

March 6, 1962

F. J. BAUME
ROLLING MASSAGER

3,023,749

Filed March 30, 1960

3 Sheets-Sheet 1

Fig. 1

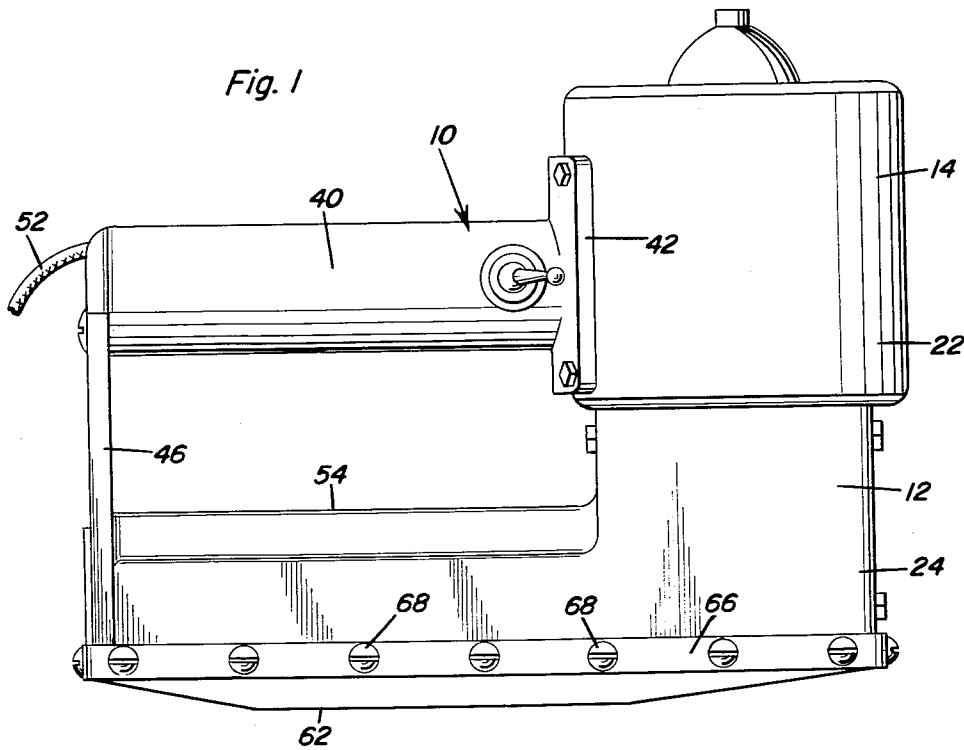
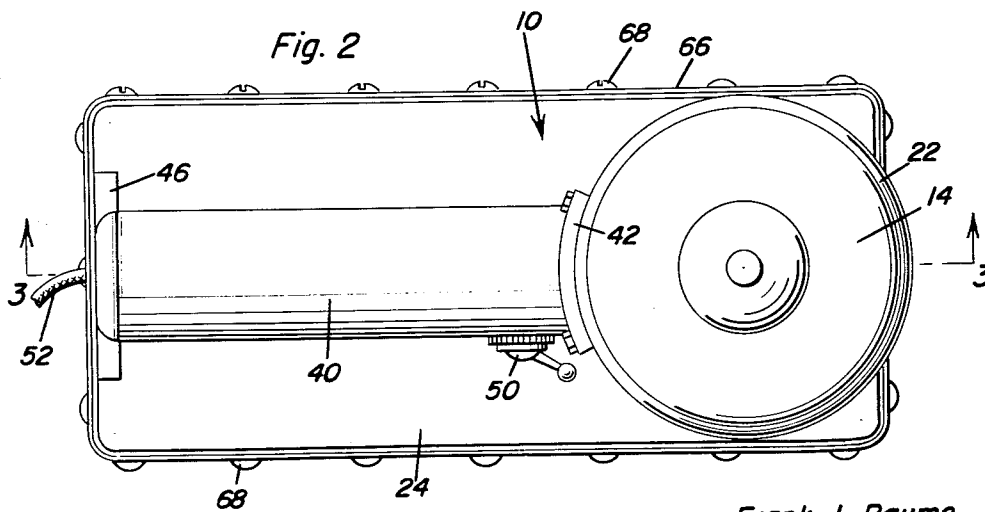


Fig. 2



Frank J. Baume
INVENTOR.

BY *Almonce A. O'Brien*
and *Harvey B. Jacobson*
Attorneys

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Fig. 3

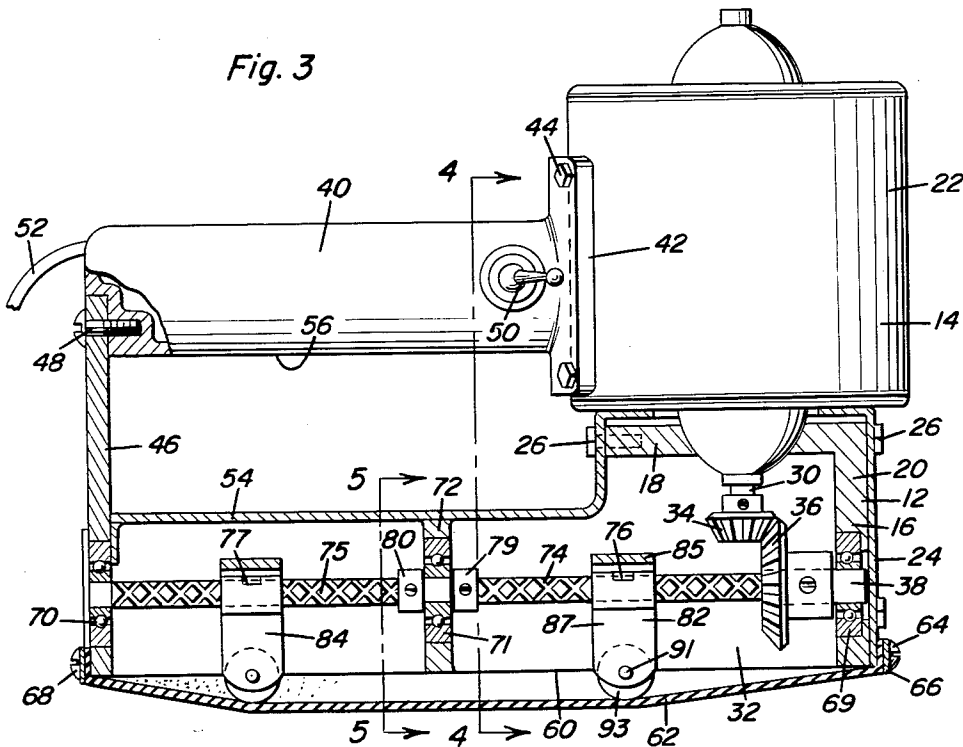


Fig. 4

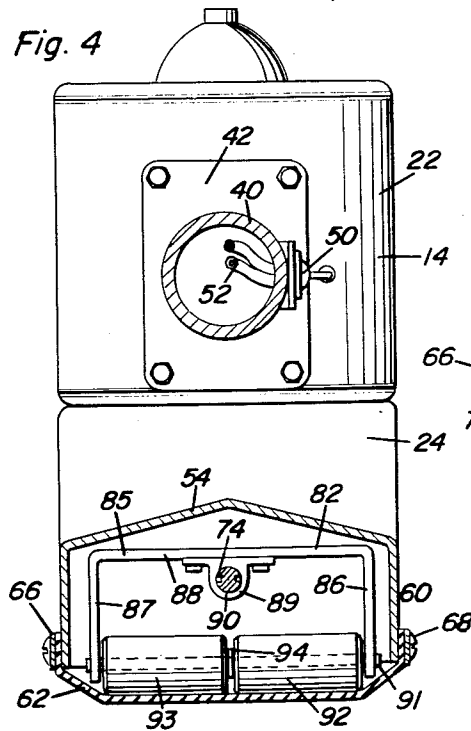
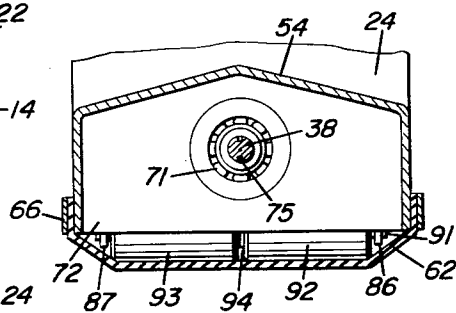


Fig. 5



Frank J. Baume

INVENTOR.

BY *Alvanice A. O'Brien*
and Harvey E. Jacobson
Attorneys

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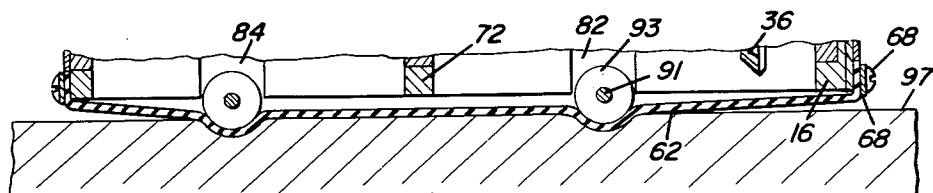


Fig. 6

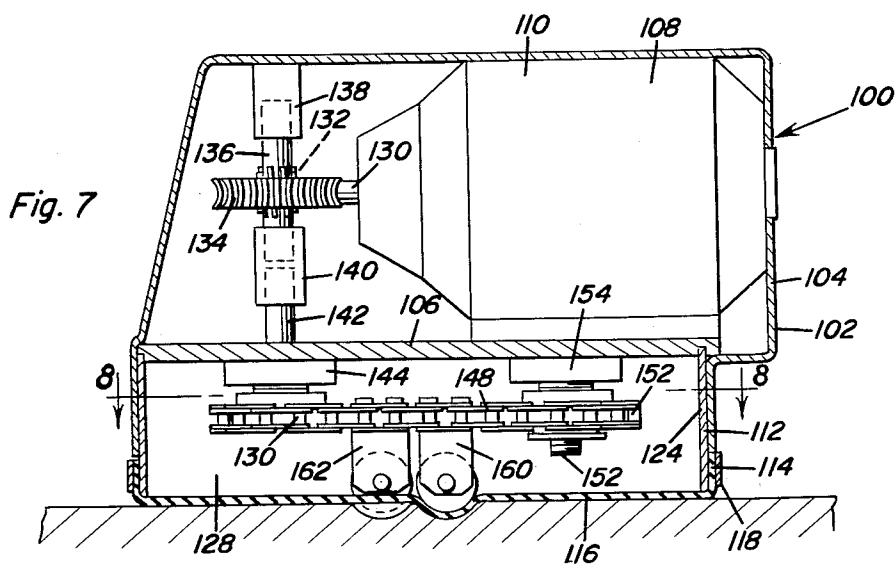


Fig. 7

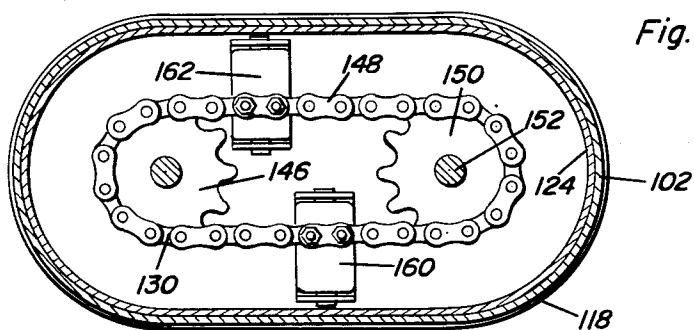


Fig. 8

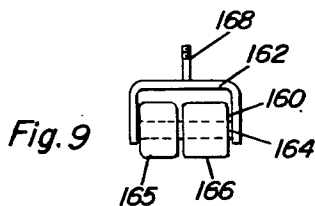


Fig. 9

Frank J. Baume
INVENTOR.

BY *Almonce A. Orin*
and *Harvey B. Jacobson*
Attorneys

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3,023,749

ROLLING MASSAGER

Frank J. Baume, Box 1656, San Francisco, Calif.

Filed Mar. 30, 1960, Ser. No. 18,748

6 Claims. (Cl. 128—57)

This invention relates to massaging devices and more particularly to massagers for local massaging.

An object of the invention is to provide devices for causing a forward and reverse massaging effect on local areas of a person by simply holding one of the devices on the spot to be massaged or gently rub the device over the local area. This is in distinction to the vibrating effect of the commercially available vibrating massage devices which must be pushed forward and backward in order to obtain the true massage or migrating effect.

Although massagers in accordance with the invention have a principal application in connection with massaging local areas of a human being, it is to be understood that the principles of the invention are applicable in other environments, for instance there are many industrial uses where soft pressure of one material to the other is required, and for that pressure to be circulated or otherwise moved.

Another object of the invention is to provide portable, easily used and practical local massage devices which have a movable member caused to travel in a constrained path of movement. The path of movement has substantial length and is rectilinear as opposed to vibratory.

Briefly, massagers or massage devices in accordance with the invention have a portable motor supported on or forming a part of the frame of each device, and the motor supplies torque which is transferred to a force for propulsion of a small carriage through a prescribed path of travel. The means for utilizing the torque may be varied, for instance they may include a reversing screw i.e. a screw with a double, reverse thread or a chain and sprocket arrangement. In either of these specific examples and others, the carriages support rollers which travel over the inner surface of a resilient member or panel causing it to deflect. This panel is applied to the local region where the massage is desired so that the rollers of the carriage do not make direct contact with this region, usually a part of the body of a human being.

Accordingly, it is a further object of the invention to provide a mechanically simple and practical device for applying local massage to selected areas with the massage device or devices being portable and easily handled and used.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a side elevational view of a massage device in accordance with the invention.

FIGURE 2 is a top view of the massage device of FIGURE 1.

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 2.

FIGURE 4 is a sectional view taken on the line 4—4 of FIGURE 3.

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 3.

FIGURE 6 is a fragmentary longitudinal sectional view showing the lower part of the device in FIGURE 1 in use.

FIGURE 7 is a vertical sectional view showing a modification of importance precisely equal to the importance of the modification in FIGURE 1.

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FIGURE 8 is a sectional view taken on the line 8—8 of FIGURE 7.

FIGURE 9 is a fragmentary elevational view showing one of the carriages in the massage device of FIGURE 7.

In the accompanying drawings reference is first made to FIGURES 1—6 showing massage device 10. The massage device is made of a main frame 12 having a motor 14 secured thereto. The main frame is built up of several parts, although it is evident that various manufacturing techniques may be resorted to in alteration of the frame. For the purpose of illustration frame 12 (FIGURE 3) is shown as having an essentially L-shaped member 16 with side 18 and side 20 joined together at right angles to each other. The motor 14 is in a motor housing 22, and the housing is attached to a formed cover panel 24 surrounding frame member 16 at one end and fastened in place by means of bolts 26. The power output shaft 30 of motor 14 extends into the cavity 32 defined by the frame, and it has a pinion 34 attached thereto. The pinion is then meshed with a gear 36 driven by the pinion, and the gear 36 is secured to the shaft 38 which will be described in detail subsequently. Handle 40 has a flange 42 at one end fitting flush against the surface of a motor housing 22 and held firmly in place, for instance by screws or bolts 44. The handle is preferably tubular and of hollow construction, and it is secured to a post 46 at one end by means of screws 48 or the like. The switch 50 is wired conventionally with the motor to control the energization and operation of the motor, and a line cord 52 extends into the hollow handle and is operatively connected with a switch 50.

Formed panel 24 has a portion 54 attached to post 46 and spaced from handle 50 to provide a hand opening 56 therebetween. This enables the device 10 to be manipulated and held very conveniently and easily. The lower end of the formed panel 24 is open as at 60, however, there is a resilient membrane or panel 62 extending over the opening. The resilient panel 62 may be also considered as a diagram, and it is preferably made of rubber with the edge 64 turned up and fitted behind binding strip 66 that is attached by screws 68 to the edges of formed panel 24 surrounding the lower open end 60 thereof. It is to be further noted from inspection of FIGURES 3 and 4 that the resilient panel 62 forms a closure for the cavity 32.

Shaft 38 has its ends mounted for rotation in anti-friction bearings 69 and 70, and there is an intermediate bearing 71 supported by a bearing web 72 which is secured to the top and sides of the formed panel 24 between the ends thereof. Bearings 69 and 70 may be set in openings provided in the frame member 16 and flat post 46 respectively, in order to have a substantial construction. The shaft 38 has two sections 74 and 75 with reverse threads thereon. The threads themselves are conventional and by having pins 76 and 77 engaged therewith, the screwthreads on shaft 38 form two "Yankee screws" which function to cause the pins 77 and 76 to travel back and forth along the length of the screws defined by the screwthread sections of the shaft 38 in response to rotation of shaft 38 in only one direction. Spoken otherwise, shaft 38 rotates in one direction i.e. clockwise or counterclockwise, but the pins 76 and 77 travel back and forth along the length of the sections of the shaft. Thrust bearings 79 and 80 are attached to the shaft 38 on opposite faces of bearing 71 to prevent end play of shaft 38.

Pins 76 and 77 constitute integral parts of two identical carriages 82 and 84 which are mounted on the two threaded sections of shaft 38. Since both carriages are identical only one carriage 82 is shown in detail (FIGURE 4) and consists of a U-shaped frame or yoke 85

with sides 86 and 87 connected to a transverse member 88 at one pair of ends thereof. Bracket 89 is fixed to the bottom surface of member 88 and has an opening 90 therein into which pin 76 projects for engagement with the screwthread 74. An axle 91 extends transversely across the lower ends of sides 86 and 87 and is mounted for rotation in openings thereof. Two rollers 92 and 93 with a spacer 94 therebetween, are mounted for rotation on axle 91, and parts of the rollers project beneath the lower edge of opening 60. Consequently, they bear against the diaphragm 62 and cause it to deflect outwardly of opening 60.

In use, energization of motor 14 will cause the shaft 38 to rotate and the carriages 82 and 84 to move back and forth on the threaded sections of the shaft. The result is that the rollers 92 and 93 of each carriage will traverse the inner surface of the diaphragm 62 causing it to deflect outwardly.

If the diaphragm is placed on a local area to be massaged, there will be a rolling action on one surface of the diaphragm, but this rolling action will be felt as a travelling pressure on the surface, noting that the rollers 92 and 93 roll on the inner surface of the diaphragm 62 while the outer surface of the diaphragm is subjected only to deflections and not to rotation of the rollers. Typical use is shown on surface 97 (FIGURES 6 and 7).

Reference is now made to FIGURES 7-9 showing device 100. This massaging device has a frame 102 made of a formed panel 104 attached to a frame member 106. However, the frame member 106 distinguishes from frame member 16 in that it is a flat metal plate to which the housing 108 of motor 110 is secured. The formed panel 104 has a lower open end or opening 112 which is where the edge portion 114 of the diaphragm 116 is secured. Fastening strip 118 overlies edge 114 and may be held in place by screws the same as the edge of the diaphragm 62. An inner frame member 124, preferably oval in shape (FIGURE 8) fits flush against the inside surface of the lower portion of the formed frame member for additional support and rigidity. The upper edges of frame member 124 are secured to the frame member 106, and cooperating with the frame member 106, frame member 124 defines a cavity 128 within which operating mechanism 130 is disposed.

Shaft 130 of the motor 110 is the power output shaft, and there is a worm gear 132 fixed thereto. The worm gear is enmeshed with a gear wheel 134, and the gear wheel 134 is secured to a shaft 136. The shaft 136 is supported in an upper bearing 138, the latter being secured to the top part of formed panel 102. Coupling 140 is attached to the lower end of shaft 136, and it engages the rotary shaft 142 that passes through an opening in frame member 106. Bearing 144 is secured to frame member 106 and is located in cavity 108. The shaft 142 is passed through this bearing and has a sprocket 146 (FIGURE 8) fixed thereto. Endless chain 148 constitutes a part of mechanism 130 and is engaged with sprocket 126. The idler sprocket 150 for the endless chain is mounted for rotation on a free turning spindle 152 which is supported by bearing 154 attached to frame member 106.

Two identical carriages 160 and 162 are secured to the endless chain 148, and these carriages respond in function to the two carriages 82 and 84.

Typical carriage 160 is shown in detail in FIGURE 6 and includes an essentially U-shaped frame or yoke 162 which is approximately the same as a frame or yoke 82. The axle 164 of carriage 160 supports a pair of rollers 165 and 166, and these sweep and roll across the inner surface of membrane 62, noting (FIGURE 7) that portions of the rollers project below the lower edge of the opening of the main frame of the massage device. Spindle 168 attached to the center of the connecting member of carriage 160 is used to secure the carriage 160 to one link of the endless chain 148.

In the use of this form of the massager or massage device, the carriages travel in a circular path of movement, but the side runs of each carriage are rectilinear in their motion just the same as the entire movement of carriages 82 and 84 are rectilinear in movement.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A massage device comprising a frame, a motor carried by said frame, at least one carriage, means including a shaft drivingly connected with and rotated by said motor so as to move said carriage in a path of movement, at least part of the path of movement being rectilinear, a flexible diaphragm attached to said frame, said carriage including at least one roller, and the roller of said carriage continuously bearing against said diaphragm and deflecting said diaphragm during said movement of said carriage, said means including said shaft further including an endless hollow flexible member lying in a plane substantially parallel to the plane of said diaphragm, a pair of spaced rotatable drive members, said endless flexible member surrounding said drive members and in driving engagement therewith, said shaft attached to one of said drive members, means mounting the other drive member for rotation with respect to said frame.

2. The subject matter of claim 1 wherein said frame has a formed panel defining a cavity in which said carriage is disposed, the lower edge of said cavity being open, and a portion of said carriage projecting outwardly of the open lower edge of said cavity.

3. The subject matter of claim 1 wherein said frame has a formed panel defining a cavity in which said carriage is disposed, the lower edge of said cavity being open, and a portion of said carriage projecting outwardly of the open lower edge of said cavity, said flexible member and drive members comprising a chain and sprockets respectively, said diaphragm extending over the open end of said cavity, said carriage having at least one roller thereon engaging the inside surface of said diaphragm, and said diaphragm being deflected in response to movement of said roller on the inside surface thereof.

4. A portable massage device comprising a frame, a motor carried by said frame, means including a panel forming a cavity and constituting a part of said frame, a pair of carriages in said cavity, means drivingly connecting said carriages with said motor to propel said carriages in response to operation of said motor, said cavity having an open end, said open end having an edge defining said open end, each of said carriages further including a plurality of rollers, portions of said rollers projecting beyond said edge, and a flexible diaphragm connected with said frame and overlying said opening and deflected by engagement of said portions of said rollers therewith, each of said carriages comprising a U-shaped member having a roller support shaft extending across its open end and said plurality of rollers mounted in said U-shaped member on said support shaft.

5. The combination of claim 4 wherein said means drivingly connecting the carriages with the motor include reversed screwthreads on said shaft, bearing means connected with said frame and mounting said shaft for rotation, means on said carriage engaging said screwthreads for the propulsion of said carriage back and forth along the longitudinal axis of said shaft in response to rotation of said shaft, and means drivingly connecting said shaft with said motor to rotate said shaft in response to energization of said motor.

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6. A device as defined in claim 4 wherein the frame is substantially L-shaped in elevation, said motor supported at one end of said L-shaped frame and on top of the vertical leg thereof and comprising a continuation thereof, a manual gripping handle connected at one end to said motor and extending parallel to the lower leg of said L-shaped frame, and a vertical post connected between the other end of said handle and the other end of said L-shaped frame.

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