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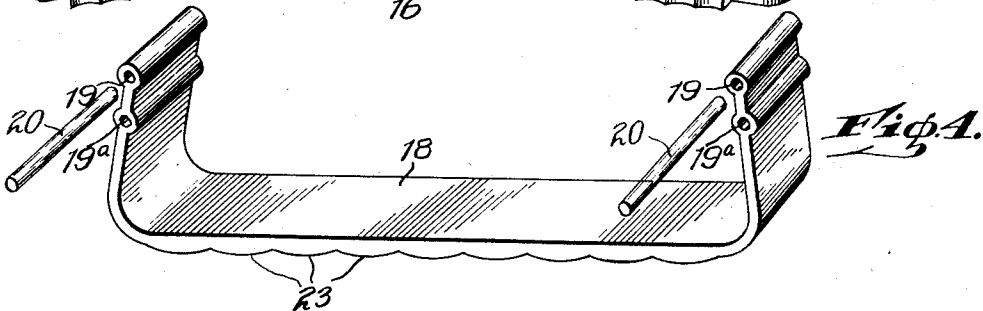
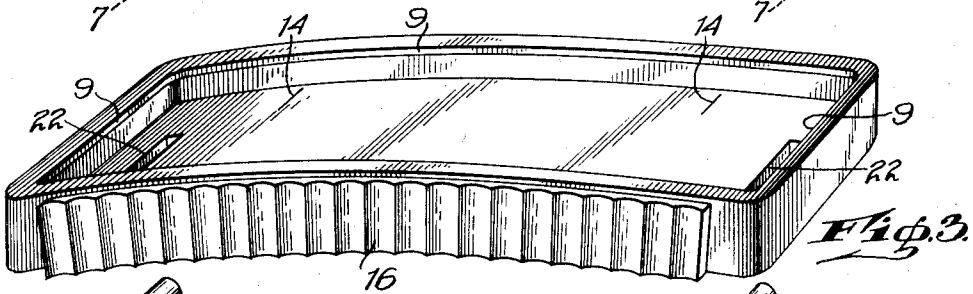
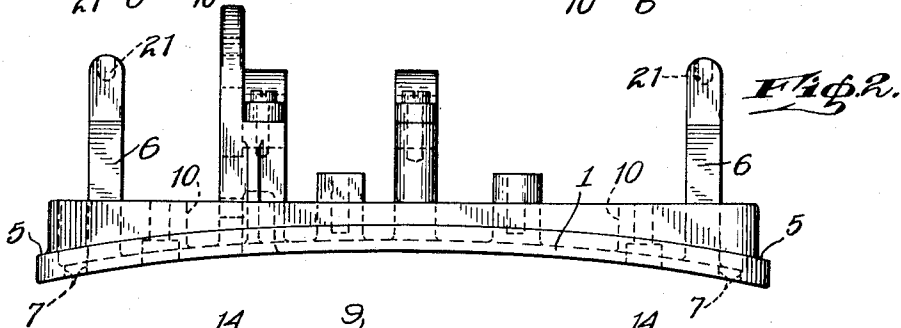
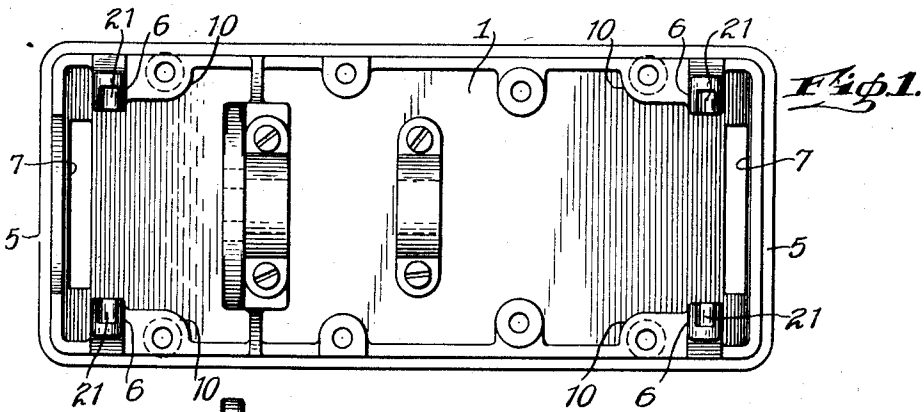
W. A. THOMAS

2,287,501

VIBRATOR

Filed Nov. 25, 1940

2 Sheets-Sheet 1



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INVENTOR

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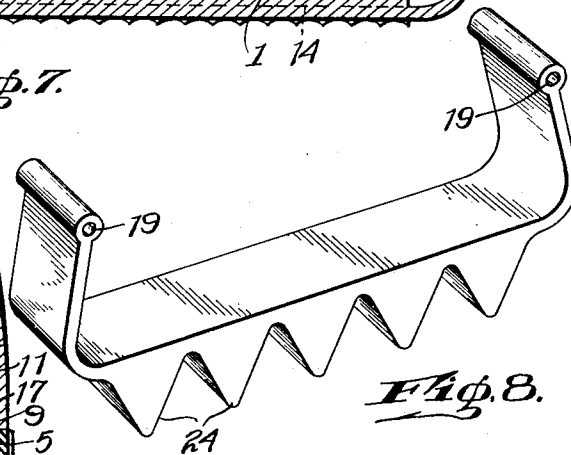
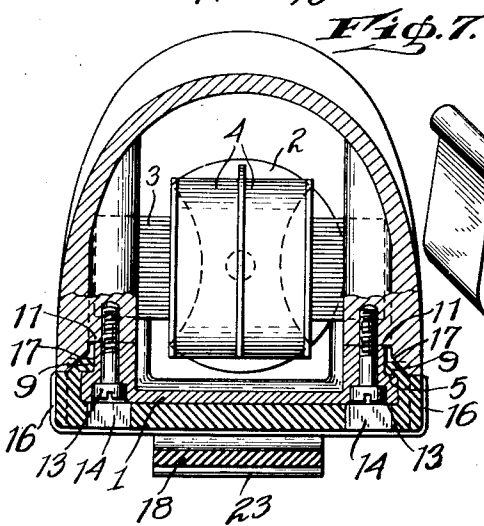
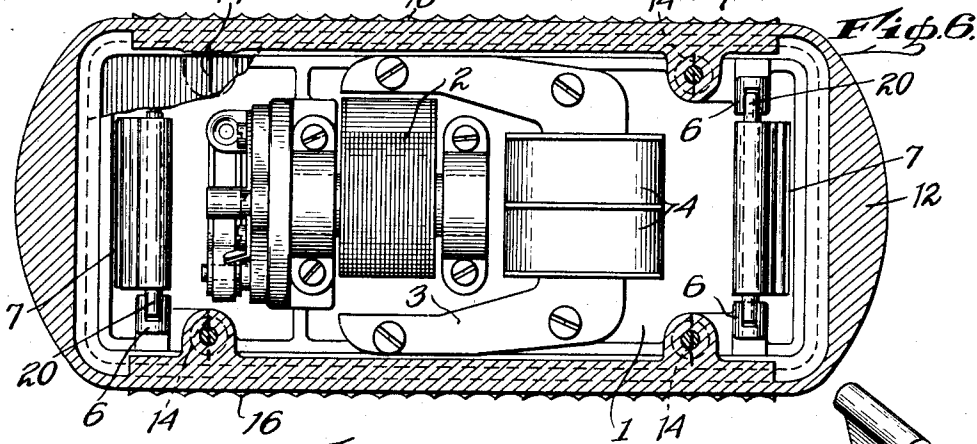
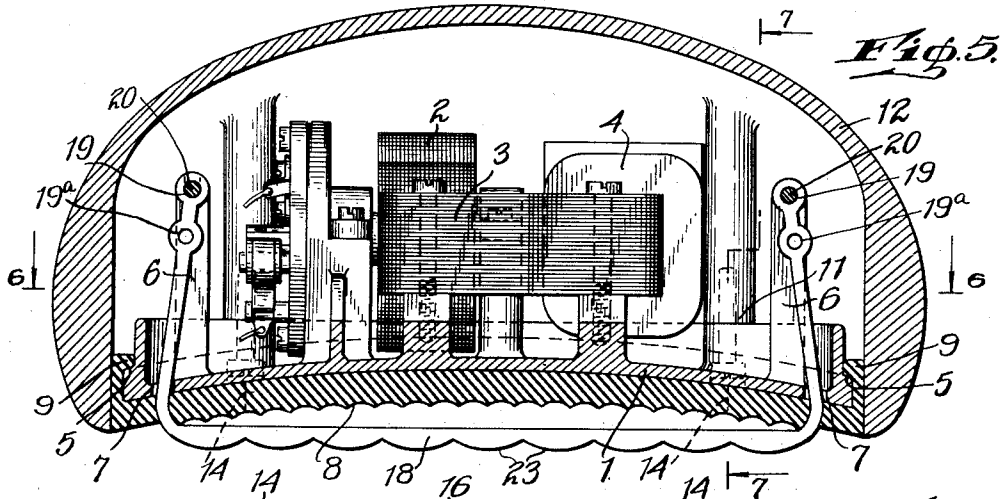
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VIBRATOR

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,287,501

VIBRATOR

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Application November 25, 1940, Serial No. 367,013

7 Claims. (Cl. 128—32)

The invention relates to self-contained electric hand-vibrators, by which is meant vibrators incorporating a vibratory electric motor and adapted to be mounted on the back of the hand to vibrate the fingers thereof, the fingers in turn being applied as massage elements to the portion of the anatomy to be treated.

The general object of the invention is to provide an improved vibrator of the character described, affording various economies and advantages from the standpoint of manufacture and assembly. More particularly the invention is concerned with and provides for the improvement of the hand-engaging parts of the vibrator and the method of attaching the same to the vibrator itself, all as illustrated in preferred form in the accompanying drawings.

In the drawings, Fig. 1 is a plan view of the base or chassis of the vibrator; Fig. 2 is a side view of the base; Fig. 3 is a perspective view of the cushion pad; Fig. 4 a perspective view of the hand strap; Fig. 5 a vertical section of the assembled vibrator; Fig. 6 a horizontal section on the line 6—6 of Fig. 5; Fig. 7 a vertical section on the line 7—7 of Fig. 5; and Fig. 8 a perspective view of a modified form of hand strap.

Although not limited to vibrators of the particular kind illustrated, the invention is shown applied to a vibrator of the type adapted to be mounted on the backs of the fingers between the first or basal joints and the second joints of the fingers. Such vibrators comprise, in general, some sort of base for engagement with the backs of the fingers, vibrator mechanism mounted on the base, a suitable housing or cover for the mechanism and means for securing the vibrator in position on the hand.

The base, in this instance, comprises a molded or die-cast unit 1 on which is mounted suitable vibrator mechanism, such as an electric motor having an unbalanced armature 2 rotating between the poles of a field magnet 3 energized by field coils 4; but since it forms no part of the present invention, the motor per se will not be described in detail herein. For purposes to be described, this preferred form of base is formed with a shoulder 5 around its entire periphery; also with upstanding posts 6 and, adjacent its ends, with slots 7.

In order to cushion the vibrator to an extent sufficient to avoid abrading or irritating the backs of the fingers while the device is in operation, I provide a pad to be mounted under and extending over the entire area of the base which would otherwise engage the skin. The pad may

be of rubber, which term as used herein comprehends both natural and synthetic varieties or substitutes. The presently preferred material is "neoprene," because, as is well known, it is highly resistant to penetration and deterioration by oils and greases and on that account can be readily cleansed of any oil or grease in the form of massage creams or lotions or natural oils picked up from the hand of the user. As illustrated, the pad is a molded unit having a fluted, flesh-engaging surface 8 (Fig. 5), which tends to resist displacement of the vibrator when in position, and an upstanding and inwardly projecting beaded lip 9 extending around its periphery. In the relaxed condition of the pad, the beaded lip defines an area somewhat less than that of the area of the base, thereby adapting it to contract over the shoulder 5 of the base when the pad is applied to the base in a slightly stretched condition and released. So applied, the pad is snugly fitted to the base and effectively shields it from direct contact with the flesh of the fingers.

The base is provided with spaced seats 10 for engagement with corresponding seats 11 on the inside of a molded housing or cover 12 which completely encloses the vibrator mechanism; and in order to permit the attachment of the housing firmly to the base, while avoiding extraneous attachment means likely to catch on the clothing or abrade the skin, screws 13 are employed, having their heads seating in the base and completely covered by the cushion pad. To facilitate assembly, I provide the pad with appropriately spaced slits 14 through which a suitable screw-driver may be passed to engage screws 13. While the slits are no more than line cuts, the elasticity of the rubber permits the slits to be expanded into openings of a size adequate to pass the screw-driver; and, by the same token, the slits are self-closing, although if desired they may be actually sealed. In consequence, the pad presents to all intents and purposes an unbroken and readily cleaned surface free of any such screw holes or openings as would accumulate grease or massage cream from the hand of the user; and, at the same time, the housing-securing screws are concealed against unauthorized tampering.

According to the foregoing construction, the attachment of the cushion pad to the base is not dependent upon the screws 13; and although the pad, if of rubber, can be contracted on and thereby held to the base as above described, it is preferred to provide other means for positively securing it against displacement. Accord-

ing to my invention, this purpose is served by the housing or cover arranged to enclose the vibrator mechanism, the housing being adapted to be secured to the base in clamping engagement with the pad.

To this end, the housing 12 is so dimensioned that the inner edges of its open side closely fit the periphery of the base with the pad thereon. The engagement of the end walls of the housing with the pad is clearly shown in Fig. 5. The side walls of the housing, as shown in Fig. 7, are shorter than the end walls, so as to seat on the top or shoulder of the protruding portion 16 which is molded along the sides only of the pad and which, as indicated, is ornamentally fluted to conform in appearance to the under or flesh-engaging surface of the pad. Also, the inner edge of each side wall of the housing is bevelled, as at 17 (Fig. 7) to engage the outer corner of the beaded edge of the pad. Thus, when the housing is drawn down on its seats on the base by screws 13, these bevelled edges compress and firmly hold the engaged marginal portions of the cushion pad against the base. As will be understood, the beaded edges of the pad, both along its sides and at its ends, secure the pad against displacement or removal so long as the housing is in place. By this construction, also, the vibrator is completely sealed against both the escape of oil from and the entry of foreign matter into the housing.

In order to hold the vibrator in position on the hand, a strap or band 18 is provided which likewise is preferably of molded rubber and adapted to be secured by its ends to the vibrator within the housing, so as to avoid extraneous fastening projections.

In the form illustrated, the ends of the hand strap are molded with loops or eyes 19 to receive metal pins 20 (Fig. 6) which project beyond the sides of the strap and seat in slots or recesses 21 (Fig. 1) formed in the tops of the posts 6. In order to guard against the pins jumping out of the slots when the user's hand is removed from the strap, the strap is of such length that it is under slight tension even when not in use, so that the pins are held down in the slots at all times. Ordinarily such initial tension would be undesirable because likely to increase to such an extent upon the insertion of the hand into the loop as to cause the fingers to be gripped and confined too tightly for comfort; but, in the present case, this result is avoided by making the posts 6 of such height that the ends of the strap are anchored high up in the housing, as appears in Fig. 5, thereby permitting the use of a strap of such abnormal length that the tension increase which occurs when the hand is inserted is much less than would occur with an elastic band of a length just sufficient to embrace the fingers or hand and having its ends attached to the vibrator adjacent the plane of the base. In order that the strap may be so applied to the vibrator as to be under appropriate tension, one or more additional pin-receiving loops or eyes 19^a may be molded in it at different distances from the ends of the strap, as indicated in Fig. 4.

As shown, the cushion pad is provided with slots 22, registering with the base slots 7, through which the strap is passed; and, in order to prevent the entry into the housing of cream or the like picked up from the user's hand, the slots are made slightly smaller than the cross-section of the strap, so that, as the strap contracts lengthwise through the slots upon the removal of the

hand, the strap is wiped clean of any such cream. At the same time the housing is sealed against the entry of dirt or other foreign matter and the vibrator mechanism protected accordingly. Also, the slight gripping of the strap by the margins of the slots 22 provides further assurance against the pins 20 jumping out of the post slots 21 even though the strap is unduly stretched and allowed to "snap" back, as will be understood.

Plain rubber straps as heretofore proposed to be used as vibrator grip bands have a tendency under some circumstances to embed themselves to a disagreeable extent in the fleshy front of the hand (the fingers in this instance) and I have found that this tendency can be minimized by reinforcing and rendering less flexible, laterally, the intermediate portion or central stretch of the strap which engages the skin. The reinforcement need not be and preferably is not continuous throughout the portion in question and is achieved in a quite simple manner in the form of strap shown in Figs. 4, 5 and 7, by molding the strap with spaced reinforcing elements in the form of transverse ribs 23. The end portions of the strap are relatively thin, and, by reason of their unusual length, already mentioned, aided by the thin portions intermediate the ribs, provide adequate extensibility notwithstanding the over-all reduction thereof resulting from the thickening of parts of the strap to form the reinforcing elements. So formed, or equivalently reinforced, the strap seats itself against the skin with greater comfort to the user and, due to the reduced flexibility of the strap, the hand is more readily inserted into and removed from it.

Ordinarily, vibrators of the kind described are used solely for the purpose first above stated, viz. to vibrate the fingers, which are in turn applied to the portion of the anatomy to be treated. But, according to a further feature of my invention, their use may readily be extended and the treatments supplemented by means of a suitable applicator similar or analagous to the rubber tit applicators of the kind ordinarily intended for manual use without any mechanical vibration or in conjunction with "hand-held" vibrators (as distinguished from vibrators attached to the hand). In its preferred form the supplementary applicator is formed as an integral part of the hand strap. It can, for example, consist of a series of molded mounds 24 (Fig. 8) on the exposed side of the strap, the mounds not only serving the reinforcing function of the ribs 23 but protruding far enough from the fingers and being of a suitable shape to serve as massage elements which, as will be apparent, can be applied conveniently, instead of the vibrated fingers, to the scalp or other parts of the anatomy, as desired.

Having now for purposes of illustration described my invention in detail in its preferred form, I claim:

1. In a vibrator of the kind described, a base, a cushion pad under the base to engage the back of the hand, vibrator mechanism mounted on the base, a housing for said mechanism, a plurality of screws for securing the housing to the base within the area thereof covered by said pad, the latter having marginal portions positioned to be engaged and clamped by the housing as the latter is drawn toward the base by said screws.

2. In a vibrator of the kind described, a base, a cushion pad under the base to engage the back of the hand and having portions extending up-

wardly and inwardly over edges of the base, vibrator mechanism mounted on the base, a housing for said mechanism adapted to bear upon the top of said upwardly and inwardly extending portions of the pad to clamp the same to the base and means for securing the housing to the base.

3. In a vibrator of the kind described, a base having a peripheral shoulder, a cushion pad therefor having marginal portions to embrace said shoulder, a housing and means for securing the same to the base with its edges in clamping engagement with the said marginal portions of the pad.

4. In a vibrator of the kind described, a base, a rubber cushion pad under the base to engage the back of the hand, vibrator mechanism mounted on the base, a housing for said mechanism adapted to clamp the pad to the base, screws for securing the housing to the base with their heads covered by said pad, and self-closing slits in the pad in alignment with said screws to permit passage of the screws therethrough.

5. In a vibrator of the kind described, a base, a cushion pad under the base to engage the back of the hand, vibrator mechanism mounted on the base, a housing to enclose such mechanism,

spaced, registering slots in said base and pad, a hand strap passing through said slots, means for securing the ends of the strap within the housing, and means for attaching the housing to the base in clamping engagement with said pad.

6. In a vibrator of the kind described, a base, a cushion pad under the base to engage the back of the hand, vibrator mechanism mounted on the base, a housing to enclose such mechanism, spaced, registering slots in said base and pad, a hand strap passing through said slots, means for securing the ends of the strap within the housing, openings in said pad to provide access to screws for securing the housing to the base, and means for securing the pad to the base independently of said screws.

7. In a vibrator of the kind described, a base, a cushion pad under the base to engage the back of the hand, vibrator mechanism mounted on the base, a housing completely enclosing such mechanism, a hand strap having its ends secured within the housing, and slots in said pad for the passage of the strap therethrough, said slots being smaller than the cross section of the strap.

WILLIAM A. THOMAS.