms an electrostatic field of high frequency which induces oscillations in the other rings  $c, d, e, f$ .

As a modification,  $L^2$  may be suppressed and the rings  $a$  and  $b$  may be connected each to one of the ends of  $L^1$ .

One of the ends, or even any point of the self-induction coils  $L^1$  or  $L^2$  may likewise be connected to any one of the rings.

Fig. 2 shows the arrangement of the rings in the form of a cone.

The open circuits  $a, b, c, \dots, f$  can be constituted by solid conductors. They can also be tubular circuits, this being advantageous, since, for the same bulk, the radiating surface is larger. Finally, the area of the cross section of each of these various circuits can vary from one circuit to the other; for instance, this area can decrease from the periphery (ring  $a$ ) to the center (ring  $f$ ) of the radiating system.

Fig. 3 shows the apparatus mounted upon a foot A along which it can slide, in order to be placed at any desired height and upon a hinge B which allows it to be oriented upon the horizon.

I claim:—

1. An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing device, a series of high frequency radiating circuits constituted by concentric insulated split rings of different diameters, the split ends being spaced from each other and terminating with small spheres.

2. An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing device, a series of high frequency radiating circuits constituted by concentric insulated split rings of different diameters and terminated by small spheres forming capacities.

3. An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing device, a series of high frequency radiating circuits constituted by concentric insulated split rings of different diameters and arranged in one and the same plane the split ends being spaced from each other and terminating with small spheres, in staggered position as regards adjacent rings.

4. An apparatus of the type described comprising a base, a plate slidably mounted on said

base, a support pivoted to the said plate, a series of open and insulated, high frequency radiating circuits mounted on the pivoted support, and a high frequency producing device for the excitation of the said circuits.

5 An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing device, a series of high frequency radiating cir-  
 10 cuits, said circuits being open, insulated, and having dimensions different from each other.

6. An apparatus adapted to produce electric fields of high frequency having multiple wave lengths, comprising a high frequency producing  
 15 device, a series of high frequency radiating cir-

cuits arranged in the same plane, said circuits being open, insulated, and having dimensions different from each other.

7. An apparatus of the type described comprising a transformer, a high frequency energizing circuit fed by the said transformer and provided with a self-induction coil and a capacity, a series of open and insulated high-frequency radiating circuits having dimensions different from each other, an inductive connection  
 85 between two of these radiating circuits and respectively each of the poles of the outgoing element of the high frequency energizing circuit.

GEORGES LAKHOVSKY. 90

20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150