

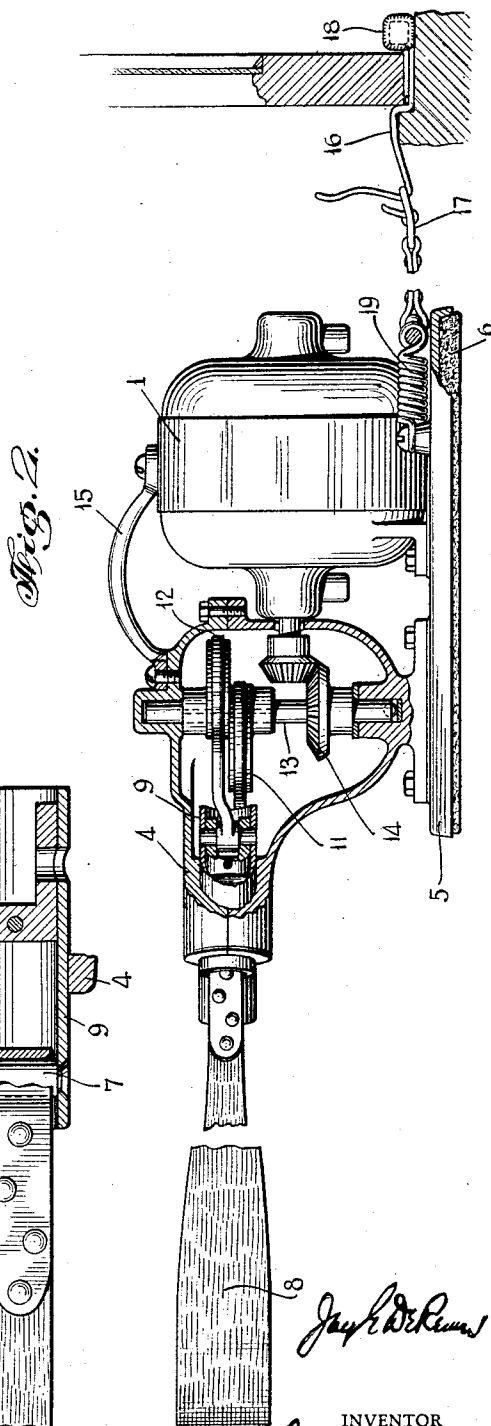
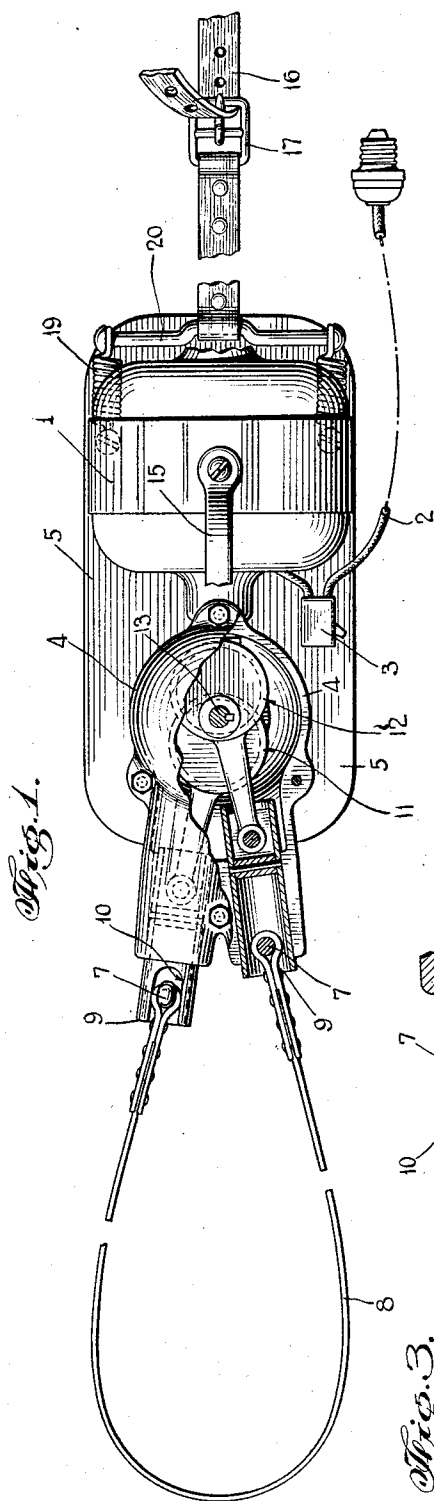
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J. G. DE REMER

1,802,140

PORTABLE MASSAGE MACHINE

Original Filed March 30, 1928 2 Sheets-Sheet 1



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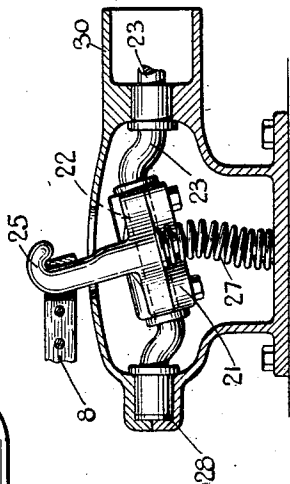
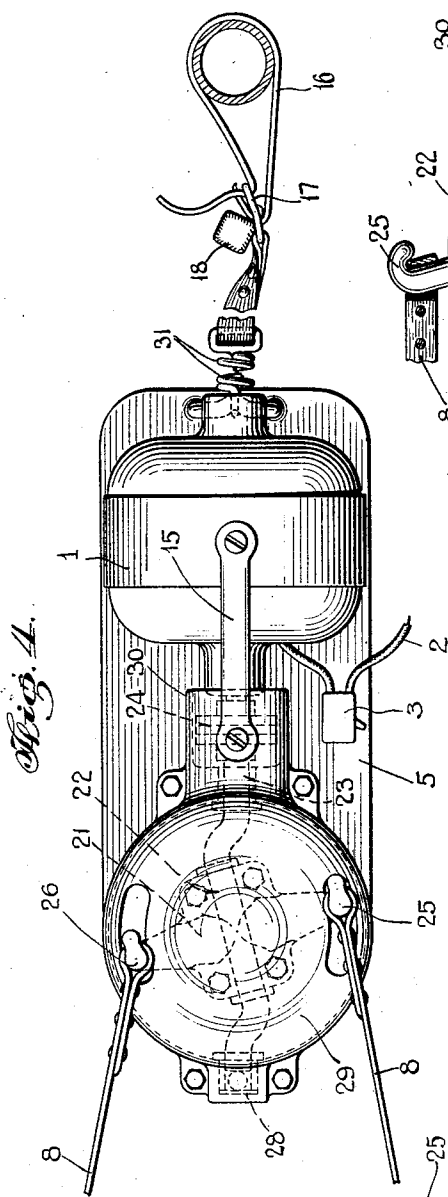


Fig. 5.

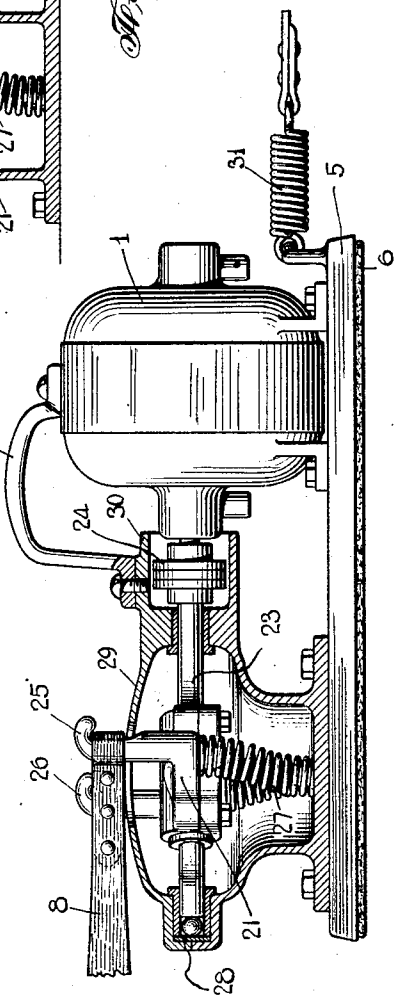
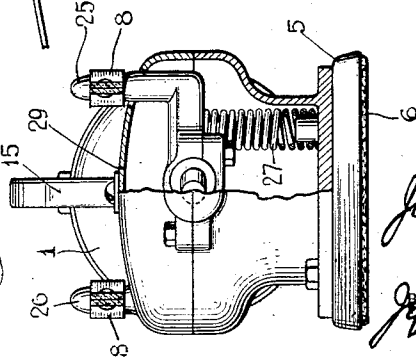


Fig. 7.



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PORTABLE MESSAGE MACHINE

Application filed March 30, 1928, Serial No. 265,837. Renewed September 18, 1930.

The invention is an improvement in reciprocating belt massage machines and more especially in the type of self-massage machine first disclosed in my prior and copending application, Serial No. 219,387, the present invention being in the nature of an improvement thereon as regards simplicity and economy of construction and providing certain other advantages as will presently appear. In brief, it may be stated that the type of machine referred to comprises an electric motor and belt-reciprocating means driven thereby, the weight of the machine and the speed of reciprocation being mutually correlated to cause the machine as a whole to vibrate through an appreciable but not excessive amplitude when at work; and, as more fully set forth in the co-pending application referred to, the said reciprocating means are arranged for connection to the ends of a massage belt, which encircles the body of the user and produces the desired massage effect when he leans or pulls against it.

The drawings illustrate two forms of embodiment of the present invention.

Figure 1 being a top plan of the preferred form with parts broken out;

Figure 2 a side elevation partly in section;

Figure 3 an enlarged detail;

Figure 4 a top plan of a modified form;

Figure 5 a vertical longitudinal section thereof;

Figure 6 another longitudinal section, and

Figure 7 a combined end view and cross section.

The form of Figs 1 to 3 comprises an electric or other drive motor 1 supplied with power through the flexible conductor 2 and switch 3, and a transmission mechanism contained in a housing 4, the motor being arranged or mounted at one end of the oblong base 5 and the transmission mechanism being arranged at the other end and in line with the axis of the motor armature. The underside of base 5 is provided with a felt pad 6 or the like to absorb some of the machine vibration as well as to adapt the machine to be placed and used on a desk or table top without injury to the latter. The felt serves the further purpose of providing a certain

amount of friction for restraining or dampening the movement of the machine on its support. The drawing shows the transmission mechanism and motor casing formed as separate units bolted to the base, but obviously these parts may be organized in one piece.

The function of the transmission mechanism in housing 4 is to convert the rotary motion of the armature shaft into alternate reciprocating motion of two belt connectors 7, to which the ends of the massage belt 8 are detachably fastened. In the present case the belt connectors are represented by studs mounted in the forward ends of the belt plungers 9, such plungers being made hollow for the purpose and formed with top slots 10 to expose the ends of the studs, which latter do not project appreciably through the slot. By this construction the fastening of the belt to the plunger is accomplished without the use of projections likely to pinch the user's hand by their movement toward the housing 4. The plungers 9 are operated by the eccentric straps 11 and 12 of two superposed eccentrics both fast on a vertical shaft 13, which is driven by a bevel gear 14 by the pinion on the motor armature shaft. The shaft 13 is journaled in the top and bottom of the housing 4, independently of the armature shaft, so that the bearings of the latter are not called upon to support any of the user's pull on the belt, all of this strain being taken by shaft 13. Lubrication is accomplished by the splash or any suitable means not shown in the drawing. The plungers slide in slideways in the transmission housing 4 and in the same horizontal plane and also at an appropriate angle so that the belt pulls substantially straight upon them; preferably they are arranged at an angle whose apex is at the center of mass of the machine. The eccentrics are spaced 180° apart, being thus statically balanced, and it will be understood that special weighting, not shown, may be added to counterbalance the reciprocating forces exerted by the plungers and their eccentric rods according to well understood principles. The machine may operate at about 1000 R. P. M., according to the bevel

gear ratio and motor speed and may weigh from 30 to 50 lbs., being therefore readily portable. A handle 15 is bolted to the transmission casing and the motor casing approximately over the center of mass.

When put to use the machine is placed on a suitable support, but not attached to it. It is then connected by flexible means to some fixed part in rear, such as radiator, steam pipe, or door-knob, so that the user may not pull the machine off of its support, this feature being disclosed generally in my co-pending application above referred to. A preferred form of hold back means comprises a fabric rope or strap such as indicated at 16 provided with a buckle 17 so that it can be adjusted and accommodated to different modes of attachment. Preferably the strap is formed with a nub or enlargement 18 at its extreme end, by means of which the strap can be quickly fastened to a window sill, for example by simply closing the window on it as indicated in Figure 2. By reversing the strap in the buckle, as indicated in Figure 4, it can be fastened to or around a steam riser, radiator or other fixed object in dwellings. The strap may constitute the sole connection, but it is preferably combined with a spring or springs to absorb vibration and which may, for example, be arranged as indicated at 19. The particular springs shown are fastened to the base or to the motor and are connected by a cross rod 20, the strap being secured to the latter.

While the hold back means sustains the user's pull, it also, by virtue of its flexible nature permits movement of the machine on its supporting surface in response to such reaction forces as are generated in it, and which are variable according to the force of the user's pull. The inertia of the machine absorbs most of the tendency to such vibratory or reciprocation movement; the remainder is taken care of by the restraint imposed on the machine by virtue of its spring connection and by such friction as may exist between the belt and the supporting surface. The connection of the massage belt at one end of the longitudinal axis of the machine and the hold-back means at the other end, tends to keep such axis always in the general line of the user's pull, and thus restores the machine to an aligned position whenever it becomes displaced and even though the user change his position in reference to the fixed member to which the machine is tied. The virtue of the spring when used is not merely to permit movement and absorb vibration which might otherwise be transmitted to the fixed part of the building, but also to maintain a more constant pressure of the belt on the operator's body and in this dual capacity it will be apparent that it may be applied to other forms of portable machines and is not limited to the particular forms herein disclosed.

Referring now to Figures 4 to 7, the principal difference from the form first described is that the transmission mechanism here comprises a swash plate member or yoke 21 oscillated by an inclined crank portion 22 of a transmission shaft 23, the latter being directly coupled to the motor armature shaft by means of any suitable self-adjusting coupler indicated at 24. The swash plate member carries two upstanding belt connector hooks 25 and 26, which project upwardly through arcuate slots in the cover member of the transmission housing. These belt hooks reciprocate in alternation, as will be observed from the drawing and with substantially the same effect as in the form first described. The yoke 21 is kept from rotation with the shaft 23 by means of two compression springs 27, although other means or only one spring might be sufficient, and the pull of the operator transmitted to the shaft 23 is sustained by the step bearing 28 with which the latter is provided. The top of the transmission housing 29 is curved somewhat in the general direction of the path of movement of the hooks, so that there is less likelihood of pinching the operator's hand between the hook and the casing. The coupling 24 is likewise enclosed, for safety, in the tubular extension 30 of the transmission housing. The strap is here shown as combined with a single spring 31.

As in the case first described, the operator's pull is endwise of the axis of the machine and the connection of the massage belt and hold back means to opposite ends of the latter restrains it from excessive lateral displacement, while nevertheless permitting it to accommodate its tendencies to move back and forth within the limits permitted by its mass at the speed of operation employed. In both cases the transmission mechanism is organized so as to reciprocate the ends of the massage belt in the general direction of the motor axis, or the axis of the base, and the connection, or at least the line of pull of the hold back device also extends in the same general direction. Within these principal characteristics it will be apparent that the invention may be incorporated in various different forms of mechanism and particularly as respects the design of transmission mechanism.

As respects the swash plate action, it will of course be apparent that variation of the crank angle or of the length of the belt connector studs will control the extent and character of the connector movement, which while not strictly a straight line reciprocation is nevertheless sufficiently so to be defined as reciprocatory.

With respect to both forms of my invention here illustrated it will be observed that the vibratory movement of the machine as a whole is in the nature of a longitudinal or endwise reciprocation, as distinguished from

the "rotary" oscillating movement of the machine described in my aforesaid copending application.

I claim:

1. A portable massage machine adapted for operation on a horizontal surface and unattached thereto and comprising a massage belt, a drive motor with transmission mechanism for alternately reciprocating the ends of said belt, and a hold-back strap having a nub adapting it to be secured to a window.
2. A portable massage machine comprising a base, drive motor and reciprocating belt connectors operated thereby in paths convergent toward the center of the machine.
3. A portable massage machine comprising a motor and transmission mechanism driven thereby located at one end of the motor and belt connectors reciprocated by said mechanism in paths convergent toward the center of the machine.
4. A massage machine of the reciprocating belt type comprising a drive motor with transmission mechanism for alternately reciprocating the ends of the belt including a reciprocating hollow plunger and a belt connector fixed inside of the end of said plunger.
5. A massage machine comprising a massage belt, a base, an electric motor thereon, drive connections from the motor arranged to reciprocate the belt ends in the general direction of the motor axis and a resilient hold-back device connected to operate also in the general direction of the motor axis in opposition to the pull of the belt, the total weight of the machine being correlated to the reciprocating speed to produce an inertia effect so proportioned to the massage resistance that the machine bodily reciprocates, in the direction of said axis, when at work.
6. A portable massage machine comprising a massage belt, a base suited for supporting the machine on a table top, desk or the like and unattached thereto, a motor mounted on the base adjacent one end, belt reciprocating means connected for operation by the motor and located adjacent the other end of the base and means for opposing the pull of the belt comprising a resilient hold-back device attached to said first-mentioned end of the base.
7. A belt-reciprocating massage machine comprising an electric motor, belt-reciprocating means located at and driven from one end of the armature shaft in the general direction thereof, a belt connected to said means for operation thereby and a resilient hold-back device attached to the machine and extending in the general direction of the motor axis, the total weight of the machine being correlated to the reciprocating speed to produce an inertia effect such that the machine bodily reciprocates when at work.
8. A massage machine as set forth in the preceding claim, in which said hold-back device comprises a spring-sustained strap hav-

ing an enlargement at its end adapting it to be secured to a window.

9. A self massage machine having means for supporting the same to permit bodily movement of the machine when at work and comprising a massage belt, a base, an electric motor thereon having transmission mechanism for alternately reciprocating the ends of the belt and a resilient hold-back device, adapted to permit said movement of the machine while sustaining the same against the pull of the user's body on said belt.

10. A self massage machine comprising a massage belt, an electric motor having transmission mechanism for alternately reciprocating the ends of the belt, said motor and mechanism adapted to be supported with freedom for bodily rectilinear movement when at work, and a resilient hold-back device adapted to limit such rectilinear movement while sustaining the machine against the pull of the user's body on said belt.

In testimony whereof, I have signed this specification.

JAY G. DE REMER.