

May 1, 1928.

1,668,364

A. C. GILBERT

VIBRATOR

Filed Dec. 27, 1921

Fig. 1.

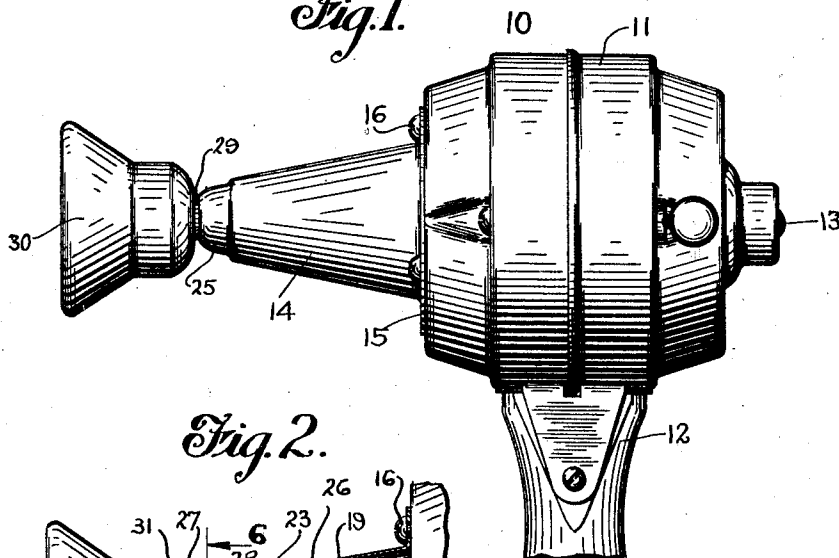


Fig. 2.

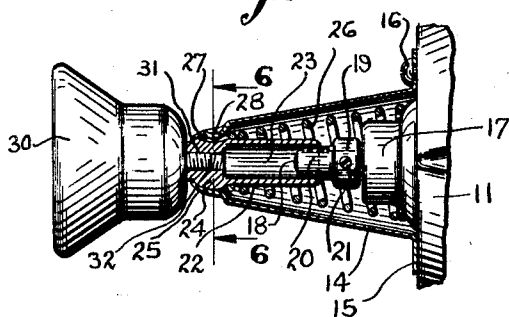


Fig. 5.

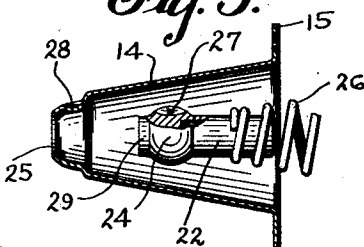


Fig. 3.

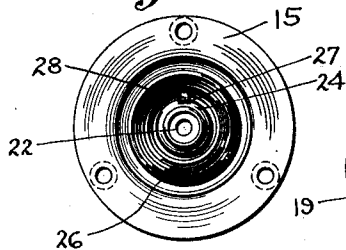


Fig. 4.

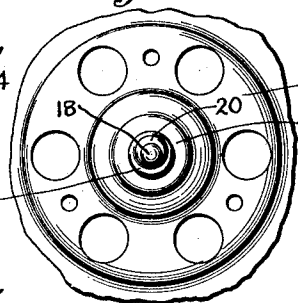


Fig. 6.

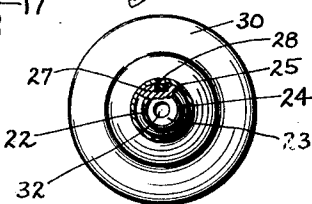
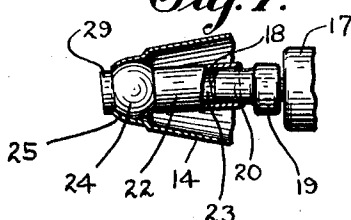


Fig. 7.



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UNITED STATES PATENT OFFICE.

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VIBRATOR.

Application filed December 27, 1921. Serial No. 525,070.

This invention relates to vibrators and more particularly to a device especially designed for the application of vibratory massage, such as frequently used by barbers in giving face massages, or by physicians and others in the treatment of various diseases, and for other purposes. More specifically my invention relates to that class of vibrators wherein a gyratory motion of the applicator is obtained from the rotating shaft of a suitable motor.

One object of my invention is the provision of a device of this character which shall possess the advantages of simplicity of construction, efficiency in operation, and economy in manufacture.

Another object of my invention is to provide a vibrator wherein by the use of a relatively small number of parts, the rotary motion of an electric or other motor is converted into a gyratory motion suitable for such an instrument.

A still further object of my invention is to provide a vibrator attachment which may be applicable to the ordinary motor now in common use for light work.

A still further object of my invention is to provide a massage vibrator wherein the applicator is resiliently mounted so that a yielding pressure may be exerted upon the part of the body upon which the vibrator is used.

To these and other ends my invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of a complete vibrator embodying my improvements;

Fig. 2 is a sectional view of the mechanism which I employ to convert the rotary motion of the motor shaft into the proper gyrating motion for the massage applicator;

Fig. 3 is an elevational view of the cone-shaped supporting member mounted upon the motor frame;

Fig. 4 is a front elevational view of the motor with the cone-shaped supporting member detached therefrom;

Fig. 5 is a detailed view of some of the parts used;

Fig. 6 is a sectional view on line 6—6 of Fig. 2; and

Fig. 7 is a fragmentary sectional view

similar to Fig. 6, but showing some of the parts in a slightly different position.

To illustrate a preferred embodiment of my invention, I have shown at 10 a motor which in this case is an electric motor housed in a casing or frame 11, which is suitably mounted upon a handle or other member 12 by which it may be manipulated. The motor is shown in a conventional way and may for the purpose of illustrating the present invention, be of any approved and modern type. As shown, it is provided with a substantially centrally disposed rotating motor shaft 13.

To mount my improved vibrator mechanism upon the motor casing or frame, I provide a supporting member 14 substantially frusto-conical in shape and provided with a laterally extending flange 15 at its base, which may be connected to the end face of the motor casing by screws 16 or similar securing means. This member, as will be more fully described hereinafter, serves to support the vibrator attachment.

The front end of the motor shaft 13 projects to some extent from the bearing boss 17, as shown at 18, and upon this end of the shaft is provided a crank disk or collar 19, having upon its face an eccentric pin 20. The disk and pin are provided with a longitudinal opening or bore concentric with the disk, but eccentric to the pin, through which the motor shaft extends, the disk being secured against rotation on the shaft by means of the set screw 21.

The stem 22 is provided for supporting the applicator, the stem being hollow or at least provided with a bore 23 at its rear end to loosely receive the pin 20. Adjacent its forward end the stem is provided with a spherical or ball-shaped member 24, constituting one part of a universal or ball and socket joint or bearing, the other member of which is constituted by a similarly shaped socket 25 provided at the forward end of the conical supporting member 14. The socket is so shaped that while the ball 24 will readily enter the same from the larger open end of the supporting member 14, it will not pass through the smaller end and the stem is resiliently held in proper position in the socket by means of a spiral spring 26 reacting against the rear edge of the ball 24 and against the end face of the motor

casing or frame. As shown, this spring is also conical in shape to properly bear against the ball-shaped member upon the stem and upon the end face of the motor casing about the bearing boss.

In order to prevent rotation of the stem 22, a small recess or indentation 27 is provided in the ball-shaped member 24, and a projection 28 is provided upon the wall of the socket 25 extending into this recess. Thus while a ball and socket joint will be provided allowing for ample movement of gyration of the stem, any rotation thereof about a longitudinal axis will be effectually prevented. As shown at 29, the stem projects to a slight extent from the forward end of the ball 24 so as to extend through the wall of the socket and support the applicator out of contact with the wall. It will be apparent that with this arrangement the applicator will be urged to an outer position by the spring 26, but in case sufficient pressure is applied to the surface of the body being massaged, the tension of the spring will be overcome and the applicator will be permitted a slight yielding movement toward the motor casing and the supporting frame 14 before the rear part of the applicator will come into contact with the wall of the socket member 25.

The applicator may be supported upon the stem 22 in any approved way, or any type or shape of applicator may be used, as desired. In the form shown I have illustrated a rubber cup 30 provided with a threaded stem 31 received in a threaded longitudinal opening 32 in the end of the stem. In this manner the applicator may be mounted upon the stem, so that the rear portion thereof will contact with the front face of the projecting end 29 of the stem so as to be spaced slightly from the front end of the socket 25 to allow the yielding movement described above.

It will be obvious that my attachments may be readily assembled and mounted upon the end face of the motor casing in operative position. The stem may be inserted from the larger end of the conically shaped supporting member 14, as shown in Fig. 5, the spring 26 keeping the ball-shaped bearing member in proper position in the socket. In this manner I have provided an efficient and simple vibrator capable of being used with any common type of motor.

While I have illustrated and described a preferred form of my invention, it will be apparent that the same is capable of many modifications and variations which lie within the spirit of the invention and within the scope of the appended claims.

What I claim is:

1. In a vibrator, a motor casing, a supporting member associated therewith and presenting an integrally formed rearwardly

facing socket, an operating member having a bearing ball seated in said socket, and a spring reacting directly against the motor casing to yieldingly retain the ball in the socket.

2. In a vibrator, a motor casing, a supporting member associated therewith and presenting a rearwardly facing socket, an operating member having a bearing ball seated in said socket, and a spring reacting directly between the motor case and the bearing ball to yieldingly retain the latter in the socket.

3. In a vibrator, a motor and casing, a shaft rotated by the motor and provided with a crank disk having an eccentric pin, a conical housing having an unobstructed interior carried by the case and having a socket, an applicator, a stem, on which the applicator is mounted, operated by the crank pin and having a bearing ball seated in the socket, and a conically shaped spring reacting directly against the motor casing to yieldingly retain the ball in the socket.

4. In a vibrator, a frame, a rotating member mounted therein, a supporting member associated with the frame, an operating member having a pivotal bearing in the support and resilient means reacting directly against the motor casing for forcing the operating member outwardly from the frame and maintaining the bearing members in proper position.

5. In a massage vibrator, the combination of a motor having a frame, a hollow sheet metal casing carried by said motor frame, said casing having a socket formed in the outer end thereof, an applicator supported by the casing, said applicator being provided with a stem having a bearing ball adapted to be seated in the socket, said ball having a recess, and the material forming the wall of the socket being depressed to enter the recess to prevent rotation of the stem.

6. In a vibrator, a motor casing having a bearing extending outwardly therefrom, a shaft mounted in said bearing, a support mounted on said casing, a bearing formed in said support, an operating member seated in said bearing, means mounted on said shaft and engaging said operating member adapted to give the latter movement in a conical path, and a spring having one end in engagement with the operating member to secure the latter in the bearing in said support, said spring having its opposite end surrounding and supported by the bearing on said motor casing.

7. In a vibrator, a motor casing having a bearing projecting therefrom, a rotary shaft extending through the bearing, a one piece support having one end secured on said motor casing, a socket formed in the opposite end of the support integrally therewith and presenting an open side towards

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said motor casing, an operating member having a bearing ball seated in said socket, a spring having one end acting against the bearing ball to hold the latter in the socket and its other end surrounding and supported by said bearing, and operating means carried on said shaft engaging said operating member.

8. In a vibrator, a motor casing having a bearing projecting therefrom, a rotary shaft extending through the bearing, a one piece support having one end secured on said motor casing, a socket formed in the opposite end of said support integrally therewith and presenting an open side towards said motor casing, an operating member having a bearing ball seated in said socket, said bearing ball being provided with a slot, a portion of said support being displaced into said slot, a spring having one end acting against the bearing ball to hold the latter in said socket and its other end surrounding and supported by said bearing, and operating means carried on said shaft engaging said operating member.

9. In a vibrator, a motor casing having a bearing projecting therefrom, a rotary shaft extending through the bearing, a one piece support having one end secured on said motor casing, a socket formed in the opposite end of the support integrally therewith and presenting an open side towards said motor casing, an operating member having a bear-

ing ball seated in said socket, said operating member being provided with a bore, a crank mounted on said rotary shaft, said crank having an arm extending into the bore, said arm being of less diameter than the bore, and a spring having one end acting against the bearing ball to hold the latter in said socket, and its other end surrounding and supported by said bearing.

10. In a vibrator, a motor casing having a bearing projecting therefrom, a rotary shaft extending through the bearing, a one piece support having one end secured on said motor casing, a socket formed in the opposite end of said support integrally therewith and presenting an open side towards said motor casing, an operating member having a bearing ball seated in said socket, said bearing ball being provided with a slot, a portion of said support being displaced into said slot, said operating member being provided with a bore, a crank mounted on the rotary shaft, said crank having an arm extending into the bore, said arm being of less diameter than the bore, and a spring having one end acting against the bearing ball to hold the latter in the socket and its other end surrounding and supported by said bearing.

In witness whereof, I have hereunto set my hand on this 20th day of December, 1921.

ALFRED C. GILBERT.