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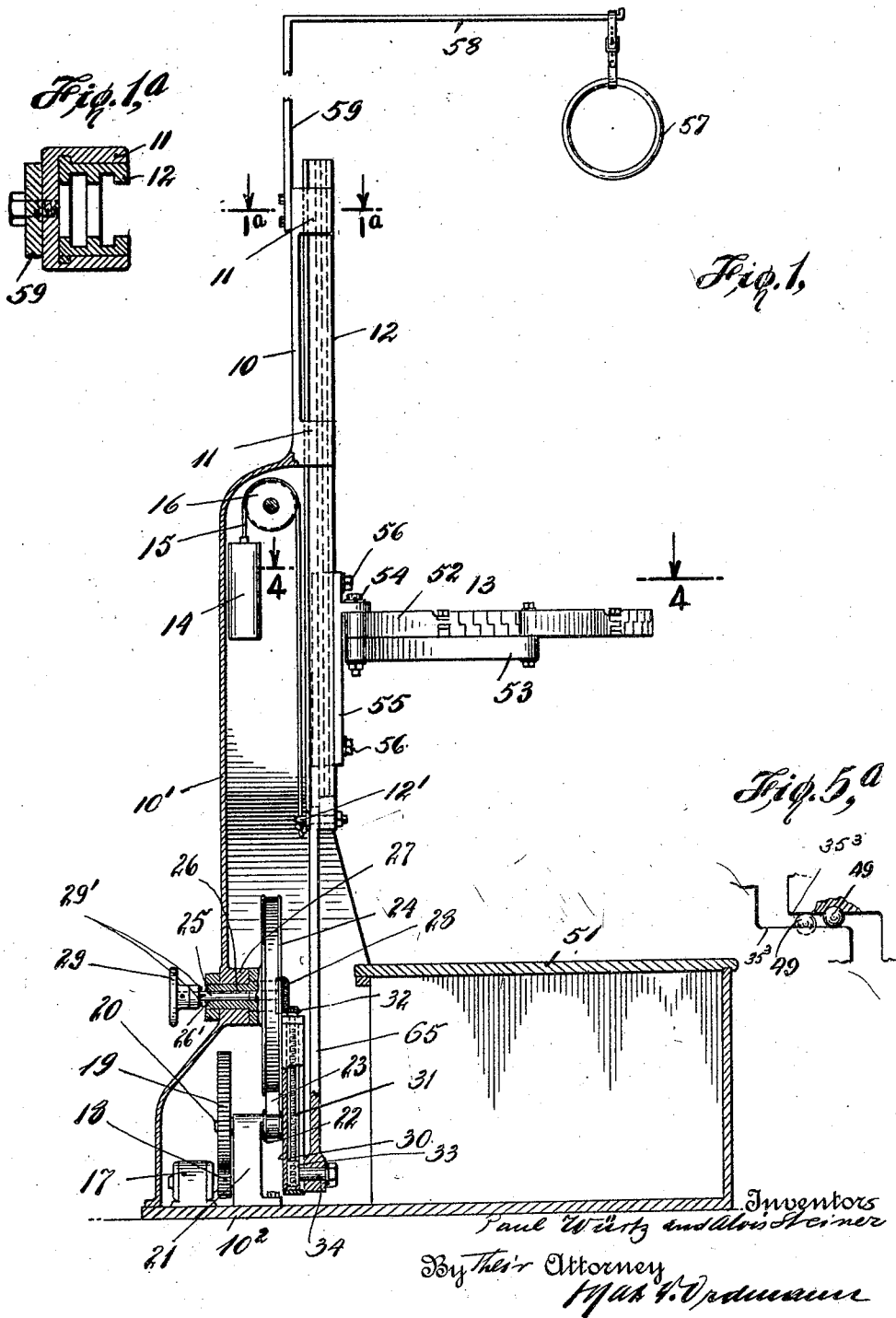
P. WÜRTZ ET AL

MASSAGE APPARATUS

Filed May 3, 1922

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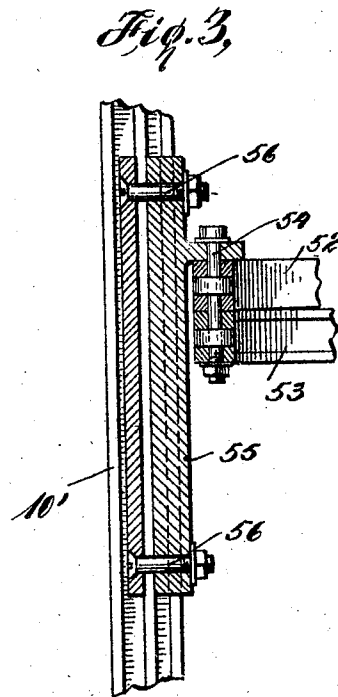
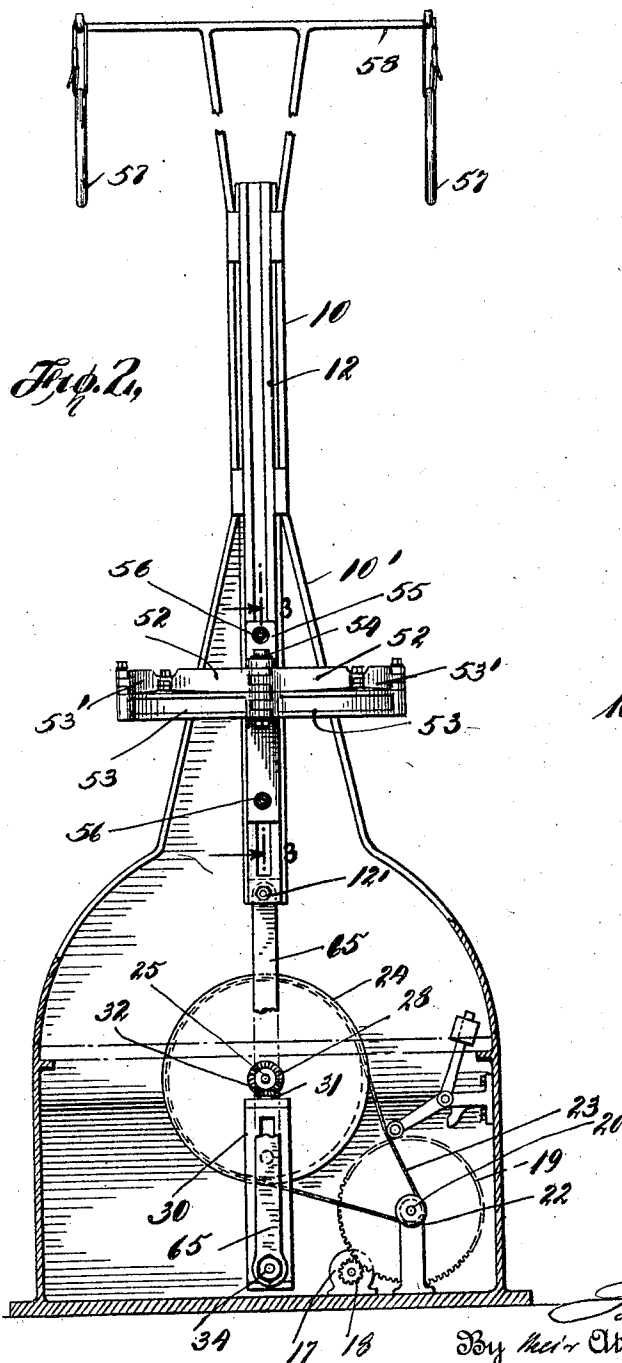
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MASSAGE APPARATUS

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Inventors

Paul Würtz and Albert Schenk

By their Attorney

Max H. Dransky

Jan. 8, 1924.

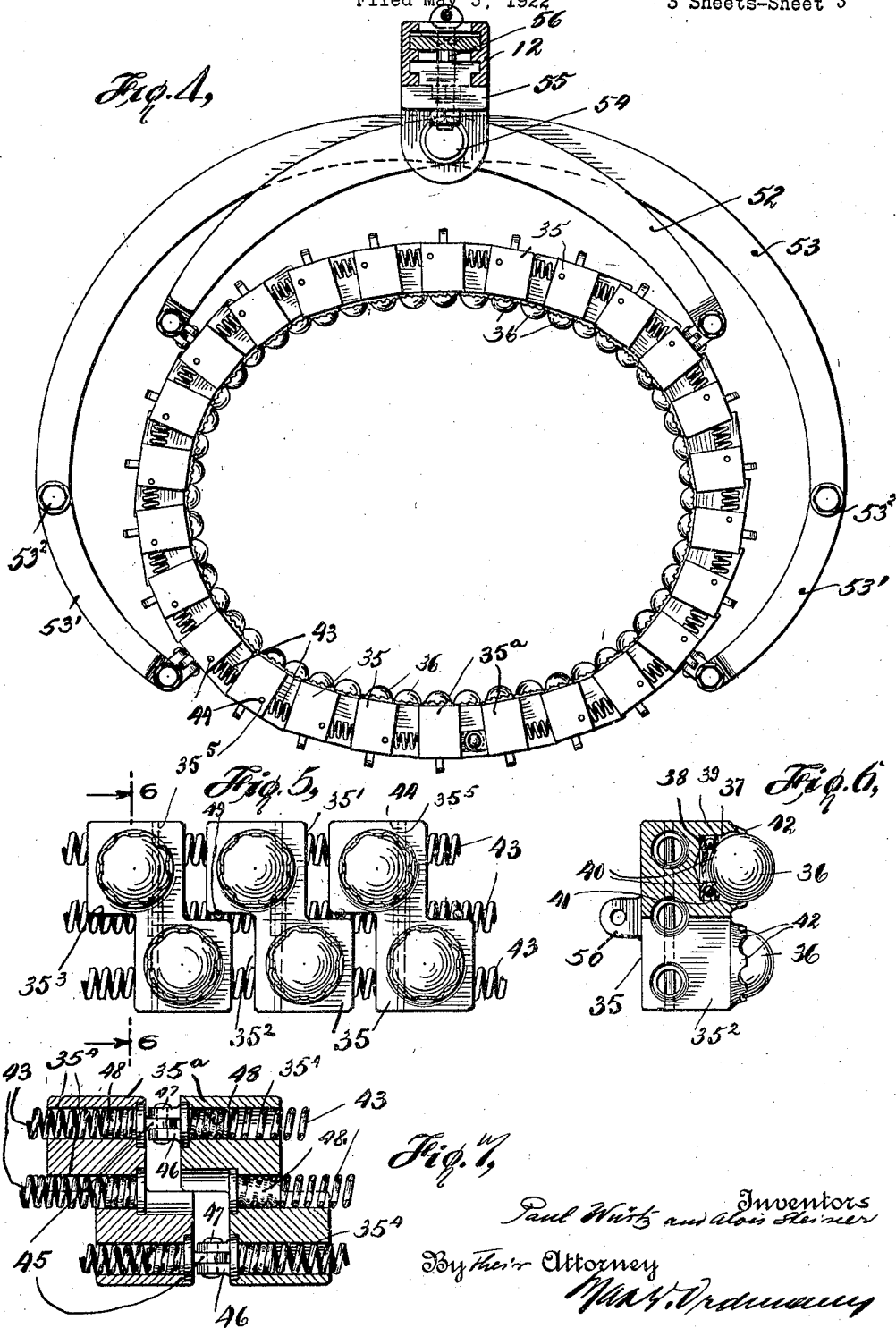
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MASSAGE APPARATUS

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UNITED STATES PATENT OFFICE.

PAUL WÜRTZ, OF NEW YORK, N. Y., AND ALOIS STEINER, OF HOBOKEN, NEW JERSEY.

MASSAGE APPARATUS.

Application filed May 3, 1922. Serial No. 558,049.

To all whom it may concern:

Be it known that we, PAUL WÜRTZ and ALOIS STEINER, both citizens of the United States, the former residing in New York, county of New York, and State of New York, and the latter residing at Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Massage Apparatus, of which the following is a specification.

This invention relates to a massage apparatus and has for its principal object to provide an apparatus which will mechanically produce a rubbing or kneading action on a body similar to a hand massage.

Another object is to so construct the same that it will be applicable to all parts of the body of the user and will be self-adjustable so as to conform to the contour of the part treated.

Our invention will be fully understood by reference to the accompanying drawings in which similar reference characters denote corresponding parts and in which Fig. 1 is a vertical section of the apparatus; Fig. 1^a a cross section on line 1^a, 1^a of Fig. 1; Fig. 2 a front view thereof with the tool proper omitted for the sake of clearness; Fig. 3 an enlarged section on line 3—3 of Fig. 2; Fig. 4 an enlarged cross section on line 4—4 of Fig. 1; Fig. 5 is a still more enlarged inner view of a part of the belt or tool; Fig. 5^a is a similar view as Fig. 5 showing a detail; Fig. 6 is a cross section on line 6—6 of Fig. 5 and Fig. 7 is a longitudinal section of a part of the belt.

The massage apparatus comprises a frame or standard 10 which at its lower portion is formed to a casing 10' having a base 10². Projecting forwardly from the upper part of the frame are two or more guide members 11 in which is adapted to reciprocate vertically a bar 12 which is adapted to carry the tool proper 13. The bar 12 is counterbalanced by a weight 14 suspended from a cable or rope 15 which is guided over a roller 16 journaled in the casing 10', the other end of the cable or rope 15 being attached at 12' to the lower end of the bar 12, so that the power for operating the apparatus will be reduced to a minimum. On the base 10² is mounted a small motor 17 from which motion is imparted to the bar 12 and tool 13 through the medium of a small gear 18 and a larger gear

19 meshing with one another. The spindle 20 of the larger gear 19 is rotatively borne in a bracket 21 and carries at its front end a small pulley 22. From this pulley motion is transmitted by belt 23 to a larger pulley 24 mounted on a spindle 25 rotatively borne in a sleeve or hollow spindle 26. The hollow spindle 26 is rotatively borne in a bearing 27 formed in a casing 10'. The forward end of the sleeve 26 projects outwardly through the front of said pulley 24 and carries a bevel gear 28. The rear end of the spindle 25 carries a hand wheel 29, which is axially displaceable thereon and is provided with prongs 29' capable of engaging notches 26' in the rear edge of the sleeve 26 to permit the rotation of the latter to operate the bevel gear 28 for the purpose to be hereinafter described.

Fixed radially to the front face of the pulley 24 is a hollow arm 30 in which is centrally rotatively supported a screw spindle 31, whose axis intersects that of the bevel gear 24. The end of said screw near said gear 24 projects outwardly from said arm and carries a bevel gear 32 adapted to mesh with bevel gear 28. Working on said screw spindle 31 is a nut 33 which is formed with a finger or pin 34 adapted to engage one end of a vertical rod 65, the opposite end of which is connected to the bar 12. The stroke of the vertical movement of the bar 12 and tool 13 can be regulated by the adjustment of the nut 33 on the screw spindle 31. This is accomplished by shifting hand wheel 29 on the spindle 25 until it engages the sleeve 26 as aforescribed and turning the same and thereby the sleeve 26 and bevel gear 28. The latter meshing with gear 32 causes the rotation of the screw 31 thereby feeding the nut longitudinally thereon toward or away from the centre of the pulley 24 and shortening or enlarging the stroke of the reciprocating bar 12 and tool 13.

The tool 13 proper is made in form of a resilient belt or the like, the ends of which are adapted to be joined to form a ring which will conform with the shape and size of the body or part of the body to be massaged. To this end the belt is composed of individual members or units 35 each adapted to carry one or more massage balls 36 of metal or other suitable material which, when the device is reciprocated vertically will pro-

duce a rubbing or kneading effect on the body or part of the body to be treated. In the present example each individual member or unit is made in form of a Z-shaped body, i. e., a body substantially of rectangular cross section cut away from the centre at one side at its top as at 35' and the opposite side at the bottom as at 35², (Figs. 5 and 6), and is formed transversely with vertically superposed and horizontally displaced sockets 37 for the balls 36. Each ball is rotatively supported in its socket 37 by a ball bearing which may consist of two disks 38, 39 and small balls 40 confined between them in annular races 41. The balls 36 are adapted to project outwardly from the sockets 37 and to be held from falling out by prongs 42 projecting around the mouth of the sockets capable of being bent inwardly to embrace the outer face of the balls 36 (Fig. 6). The Z-shaped members or units 35 are adapted to be strung together and formed to a ring with their balls 36 projecting from the inner face thereof, and the opposite horizontal edges 35³ of two adjoining members 35 riding on one another (Fig. 5). Extending longitudinally through each member are two or more (three in the present example) parallel bores 35⁴, in which are adapted to fit resilient members, such as spring coils 43 whereby the members 35 are strung together. The latter may be secured in position to said coils by pins 44 passed through apertures 35⁵ and adapted to engage said springs. The members or units of the device which come to lie at the ends of the latter and which are marked 35^a are of the same construction as members 35 except that they are provided with suitable locking means to enable the belt to be folded to and retained in form of a ring. In the present example the locking means are shown to consist of one or more apertured tongues 45 projecting longitudinally from one end member and apertured eyelets or forked members 46 projecting longitudinally from the opposite end member and capable of engaging said tongues 45. When the end members are brought together the tongues 45 engaging the forked members 46 are locked by pins or screw bolts 47 passed through the apertures thereof.

The number of members 35 to be contained in a belt may vary according to the thickness of the parts around which the belt is to fit. Preferably the belt may be constructed in short sections, each composed of a certain number of members 35 and according to the size desired two or more of such sections may be locked together by the locks 45, 46, 47 in the same manner as the two ends of a single section.

To fasten the ends of the springs 43 to the end members 35^a, the latter are formed in their bores 35⁴ with centrally and longitudi-

nally extending threaded cores 48 onto which the ends of the coils 43 are threaded (Fig. 5).

To permit the adjoining members 35 and 35^a which slidably engage one another as aforesaid, to move easily and with the least possible friction while expanding or contracting around the parts treated during the vertical reciprocation of the belt, several small balls 49 may be rotatively supported in the engaging horizontal faces of the members 35 adapted to produce a rolling movement rather than a sliding movement (Figs. 5 and 5^a).

Projecting from each member 35 on the face opposite to that of the sockets 37, is a central eyelet or ear 50, serving as attachment means for arms whereby the belt is supported on the reciprocating bar 12.

The belt is adapted to project in a horizontal position from the reciprocating bar 12 above a platform 51 erected on the base 10² of the standard or casing 10' and on which the patient is supposed to stand or sit during treatment. For such support we employ preferably two pairs of circularly curved freely movable arms 52, 53 pivotally connected as at 54 to a head piece 55 which is suitably fastened to the bar 12 so as to be adjustable vertically, so for instance, by clamping bolts 56. The two pairs of arms are superposed on the bolt 54 and lie horizontally, the arms of each pair extending in opposite directions and their free ends being provided with perforations or formed to eyelets to be joined to the eyelets 50 of the members 35 of the belt 13, (Fig. 4). The arms of one pair, as the arms 53, are somewhat longer than those of the other pair and are adapted to engage the members 35 of the belt located in the front half of the ring or in front of the centre thereof, while the shorter arms are designed for the members on the rear half of the ring. The engaging ends of the longer sections may be formed by curved extensions 53' pivoted at 53² to the body portion of said arms (Fig. 4).

For a patient standing on the platform 51 suitable grasps may be provided whereby he may support himself during treatment. Such grasps may consist of rings, or the like, 57 adjustably suspended in a suitable manner from frame 59 having a horizontal bar 58 and fixed to and extending from the standard 10 at an elevation from the platform 10².

In use the patient mounts the platform 51 and when his treatment is in standing position he may support himself by the grasps 57. The belt either composed of one or more sections to suit the part of his body to be treated is then adjusted to the required height and put around him, so that the balls 36 will snugly engage his body or limb

as the case may be. Thereupon the stroke of the bar 12 is adjusted by the manipulation of the hand wheel 29 in the aforedescribed manner and the motor started.

5 While the bar 12 reciprocates vertically the belt too will reciprocate causing the massage balls 36 to exert a kneading action on the treated part, the members 35 of the belt expanding or contracting relative to one another conforming with the surface of the part treated.

10 It is obvious that the apparatus may be modified in various ways without departing from the principle of our invention and we, therefore, do not wish to restrict ourselves to the details shown and described.

What we claim is:—

1. A massage apparatus comprising a reciprocating member and an expansible belt 20 carried by said member and composed of individual members formed with sockets, massage balls rotatively supported in and projecting from said sockets, resilient means connecting said members together and means 25 for detachably joining the end members of said belt in the form of a ring.

2. In a massage apparatus, a flexible and expansible belt composed of individual members resiliently joined together and formed 30 with sockets, massage tools borne in said sockets, and means for locking the end members to form a ring.

3. In a massage apparatus, a flexible and expansible belt composed of individual rigid 35 members formed with sockets in one face, massage balls rotatively borne in said sockets and means for holding said balls in said sockets.

4. In a massage apparatus, a flexible and expansible belt composed of individual rigid 40 members each in form of a Z-shaped body having sockets in one face, massage tools borne in said sockets, said members being adapted to movably engage one another and 45 resilient means for connecting said members together.

5. In a massage apparatus, a flexible and expansible belt composed of individual rigid 50 members each in form of a Z-shaped body having sockets in one face, massage tools borne in said sockets and spring coils on which said members are strung.

6. In a massage apparatus, a flexible and expansible belt composed of individual mem- 55 bers and end members, all said members being formed with sockets, massage tools borne in said sockets, said members being longitudinally channelled, spring coils fitting in said channels and on which said 60 members are strung, means for holding said

members in spaced position on said springs and locking means on said end members to join the latter together to form a ring.

7. In a massage apparatus, a flexible and expansible belt composed of individual mem- 65 bers and end members, massage tools carried by said members, said members being formed with longitudinal bores, spring coils fitting in said bores and connecting said members together, means for holding said members 70 spaced relative to one another on said coils, means in said end members to fasten the ends of said coils and locking means on said end members to join the latter to form a ring.

8. In a massage apparatus, a driven vertically reciprocating member, an expansible massage device and superposed sets of inde- 75 pendently movable horizontal arms pivotally connected to said member the arms of one set being adapted to be detachably connected to the front and those of the other set to the rear said device to support the same in a horizontal plane.

9. In a massage apparatus, a reciprocating 85 massage device and driving means, including a driven pulley, an independently operable bevel gear co-axial with said pulley, a rotary screw spindle radially supported on said pulley, a bevel gear carried by said 90 spindle and adapted to mesh with said first named pulley, a nut working on said spindle and formed with a crank pin, a connecting rod between said pin and said device and means for operating said first named bevel 95 gear to cause an adjustment of said nut along said spindle to change the reciprocation stroke of said device.

10. In a massage device, the combination 100 with a standard and a source of power, of a counterbalanced vertical bar movably supported on said standard, means for imparting reciprocating motion to said bar from said source of power, a massage device, two 105 superposed sets of independently movable horizontal arms pivotally connected to said bar and of which one set of arms are detachably connected to the front and the other set to the rear of said device to hold the latter in a horizontal plane, said device 110 being in form of an expansible ring adapted to be applied around the body of the patient.

In testimony whereof we affix our signatures in presence of two witnesses.

PAUL WÜRTZ.
ALOIS STEINER.

Witnesses:

MAX D. ORDMANN,
JOSEPH T. McMAHON.