W. H. BAILEY.

VIBRATOR FOR HIGH FREQUENCY ELECTROMEDICAL APPARATUS.

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1,431,867. Patented Oct. 10, 1922.

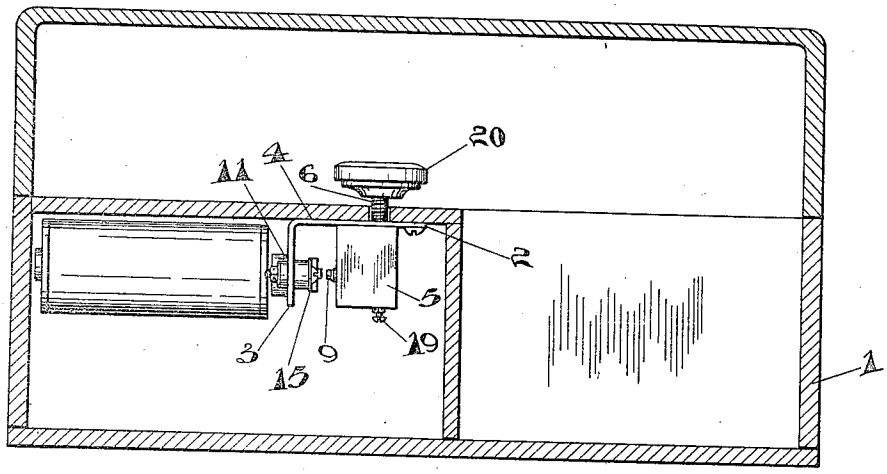


Fig. 1.

Fig. 2.

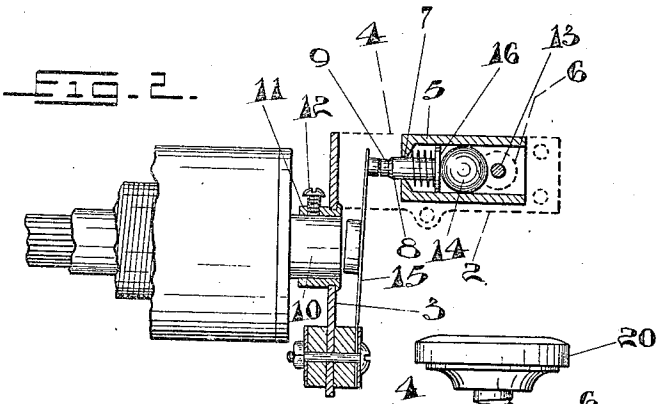
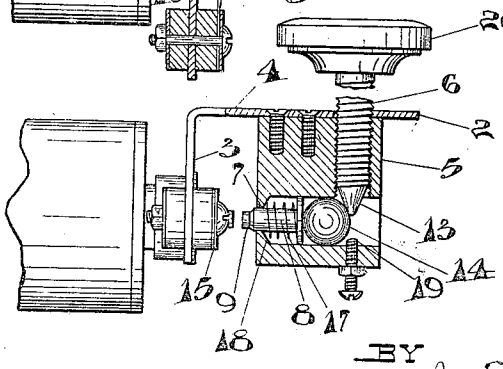


Fig. 3.



Inventor
W. H. Bailey
BY
J. Edward Maybee
Attorney

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UNITED STATES PATENT OFFICE.

WALTER H. BAILEY, OF TORONTO, ONTARIO, CANADA, ASSIGNOR TO CHARLES A. BRANSTON COMPANY, OF BUFFALO, NEW YORK.

VIBRATOR FOR HIGH-FREQUENCY ELECTROMEDICAL APPARATUS.

Application filed June 2, 1921. Serial No. 474,551.

To all whom it may concern:

Be it known that I, WALTER H. BAILEY, of the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Vibrators for High-Frequency Electromedical Apparatus, of which the following is a specification.

Generators of high frequency alternating currents are now commonly employed for electro-medical purposes in which induction coils are used with a current of high potential passing through the primary winding of the coil and consequently through the vibrator. Usually the vibrator has been exposed outside the casing containing the rest of the apparatus, but to prevent all possibility of injury to the user it is desirable that the vibrator be enclosed. My object in the present invention is to devise a construction in which the vibrator is enclosed within the casing of the apparatus, while the means for the adjustment of the vibrator from outside the casing cannot possibly be used by careless individuals in such a way as to cause damage to the adjusting means.

I attain my object by means of the constructions hereinafter described and illustrated in the accompanying drawings in which—

Fig. 1 is a vertical section of the casing of a generator of high frequency currents showing the supporting means for the high frequency coil and the adjusting means for the vibrator therefor in elevation;

Fig. 2 a plan view, partly in section, of the upper side of the parts embodying my invention; and

Fig. 3 a front elevation, partly in section, of Fig. 2.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

1 is a casing, which may be of any suitable form to contain and support the complete apparatus. As, however, the present invention is concerned only with the means of supporting the high frequency coil and the adjusting means therefor, these parts only are shown in the drawings. 2 is a bracket adapted to be secured within the casing and adapted also to support the coil core, vibrator and the vibrator adjusting means. This bracket is formed from an integral piece of sheet metal, which is stamped out and bent to form the plate 3, the lug 4 at one side of the plate bent up at right angles thereto and adapted for connection to the casing and also having an opening therein for the passage of the adjusting spindle 6.

To the lug 4 I secure a bearing member 5 preferably by means of countersunk head screws. This bearing member is provided with a hole 7 forming a bearing for a rod 8 carrying a back stop 9 for the vibrator. The outer end of the hole is counterbored, the counterbore terminating in a shoulder 18.

The vibrator 15 is suitably secured to the plate 3 in proper position for co-operation with the coil core and the back stop 9. The rod 8 has a head 16 formed on or secured thereto or is otherwise fitted for engagement with a coil spring 17 which engages the shoulder 18 and the head 16 and tends to retract the rod 8 and the back stop carried thereby.

The back stop 9 is suitably adjusted relative to the vibrator as follows. Preferably the spindle 6 is provided with a coned lower end 13 which acts as a wedge. The spindle is threaded into the bearing member 5 and the coned end is adapted to project into the counterbore. I provide an antifriction member fitted in said counterbore and which is preferably a steel ball 14 adapted to engage the coned end 13 and the head 16. A stop 19 adapted to limit the outward movement of the ball 14 is provided. It is evident that by roating the spindle 6 in one direction that the tapered end 13 will push the back stop toward the vibrator against the action of the spring 17. If the spindle is rotated in the opposite direction it will allow the spring 17 to retract the back stop as hereinbefore described.

To prevent any damage to the different parts of the apparatus by a careless user the stop 19 is preferably threaded in the bottom of the bearing member 5 and in alinement with the spindle 6 and having its upper end projecting into the counterbore behind the ball 14. It is evident that the upper end of the stop 19 will limit the downward movement of the spindle 6. A lock nut is provided on the top 19 to secure the latter in position after it has been adjusted to permit only a desired range of movement of the back stop 9 relative to the vibrator.

Outside the casing the spindle is provided with the milled knob or hand wheel 20 by

which it may be turned. Usually a simple scale and index may be provided for convenience in setting the adjustment. Into the hole for receiving the core 10 of the coil is pressed a bearing sleeve 11 in which the coil core is suitably held by the set screw 12.

From the above description it will be seen that I have provided means for satisfactorily attaining the object of my invention as set out in the preamble of this specification.

What I claim as my invention is:—

1. In an induction coil, the combination of a bracket adapted to be secured within a casing and adapted to support a vibrator; a rod carrying the back contact of the vibrator and slidably supported in the bracket; a spring tending to retract said rod; a spindle threaded in the bracket and adapted to extend through the casing; and a wedge carried by said spindle and adapted to actuate the slidable rod.

2. An induction coil constructed as set forth in claim 1 in which the induction coil core is also carried by the bracket.

3. In an induction coil, the combination of a bracket adapted to be secured within a casing and adapted to support a vibrator; a rod carrying the back contact of the vibrator and slidably supported in the bracket; a spring tending to retract said rod; a spindle threaded in the bracket and adapted to extend through the casing and provided with a coned end adapted to actuate the slidable rod.

4. In an induction coil the combination of a bracket adapted to be secured within a casing and adapted to support a vibrator; a bearing member secured to said bracket; a rod carrying the back contact of the vibrator and slidably supported in the bearing member; a spring tending to retract said rod; an anti-friction member slidably supported in said bearing member and adapted to engage the outer end of said rod; and a spindle threaded in the bearing member and adapted to extend through the casing and provided with a coned end adapted to engage the anti-friction member to actuate the slidable rod.

5. In an induction coil the combination of a bracket adapted to be secured within a casing and adapted to support a vibrator; a bearing member secured to said bracket; a rod carrying the back contact of the vibrator and slidably supported in the bearing member; a spring tending to retract said rod; an anti-friction member slidably supported in said bearing member and adapted to engage the outer end of said rod; and a spindle threaded in the bearing member and adapted to extend through the casing and provided with a coned end adapted to engage the anti-friction member to actuate the slidable rod and a stop provided in the bearing member adapted to limit the outward movement of the anti-friction member and adapted to limit the downward movement of the spindle.

6. In an induction coil the combination of a vibrator; a bearing member; a rod carrying the back contact of the vibrator and slidably supported in the bearing member; a spring tending to retract said rod; an anti-friction member slidably supported in said bearing member and adapted to engage the outer end of said rod; and a spindle threaded in the bearing member and provided with a coned end adapted to engage the anti-friction member to actuate the slidable rod.

Signed at Toronto Ont. this 18th day of May 1921, in the presence of the two undersigned witnesses.

WALTER H. BAILEY.

Witnesses:
JAMES S. LA TROBE,
H. JENKINS.