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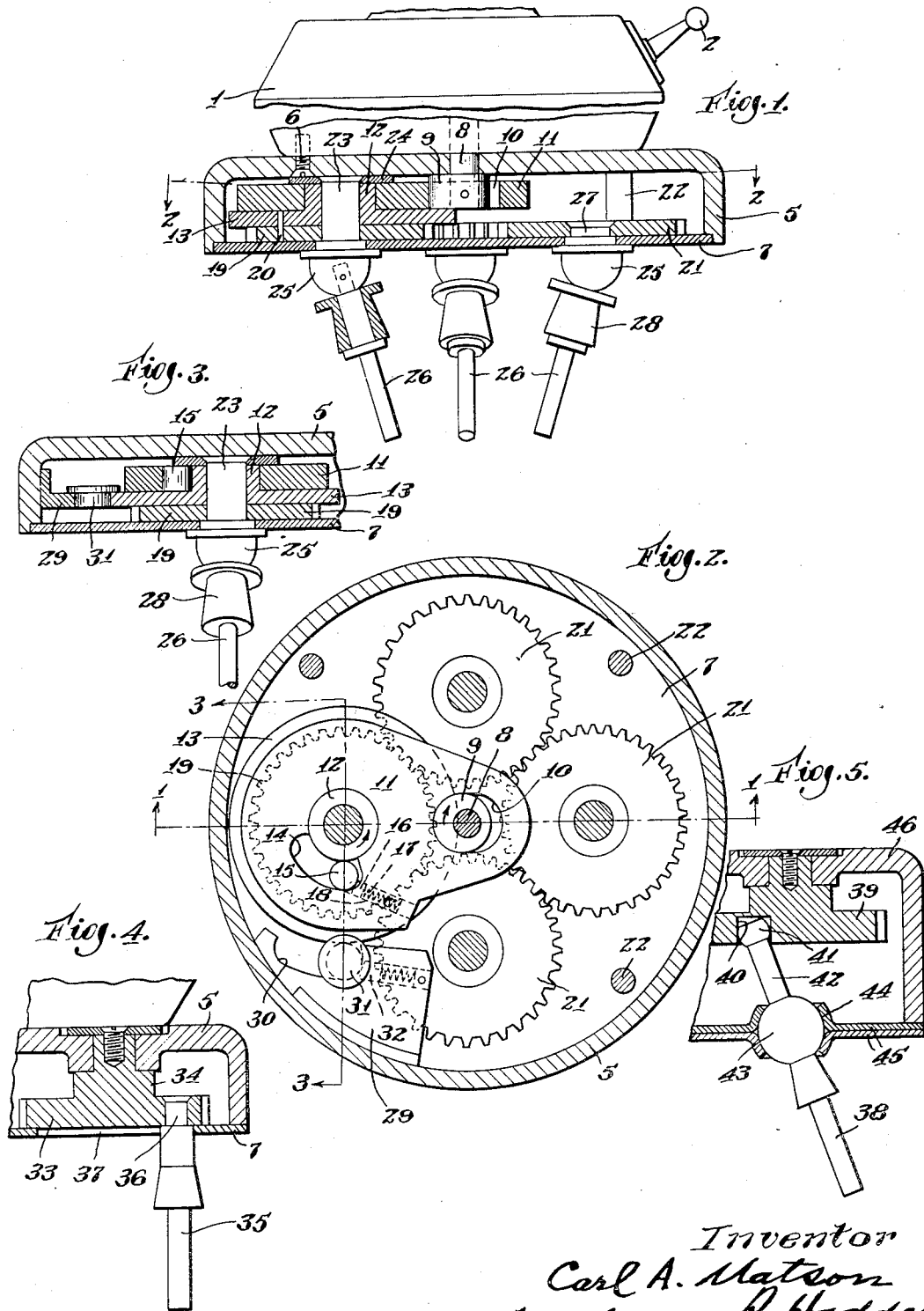
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MASSAGING MACHINE

Filed May 31, 1930

2 Sheets-Sheet 1



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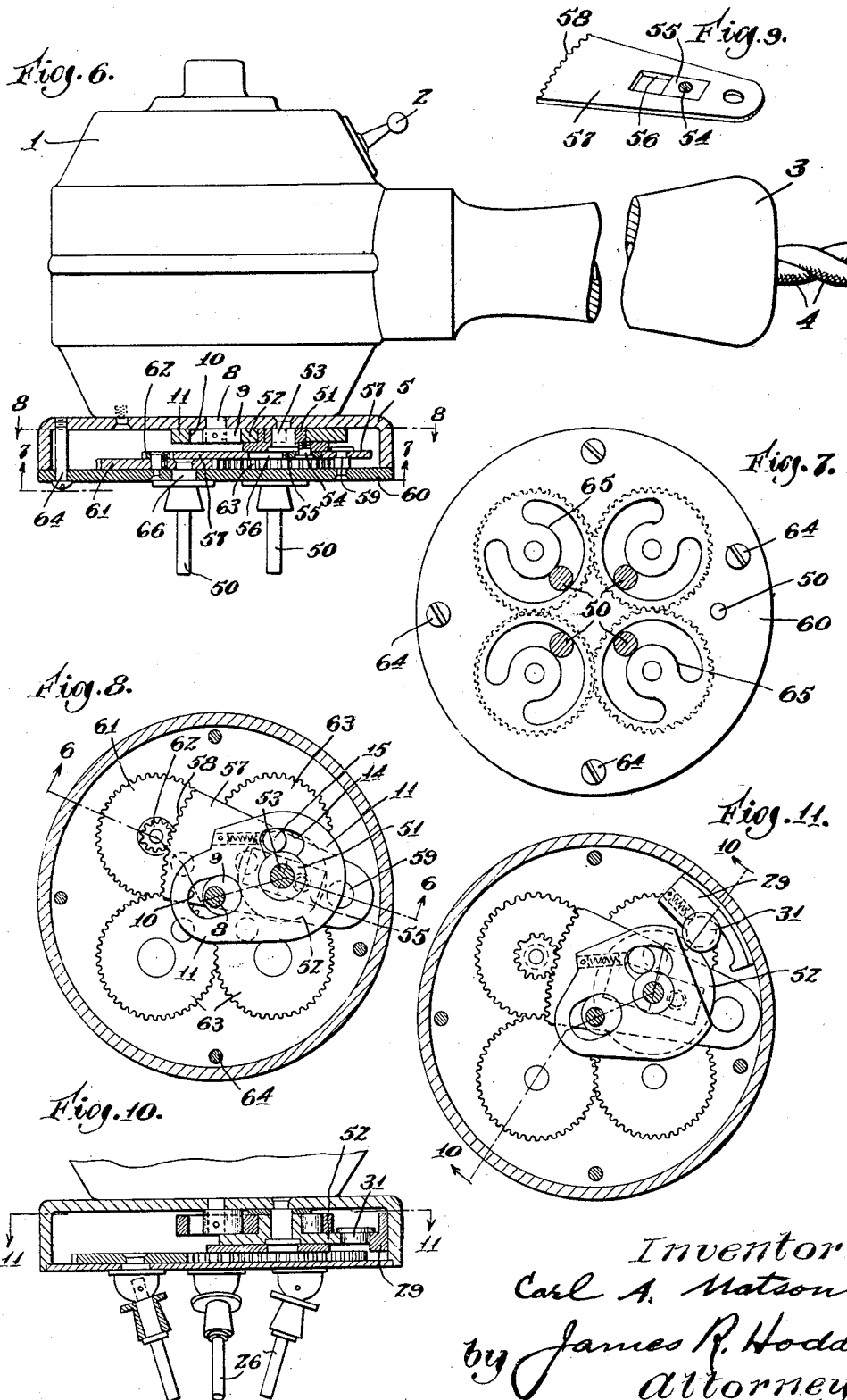
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UNITED STATES PATENT OFFICE

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MASSAGING MACHINE

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11 Claims. (Cl. 128—45)

My present invention relates to massaging machines.

An important object of the present invention resides in the provision of a massaging machine having a plurality of massaging fingers, with means to impart a step-by-step movement to each of said fingers during their travel in a predetermined path.

The step-by-step movement above referred to will be accomplished at relatively high speed, so that a vibratory effect on the portion of the body being massaged will be obtained simultaneously with the massaging or kneading effect.

The combined vibratory and kneading movements of the massaging fingers will produce a stimulating effect not heretofore attained by any prior device of which I am aware.

Another object of my invention resides in mounting the motor directly upon the housing for the finger operating mechanism, thus eliminating the necessity of flexible driving shafts or other torque transmitting means.

A still further feature of the present invention resides in the compactness of structure resulting from the novel driving mechanism utilized.

A further object of the invention is the provision of a novel clutch drive, which eliminates all worms and worm gearing in the machine. This results in considerably less friction, and enables me to utilize a considerably smaller and less powerful motor than would be required with worm gear driving mechanisms. My device is also considerably quieter because of my novel driving mechanism, a feature which will be instantly appreciated.

Another object of the invention resides in the provision of means to prevent reverse movement of the clutch driving devices during operation.

Other features and objects of the invention reside in the particular construction and arrangement of the various parts of my novel device.

The above and other features and objects of the invention, details of construction, combinations of parts, and advantages, will be hereinafter more fully pointed out, described and claimed.

Referring to the drawings illustrating preferred embodiments of the present invention,

Fig. 1 is a vertical sectional view on the line 1—1 of Fig. 2;

Fig. 2 is a plan sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary cross sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary sectional view illustrating a modified type of massaging finger;

Fig. 5 is a fragmentary sectional view illustrating a still further modified form of massaging finger;

Fig. 6 is a side elevation of a modified form of machine with the finger operating mechanism illustrated in cross section, on the lines 6—6 of Fig. 8;

Fig. 7 is a cross sectional view on the line 7—7 of Fig. 6;

Fig. 8 is a plan sectional view on the line 8—8 of Fig. 6;

Fig. 9 is a perspective view of the gear segment and sliding block;

Fig. 10 is a cross sectional view on the line 10—10 of Fig. 11, illustrating a modification of the device; and

Fig. 11 is a plan sectional view on the line 11—11 of Fig. 10.

Referring now to the drawings, for a particular description of the invention, its construction, assembly and operation, 1 designates a motor having an operating switch 2 therefor, a handle 3 being fixed to the motor housing, and current conducting wires 4 leading to said motor from any suitable source of electric energy, the same as illustrated in Fig. 6.

Fixed to the motor housing 1 by screws 6 is a casing 5 having a bottom plate 7 held thereto in any desired manner, by screws 22.

The motor shaft 8 depends through the top of the casing 5 and has pinned thereto at its lower end an eccentric 9. This eccentric 9 is located in an elongated slot 10 in a plate 11, said plate being seated over the journal 12 of a disc 13. Positioned in the recess 14 in the plate 11 is a roller 15, a plunger 16 being forced against said roller by a coiled spring 17 seated in a tubular chamber 18 in the plate 11. The recess 14 is of greatest width at the end adjacent to the plunger 16, the roller 15 being greater in diameter than the width of said recess 14 throughout the major portion of the length of said recess. A gear 19 is secured to the disc 13 by pins 20 or in any other desired manner. Three other gears 21 are symmetrically arranged within the casing 5 on the bottom plate 7, the four gears 19 and 21 being constantly in mesh.

Projecting through the disc 13, gear 19, and bottom plate 7, is a stem 23, said stem being headed over at its upper end in a washer 24 mounted on top of the plate 11. At the lower end of the stem 23 is a hemispherical member 25, a finger 26 being fixed to said member 25 in

an angular position. Fixed to each of the gears 21 is a stem 27, each having a hemispherical member 25 and fingers 26 fixed thereto at an angle. A conical member 28 is held on each finger 26 for the purpose of receiving suitable massaging nipples or devices.

The operation of my present machine is simple and will be readily understood, being briefly described as follows:

Rotation being imparted to the motor shaft 8 and hence to the eccentric 9, said eccentric 9 will revolve within the slot 10 in the plate 11, for example, as indicated in the direction of the arrow in Fig. 2.

The rotation of the eccentric 9 will tend to effect a rotative movement of the plate 11 about the journal 12, but when such rotative movement of the plate 11 is initiated, the roller 15 will be gripped between the wall of the recess 14 and the periphery of the journal 12. This will, in effect, clamp the journal 12 to the plate 11, and cause a slight rotative movement of said journal 12 and hence of the disc 13 and gear 19. The gears 21 intermeshing with the gear 19 will likewise receive this slight rotative movement. After the eccentric 9 passes top center and starts downwardly on the opposite side of the shaft 8, as illustrated in Fig. 2, a rotative movement of the plate 11 in the opposite direction about the journal 12 will be effected.

This movement will cause the roller 15 to enter the larger end of the recess 14, and thus will not effect a rotative movement of the journal 12 in a reverse direction. However, in order to obviate any possibility, due to friction or otherwise, of a reverse movement of the journal 12, I provide a bracket 29 fixed to the inner wall of the casing 5, and in this bracket 29 is a recess 30, a flanged roller 31 being seated in said recess and engaging the periphery of the disc 13. This roller 31 has a spring pressed plunger 32 bearing thereagainst, and should any reverse movement of the disc 13 be initiated, the roller 31 will bind between the wall of the recess 30 and the periphery of the disc 13, effectually discouraging any attempt on the part of the disc 13 to reverse itself. Continued rotation of the eccentric 9 will, of course, rotate the journal 12 and hence the gears 19 and 21 in a rotational direction in a step-by-step movement. This step-by-step rotational movement will also be imparted to the fingers 26, resulting in a vibratory massaging action on that portion of the body which is being operated upon. The fingers 26 are so arranged that they will approach and recede from a common center, reaching said common center simultaneously, and thus effecting a desired kneading action upon the skin and surface flesh or muscles of the portion of the body under treatment.

The advantages, benefits, simplicity, and efficiency of my novel device will be instantly apparent to those skilled in this art.

In Fig. 4 I have illustrated a modified type of driving gear 33, having a journal portion 34 adapted to be engaged by the roller 15. A modified type of finger 35 is also illustrated, said finger having a stem 36 fixed to the gear 33, and said finger 35 being perpendicular to said gear. A circular aperture 37 is provided in the bottom plate 7, permitting the finger 35 to travel in a true circular direction. The structure of the device would otherwise be similar to that above described, the effect of this modified finger structure producing a slightly different action on the portion of the body being treated.

In Fig. 5 is illustrated a still further modified form of finger 38, the gear 39 being similar to the gear 33, but having a recess 40 formed therein. The rounded end 41 of the stem 42 is seated in said recess 40, and a spherical bearing portion 43 is provided between the finger 38 and stem 42, a suitable bearing 44 being provided in the bottom plates 45 to accommodate the spherical bearing portion 43. The rounded end 41 of the finger will thus be moved in a circular path. The finger 38 being longer than the stem 42, however, the outer end of the finger 38 will be moved in a circular path of greater diameter than the path of movement of the rounded end 41.

Each of the types of fingers 35 and 38 is applicable to my present device, the fingers 38, however, requiring a deeper casing 46 than is required in the other types of fingers.

In Figs. 6 to 9 inclusive I have illustrated a modified device wherein the movement of the fingers 50 is an oscillation instead of a rotation, or in other words, the back and forth movement as distinguished from a purely rotative action.

In this form of the invention the motor shaft 8 also has the eccentric 9 rotating in the elongated slot 10 in the plate 11. The plate 11 is seated over the journal 51 of a disc 52, said disc being held to the casing 5 by a supporting rivet 53, or the like. A screw 54 is threaded into the disc 52, and mounted on said screw is a block 55, said block being slidable in a rectangular recess 56 in a plate 57, said plate having one end thereof formed as a gear segment 58, said plate being pivotally mounted on a post 59 secured to the bottom plate 60. The disc 52 is rotatable about its support 53. Mounted on the gear 61 is a pinion 62 in mesh with the gear segment 58, and gears 63 are also in mesh with and actuated by the gear 61. The plate 11 is provided with the roller 15 in the recess 14, said roller engaging the journal 51 of the disc 52 and rotating said journal in the same manner as the journal 12 is rotated. As rotation is imparted to the journal 51 and disc 52, the screw 54 will be carried by said disc about the support 53, tending also to carry the block 55 therewith. Because of the fixed pivot point of the segment plate 57, however, the block 55 will be forced to ride in the recess 56, thus oscillating the plate 57 about its pivot 59. As the plate 57 oscillates, the pinion 62 will be actuated first in one direction and then in a reverse direction. This oscillating movement of the pinion 62 will in turn be transmitted to the gears 61 and 63. The bottom plate 60 is fixed to the casing 5 by screws 64, and is provided with a plurality of arcuate or horse shoe shaped slots 65 within which the stems 66 of the fingers 50 will travel. By the time that the fingers 50 have traversed the slots 65 to one end thereof, the gear segment 58 will have completed its travel in one direction, and will be ready to return, rotating the pinion 62 in a reverse direction, and thus actuating the gears 61 and 63 to carry the fingers 50 backwards along the slots 65.

The movement of the fingers 50, in their predetermined arcuate paths will, of course, be in a step-by-step motion, similar to the step-by-step movement imparted to the fingers 26.

In each of the devices illustrated in the present application, due to the double action, viz., the step-by-step movement coupled with the rotating or oscillating movement, there will be no slippage of the massaging fingers on the portion of the body being operated upon, but instead there will be a firm gripping of the fingers to

produce the desired massaging and kneading effect.

If desired, the bracket 29 and roller 31 may be utilized in this form of the device, the roller 31 hearing against the periphery of the disc 52 and effectually preventing its movement in a reverse direction to that intended.

Also, if desired, and as illustrated in Fig. 10, the fingers 26 illustrated in Fig. 1 may be utilized instead of the fingers 50. The movement of the fingers 26, however, instead of being in a closed path rotation, will be in an arcuate path similar to the fingers 50, because of the particular drive utilized in this form of the device.

The various forms and movements illustrated and described herein are all well within the range and scope of my present invention, and I have, therefore, incorporated same in the claims of this application.

While I have necessarily described my present invention somewhat in detail, it will be appreciated that I may vary the size, shape, and arrangement of parts, within reasonably wide limits without departing from the spirit of the invention.

My invention is further described and defined in the form of claims as follows:

1. In a machine of the kind described, a plurality of massaging fingers adapted to simultaneously engage a surface to be massaged, and cam operated means to impart a step-by-step rotative movement to said fingers.

2. In a machine of the kind described, a plurality of massaging fingers adapted to simultaneously engage a surface to be massaged, and cam operated friction means to impart a step-by-step rotative movement to said fingers.

3. In a machine of the kind described, a plurality of massaging fingers, and means to move said fingers toward a common center while imparting a step-by-step rotative movement to each of said fingers.

4. In a machine of the kind described, a casing, a plurality of intermeshing gears mounted in said casing, a massaging finger operated by each gear, an actuating member fixed to one of said gears, and means to rotate said member in a step-by-step movement.

5. In a machine of the kind described, a casing, a plurality of intermeshing gears mounted in said casing, a massaging finger operated by each gear, an actuating member fixed to one of said gears, and friction means to rotate said member in a step-by-step movement.

6. In a machine of the kind described, a casing, a plurality of intermeshing gears mounted in said casing, a massaging finger operated by each gear, an actuating member fixed to one of said gears, and cam operated friction means to rotate said member in a step-by-step movement.

7. A massaging device comprising a motor, a casing fixed to said motor, a motor shaft projecting into said casing, an eccentric on said shaft, a clutch plate having an elongated slot in which said eccentric is seated, a plurality of

gears symmetrically arranged within said casing, a massaging finger associated with each of said gears, a disc fixed to one of said gears, a journal on said disc, and a friction member carried by said plate and adapted to engage said journal and impart a step-by-step movement thereto.

8. A massaging device comprising a motor, a casing fixed to said motor, a motor shaft projecting into said casing, an eccentric on said shaft, a clutch plate having an elongated slot in which said eccentric is seated, a plurality of gears symmetrically arranged within said casing, a massaging finger associated with each of said gears, a disc fixed to one of said gears, a journal on said disc, and a spring pressed friction member carried by said plate and adapted to engage said journal and impart a step-by-step movement thereto.

9. A massaging device comprising a motor, a casing fixed to said motor, a motor shaft projecting into said casing, an eccentric on said shaft, a clutch plate having an elongated slot in which said eccentric is seated, a plurality of gears symmetrically arranged within said casing, a massaging finger associated with each of said gears, a disc fixed to one of said gears, a journal on said disc, a friction member carried by said plate and adapted to engage said journal and impart a step-by-step movement thereto, and friction means engaging said disc to prevent reverse movement thereof.

10. A massaging device comprising a motor, a casing fixed to said motor, a motor shaft projecting into said casing, an eccentric on said shaft, a clutch plate having an elongated slot in which said eccentric is seated, a plurality of gears symmetrically arranged within said casing, a massaging finger associated with each of said gears, a disc fixed to one of said gears, a journal on said disc, and a friction member carried by said plate and adapted to engage said journal and impart a step-by-step movement thereto and to the gear to which said disc is fixed, the other said gears being in turn actuated by said first gear.

11. A massaging device comprising a motor, a casing fixed to said motor, a motor shaft projecting into said casing, an eccentric on said shaft, a clutch plate having an elongated slot in which said eccentric is seated, a plurality of gears symmetrically arranged within said casing, a disc fixed to one of said gears, a journal on said disc, a friction member carried by said plate and adapted to engage said journal and impart a step-by-step movement thereto and to the gear to which said disc is fixed, the other said gears being in turn actuated by said first gear, and a massaging finger associated with each of said gears, whereby the step-by-step movement of said gears will be imparted to said fingers, said fingers being arranged to travel in a predetermined path.

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