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ElectroCulture Patents (IV)

Disease Control Method and Disease Control Device US2010281771

Abstract -- A disease control device has light emitting diodes (D1 to Dn) emitting green light and a controller (2) controlling a drive circuit (1) for turning on the light emitting diodes (D1 to Dn). The drive circuit (1) is controlled by the controller (2) to cause the light emitting diodes (D1 to Dn) to emit green light to irradiate plants with the light. The irradiation with the green light enhances resistance of the plants against diseases.

METHOD AND DEVICE FOR COMBATING PLANT PESTS WO2010066733

Cited documents: WO2006021225 // US5968401 // DE19852381 // US4434345

Abstract -- The method serves for combating plant pests, in particular tree pests, by means of microwaves which generate a concentrated energy flux of high frequency which generates in the pests an overheating of the water-containing cells. The device has therefor generators (1) for generating microwaves of high frequency for combating plant pests. When used on trees, the generators (1) are arranged in a ring shape in such a manner that the microwaves are directed toward a common center

System for nourishing and growing plants in pots comprises playing music to them, e.g. from earpiece connected to mp3 player DE202005015561

Abstract -- The system for nourishing and growing plants in pots (1) comprises playing music to them, e.g. from an earpiece (2) connected to an mp3 player (4).

Electroculture IL31428

Pearl EITAN, et al.

100 lb magnetite (Fe₃O₄, 100-mesh or smaller) / acre with applied electrostatic charge frpm 440-V DC electromagnetic coil : resistivity to subfreezing temperatures & insects, increased fruit size, yield, growth rates, increased number of crops/year.

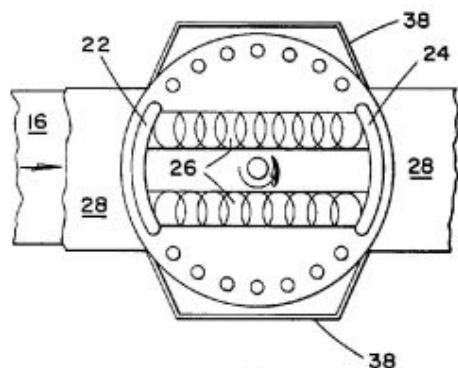


FIG. 2

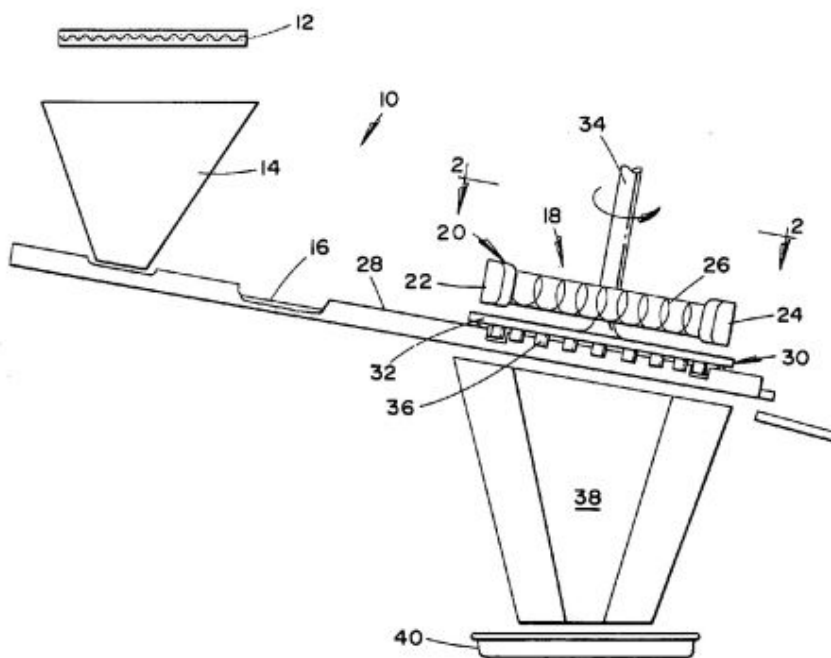


FIG. 1

[Device for Electroculture](#)
[EP0218538 // FR2586892](#)

Cited documents: FR2355441 // FR649730 // FR734980

Abstract -- Device for electroculture with minimum two metal gratings or plates (2, 3) arranged in parallel in the cultivated soil (4), in a north-south direction, and with a voltage source (6) with an antenna (7) and that supplies the metal gratings (2, 3) with an electric current of natural origin, device for electroculture characterized in that the aforesaid voltage source (6) consists, on one hand, of the antenna (7) for collecting atmospheric electricity and, on the other hand, of one or several photocells (8).

The invention relates to an apparatus of electroculture comprising at least two grids or panels in parallel laid out in the ground of culture according to a North-South direction, and a voltage source providing an electrical current of natural origin to the metallic grids.

Several apparatuses are known for the use of the beneficial effect of the electricity on the vegetation, which is known of long date.

Indeed, it was noted that the electricity could have a powerful action on the rise of the sap in the plants, and

consequently, on the quick and spectacular development of those.

Numerous apparatuses were already proposed to subject plantings to the influence of the electricity, mainly with the level of the roots. The purpose of these known apparatuses consists to collect electricity preferably natural, such as the atmospheric electricity and to channel it towards the roots in the form of electrical current. Thus, according to one of these known apparatuses, a seven antenna to eight metres of high is placed vertically in the ground and is surmounted, on the one hand, by a whole of stems in galvanized iron wire and, on the other hand, by a whole of brass or copper tubes. Each one of these sets of iron elements galvanized or out of copper is connected separately to a conducting wire which goes down along the vertical antenna. Each of two wire is then buried in the ground with one depth of about fifty centimetres, and this in the shape of coiled web, in order to define a couple copper-iron. Thus, the spiral obtained is used as traprock with the tension fields of the magnetic field, and it is established a D.C. current on the spiral, which makes it possible to activate the growth of the plants located above the coiled web.

This apparatus has the disadvantage of being relatively expensive, and application moreover a performing particularly neat comprising numerous insulations and welds. Moreover, it requires an antenna large height particularly unaesthetic but especially, the results obtained with the level of the plantings are of a large irregularity and are substantially tributary distribution of the electric voltages in the basement.

One knows another apparatus of electroculture also based on the collection of the atmospheric currents, and composed of a provided metallic antenna of copper strands to his upper part. This antenna is isolated earth via an insulator, but is connected to a galvanized iron grid placed vertically in the ground. Compared to this galvanized iron grid, laid out according to a North-South direction, one anode screen identical but connected only to the earth is placed. In this way, the atmospheric currents collected by the antenna are transmitted to the quoted first grid, and it is established between the two grids an electric field which ends in the circulation of low running in the part of the ground which separates the two grids, this current benefitting the growth from vegetal placed on its passage.

However, this apparatus is partly characterized by its inefficiency, resultant low current levels and of tension observed, as well as variations of those.

Whereas the aforementioned apparatuses of electroculture are based on the use of the atmospheric electricity, which is free, other apparatuses consist in feeding directly from the grids placed in the ground via electric generators such as stacks or others, which considerably increases the cost of use of these apparatuses.

Lastly, certain performings are based on a juxtaposition of strips of compost acids and basic laid out alternately in the ground, in order to generate electrical currents crossing the plat bands. It is clear that it is there about an electric power of a more expensive use and that it is periodically necessary to renew.

The purpose of the present invention is curing these disadvantages. The invention, such as it is characterized in the claims, solve the problem consisting to create an apparatus of electroculture comprising at least two grids or panels in parallel laid out in the ground of culture according to a North-South direction and a source of ten Sion providing an electrical current of natural origin to the metallic grids and of which the voltage source is composed, on the one hand, of an antenna of collecting of the atmospheric electricity and, on the other hand, of one or several cells photovoltaic.

The advantages obtained thanks to this invention consist substantially of what in consequence of the presence of the photovoltaic cells and a regulator, the apparatus of electroculture makes it possible to have same the night an available electric voltage on the positive grid metallic, which increases the profitability of the apparatus.

Another purpose of the present invention is to propose an embodiment practice, simple and effective of apparatuses of electroculture, while being based on an electrical energy source entirely free.

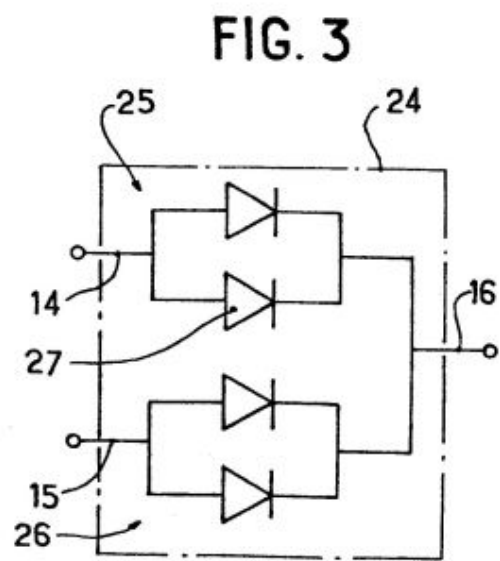
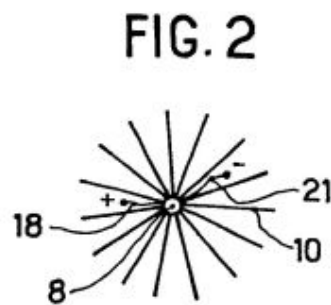
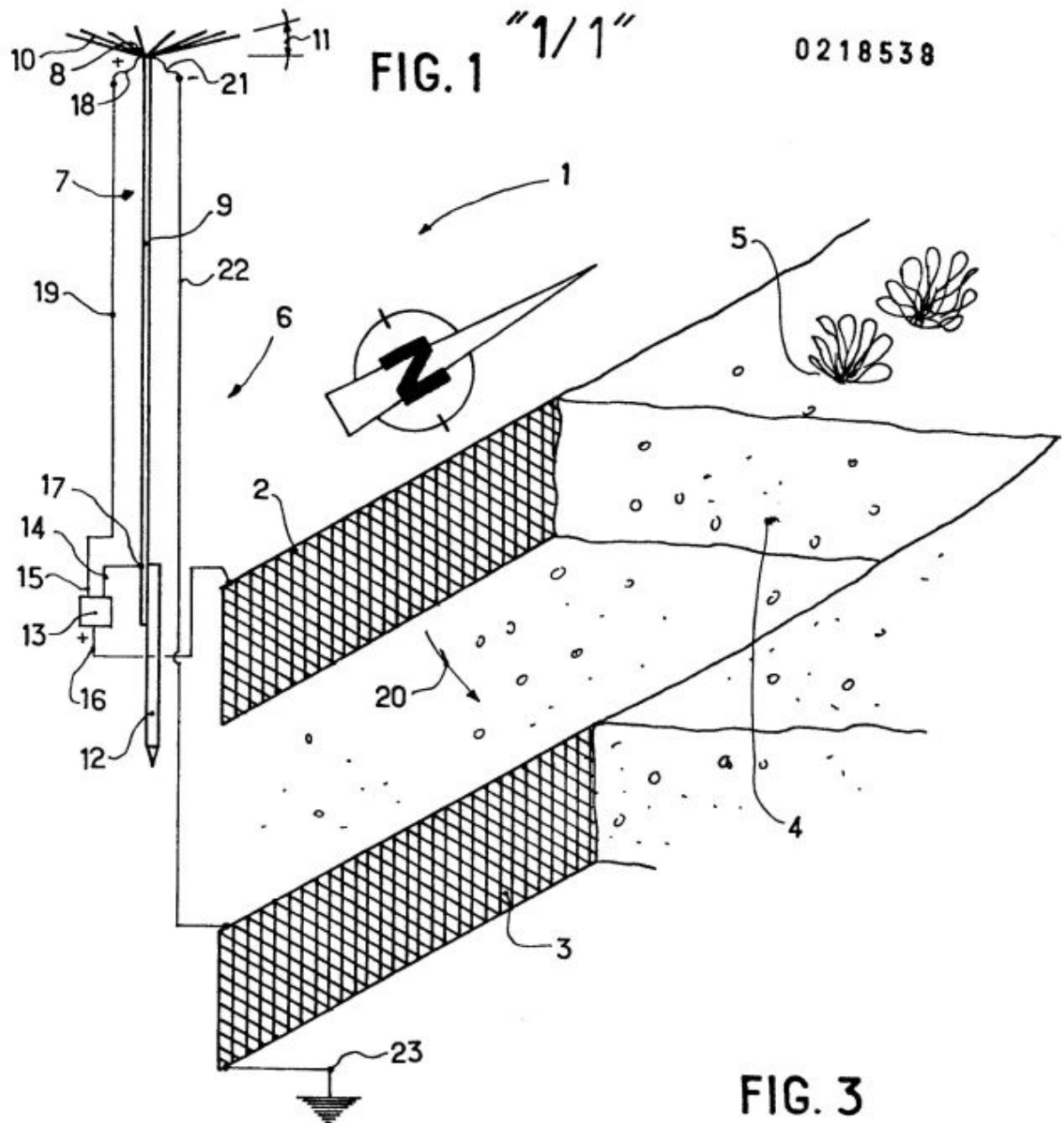
Another purpose of the present invention is to provide an extremely economic apparatus of electroculture, and which makes it possible to make circulate in the flat-strips of culture, a relatively substantial D.C. current compared to those obtained by the known apparatuses in the current state of the technical one.

The invention is hereafter exposed more in detail using drawings representing only one embodiment.

Figure 1 in accordance with the invention represents a perspective view of the whole of the apparatus of electroculture.

Figure 2 is a plan view of the antenna of the apparatus as represented figure 1.

Figure 3 is a scheme of principle of the regulator represented in the apparatus of figure 1.



One refers on figure 1.

The apparatus of electroculture 1 in accordance with the invention is composed mainly of two metallic grids 2 and 3d' a height from thirty to fifty centimetres in parallel laid out in the ground of culture, in order to laterally delimit a plat band of culture 4 intended for the planting and the culture vegetal unspecified 5.

The metallic grids 2 and 3, preferably out of galvanized iron, are intended in a known way, to be spans with a relative electrical potential in order to make circulate between them an electrical current limited by the earth strength of plat band 4. Of course, the metallic grids 2 and 3 can be replaced by full metal patches ensuring the same function.

It is substantial to note that the metallic grids 2 and 3, hidden in the ground, are directed according to a North-South direction, in order to make profit the electrical charges in movement between the two grids, of the influence of the terrestrial magnetic field.

The apparatus of electroculture 1 in accordance with the invention comprises moreover a voltage source 6 connected electrically to grids 2 and 3, the first playing the role of a positive pole, the second playing the role of a negative pole.

For this purpose, the voltage source 6 which provides an electrical current of natural origin to the metallic grids 2 and 3, is composed, on the one hand, of an antenna 7 making it possible to collect the atmospheric electricity and, on the other hand, of one or several cells photovoltaic 8 as represented figure 2.

Antenna 7 is intended to collect the present electricity in the atmosphere in the form of ions, especially by thundery weather. For this purpose, it is composed of a conductive tube 9 out of electric aluminium or other good conducting, surmounted by strands of wire of copper or equivalent, laid out in "sunshade" as schematized on figures 1 and 2. These strands of copper 10 wire, necessarily of odd number, are attached on the apex of conductive tube 9 by an unspecified connection ensuring a good electric continuity, and are distributed according to a cone in order to present a slope to the top 11 from fifteen to thirty degrees.

Moreover, conductive tube 9 of antenna 7 is attached on one isolated tor made up for example by a wood 12 stake driven in the ground, the whole of antenna 7 being installed near the metallic grids 2 and 3 in order to shorten electric connections necessary.

It is to be noted that point of view of the dimensioning of this antenna, several performings with the span of the Expert are possible. It proves nevertheless that an antenna 7 made up of a conductive tube 9 of two metres high and copper strands of about thirty centimetres long and of a diameter from 2,5 to 3 millimeters are optimum.

It is clear that antenna 7 collecting the atmospheric electricity constitutes in itself a voltage source, the aforementioned tension being able to be taken in an unspecified point of tube 9. However, this tension is substantially variable and fluctuating with the rhythm of the variations of the atmospheric conditions, and its application with the one of the metallic grids 2 or 3 does not give good results with regard to the growth from vegetal the 5.

Also, in accordance with the invention, voltage source 6 is composed moreover of one or several photovoltaic cells 8 producing a continuous tension starting from the received light energy by the sun, the respective voltages from antenna 7 and from photovoltaic cells 8 being brought on the metallic grid 2 playing the role of positive pole, via a regulator 13.

This regulator 13 comprises two inlets 14 and 15 and one outlet 16. To ensure the operation of the apparatus of electroculture as described previously, the inlet 14 of regulator 13 takes the electric voltage produced by antenna 7 with the level of an unspecified point 17 of tube 9 of this one. In addition, the positive voltage produced by the photovoltaic cell 8 is taken with the level of positive terminal 18 of this one and is brought on inlet 15 of the regulator via an isolated electric wire 19.

Of course, so that a current can circulate in direction 20 represented on figure 1, it is necessary that outlet 16 of regulator 13 is connected to the metallic grid 2 playing the role of positive pole, and that moreover negative terminal 21 of the photovoltaic cell 8 is connected by an electric wire isolated 22 to the metallic grid 3 playing the role of negative pole of the apparatus. Thus, the metallic grid 2 being span with a positive electrical potential

compared to the earth, and the metallic grid 3 being intimately connected to the earth via an earth 23 stake, an electrical current can be established between two grids 2 and 3 in direction 20 represented.

In accordance with the invention, the improved results of electroculture are obtained when the metallic grid 2 is supplied by a continuous tension of about 0,2 to 0,4 volts. Regulator 13 in conformity with the invention makes it possible to obtain such a tension starting from the elementary voltage sources consisted by antenna 7 on the one hand, and the photovoltaic cell 8 on the other hand.

For this purpose, regulator 13 schematized figure 3 comprises a stage rectifier 24 with low losses intended to manufacture a continuous tension from 0,2 to 0,4 volts to be left, on the one hand, fluctuating tension delivered by antenna 7, and on the other hand, of the substantially continuous tension delivered by the photovoltaic cell 8. So the stage rectifier 24 is consisted two groups 25 and 26 of diodes 27 laid out into parallel, and located respectively between each inlet 14 and 15 and outlet 16 of regulator 13.

It is to be noted that the tensions delivered by antenna 7 and the photovoltaic cells 8 are relatively low values, and so it is necessary to limit the voltage drops inside regulator 13 to their simpler expression. Also, diodes 27 are they preferably constituted by diodes "signal" with germanium, with low losses. It is also remarkable that the provision of two or several diodes 27 into parallel between an inlet 14 or 15 and outlet 16 of regulator 13 makes it possible to limit the equivalent strength of each whole of diodes into parallel, and consequently to limit the voltage drops.

In order to return the whole of voltage source 6 as compact as possible, the photovoltaic cell 8 can be judiciously placed at the apex of tube 9 of antenna 7 as represented on figures 1 and 2.

Of course, the spacing of the metallic grids 2 and 3 depends on the strength of the ground in the region of culture, and the number and the dimension of the metallic grids 2 and 3, as well as the number of photovoltaic cells 8 and antennas 7 necessary by surface of culture are entirely with the span of the Expert.

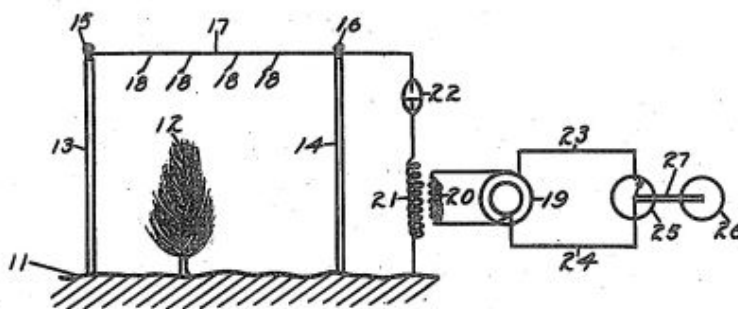
Among the advantages of the apparatus of electroculture describes previously, one can notice that the presence of the photovoltaic cells 8 as of regulator 13 allow to have always an available electric voltage on the grid metallic positive 2, same if for a reason or another one of the two voltage sources remainder dumb woman, which is the case each night for the photovoltaic cell 8.

In addition, the apparatus of electroculture in conformity with the invention is very simple and compact all into giving spectacular results, and makes it possible to put a profitable and effective electroculture at the service of any gardener, who will be able, so to do without chemical manures.

USP 1268949

Method & Aparatus for Agricultural Engineering

R.A. Fessenden



USP 1952588

Apparatus for Generating & Applying Electrostatic Energy

K.E. Golden

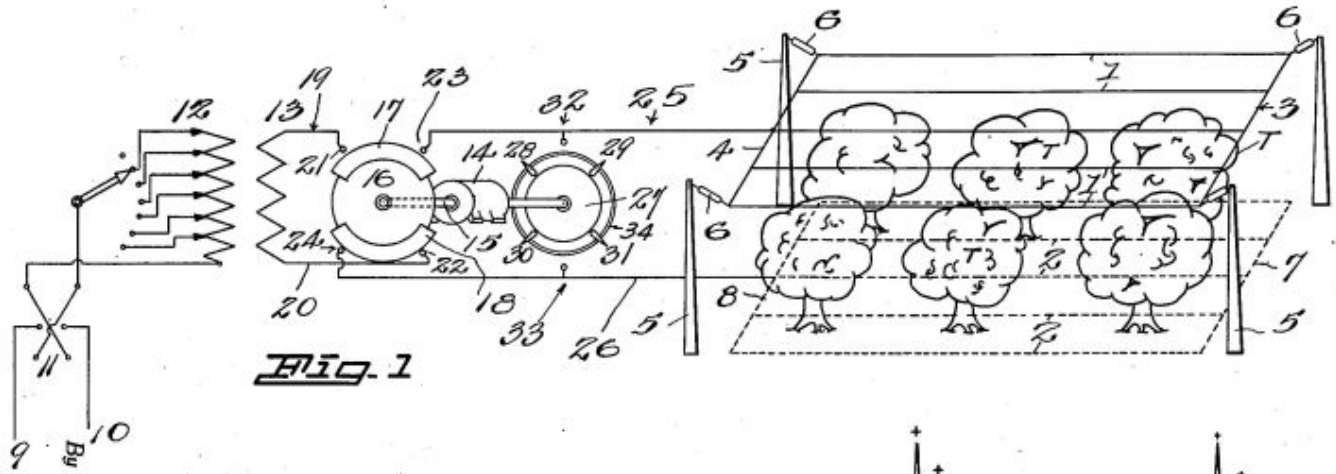


Fig. 1

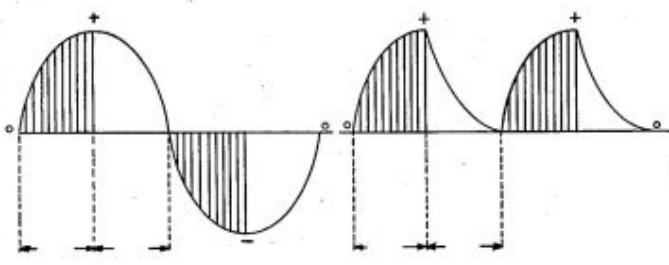


Fig. 2

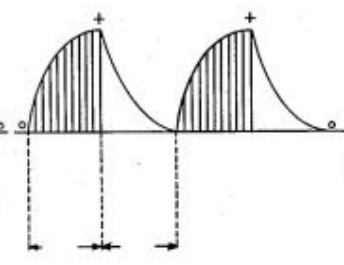


Fig. 3

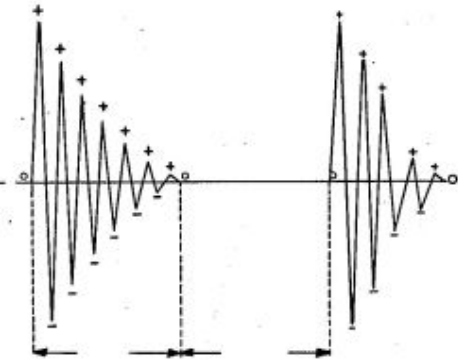


Fig. 4

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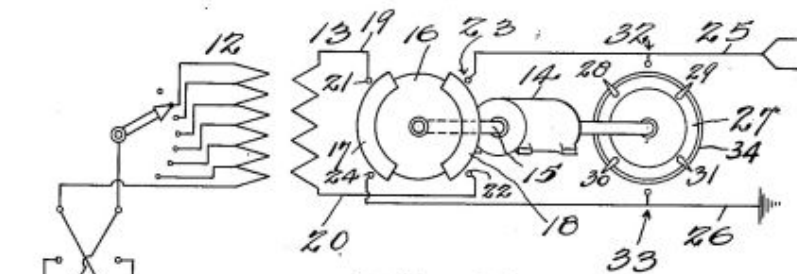


Fig. 5

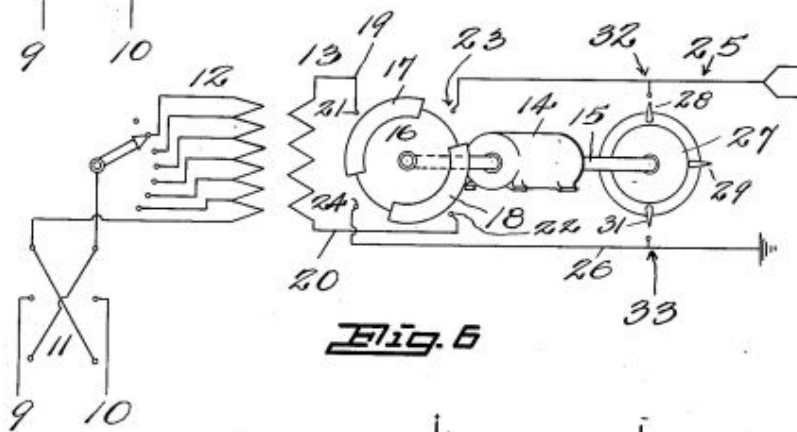


Fig. 6

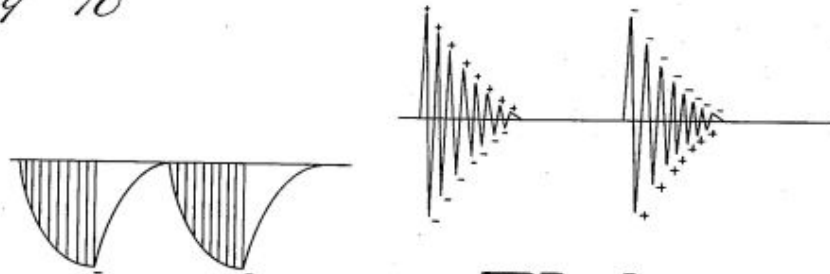
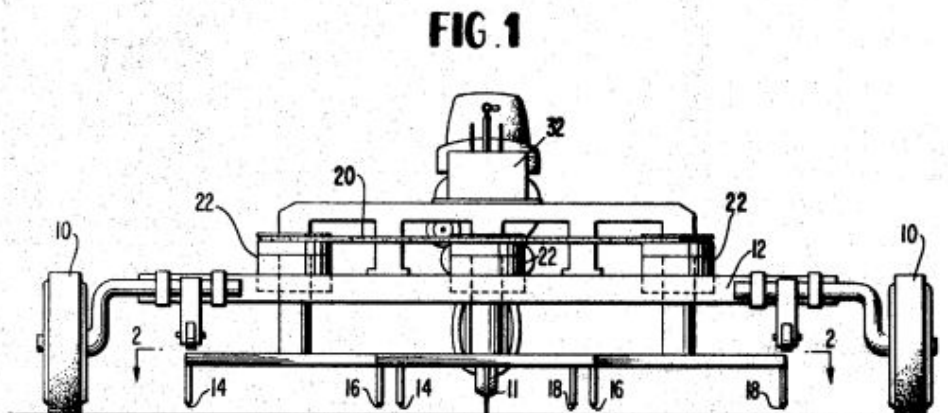


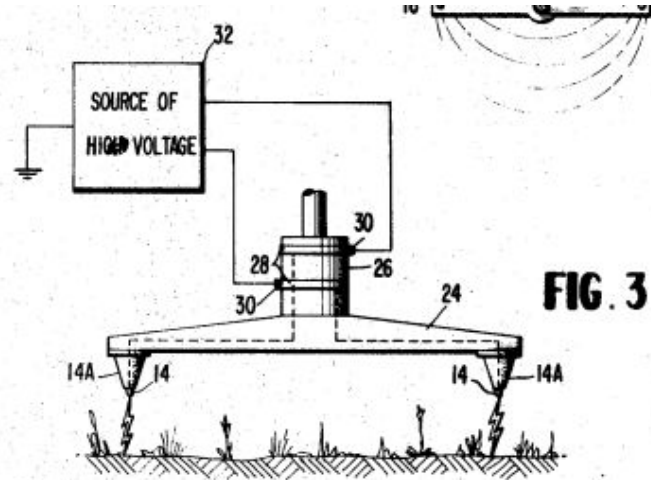
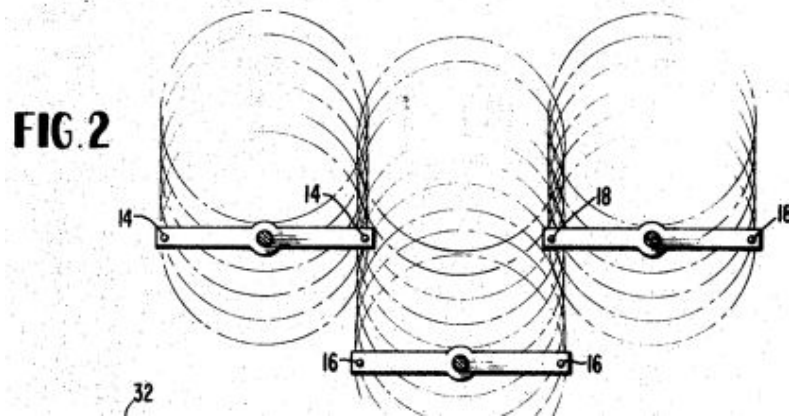
Fig. 7

Fig. 8

[USP 3559337](#)
[Apparatus for Electroculture](#)

V. Marcoux, et al.





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