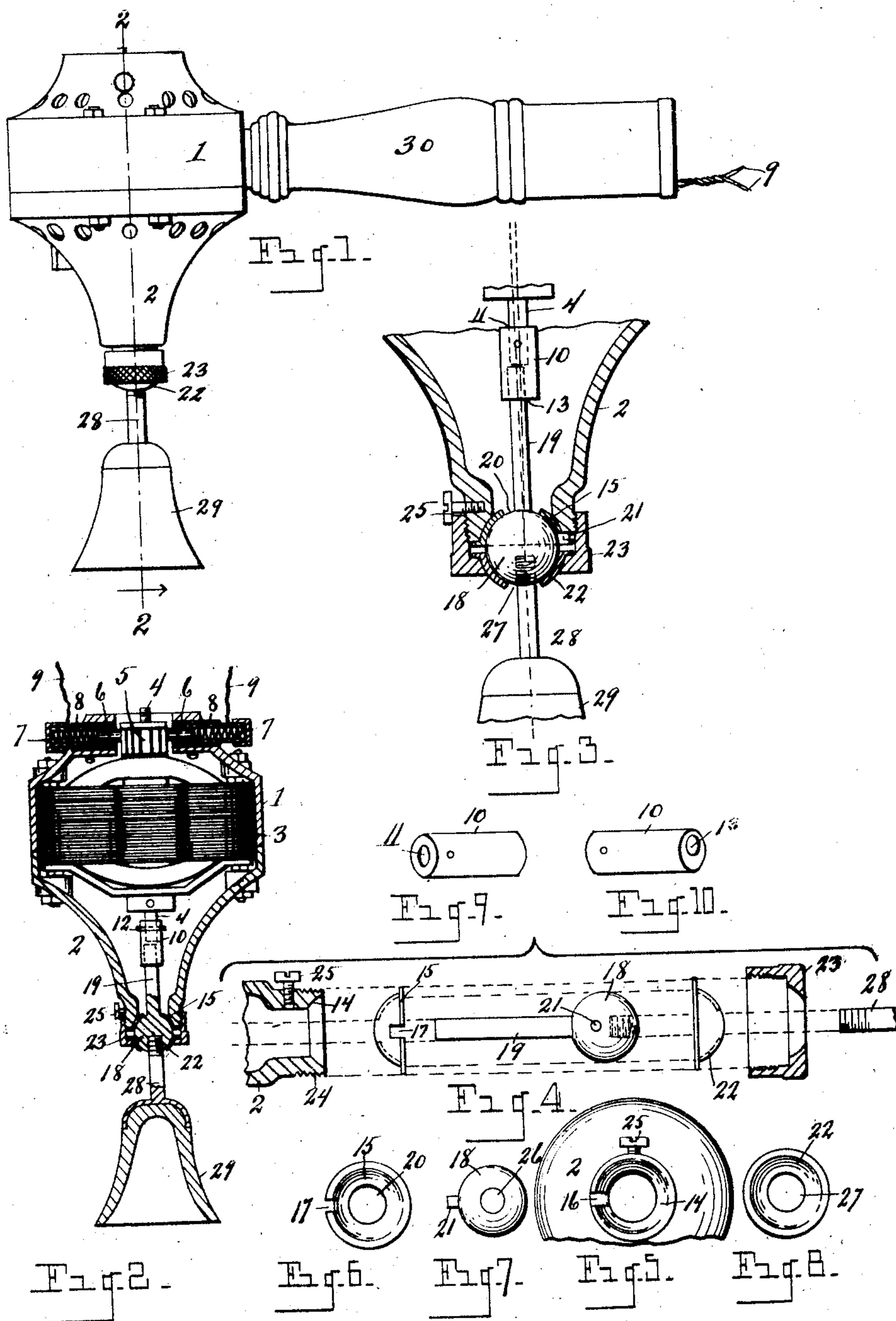


No. 855,594.

PATENTED JUNE 4, 1907.

A. J. STECKER.
VIBRATOR.

APPLICATION FILED OCT. 24, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

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VIBRATOR.

No. 855,594.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed October 24, 1906. Serial No. 340,276.

To all whom it may concern:

Be it known that I, ALFRED J. STECKER, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Vibrators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to a vibrator, especially designed for the application of vibratory massage, and consists in the construction and arrangement of parts hereinafter more fully set forth and claimed.

The object of the invention is to provide a compact, simple and efficient vibrator adapted to be operated through the rotation of an electric motor, or other propulsive device, whereby the desired rotary motion may be attained, and wherein the arrangement is such as to enable the production of a strong and rapid vibration which may be transmitted to the parts to be treated through the medium of a suitable applicator.

The above object is attained by the structure illustrated in the accompanying drawing, in which:—

Figure 1 is an elevation of a vibrator embodying my invention. Fig. 2 is a central, longitudinal section as on line 2—2 of Fig. 1, the motor appearing in elevation. Fig. 3 is an enlarged section through one end of the case and through the bearing cups which embrace the ball on the vibrator stem which is connected with the motor shaft, other parts being broken away. Fig. 4 is a view of the parts which form the bearing for the gyratory ball disassembled, the end of the case which supports said parts and the gland or screw cap which confines them in place, being in section. Fig. 5 is an elevation of the acuminated end of the case, the remaining portion of the case being broken away. Fig. 6 is a plan of the inner ball cup. Fig. 7 is a plan view of the ball. Fig. 8 is a plan of the outer ball cup. Fig. 9 is a perspective view of one end of the coupling sleeve which connects the stem of the gyratory ball with the shaft of the motor. Fig. 10 is a perspective view of the opposite end of said sleeve showing the

eccentric aperture therein which receives the stem of the gyratory ball.

Referring to the characters of reference, 1 designates a suitable case, preferably cylindrical in form, having a projecting conical end 2. Mounted in said case is a suitable electric motor 3 whose shaft 4 extends axially of the case. Upon one end of said shaft is the usual commutator 5. Mounted in the case are the carbon brushes 6 which engage said commutator and are held in working relation therewith, by means of the backing springs 7. The brushes 6 are insulated from the case by the embracing sleeves of insulation 8. Connected electrically with said brushes are the wires 9 of the electric circuit which supply the propulsive current to the motor from any suitable source of electric energy, not shown. Upon the inner end of the motor shaft is fitted a coupling sleeve 10 having in one end a concentric socket 11 which receives the end of the motor shaft and in which said shaft is secured by the transverse pin 12. In the other end of said sleeve is an eccentric socket 13 which stands at a slight angle to the axis of the sleeve.

In the outer end of the conical portion 2 of the case is a concaved seat 14 adapted to receive a concavo-convex bearing cup 15. In the margin of the beveled seat 14 is a slot 16 with which a similar slot 17 in the margin of said cup registers. Adapted to lie within the cup 15 is a ball 18 having an inwardly extending stem 19 which passes through the central opening 20 in said cup, the inner end of said stem entering the eccentric socket 13 in the sleeve 10 on the end of the motor shaft. Projecting from the side of the ball 18 is a pin 21 which engages in the slot 17 of the cup 15 and in the slot 16 of the conical seat 14, whereby said ball is held from rotation, but is permitted to gyrate within said cup as the inner end of its stem 19 is caused to describe a circle by the rotation of the sleeve 10. The ball is confined in the cup 15 by means of the embracing outer cup 22 which fits over the outwardly projecting portion of said ball and is confined in place by the gland 23, which screws onto the threaded end 24 of the conical portion 2 of the case. By means of said gland, the proper tension may be placed upon the ball 18 to prevent it chattering and all wear between the bearing cups and the ball may be taken up. A set screw

25 which engages the margin of the gland enables it to be locked after adjustment. Formed in the gyratory ball in axial alinement with its stem 19 is a tapped aperture 26 which registers with the central opening 27. 5 through the outer cup 22 adapted to receive the threaded stem 28 of the applicator 29 which is screwed into said ball to retain said applicator in place. The applicator is herein 10 shown as consisting of a rubber cup, but may be of any desired formation. In practice, there will be a number of applicators of different shapes and sizes, each provided with a threaded stem, as shown at 28, whereby any 15 one of the applicators may be inserted or removed at pleasure.

It will now be understood that a rotation of the motor shaft will cause the ball 18 to rock or gyrate in its seat because of the fact 20 that its stem is eccentric to the axis of said shaft, thereby causing the applicator to describe a circle about its axis which, owing to the high speed of the motor shaft becomes a rapid vibration producing a massaging effect 25 on the surface to which the applicator is applied.

The case is supported by a suitable handle 30 through which the conductor wires 9 pass. By means of said handle, the vibrator may 30 be easily held and the applicator applied to the surface to be treated.

Having thus fully set forth my invention, what I claim as new and desire to secure by Letters Patent, is:—

35 1. In a massaging apparatus, the combination of a suitable case, a shaft journaled therein, means for rotating said shaft, a vibratory stem in substantially longitudinal

alinement with the shaft, means for connecting the meeting ends of the stem and shaft 40 eccentrically, a ball upon the outer end of said stem, bearing cups embracing said ball the outer end of the case having a concaved seat in which the inner bearing cup is seated, a gland screwing onto the outer end of said 45 case and engaging the outer of said cups and an applicator attached to said ball.

2. In a massaging apparatus, the combination of a case, a longitudinal shaft journaled therein, means for rotating said shaft, 50 a longitudinally extending vibratory stem, means for connecting the ends of the stem and shaft eccentrically, a ball on the outer end of said stem, bearing cups supported in the end of the case and embracing said ball, a 55 gland confining said cups means for preventing a rotation of the ball in said cups but allowing a gyration of said ball therein and an applicator connected with said ball.

3. In a massaging apparatus, the combination of a suitable case, a rotary shaft journaled therein, means for rotating said shaft, a sleeve having in one end a concentric socket 60 in which the end of said shaft is rigidly secured, the other end of said sleeve having an eccentric socket therein, a vibratory stem loosely seated in said eccentric socket and supported to gyrate in the end of the case, 65 and an applicator attached to said stem.

In testimony whereof, I sign this specification in the presence of two witnesses. 70

ALFRED J. STECKER.

Witnesses:

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