

H. FLEETWOOD.
MEANS FOR TREATING NERVOUS DISEASES BY
ELECTROMUSICAL VIBRATIONS.

APPLICATION FILED MAY 6, 1902.

NO MODEL.

Fig. I

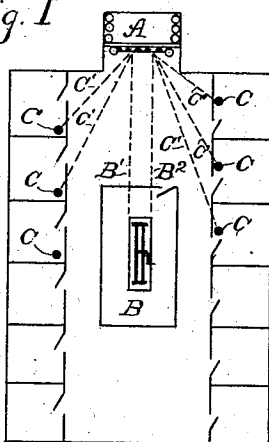


Fig. II

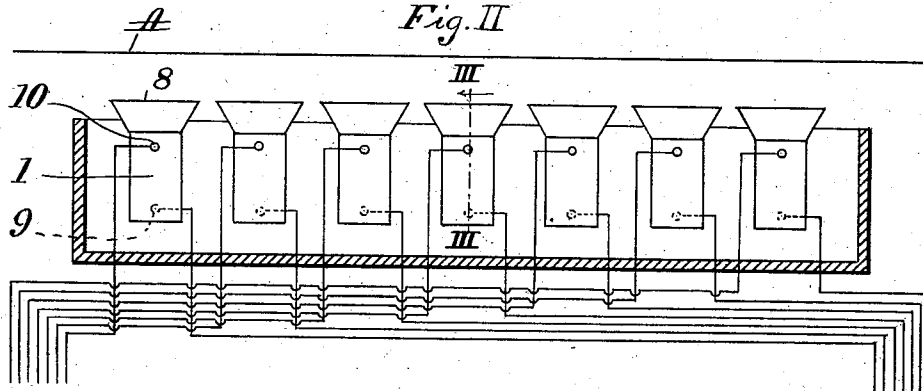


Fig. IV

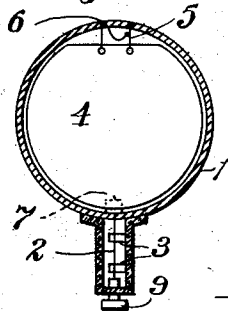
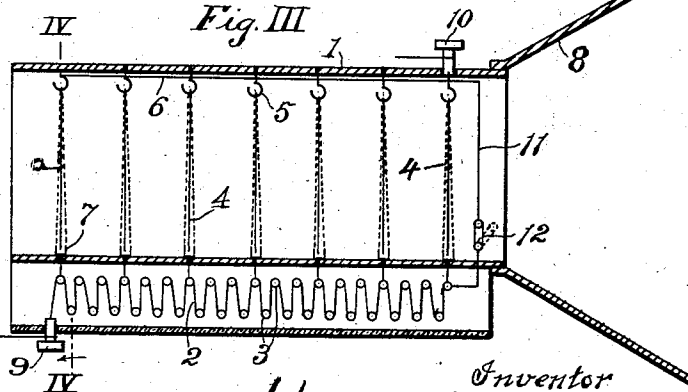


Fig. III



Witnesses

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UNITED STATES PATENT OFFICE.

HENRY FLEETWOOD, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO E. M. M. CURATIVE CO., A CORPORATION OF CALIFORNIA.

MEANS FOR TREATING NERVOUS DISEASES BY ELECTROMUSICAL VIBRATIONS.

SPECIFICATION forming part of Letters Patent No. 729,317, dated May 26, 1903.

Application filed May 5, 1902. Serial No. 106,085. (No model.)

To all whom it may concern:

Be it known that I, HENRY FLEETWOOD, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Means for Treating Nervous Diseases by Electromusical Magneto Vibrations, of which the following is a specification.

My invention relates to apparatus for treating nervous diseases by means of electromusical magneto vibrations.

The objects of my invention are to provide means for the successful treatment on scientific principles of nervous diseases by producing the harmony of the nerves that will be evolved by the introduction of music while the application of electricity and magnetism is being made to the patient, also to provide means for conducting a method of treating nervous diseases that will give electricity and magnetism applied to the patient manifold power, whereby the entire nervous system will be brought into a relaxed condition by means of the effect upon the patient produced by musical vibrations.

My invention relates to a device for transforming the effect of sound-waves into electrical waves, and has for its object to furnish means whereby the harmonious sounds of music may be utilized to cause waves of corresponding harmony and of varying strength and vibration in an electric current which may be applied to the human body by any of the well-known modes of application employed in electrotherapeutics.

It is a well-known fact that music has a marvelous effect on the human body through the sense of hearing.

An object of this invention is to provide means by which the beneficial effect of harmonious sounds as controlling electrical waves may be utilized in electrotherapeutics to relieve pain, stimulate muscular tissue, quicken nutrition, excite secretion, arouse latent physical functions, and otherwise promote a healthy condition of the body, at the same time producing on the patient a pleasurable or other desired effect not merely mechanical, but involving the principle that the harmonious action of the electrical waves appeal to the esthetical side of the patient

and, further, to the fullest extent a combined beneficial effect, refreshing the dulled intellect and rejuvenating the diseased or impaired body.

Referring to the drawings, Figure I represents a plan view of an apartment arranged for treatment of diseases. Fig. II is a view showing one way in which my device may be arranged to receive musical sound-waves. Fig. III is a section on line III III of Fig. II. Fig. IV is a section on line IV IV of Fig. III.

A represents an organ or musical instrument of any kind.

B represents a static electric machine.

B' and B² represent insulated conductors by means of which the static machine B may be connected to the electromusical transformer.

C represents numerous magnets, which may be connected by insulated conductors C' with the organ A. The magnets C represent one means for subjecting the patient to electrotherapeutical treatment.

The means for transforming the effect of harmonious sound-waves into corresponding waves of varying strength and vibrations in an electric current is fully illustrated in Figs. II, III, and IV.

Referring to Figs. II and IV, 1 is a casing, preferably tubular and having open ends. 2 is a resistance-wire supported by knobs 3. A series of vibrators 4, of suitable conducting material, may be hung from hooks 5. The vibrators 4 may be of a thin and light material and placed in consecutive positions in the casing 1 and graded in length. The susceptibility of the vibrators to musical sounds is largely dependent upon the material of which they are composed. Good results may be obtained by using thin light tin-plate. A preferable material is bell-metal plate. The hooks 5 may be of a conducting material insulated from the casing 1 and connected by a wire 6. 7 designates bifurcated contact-blades connected to the resistance 2, each contact-blade extending into a point adjacent the free end of a vibrator and on opposite sides of the same, so that as the latter vibrates it will alternately contact with each fork of a contact-blade. In the drawings the space between a vibrator and its contact has

been exaggerated somewhat for the purpose of clearness to show that the electrical connection is normally broken; but the space between a vibrator and a contact is merely sufficient to break the connection. 8 is a receiver connected to the casing 1. 9 and 10 are binding-posts. 11 is a wire connecting the resistance 2 with the binding-post 10. 12 is a switch. The transformer may be placed in circuit with the static machine B and a magnet C by connecting opposite poles of the circuit with binding-posts 9 and 10.

In operation the sound-waves enter the receiver 8 and are conducted to the tubular casing 1 and cause certain vibrators to vibrate and make contact with their respective contact-plates, according to the action thereon of the sound-waves. Seven vibrators are shown placed consecutively at definite intervals in the casing 1 and suitably graded in length, so that each vibrator partakes of a definite number of vibrations when acted upon by the sound-waves. Musical waves of weak vibration affect the nearest vibrators, while musical waves of stronger vibration are transmitted to vibrators farther removed from the receiver. While I have shown but seven vibrators, each of which makes and breaks the circuit a definite number of times when vibrated, it is obvious that a greater range of vibratory interruptions to the circuit may be produced by adding more vibrators. When a vibrator contacts with the contact-plate 7, the electric current passes through the vibrator. Thus if only the first vibrator acts but a small amount of resistance is cut out, while when more vibrators act more resistance is cut out. Thus musical vibrations from the organ cause a definite number of vibrators to operate and cut out a definite amount of resistance, and the farthest vibrator which is operated will interrupt the circuit according to its individual rate of vibration, which depends upon the length of the vibrator. The shortest vibrator *a* gives the highest number of individual vibrations when responding to the organ. The next vibrator, of a greater length, responds with a lower number of individual vibrations, and so on gradually to the longest vibrator *b*, which responds with the least number of individual vibrations. By arranging a series of seven electric musical transformers, as shown in Fig. II, each of the seven transformers may be differently graded, so that when a chord is produced by the organ the transformers which are graded to the pitch of each tone of the chord will act in corresponding harmony to modify the current. The current passes through the static machine B, through the vibrators B' and B² to the electromusical transformer, and through the transformer to the magnets C, and as the music from the organ proceeds the transformer acts to modify the current to produce the desired effect upon the patient. The rooms may be constructed and arranged, as shown, so that the music

will be heard by the patient while the electrical treatment is progressing. When the organ is played, the music is heard by the patients in the rooms and forms an agreeable and efficient auxiliary to the electrical treatment. As the character of the electrical waves depends, primarily, upon the sound-waves produced by the organ or other musical means when treating patients, the physician should choose music of a character best calculated to have the desired effect.

While I have shown one form only of applying electric treatment, the device may be utilized to cooperate with a variety of treatments used in electrotherapeutics.

By opening the switch 12 an open circuit will be formed through a transformer, so that as the vibrators tremble to close and open the circuit an intermittent effect will be produced. By closing the switch 12 a closed circuit will be formed. Thus when the switch 12 is open the effect of varying electrical waves is combined with an intermittent action, while when the switch 12 is closed the varying wave effect alone is produced.

It is obvious that my device is susceptible of many modifications in the herein-described embodiment without departing from the spirit of the invention as defined in the claims.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. Means for modifying the strength of an electric current, and a plurality of sound-wave-operated vibrators of varying susceptibility to sound-waves, said vibrators controlling said named means.

2. Means for modifying the strength of an electric current, and means to automatically interrupt the circuit which carries said current, comprising a sound-wave-operated device which also controls said first-named means.

3. Means for modifying the strength of an electric current, means for making and breaking the circuit which carries said current and controlling said modifying means, said last means comprising a plurality of vibrators of varying susceptibility to sound-waves.

4. Means for controlling an electric current, a plurality of vibrators of varying susceptibility to musical sound-waves for controlling said means, one of said vibrators constructed and arranged to be actuated by a musical wave of one character, another of said vibrators constructed and arranged to be actuated by a musical wave of another character.

5. Means for modifying the strength of an electric current, means for controlling the circuit which carries said current and controlling said modifying means comprising a plurality of vibrators of varying susceptibility to musical sound-waves, one of said vibrators constructed and arranged to be actuated by a musical wave of one character, another of said vibrators constructed and arranged to be actuated by a musical wave of another character.

6. Means for making and breaking and modifying the strength of an electric current, which means includes a plurality of vibrators, one of said vibrators constructed and arranged to be actuated by a musical wave of one character, another of said vibrators constructed and arranged to be actuated by a musical wave of another character.
7. An apparatus for producing an electric current, means to modify said current, means operated by a sound-wave controlling said first-named means, and means to pass said electric current through a human body.
8. An apparatus for producing an electric current, an electric circuit, means to modify said current, means operated by a sound-wave and controlling said first-named means and also controlling the circuit through which said current passes, and means to pass said electric current through a human body.
9. An apparatus for producing an electric current, means to modify said current, a plurality of vibrators of varying susceptibility to sound-waves, said vibrators controlling said means, and means to pass said electric current through a human body.
10. An electric circuit, an apparatus for producing an electric current, means for modifying said current, a plurality of vibrators of varying susceptibility to musical sound-waves, one of said vibrators arranged to be actuated by a musical tone of one character, another of said vibrators arranged to be actuated by a musical tone of another character, said vibrators controlling said current and also said circuit, and means to pass said electric current through a human body.
11. An electric circuit, resistance in said circuit, means operated by a sound-wave to cut out some of said resistance, and means to connect a human body in said circuit.
12. An apparatus for producing an electric current, resistance to modify said current, and a plurality of vibrators operated by sound-waves to cut out said resistance.
13. An apparatus for producing an electric current, resistance to modify said current, a plurality of vibrators operated by sound-waves to cut out said resistance, and means to pass said current through a human body.
14. An electric circuit, resistance in said circuit, a vibrator constructed and arranged to be operated synchronously with one musical sound-wave, another vibrator constructed and arranged to be operated synchronously with another sound-wave, said vibrators controlling said resistance.
15. An electric circuit, resistance in said circuit, a vibrator constructed and arranged to be operated synchronously with a musical sound-wave, another vibrator constructed and arranged to be operated synchronously with another sound-wave, said vibrator controlling said resistance, and means to connect a human body in said circuit.
16. An apparatus for producing an electric current, a conductor therefor, resistance, a vibrator operated by sound-waves to connect with said resistance and modify said current and also make and break said conductor.
17. An apparatus for producing an electric current, a conductor therefor, resistance, a vibrator operated by sound-waves to connect with said resistance and modify said current and also make and break said conductor, and means to connect a human body in said circuit.
18. A casing, a series of vibrators susceptible to sound-waves carried by said casing, resistance having contact-points adjacent said vibrators and adapted to be engaged thereby, an electric circuit, said resistance being in said circuit, and said vibrators being in said circuit.
19. An electric circuit, a series of vibrators susceptible to sound-waves connected to said circuit, resistance in said circuit having a series of contact-points adapted to be engaged by said vibrators, and means to pass said circuit through a human body.
20. An electric circuit, a series of vibrators susceptible to sound-waves consecutively arranged in tubular casing and connected to said circuit, resistance in said circuit having a series of contact-points adapted to be engaged by said vibrators, and means to connect said circuit with a human body.
21. A casing having a series of hooks, an electric circuit passing through said hooks, a series of vibrators susceptible to sound-waves attached to said hooks, resistance having contact-points adjacent said vibrators, said contacts adapted to be engaged by said vibrators, said resistance lying in said circuit.
22. A casing having a series of hooks, an electric circuit passing through said hooks, a series of vibrators susceptible to sound-waves attached to said hooks, resistance having contact-points adjacent said vibrators and adapted to be engaged thereby and connected to said circuit, and means to make said circuit through a human body.
23. Apparatus of the class described, consisting of a static machine, a musical instrument, suitably-insulated conductors connecting the said electric machine with the said musical instrument, suitable insulated conductors, suitable magnets connected with said insulated conductors, provided with means for applying the musical vibrations and magnetism to the patient being treated.
- In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, at Los Angeles, in the county of Los Angeles and State of California, this 28th day of April, 1902.
- HENRY FLEETWOOD.
- Witnesses:
G. T. HACKLEY,
JAMES R. TOWNSEND.