

[54] **ELECTROMASSAGER**
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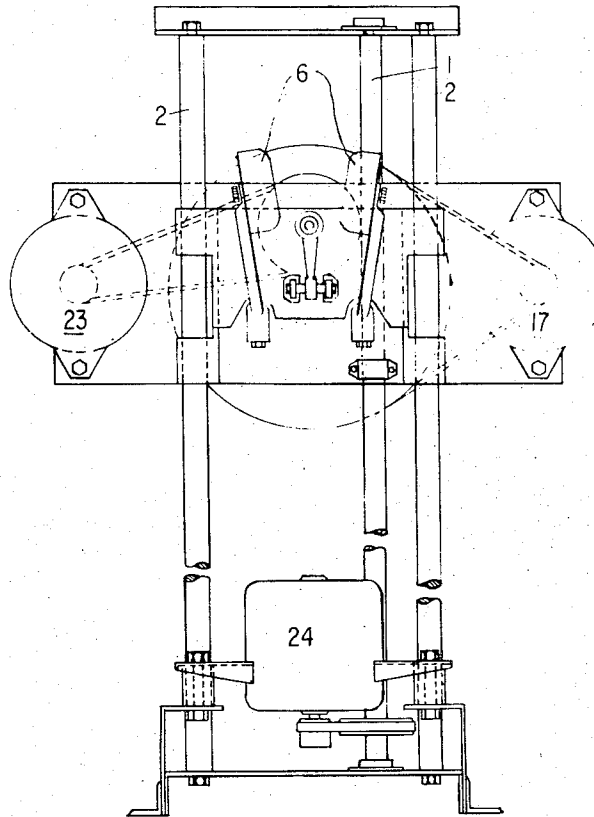
[52] U.S. Cl..... **128/52, 128/55, 128/57**
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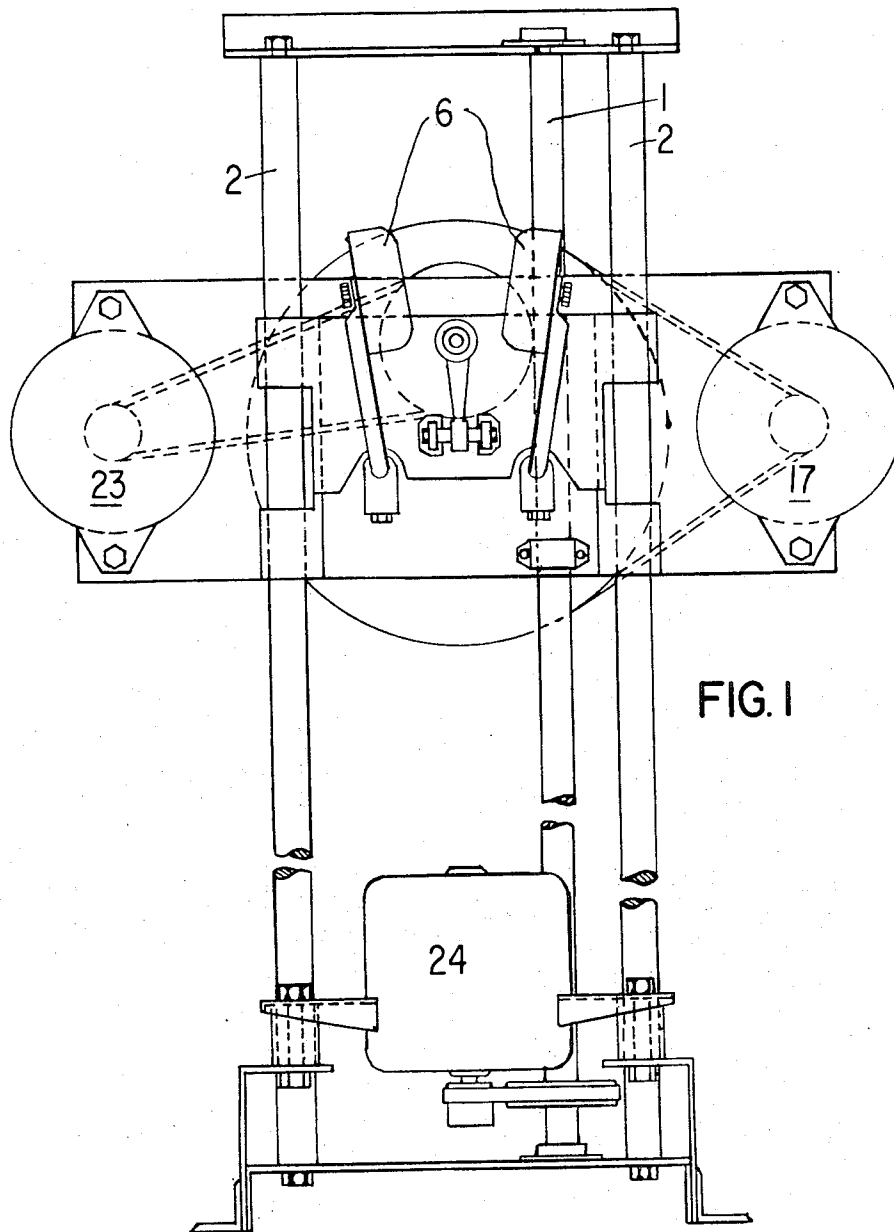
Primary Examiner—Lawrence W. Trapp
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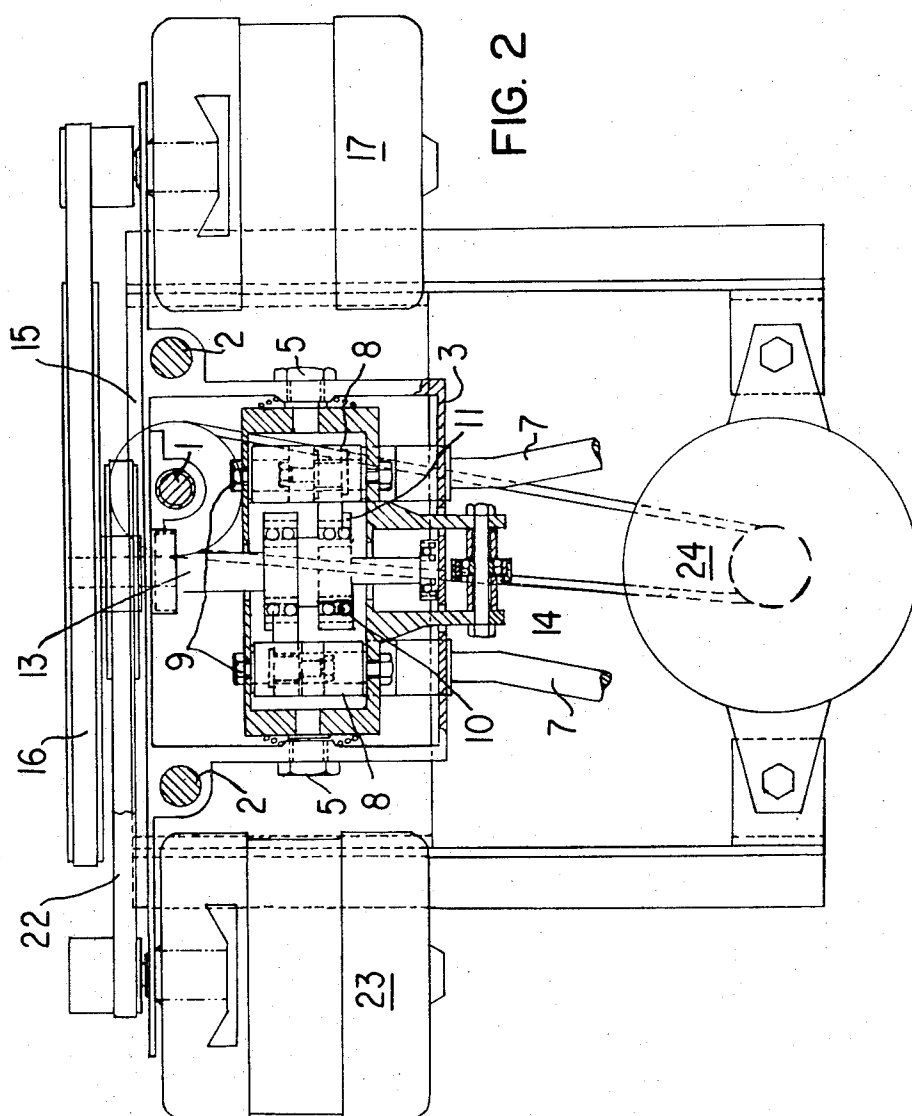
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[57] **ABSTRACT**
 An electromassager for massaging action which includes means for obtaining a horizontal massaging movement and a vertical tapping movement.

6 Claims, 6 Drawing Figures







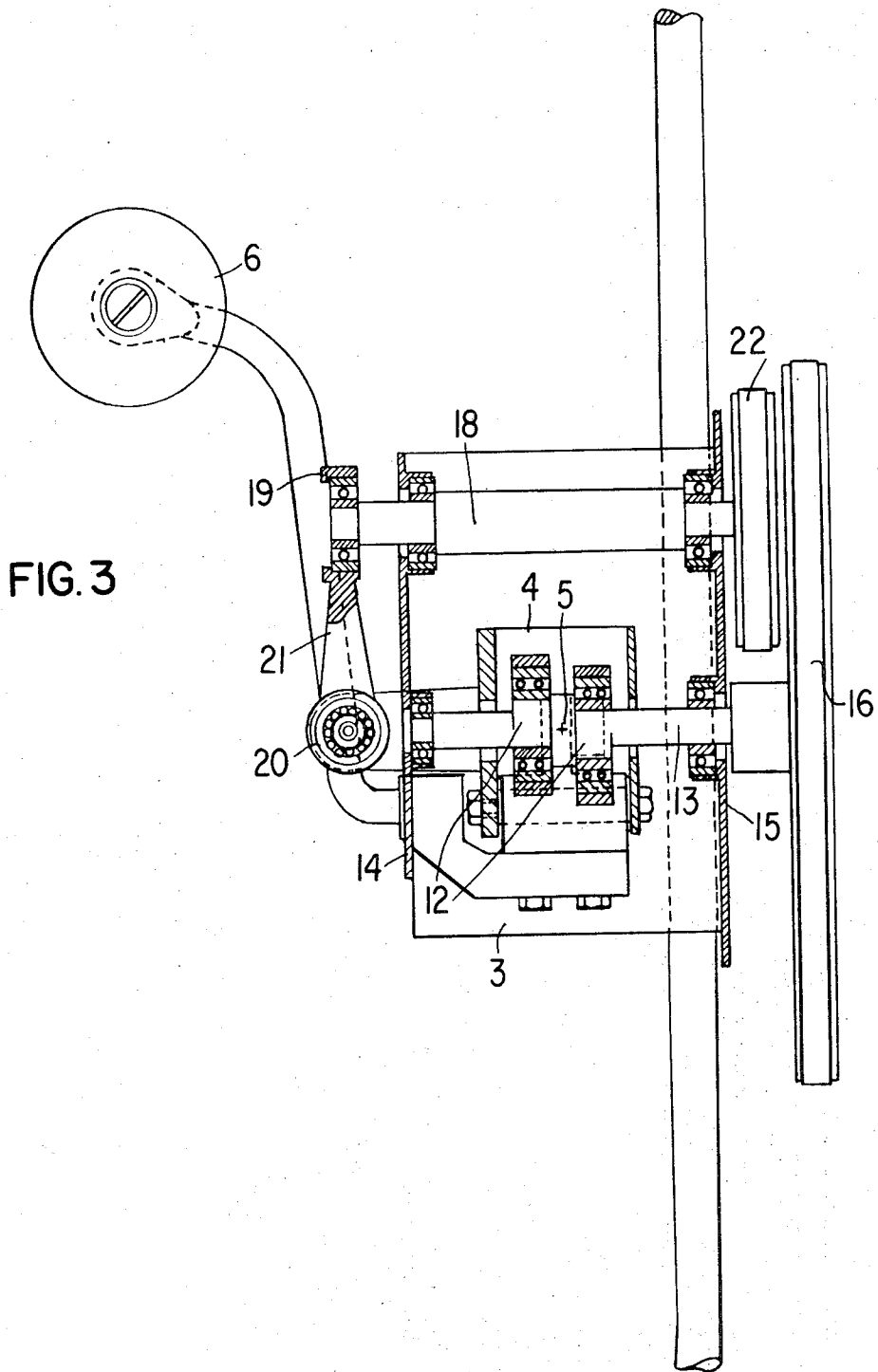
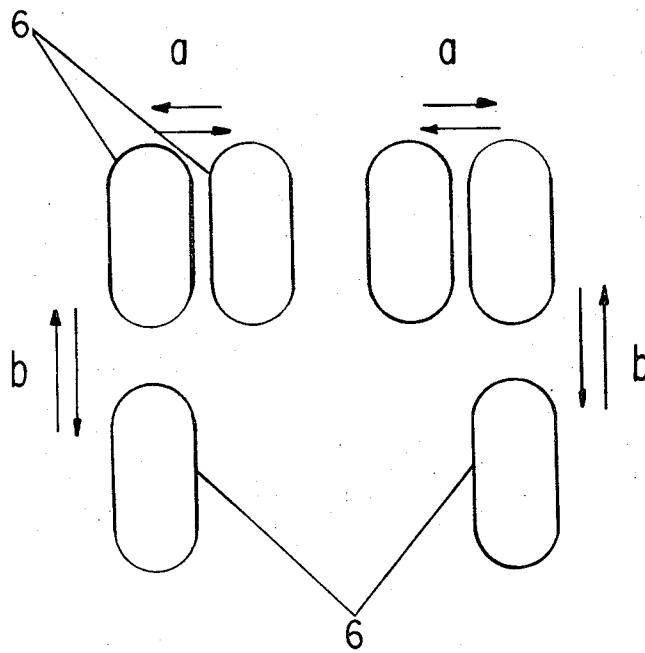


FIG. 4



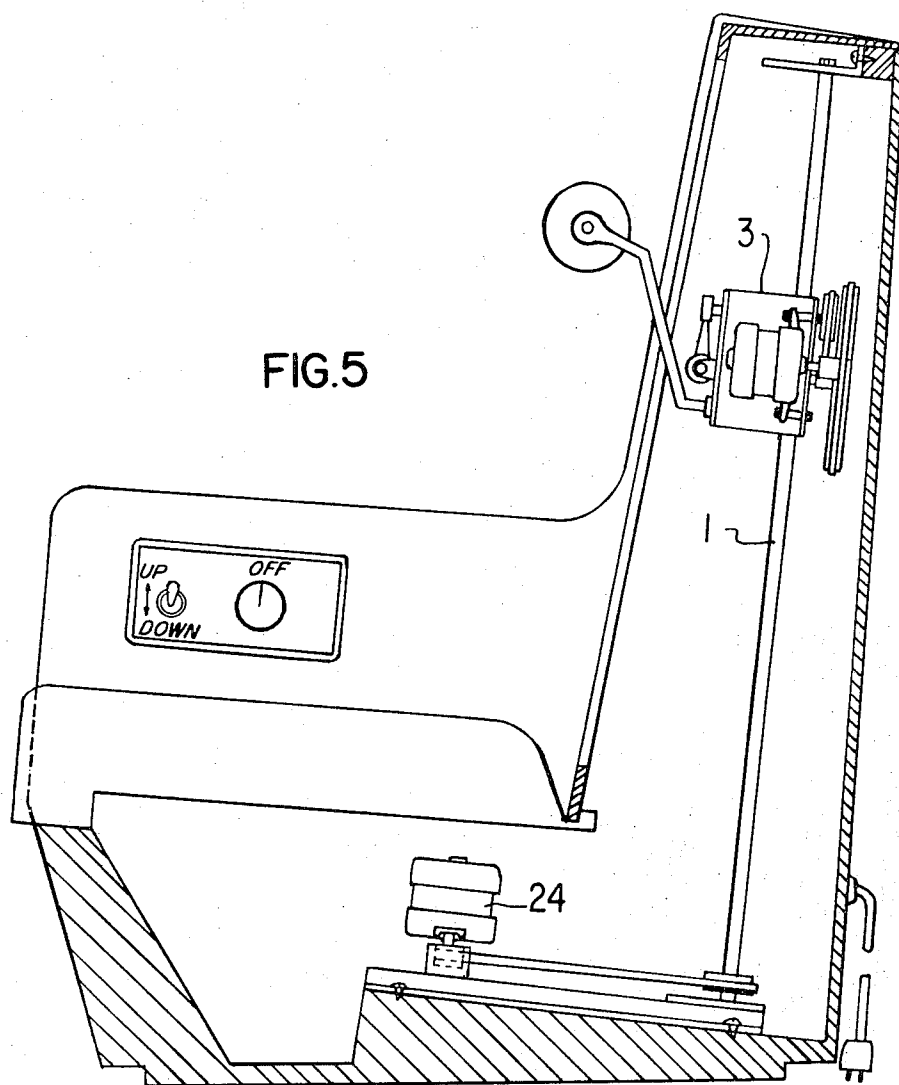
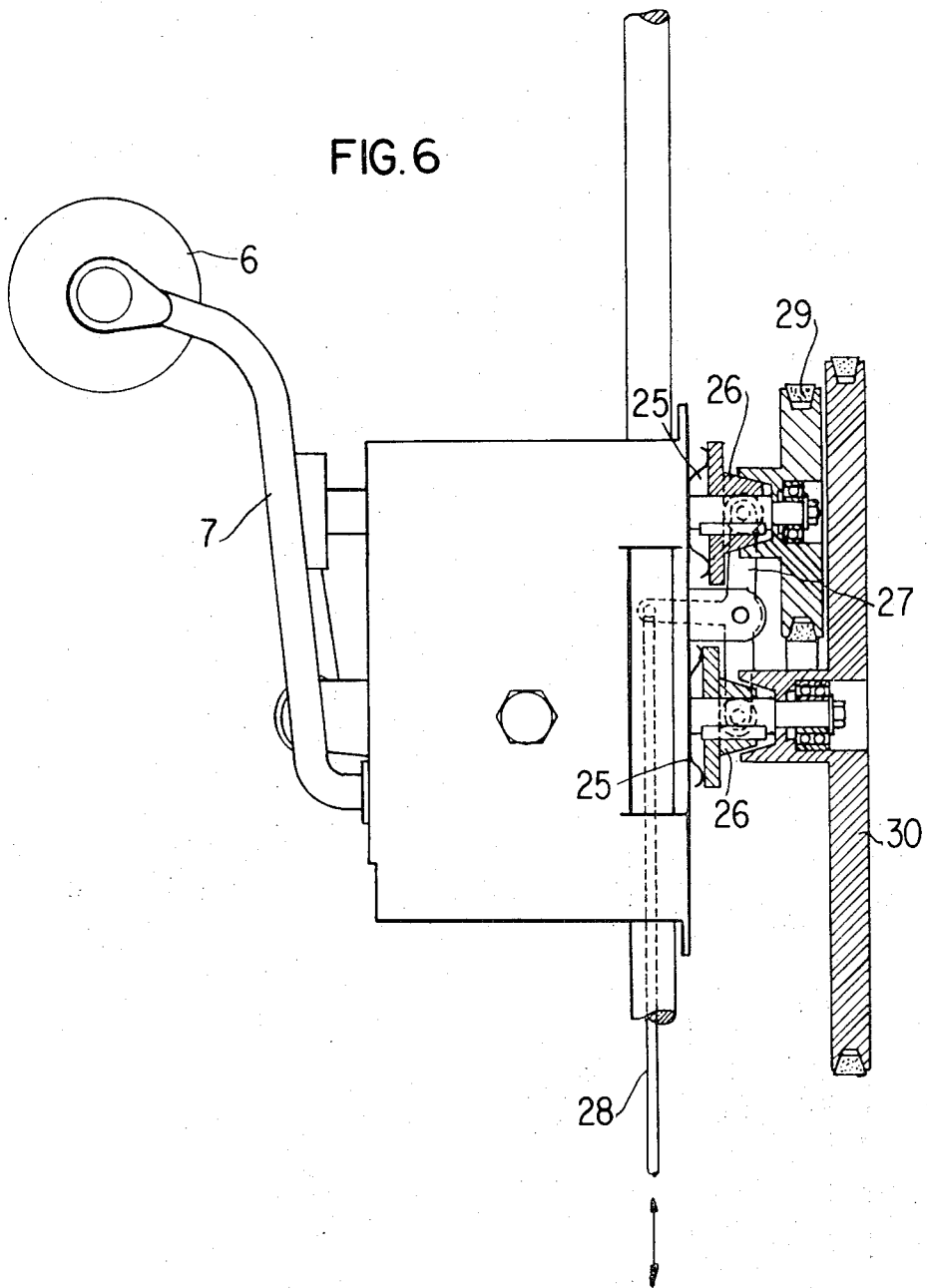


FIG. 6



ELECTROMASSAGER

The present invention relates to the mechanism of an electromassager characterized by that massaging action and continued tapping action can be both made by means of two or a plural pair of massaging balls which are protruded at the back of a chair, and is intended to promote the therapy of the affected part of the body by causing the same massaging balls to repeat not only horizontal movement as in a conventional manner but also tapping movement, that is to say, vertical movement in order to massage the shoulders, the back, the waist, and other parts of the body, and facilitate the circulation of the blood, and relieve away the stiffness.

An embodiment of the present invention will now be described in detail with respect to the drawings wherein:

FIG. 1 is a front elevation showing the mechanism of the electromassager of the present invention;

FIG. 2 is an enlarged plan view of the above FIG. 1;

FIG. 3 is a side view showing the principal mechanism;

FIG. 4 is a diagram showing the moving directions of the massaging balls;

FIG. 5 is a side view of a chair, showing the principal mechanism mounted therein;

FIG. 6 is a second side view of the principal mechanism wherein a single motor achieves both massaging movement and tapping movement by making use of clutches.

Referring now to the drawings, an inner frame 4 is supported to the sides of an outer frame 3 by means of pins 5 inside the outer frame 3 so that the inner frame 4 can be displaced to said outer frame 3, said outer frame 3 being held so as to move upwards and downwards along a threaded shaft 1 and two slide braces 2 which are vertically mounted within the back of a chair. The bases 8 of two arms 7 having massaging balls 6 in their tips are supported upon said inner frame by means of pins 9, and said bases have housings 11 connected to a crank shaft 13 provided with eccentric cams 12, said housings incorporating self-aligning ball bearings 10 respectively. Said crank shaft 13 is held by the use of front and back plates 14, 15, and is connected to a motor 17 through a rotational transmitting means 16 comprised of a bolt and a pulley linked to said crank shaft. Driving the motor rotates eccentrically the crank shaft 13, and vibrates the two arms 7 connected thereto, thereby permitting the massaging balls on the tips of the arms to conduct the massaging action (repetitious movement in the alternate directions illustrated in FIG. 4).

On the other hand, a cam shaft 18 resting upon the front and back plates 14, 15 of the outer frame 3 has a self-aligning ball bearing 19 and a bearing 20 connected in the front end thereof by means of a link 21, and is related to the second motor 23 in the back end thereof through a rotational transmitting means 22 resting upon the back plates 15. Thus, the cam shaft 18 rotates as a result of the motor being driven by switching thereon, and the link 21 related thereto is vibrated upwards and downwards. Consequently, the inner frame 4, which is connected to one end of said link, is vibrated into an oblique relation to the outer frame at a fixed angle, with the abovementioned pins 5 acting as a fulcrum, within the limits of the eccentric width of the

self-aligning ball bearings inside the housings 11 connected to the crank shaft 13, and the arms 7 connected to the inner frame 4 makes upward and downward movement, thereby arranging the massaging balls 6 on the tips of the arms for the repetition of the continued vertical tapping movement.

As is apparent from the foregoing, the present invention provides an electromassager wherein the massaging balls connected to the crank shaft are adapted to make both the massaging movement and the continued vertical tapping movement in the same structure, said massaging movement being obtained by rotating one of the two motors to turn the crank shaft connected thereto, said tapping movement being feasible as a result of the other motor rotating the crank shaft to vibrate the inner frame into an oblique relation to the outer frame at the fixed angle by the use of the abovementioned linking means, said inner frame being related to said linking means. In this case, the two motors can be alternatively turned on and off by means of a switch mounted on the arm of the chair so that a patient who uses this massager can choose, by himself, the massaging movement or the vertical tapping movement.

The operation of the massager of the present invention will now be described.

In the first place, when the massaging movement is desired for the therapy, the rotation of the motor 17 is transmitted to the crank shaft 13 through the rotational transmitting means 16 if a patient switches on said motor 17 while sitting in the chair, and the vibrating movement of the housings 11 which is caused by the eccentric rotation of said crank shaft is transmitted to the bases 8 of the arms connected to said housings 11, thereby allowing the massaging balls fitted to the tips of said arm to repeat the massaging action in the horizontal direction as illustrated in FIG. 4 for the cure of the affected part of the body. On this occasion, the massaging balls can be adjusted in their height to the position of the massaged part of the body by driving the third motor 24 mounted at the bottom of the massager so that the rotation of the threaded shaft 1 moves freely the outer frame 3 upwards and downwards along the slide braces 2.

In the second place, when the continued tapping movement is requested, the second motor 23 is driven by switching thereon to eccentrically rotate the cam shaft 18. The eccentric rotation of said cam shaft vibrates upwards and downwards the link 21 connecting the self-aligning bearing 19 and the bearing 20 which are kept in connection with said cam shaft, and the inner frame related to the link 21 is vibrated obliquely to the outer frame 3, with the pins 5 acting as a fulcrum, thereby causing the arms connected with the inner frame to vibrate upwards and downwards for the continued vertical tapping movement, that is, repetitious movement in B direction shown in FIG. 4 of the massaging balls 6 on the tips of the arms.

In this addition, even a single motor can achieve both of the abovementioned massaging movement and tapping movement of the arms by bringing a lever 27 upwards and downwards by means of a wire rope 28 so that two clutches 26 connected to said lever are alternatively engaged with separate pulleys 29 and 30 respectively, said pulleys 29 and 30 being pressed by the use of plate springs 25.

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As described above, the electro-massager of the present invention is characterized by the capability of continuing either the massaging movement or the tapping movement at a user's option by means of the same massaging balls. In order to relieve away the stiffness of the body, the massaging therapy alone or the tapping stimulation alone can not be sufficient according to the degree of the stiffness, and both of them need to be repeated in turn for the purpose of having a speedy therapeutical value upon the stiffness of the respective parts of the body. In the electromassager of the present invention, the abovementioned two kinds of therapy can be easily accomplished in a single unit thereof at a user's option and by a user himself without using another machine or replacing the arms as in conventional machines of this kind.

What is claimed is:

1. An electromassager characterized by that an inner frame is supported at the right and left hands sides of an outer frame by means of pins so that said inner frame can be displaced to said outer frame, said outer frame being held so as to move upwards and downwards along a threaded shaft and two slide braces, wherein the inner frame supports the bases of two arms having two or a plural pair of massaging balls on their tips, with a crank shaft connected to said bases by means of housings containing self-aligning ball bearings, said crank shaft being fitted with eccentric cams therein and held upon front and back plates of the outer frames and related to a motor in the backside thereof through a transmitting means and rotated eccentrically as a result of the motor being driven, said two arms being vibrated, thereby causing the massaging balls on the tips of the two arms to repeat horizontal movement in the alternate directions.

2. An electromassager as set forth in claim 1, wherein a cam shaft is connected to one end of the inner frame in the front end thereof through a link and to the sec-

ond motor in the back end thereof through a rotational transmitting means, said cam shaft being rotated as a result of the motor being driven to vibrate said link upwards and downwards, the inner frame connected to the link is vibrated into an oblique relation to the outer frame at a fixed angle, with the pins serving as a fulcrum at the right and left hands sides of the frame, and the two arms connected to said inner frame are vertically vibrated, thereby allowing the massaging balls on the tips of the arms to obtain a vertical tapping movement.

3. An electromassager as set forth in claim 1, wherein either the crank shaft or the cam shaft can be alternatively driven by switching according to desired therapy.

4. An electromassager as set forth in claim 1, wherein in order to adjust the height of the massaging balls protruding at the back of the chair so that said balls may just fit the affected part of the body, the third motor mounted at the bottom of the chair is driven to move the balls along the two braces together with the inner and outer frames which support and connect said balls.

5. An electromassager as set forth in claims 1 to 4, wherein the massaging balls attached to the tips of the two at the back of the chair are adapted to continue either the horizontal movement or the vertical tapping movement alternatively as desired.

6. An electromassager as set forth in claim 1, wherein even a single motor is used to obtain both can also achieve both of the massaging movement and the tapping movement of the arms by directing a lever upwards and downwards by use of a wirerope so that two clutches connected to said lever are alternatively engaged with separate pulleys respectively, said pulleys being pressed by the use of plate springs.

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