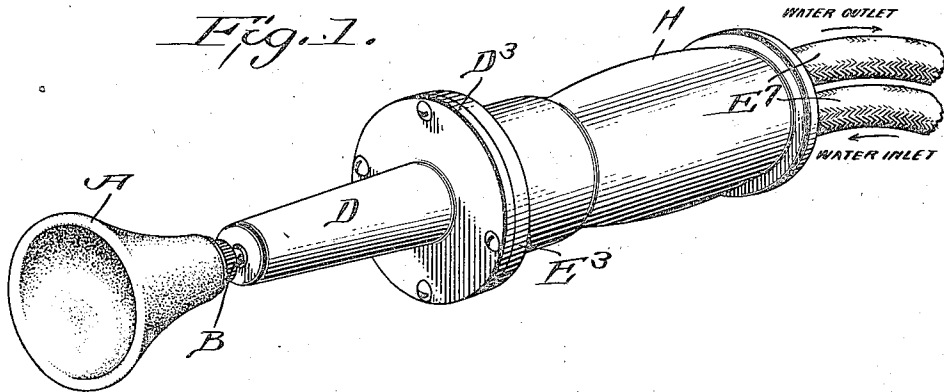
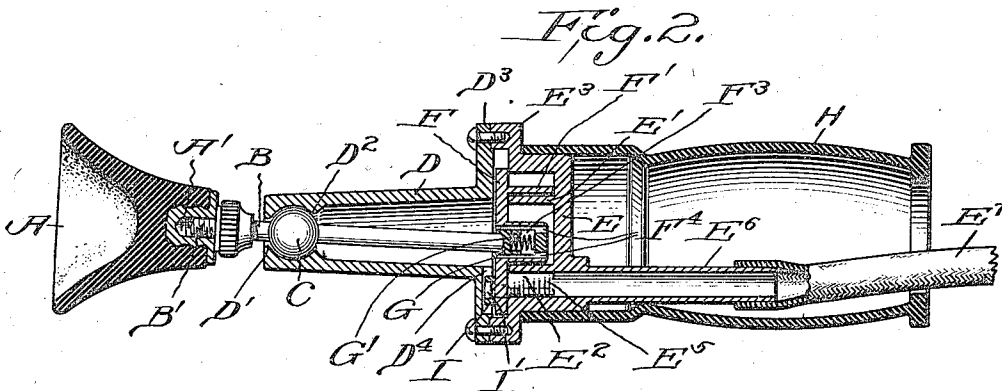
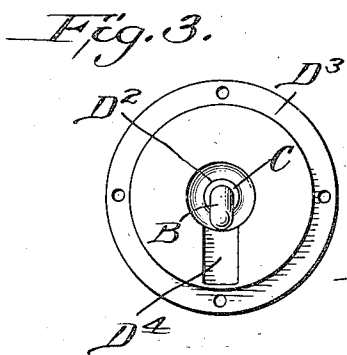
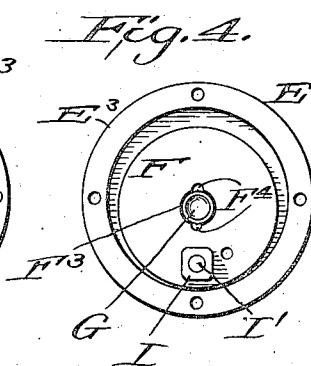
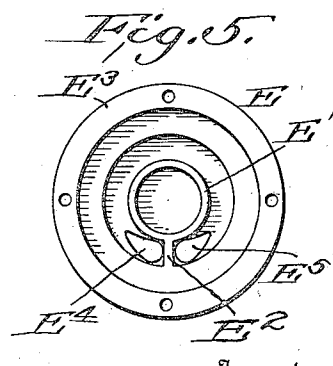


G. F. NELSON.
MOTOR FOR MASSAGE APPARATUS.
APPLICATION FILED MAR. 13, 1912. RENEWED DEC. 7, 1916.

1,224,008.

Patented Apr. 24, 1917.
2 SHEETS—SHEET 1.



Witnesses

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Fig. 6.

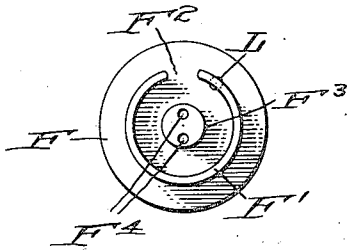


Fig. 8.

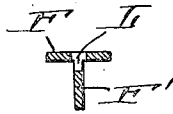


Fig. 7.

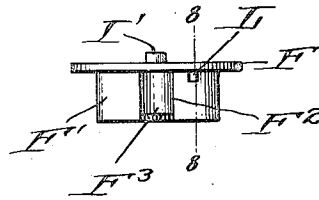


Fig. 9.

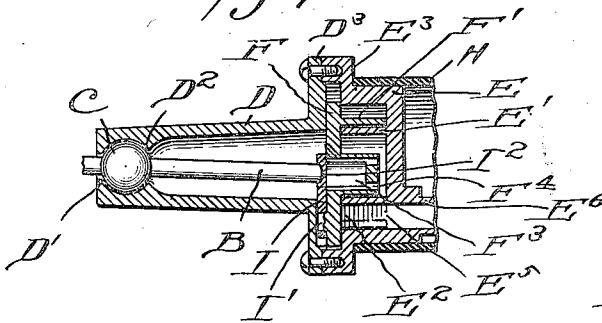


Fig. 10.

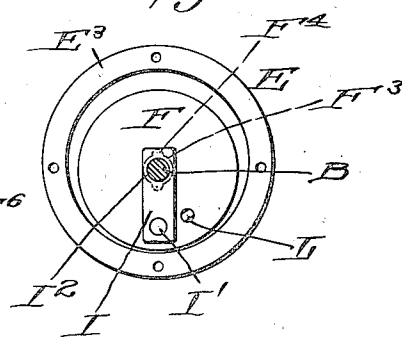


Fig. 12.

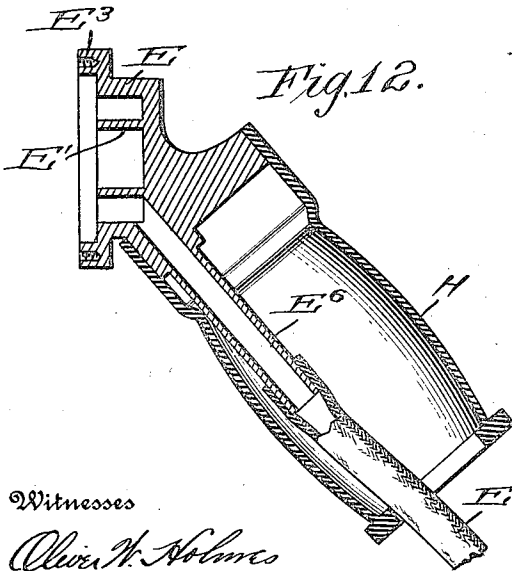
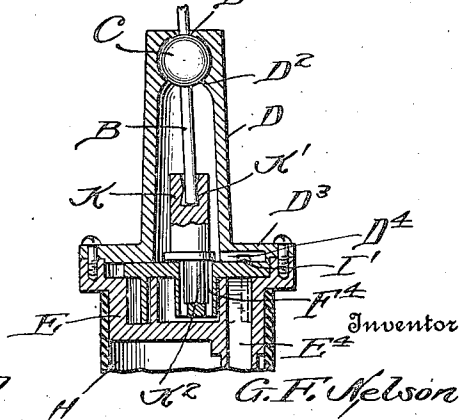


Fig. 11.



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MOTOR FOR MASSAGE APPARATUS.

1,224,008.

Specification of Letters Patent.

Patented Apr. 24, 1917.

Application filed March 13, 1912, Serial No. 683,452. Renewed December 7, 1916. Serial No. 135,702.

To all whom it may concern:

Be it known that I, GEORGE F. NELSON, a citizen of the United States, residing in the city of Washington, and District of Columbia, have invented a new and useful Improvement in Motors, for Massage Apparatus, of which the following is a specification.

This invention relates generally to a motor for massage apparatus and more particularly to one in which the ordinary city water pressure is employed as an actuating force, and a still further object is to provide an apparatus of such construction that it can be quickly and easily connected with the usual bath-room or household fixtures.

While my apparatus is particularly adapted for use in connection with the ordinary spigot or faucet it will be understood that it can be operated by any fluid pressure.

With these objects in view my invention consists in the novel features of construction and combination hereinafter fully described and pointed out in the claims.

In the drawings forming a part of this specification,

Figure 1 is a perspective view of a vibrator constructed in accordance with my invention.

Fig. 2 is a vertical longitudinal sectional view.

Fig. 3 is an elevation of the hood or cap looking toward the forward end of the same, the vibratory shaft being also shown.

Fig. 4 is an elevation of the motor.

Fig. 5 is a face view of the cylinder, the impeller or piston being removed.

Fig. 6 is a face view of the impeller or piston taken from the side opposite to that shown in Fig. 4.

Fig. 7 is a side view of the same.

Fig. 8 is a detail section on the line 8—8 of Fig. 7.

Fig. 9 is a longitudinal sectional view of a slightly modified means for vibrating the shaft.

Fig. 10 is a detail elevation of said means.

Fig. 11 is a longitudinal sectional view of a still further modification, and,

Fig. 12 is a detail showing a modified arrangement of the handle.

In the practical embodiment of my invention I employ an applicator A, which is preferably constructed of soft rubber and provided with a threaded socket A' in its rear end by means of which it is connected

to the threaded end B' of the shaft B, said shaft B passing through a metal sphere or ball C held within the forward end of the cap or hood D, said cap or hood being preferably cast about the ball and having bearing portions D' and D² upon opposite sides of said sphere or ball. As before stated a cap or hood D is cast about the sphere or ball C and after the casting operation has been completed a sharp blow upon the ball or shaft passing therethrough will be sufficient to free or loosen the sphere or ball from the sides to permit the free and easy movement of the ball within the forward end of the cap or hood.

This method of manufacture insures a tight joint so far as preventing the escape of fluid is concerned but at the same time permits the movement of the ball or sphere as the shaft is vibrated. The cap or hood D is formed with a circular flange D³ by means of which it is attached to the flange E³ of the cylinder E and within the cylinder and between it and the cap or hood is arranged the piston or impeller F by means of which motion is communicated to the shaft B, the inner end of the shaft being operatively connected with this impeller or piston as hereinafter fully explained. The cylinder E has a circular ring E' arranged centrally thereof and a wall or partition E² extending from this ring E' to the inner face of the cylinder and upon opposite sides of said depending wall or partition E² are the ports E⁴ and E⁵, pipes or tubes E⁶ being formed integral with the cylinder as shown, and to which flexible tubes E⁷ are connected and by means of which the actuating fluid is passed into the cylinder and exhausted therefrom. H indicates a handle which is preferably made of bakelite, hard rubber or any other suitable material and is attached to the cylinder in any suitable manner and envelops the cylinder tubes or pipes and the connection between the flexible tubes and these tubes or pipes. The impeller F consists of a flat circular plate of a size somewhat smaller than the cylinder E and attached to this plate is a circular wall or ring F' divided at F², the dividing wall or partition E² resting within this division F² in the ring or wall F'. A central socket F³ is arranged centrally of the flat plate, said socket F³ being closed at its inner end except for two small apertures F⁴.

In the constructions shown in Figs. 2 and

4 a plug G is arranged within the socket F³, said plug having a recess produced in its outer face which receives the rear end of the shaft B, and a spring G' arranged within the socket holds this plug in contact with the shaft. The inner face of the cap or hood D is formed with a radial slot or recess D⁴ in which works a guide block I mounted upon the flat circular plate of the piston or impeller by means of a pin I', this guide block I working in the slot D⁴ as the impeller is moved by the fluid entering one port and passing around the circular chamber of the cylinder and out through the other port at the end of said circular chamber and as the fluid passes around this circular chamber it impinges against the divided ring F' of the impeller F and forces it outwardly in contact with the outer wall of the circular chamber and the passage of the fluid acting upon the wall in this manner serves to give to the impeller a movement which may be generally described as of a gyratory or wobbling nature, the central portion of the impeller being caused to describe a circle of limited area. It is this movement of the impeller produced by the water passing from one port to the other around the circular passage and acting upon the divided ring or wall F' that causes the shaft B to oscillate, the inner end of said shaft contacting with a spring actuated plug located at the center of the impeller and inasmuch as the applicator is mounted upon the outer end of the shaft B and said shaft is fulcrumed at C it is obvious that the applicator will be vibrated through a short arc and the vibrations of said applicator grow very small, and will be very rapid thereby producing a highly efficient massage.

In Fig. 9 I have shown the rear end of the shaft B entering a socket I² formed at the inner end of the guide block I, the guide block in this instance being elongated as shown.

In Fig. 11 I have shown the rear end of the shaft B located in the socket K'; formed in the forward end of a short shaft K having an eccentric end K² which fits within the socket F⁴ and the gyratory motion of the impeller F will impart to this shaft K a rotary movement which in turn will be transmitted to the shaft B thereby giving a rotary movement as well as a vibratory movement to the applicator.

In the construction shown in Fig. 9 it will be understood that the shaft B vibrates back and forth in the same plane, whereas in the construction shown in Fig. 11 there is a rotary movement.

As before stated the fluid enters the cylinder at one side of the partition wall E², passes around through the same and out at the opposite side and in so doing acts upon

the ring or wall F' of the impeller causing the said circular wall or ring to come in contact with the circular walls of the cylinder, and in practice I prefer to actuate this device by the ordinary city water pressure led thereto by flexible tubes connected with the ordinary bath-room or house-hold fixtures.

In order to insure the rapid and easy operation of the device I propose to balance the impeller by transmitting a portion of the fluid pressure from one side thereof to the other and this I accomplish by providing an aperture L in the circular plate of the impeller, which aperture extends down into the circular wall F' a certain distance as most clearly shown in Figs. 7 and 8, and in addition to this small aperture I also utilize the small apertures F⁴ previously referred to, and it will be noted that by reference to Figs. 2 and 4 that these apertures F⁴ which are complete circles in the lower end of the socket F³, extend to the forward end thereof in the form of semi-circular grooves.

By means of these apertures a portion of the actuating fluid is caused to pass to the opposite side of the impeller and thereby exerts a certain amount of pressure in the opposite direction, reducing the friction, and greatly increasing the efficiency of the device.

In the construction shown in Figs. 1 and 2, I have shown the handle as extending horizontally from the cylinder, whereas in Fig. 12 I have shown the handle arranged in an inclined position, the rear portion of the cylinder being shaped to receive the handle thereon but in all other respects the construction and operation are identically the same.

While I have shown the applicator A as cup-shaped, it will be of course understood that any desired shape of applicator can be employed, and it will also be understood that the inlet tube can be equipped at its rear end with any suitable form of coupling device whereby the apparatus can be quickly and easily attached to the ordinary bath-room fixture.

The water after passing through the motor is discharged into the bath tub or basin and out through the usual drain.

By means of the device herein shown and described, I am able to impart a very rapid and gentle motion to the shaft B which in turn is transmitted to the applicator A, thus producing a highly efficient and agreeable massage.

What I claim is:—

1. A motor of the kind described comprising a holding portion having a casing connected thereto, said casing having a concentric passage with inlet and outlet ports connected therewith, inlet and outlet pipes ex-

tending through the holding portion and communicating with the inlet and outlet ports of the casing, an impeller having a concentric ring of less diameter than the passage adapted to rest in said passage, said ring being divided at one point, a hood connected to the casing, and a shaft universally mounted in said hood and operatively connected to said impeller.

10 2. A motor of the kind described comprising a handle, a casing connected thereto, said casing having a circular passage separated by a dividing wall with inlet and outlet ports upon opposite sides of said wall, inlet and
15 outlet pipes communicating with said ports and extending through the handle, an impeller having a divided ring of less diameter than the passage adapted to rest in the circular passage of the casing, a hood attached to
20 the forward end of said casing, a shaft universally mounted in the forward end of said hood, the rear end of said shaft being operatively connected with the impeller, together with yieldable means carried by said im-
25 peller for receiving the end thrust of said shaft.

3. A motor of the kind described comprising a holding member, a casing connected to the forward end thereof, inlet and outlet
30 pipes arranged in said holding member and communicating with inlet and outlet ports of said casing, the casing having a circular

passage, a wall separating said ports, an impeller having a central socket and a ring of less diameter than the passage, said ring being divided and adapted to work in said passage, said impeller having openings produced therein, a hood attached to the casing, a shaft universally mounted at the forward end of said hood, the inner end of the shaft being operatively connected with the central portion of the impeller, and the forward end of the shaft projecting from said hood, the said hood forming a continuation of said casing.

4. In a motor of the kind described a suitable handle, a cylindrical casing carried within an end of the handle, said casing opening forwardly, a flanged hood carried by the open end of the casing, said hood having a ball arranged therein, an impeller arranged within said casing and confined therein by the hood flange, a shaft adapted to extend through said ball and to project from said hood, said shaft being operatively connected to said impeller, and means for admitting and discharging a fluid under pressure through said handle to and from said impeller, as and for the purpose set forth.

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