June 12, 1945. L. H. SNYDER 2,378,335

MASSAGE DEVICE

Filed Nov. 1, 1943

Fig. 1.

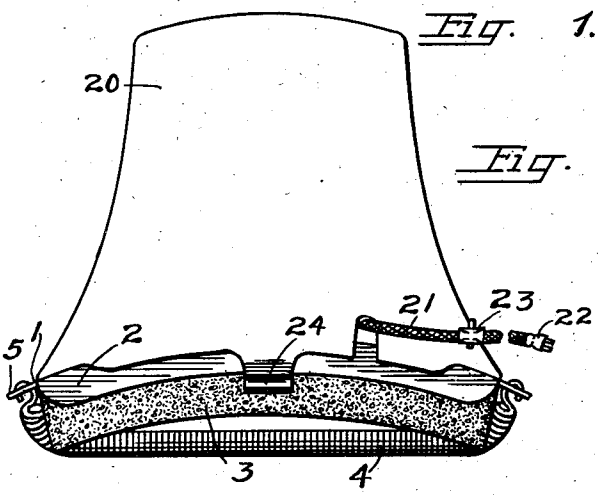


Fig. 2.

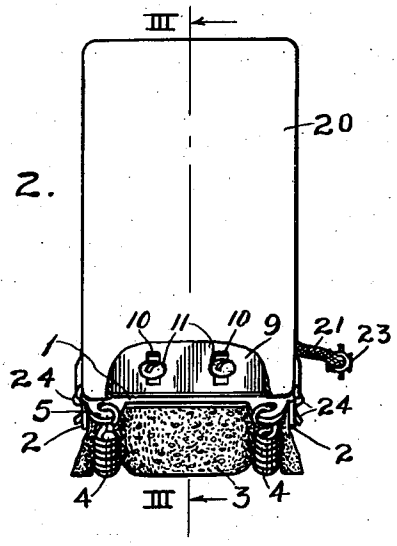


Fig. 3.

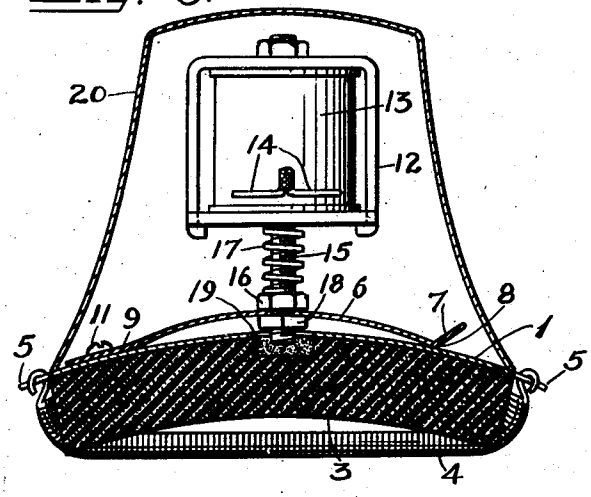


Fig. 4.

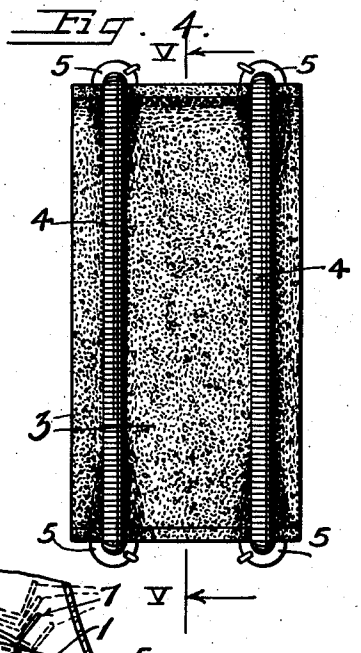
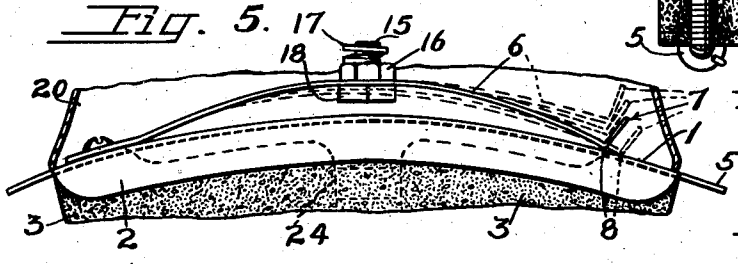


Fig. 5.



Inventor

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by Charles P. Mills Attys

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UNITED STATES PATENT OFFICE

2,378,335

MASSAGE DEVICE

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4 Claims. (Cl. 128—41)

This invention relates to an electric massage device adapted to be carried on the back of a person's hand and of a floating solenoid controlled type from which vibartions are adapted to be transmitted to a mounting back and resilient retaining members by means of an improved adjustable resilient support disposed between the pad back and the solenoid unit for materially increasing the transmitted vibrations and for varying the intensity of the transmitted vibrations to the hand on which the device is carried.

It is an object of this invention to provide a massage device which is designed and constructed with improvements for increasing the adaptability and efficiency thereof.

It is also an object of this invention to provide an improved electrically operated type of massage device by interposing an adjustable resilient vibration transmitting means between the vibration producing unit and the applicator means on which it is supported.

It is furthermore an object of this invention to provide an improved and simplified form of a solenoid type of massage device wherein a solenoid unit is mounted on a spring support carried by the applicator to which the vibrations are transmitted at an increased rate.

Another object of the invention is to provide an electric massage device of a floating solenoid type for transmitting vibrations to an applicator through an adjustably mounted arched spring support on which the solenoid is carried.

It is an important object of this invention to provide a massage device wherein a spring support carried by an applicator base serves as a support for a vibration producer to increase the efficiency of the massage device.

Other objects and features of the invention will be apparent from the following description, taken in connection with the accompanying drawing which illustrates a preferred embodiment of the invention.

In the drawing:

Figure 1 is a side elevational view of an improved massage device embodying the principles of this invention.

Figure 2 is an end elevational view of the massage device with parts broken away.

Figure 3 is a vertical sectional view of the massage device taken on line III—III of Figure 2 with parts shown in elevation.

Figure 4 is a bottom plan view of the massage device.

Figure 5 is an enlarged side view of the lower portion of the massage device with the casing broken away and indicating the vertical vibratory operation of the supporting spring in dotted lines and also indicating in dotted lines the position of the supporting spring when depressed.

As shown in the drawing:

The improved massage device comprises a base or applicator unit on which an adjustable spring supporting means is mounted for carrying a vibration producer, preferably of an electrically operated type. The base or applicator unit comprises an arched or convex back plate or platform 1 constructed of metal or other suitable material and having integral side flanges 2 to form a channel cross-sectioned back member. Rigidly secured within the platform or applicator back formed by the members 1 and 2 is a hand or finger protecting pad 3 formed of cushion-like material, as for example sponge rubber or the like. The sponge rubber pad 3 is of a curved or arched form as clearly illustrated in Figure 3 and is adapted to be engaged over the back of the first, second and third fingers of a person's hand, on which it is removably held by means of a pair of coiled retaining and vibration transmitting springs 4 which are arranged in parallel relation, as shown in Figure 4, across the bottom of the pad 3. The ends of the coiled retaining springs 4 are bent to form hooks which engage in apertured tongues or projections 5 which are integrally formed on the ends of the back plate or platform 1. When the applicator base is engaged on the back of the fingers of a person's hand the springs 4 pass downwardly across the palm side of the fingers to resiliently hold the applicator pad in position and permitting the fingers to receive the vibrations and serve as applicators.

Disposed upon the top convex surface of the back plate 1 is an arched resilient support or spring member 6 forming a strap or plate spring of metal or other suitable material and having one end thereof curved or deflected upwardly to form a flange 7 and affording a rounded inverted ridge or movable support 8 which is adapted to have imparted thereto a rapid vertically reciprocating movement when vibratory impulses are imparted thereto, as hereinafter more fully described. The free end of the supporting spring 6 is also permitted to move backwardly and forwardly on the top surface of the back plate 1 when the spring is compressed and released.

As shown in Figures 1 and 2, a substantially flat end piece or supporting plate 9 is integrally formed on one end of the arched supporting spring 6 and is provided with a pair of parallel slots 10 through which retaining screws 11 are

engaged to project into the back plate 1 to rigidly hold one end of the supporting spring 6 mounted in position upon the applicator base while the other end is free. The slots 10 are provided so that when the screws 11 are loosened the effective length of the supporting spring may be adjusted or varied by sliding the spring in one direction or the other to increase or shorten the major operating end of the supporting spring 6.

Supported upon the upper arched portion of the supporting spring 6 is a vibration producing unit preferably of an electrically operated type, such as a plunger type solenoid mechanism. The vibration producing unit comprises a solenoid supporting frame 12 having mounted therein a solenoid coil unit 13 having circuit wires 14 connected therewith in the usual manner and forming part of an electric cord. Secured to the outer ends of the wires 14 forming the cord is an ordinary electric plug which serves as a means for connecting the massage device with a source of electrical energy for operating the solenoid mechanism.

The solenoid unit includes an axially disposed solenoid core or plunger 15 which projects downwardly through the bottom member of the solenoid frame 12. Engaged on the lower threaded portion of the solenoid core or plunger 15 is an inner nut 16 which forms a support for the lower end of a coiled tension spring 17 engaged around the solenoid plunger and having the upper end thereof freely seated against the bottom of the solenoid supporting frame 12. The lower end of the solenoid plunger 15 projects through an opening in the supporting spring 6 and is tightly secured to said spring 6 by means of an outer nut 18 which is threaded onto the end of the solenoid plunger 15 and against the bottom surface of the supporting spring 6 so that the nuts 16 and 18 hold the solenoid unit securely mounted on the resilient movable spring which affords a floating support for the solenoid unit above the applicator base.

As clearly shown in Figure 3, the lower end of the solenoid plunger or core 15, below the nut 18, projects through an opening in the back plate 1 of the base unit and into a recess 19 formed in the top central portion of the rubber pad 3. This construction permits vertical movement of the solenoid plunger 15 when the solenoid coil unit 13 is energized by connecting the current supply wires 14 with a suitable source of electrical energy.

The floating solenoid mechanism together with the adjustably mounted intermediate supporting spring 6 are adapted to be enclosed by means of a removable type of housing or cover 20 constructed of plastic or other suitable material. In the selected form illustrated, the housing 20 is of substantially bell shape but having flat sides which extend downwardly and are shaped to fit over the side flanges 2 of the back plate or platform 1. The housing or cover 20 has spring retaining clips 24 formed on the lower margins of the side walls thereof to permit the cover to be spring snapped into place on the base unit of the massage device. The lower portion of the housing 20 is provided with a notch or other suitable outlet to permit the cord 21 formed by the wires 14, to project out of the housing and allowing a plug 22 on the end of the cord to be plugged into an electric socket when it is desired to operate the massage device. If preferred, an electric control switch 23 of any standard type may be connected in the electric cord 21 at a convenient location for controlling the operation of the massage device.

The operation of the device is very simple, merely requiring that a person about to use the device slip the first three fingers of a hand underneath the rubber pad 3 with the retaining springs 4 passing downwardly from the back of the hand across the palm side of the three fingers, thereby resiliently holding the massage device in position ready for use. The plug 22 at the end of the electric cord formed by the wires 14 is then inserted into an electric socket to permit an alternating current to flow through the solenoid coil to operate the solenoid plunger and cause vibrations to be transmitted from the solenoid unit to the spring support 6. When the solenoid coil is energized the core or plunger 15 is axially reciprocated and acts to rapidly vibrate the free end of the spring support 6 to produce a rapid whipping action, as indicated in dotted lines in Figure 5, thereby transmitting the vibrations to the back plate or platform 1, from which the vibrations are transferred to the coiled applicator springs 4 and to the fingers of the operator's hand, which may be used as a massaging applicator to be moved over the parts of a person's body which require massaging. The vibrations transmitted to the hand on which the massage device is mounted may of course also be transmitted through the masseur's hand to the parts of the body of another person requiring treatment.

When the solenoid supporting spring 6 is actuated by the solenoid plunger and the pressure on the spring 6 is sufficient to depress the spring the free end thereof is caused to slide outwardly on the back of the platform 1, as shown in dotted lines in Figure 5.

To stop the operation of the massage device it is only necessary to pull out the plug from the electric socket. When the cord 21 is equipped with a switch 23, the switch key may be operated to stop the operation of the device.

It has been found that by providing a floating mounting for the solenoid unit by the use of a spring support above the base applicator unit the number of vibrations transmitted by the device is substantially twice that obtainable by the old method of mounting the solenoid directly on the back plate or platform 1, thereby producing a more efficient massage device. Since the solenoid plunger or core 15 has the lower end thereof so disposed that it will pass through an opening in the platform back plate 1 and into the recess 19 in the pad 3, the vibrations from the solenoid unit are transmitted through the spring support 6, which serves as a sort of a floating support for the solenoid unit as well as a means for transmitting the vibrations to the base platform and the coiled mounting springs 4 for transmittal to the fingers of an operator's hand.

Attention is also called to the fact that the length of the spring support 6 between the mounting screws 11 and the movable curved end 8 thereof may be varied by loosening the screws and shifting the spring support into a desired position to lengthen or shorten the effective length of the spring support, after which the screws 11 may be tightened to hold the flat end 9 of the spring stationary. By this adjustment of the supporting spring 6 the intensity or the number of vibrations transmitted by the spring 6 to the applicator base of the device may be varied.

It will, of course, be understood that various details of construction may be varied through a

wide range without departing from the principles of this invention and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. In a massage device wherein an operator's hand is used as an applicator for applying and transmitting vibratory motions, said device comprising a pad carrying unit, means for supporting the same on the operator's hand, an arched spring support having one end secured to the unit and the other end freely movable with respect to said unit, and a solenoid unit carried on the spring support and operable to produce and transmit vibrations to the spring support for transmittal thereby to the resilient pad carrying unit, the supporting means and to the operator's hand for application to parts to be massaged.

2. A massage device of the type adapted to be supported on the fingers of an operator's hand permitting the hand to be used as an applicator, said device comprising a platform, a cushioning pad carried thereby, apertured extensions on the ends of said platform, extensible members connected to said extensions and passing underneath the pad for holding the device seated on the fingers of a person's hand, an arched supporting spring having one end free for movement with respect to the platform, said spring having parallel slots in the other end portion, fastening means extending through said slots and into the platform to hold one end of the spring secured in place, said fastening means adapted to be loosened to permit shifting of the spring for varying the effective length thereof, and an electric plunger type solenoid unit above the spring and having the plunger thereof secured thereto to transmit vibrations to said spring for transmittal to the platform and said extensible members and thence to the fingers of the operator's hand.

3. A hand supported massage device comprising a vibration transmitting base for mounting on an operator's hand, a floating vibration producing means above the base, and a spring support for said means having one end secured to the base and the other end free to be whipped into contact with the base to transmit the vibrations thereto for transmittal to the operator's hand.

4. A massage device comprising an arched spring, an applicator base secured to one end thereof, and means carried on the spring intermediate the ends thereof for whipping one end of the spring into contact with said base to transmit vibrations thereto for massaging purposes.

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