Sept. 1, 1936. O. C. PRIEN 2,052,656

MASSAGE MACHINE

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Fig. 1.

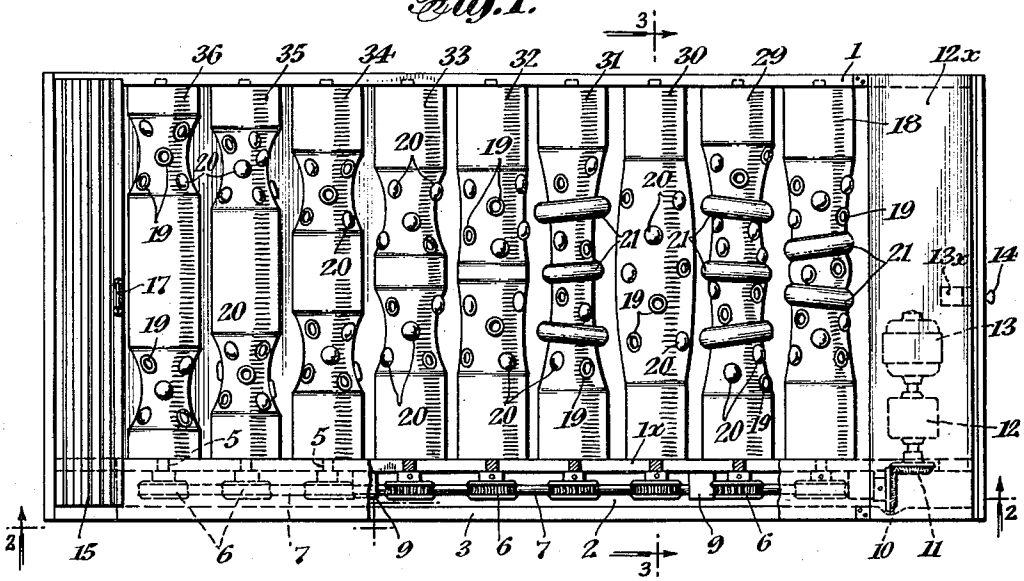


Fig. 2.

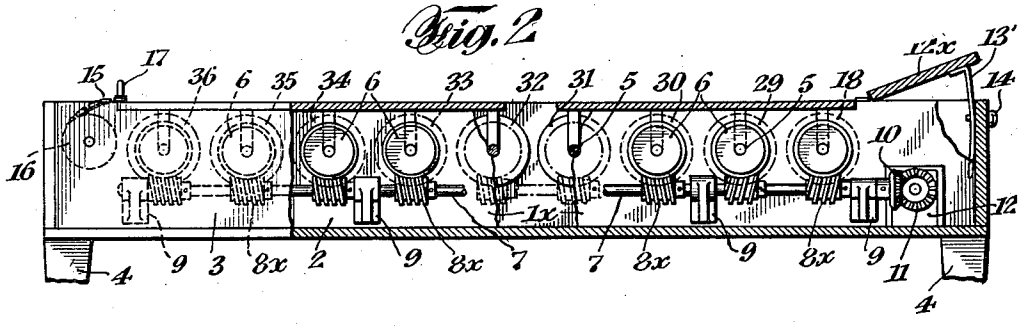
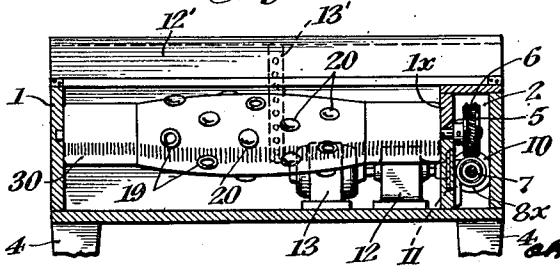


Fig. 3.



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Fig. 4.

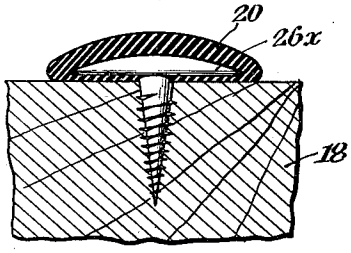
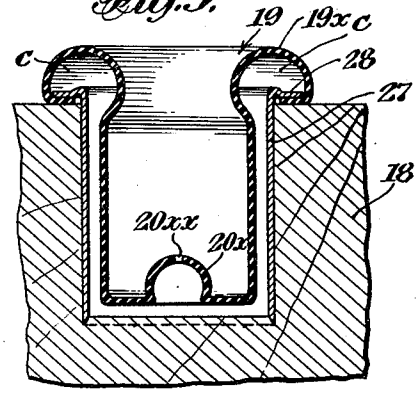


Fig. 5.



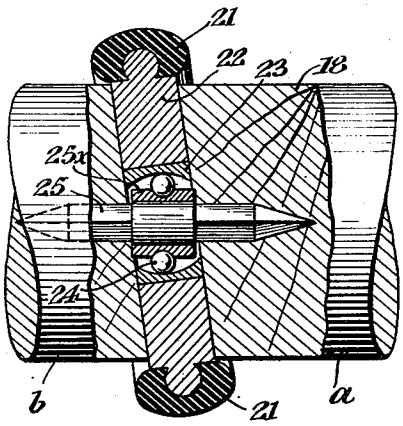


Fig. 6.

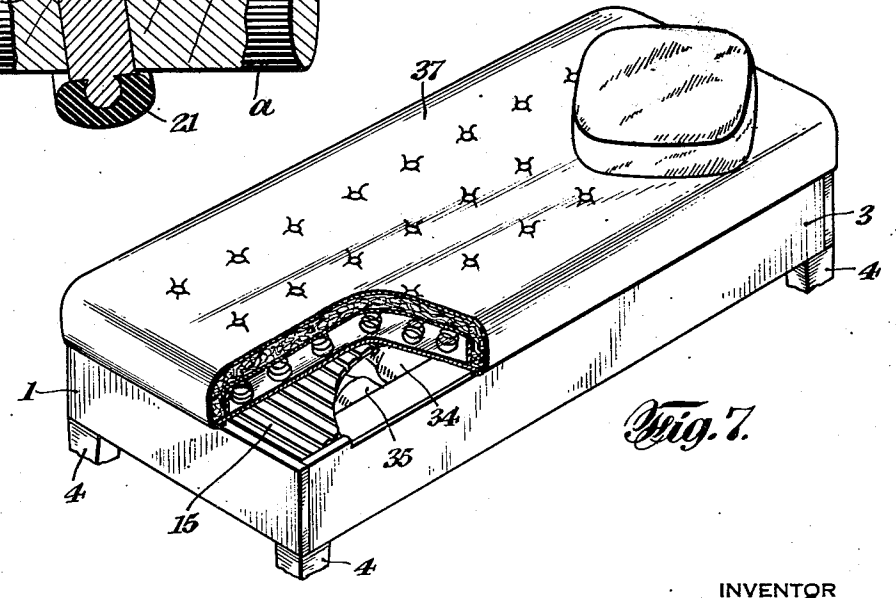


Fig. 7.

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MASSAGE MACHINE

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Application September 14, 1933, Serial No. 689,372

3 Claims. (Cl. 128—57)

The object of the present invention is to provide a machine adapted for massaging the human body and utilizing the weight of the body for coaction with a plurality of rollers for massaging.

A further object of the invention is to provide a machine which will automatically exert action upon the muscles of the body by lateral kneading pressure thereon as well as through the action of pressure and suction cups applied through the weight of the body.

A further object of the invention is to provide a massage device which is adapted to completely massage the front and back muscular areas of the body without action on the part of the patient and when the latter is reclining upon the device.

A still further object is to provide a massage apparatus which may be used as a couch when the massage elements are inactive.

Further objects will hereinafter appear.

The invention will be described with reference to the accompanying drawings, in which

Fig. 1 is a plan view of an apparatus constructed in accordance with the invention.

Fig. 2 is a longitudinal section on the line 2—2, Fig. 1.

Fig. 3 is a transverse section on the line 3—3, Fig. 1.

Fig. 4 is a fragmentary section through one of the pressure disks and the adjacent section of the massage roller.

Fig. 5 is a view similar to Fig. 4, showing a suction cup in position.

Fig. 6 is a fragmentary sectional view longitudinally of a pressure roller showing mounted therein a massage ring for cam operation by the roller.

Fig. 7 is a perspective view, partly in section, showing the device when closed and operative as a couch.

As indicated above, one of the primary objects of the invention is to provide a massage machine which will utilize pressure of the human body when lying reclining upon the device and to provide scientifically designed massage elements which will act upon the muscular areas of various members of the body, including the neck, shoulder area, etc., etc., when the patient lies on his back, and frontal areas of the body when the patient is reclining face downwards upon the apparatus.

The apparatus comprises a box-like frame having opposed longitudinal frame members 1, 1x, gear compartment 2 and an outer longitudinal wall 3 enclosing the gear compartment. The box-like frame may be mounted upon legs 4 if desired.

Within the compartment, bounded by longitudinal frame members 1, 1x, are a plurality of massage rollers each at one end rotatably supported by any suitable means in frame member 1. At the opposite end, each roller is provided with a shaft, fixed to the roller, and projecting through wall 1x, the shafts being indicated at 5. To the shaft is attached a worm wheel 6 engaged by a worm on driving shaft 7. One or more of the worms may be so arranged as to drive their rollers in directions opposite the remaining rollers.

Shaft 7 is journalled in the bearing apertures of supporting brackets, such as the brackets 9 carried by wall 1x or any other suitable supporting member of the frame. The shaft is connected to a bevelled gear 10 in mesh with a gear 11 driven from a gear-reduction box 12 by motor 13.

At its front end, the casing has hinged thereto a transversely extending headrest 12 adapted to be held in several positions by supporting bar 13, the latter being formed with spaced apertures, as shown in Fig. 3, to be engaged by a stud-like end of adjusting handle 14. At the opposite end of the casing is a flexible covering member 15 adapted to be drawn forward over the top of the casing to close the same. In the present instance, covering member 15 is in the form of slats secured to a flexible sheet, the covering member being wound upon a spool 16 which in practice, will be engaged by a spring (not shown) so as to tend to wind the covering member on the spool. The latter may be drawn forward by means of handle 17 and held in closed position by any suitable catch device applied to head support 12.

The rollers supported by shafts 5 are of successively different formation. Immediately adjacent the head support 12 is a roller 18 having a large central concave surface carrying a plurality of suction cups 19 and pressure disks 20 alternately arranged. Near the center of the roller are disposed two massage rings 21 so supported that when the weight of the patient is applied to the rings, the rotation of the rollers will impart a swinging movement to the rings so that at one peripheral point the rings will be moved toward each other and at the opposite peripheral point the rings will be moved away from each other, followed by a reverse action. Any suitable arrangement may be provided for thus swinging the massage rings 21, all that is required being an eccentric or cam action upon the rings.

One suitable form is shown in Fig. 6 wherein the ring 21 is carried by a disk 22 having an inner bearing ring 23 curved in the direction of the swinging movement of the ring and being supported upon a ball bearing 24 carried by the rounded central section 25x of supporting shaft 25, the latter being held against rotation in roller 18 and hence moving therewith. Thus, as the roller rotates with its two sections a, b, moving in unison by reason of their connection through shaft 25, the weight of a body surface placed upon ring 21 will tend to hold the same against rotation and inasmuch as member 22 is angularly supported relatively to the longitudinal axis of roller 18, the roller will act as a cam upon the massage ring 21 to swing the same relatively to bearing 24. Each pressure disk may be made in the manner illustrated in Fig. 4, wherein the disk consists of rubber vulcanized upon the head of a stud 26x, the stud having a pointed, and preferably, threaded, end for penetration of the roller. roller.

A suitable formation of the suction cups is illustrated in Fig. 5, wherein the cup is provided by forming an aperture in the roller and lining the aperture with a sleeve 27 having a flanged head 28 engaging the horizontal flange of cup 20, the latter having a depending tubular extension spaced from the inner wall of lining 27 and also having an upwardly extending portion 20x apertured at 20xx, the depending extension of the cup being normally projected above the base of the aperture in which it lies. When the roller revolves, one edge of the cup will meet a surface of the patient's body and this action will continue until the air chamber c is reduced by partial collapse of its walls and the depending section of the cup will also be moved downwardly, such combined action forcing air out of the chamber c and the area below it, the air escaping until the cup reaches such a point relatively to the body of the patient that it is completely covered, succeeding action of the roller tends to move the cup area away from the body of the patient and hence tends to restore its position to that of Fig. 5. An adequate suctional effect will be produced, as will be understood without further explanation.

I prefer that a plurality of the rollers, and preferably all of them, be provided with alternately arranged suction cups and disks, and the explanation of the action thereof in the preceding paragraph will apply to such rollers.

Roller 18 is so designed as to act through massage rings 21 upon the neck muscles of the patient and to exert a kneading action thereon. The succeeding roller 29 is designed to more particularly act upon the shoulder muscles, and to that end, a central massage ring 21 is bounded by two like massage rings 21, the central member having a swinging movement about the spine when the patient is reclining on his back and the other two rings co-acting with the central ring to knead the shoulder muscles. The pressure disks and suction cups will act in their usual manner as described above.

The roller 30 next adjacent roller 29 is convex and has applied thereto a plurality of suction cups 19 and pressure disks 20. This roller is designed to act upon the waist or kidney area of the body.

Following roller 30 is roller 31 markedly concave and provided with three massage rings 21 and also a series of suction cups 19 and pressure disks 20. This roller is adapted to act upon the buttocks with a kneading action supplemented by the suction and pressure effects of members 19 and 20.

Rollers 32 and 33 are generally alike in that each is formed with two spaced concave areas for the thighs, the degree of concavity in roller 33 being greater than in roller 32 and the concave portions being spread apart more in the case of roller 33. The concave portions of both rollers carry suction cups 19 and pressure disks 20.

Rollers 34 and 35 are designed to act upon the upper and lower calf portion of each leg and to that end roller 34 is provided with two spaced concave areas provided with suction cups 19 and pressure disks 20. Roller 35 is provided with similarly arranged concave portions spaced, however, a greater distance than in the case of roller 34.

Roller 36 is adapted to act upon the ankles, and is provided with two widely spaced concave areas carrying suction cups 19 and pressure disks 20.

In the operation of the device, the patient lies upon the rollers and the latter are rotated, the rollers conforming to the body of the patient's feet somewhat spread apart, in the present embodiment. As the rollers are actuated, the pressure disks and suction cups will move from one position to another relatively to the muscular portions of the body and will knead and pull the muscles. At the same time, the massage rings of rollers 18, 29 and 31 will, respectively, knead the neck muscles, shoulder muscles and buttocks of the body simultaneously with the action of the pressure disks and suction cups carried by these rollers, the effect being similar to the manipulation of a professional masseur.

When the patient is lying on his face, rings 21 of roller 18 will act upon the front neck muscles, roller 29 will act upon the chest, roller 30 upon the stomach, and roller 31 upon the lower abdominal muscles of the body, the remaining rollers acting upon the thighs at the front thereof and the front leg muscles. In all of this action, the device utilizes the weight of the patient's body in insuring the proper action upon the muscles by the rollers.

I prefer that when the device is not in action as a massage apparatus, it be capable of utilization as a couch. To that end, a box spring with mattress top may be made to conform with the upper surface of the casing so as to lie thereon adequately supported whether the covering device 15 is employed or is omitted.

In Fig. 7, I have shown a combined box spring and tufted mattress at 37 which may be hinged to the casing if desired so as to be readily raised to vertical position, thus exposing the massage rollers.

I have heretofore stated that one or more of the rollers may be rotated in a direction reverse to that of the other rollers. As illustrative of this, worms 8x are adapted to rotate their respective rollers in a given direction, whereas, worms 8 are designed to rotate their rollers, to wit, 18 and 29, in a reverse direction.

The massage rollers may be made of wood, light metal or papier mache; the pressure disks may be covered with rubber, leather, or the like, and the same material may be employed for the massage rings. The pressure disks serve a double purpose, i. e., creating a kneading and smoothing action.

The weight of the body will be evenly distributed on the series of rollers so as to produce an even distribution of pressure without discomfort

to the user and they are so constructed as to give the necessary pressure to all parts of the body, in some places a vigorous pressure and in other places a moderate pressure.

It will be understood that various modifications may be made in the form and arrangement of the embodiment illustrated in the drawings without departing from the spirit of the invention.

What I claim, and desire to secure by Letters Patent, is as follows:—

1. A massage apparatus comprising a frame, a plurality of massage rollers horizontally arranged in the frame, said rollers being successively different in surface configuration so as to conform with the human torso and leg areas of the body and to afford a supporting medium therefor, and means for simultaneously rotating said rollers.

2. A massage apparatus comprising a plurality of rollers, means for supporting said rollers for horizontal rotation, thereby affording a supporting medium for the human body, means for rotating said rollers, and a plurality of massage rings carried by a roller each rotatably mounted in a groove in the roller at an oblique angle to the axis of the latter, and acted upon by and in the rotation of the latter for swinging movement when held against rotation with the roller by friction between them and the human body when the latter is resting thereon.

3. A massage apparatus comprising a plurality of rollers, a supporting medium for said rollers for holding the latter in horizontal position, thereby affording a supporting medium for the human body, means for rotating said rollers and suction cups carried by a plurality of said rollers, each suction cup being formed with an internal chamber having an air discharge duct leading to the atmosphere, the cup being adapted to collapse upon the pressure of the body to force air from said chamber and acting when closed by an area of the body and thereafter moved, to exert a suction upon said area.

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