United States Patent [19]

Teranishi

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[45] **Sept. 24, 1974**

[54] **MASSAGING VIBRATOR**

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[73] Assignee: **Kabushiki Kaisha Teranishi Denki Seisakusho,** Aichi-ken, Japan

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Apr. 21, 1972	Japan	47-46644
Apr. 21, 1972	Japan	47-46645
Apr. 21, 1972	Japan	47-46646
Apr. 21, 1972	Japan	47-46647
Apr. 21, 1972	Japan	47-46648

[52] **U.S. Cl.** **128/52,** 128/55

[51] **Int. Cl.** **A61h 7/00**

[58] **Field of Search** 128/51, 52, 54, 55, 44

[56] **References Cited**

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Primary Examiner—Lawrence W. Trapp

Attorney, Agent, or Firm—George B. Oujevolk

[57] **ABSTRACT**

A massaging vibrator gives instantaneous shocks to desired body parts of a person, and at the same time, the vibrations of the mechanism are moderate and a good effect is produced.

5 Claims, 9 Drawing Figures

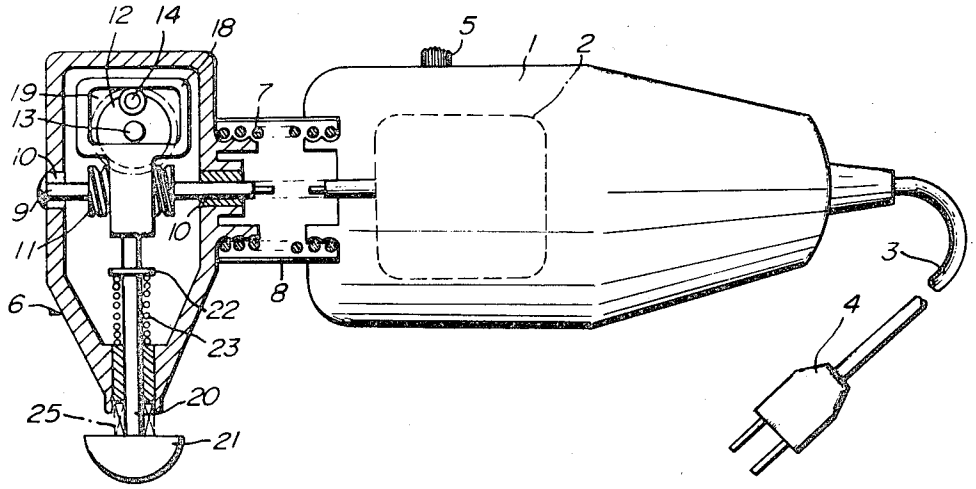


FIG. 1

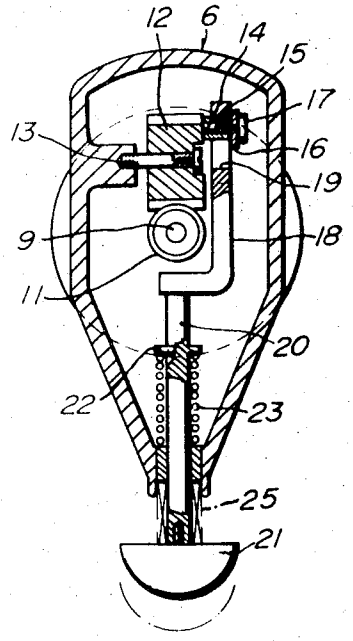

12
6
14
15
17
13
16
19
9
18
11
20
22
23
25
21

FIG. 2

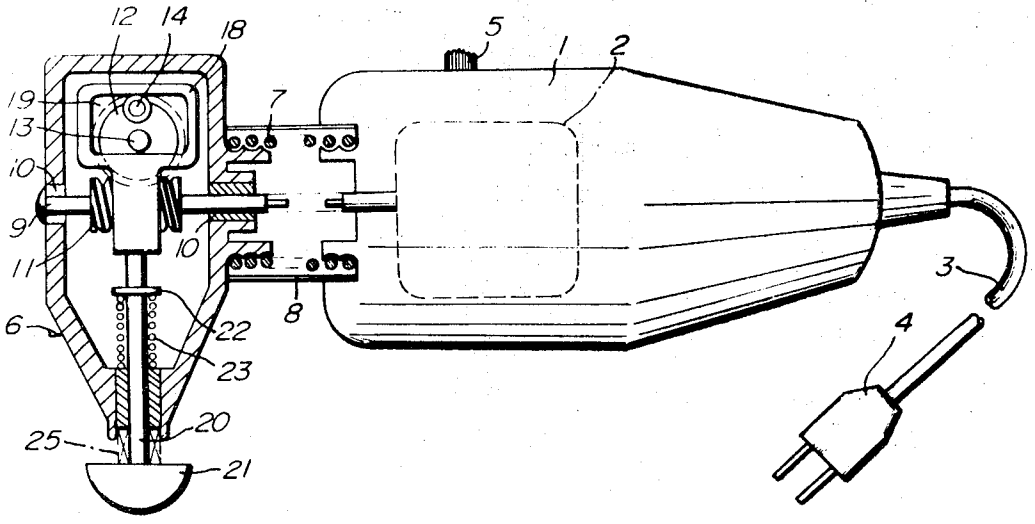

12
14
18
5
1
2
19
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22
4
23
20
25
21

FIG. 3

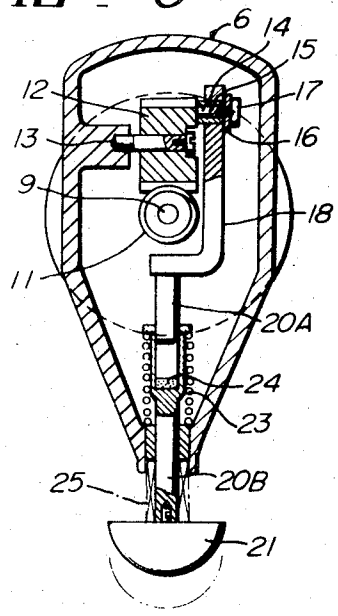

6
14
15
12
17
13
16
9
18
11
20A
24
23
25
20B
21

FIG. 4

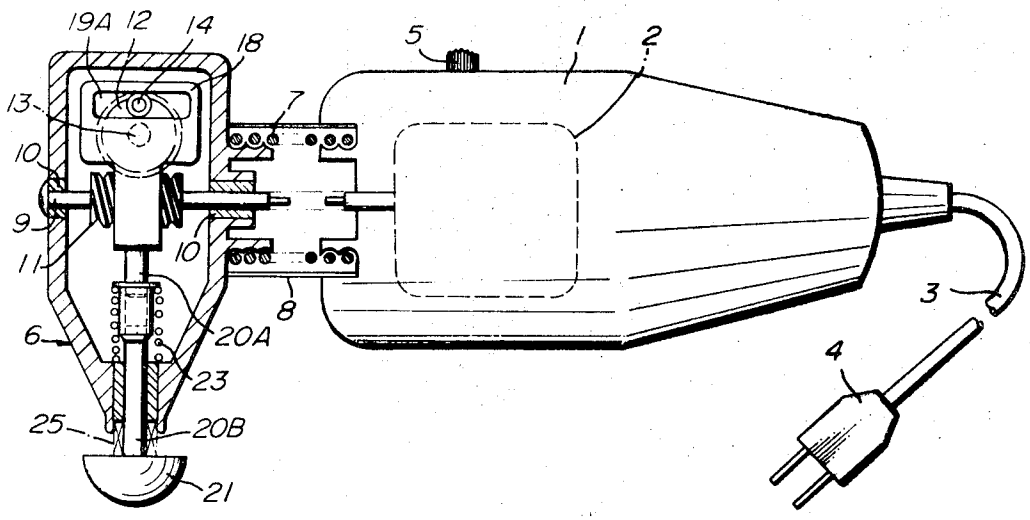

19A
12
14
18
5
1
2
13
7
10
9
10
11
8
3
6
20A
4
23
25
20B
21

FIG. 5

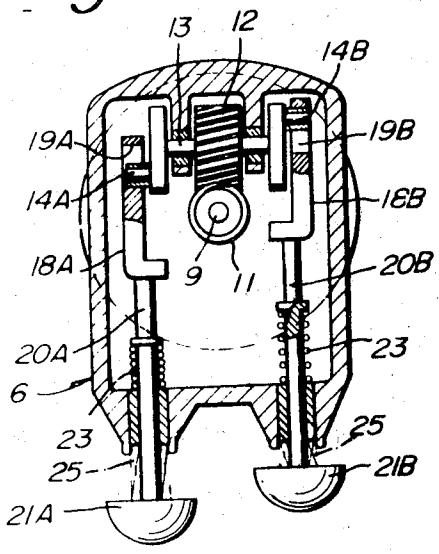

13
12
14B
19A
19B
14A
18B
18A
9
11
20B
20A
23
6
23
25
25
21B
21A

FIG. 6

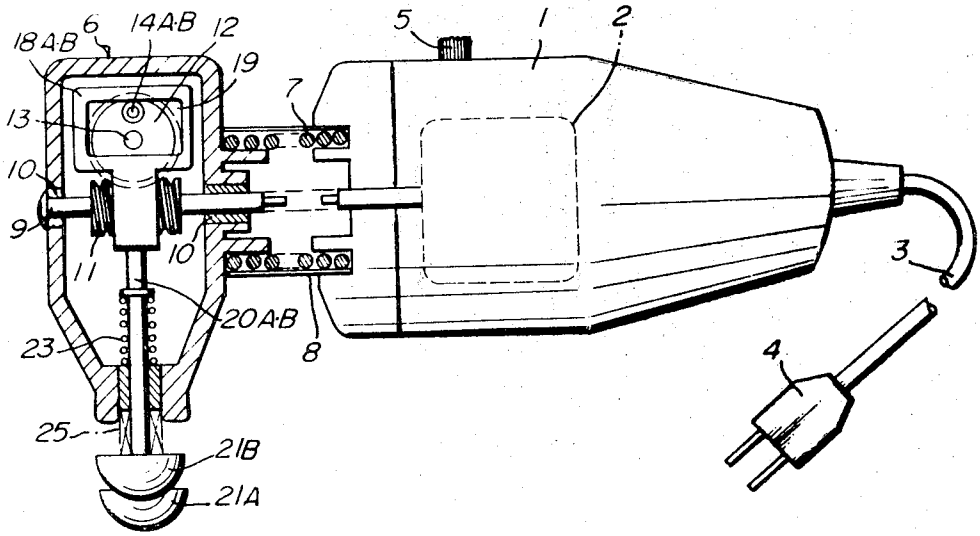

18A-B
6
14A-B
12
19
5
1
2
7
13
10
9
11
10
3
20A-B
8
4
23
25
21B
21A

FIG. 7

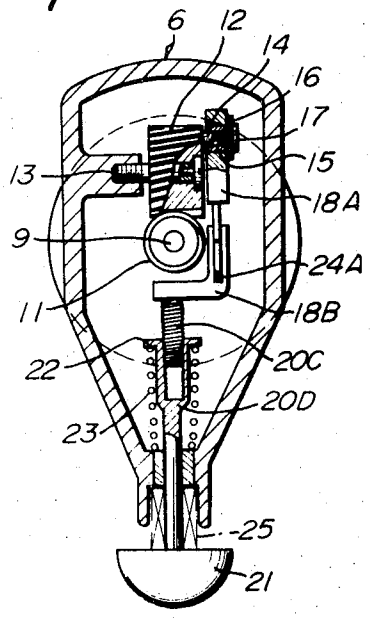

6
12
14
16
17
15
13
18A
9
24A
11
18B
22
20C
20D
23
25
21

FIG. 8

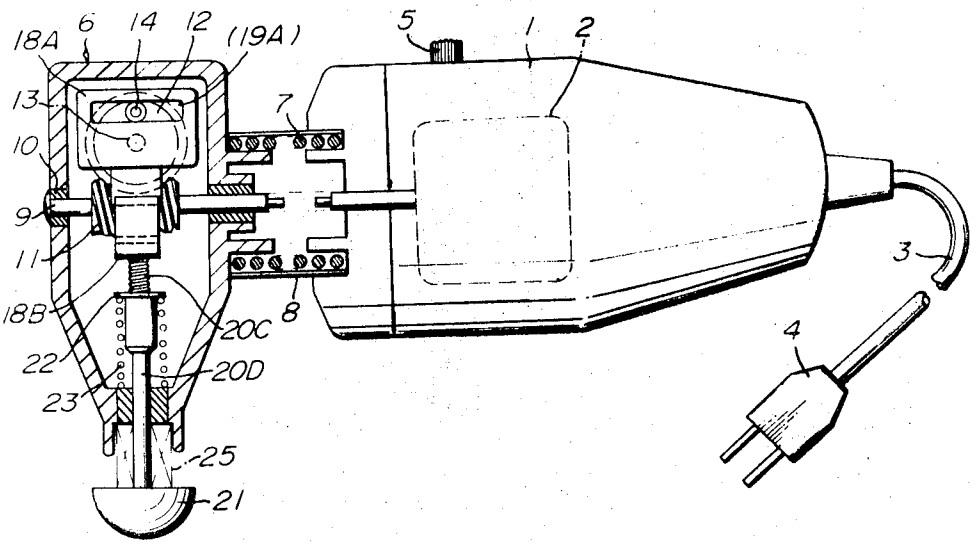
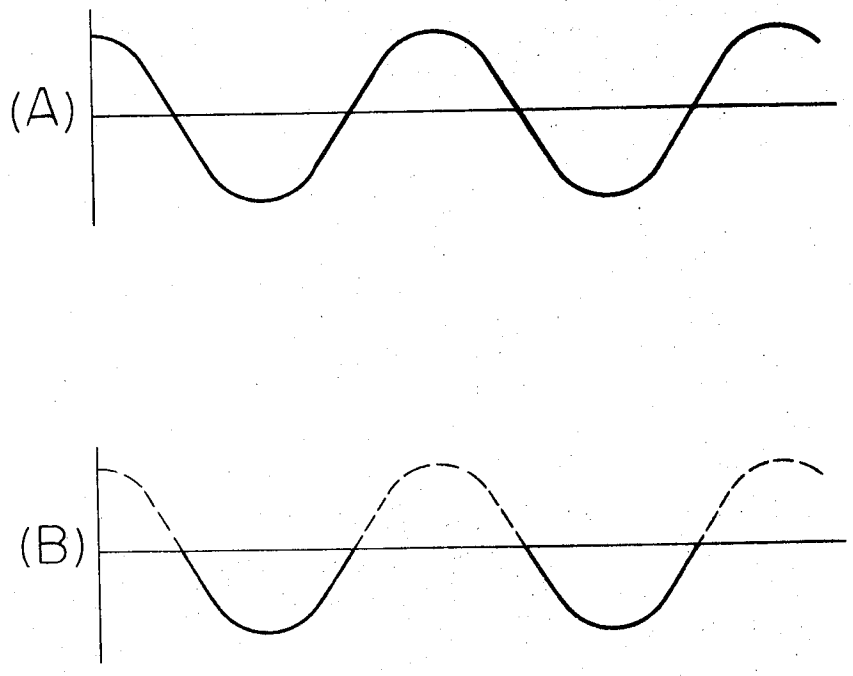

18A
6
14
12
(19A)
5
1
2
13
7
10
9
11
3
18B
8
20C
4
22
20D
23
25
21

FIG. 9



MASSAGING VIBRATOR

BACKGROUND OF THE INVENTION

The present invention relates to an improved massaging vibrator, which instantaneously gives shocks to desired body parts of a person, heightens the massaging effect and the vibrations of the mechanism are moderate so as to provide good effective massaging while the vibrator is miniaturized and durable.

BRIEF DESCRIPTION OF THE PRIOR ART

Generally speaking, an electric portable massaging vibrator of small size comprises a motor which is the driving source and a vibrating part which is vibrated by the motor to provide massaging action. In such a conventional device design does not specially relate to the motor nor the vibrating mechanism so that shocks of the vibrating part of the device to the desired body parts of the person lack instantaneous effect so that effective massaging action proportionate to the vibration is not obtained. Furthermore, since the vibrating shock is transmitted directly to the grip or to some other mechanism the shock brings about an uncomfortable operation and damages the mechanism.

OBJECTS OF THE INVENTION

The present invention has been devised to remove the aforesaid defects or faults. The primary object of the invention is to moderate the shock transmission to the grip and other mechanisms by providing buffer parts to places requiring shock absorption in order to provide a comfortable massaging action and to prevent damage to the massaging machine.

A further object of the invention is to miniaturize a massaging device, and since the structure is simple, the proposed device may be produced in small size.

SUMMARY OF THE INVENTION

Generally speaking, there is provided a gearpin hole in the vibrating mechanism so as to concentrically transmit action from the motor to a vibrating portion at a specific point. Thus, the vibrating shock is given instantaneously and this heightens the massaging action.

Other features and advantages will become apparent from the following detailed explanation of the embodiments of the invention when taken together with the accompanying drawing, in which:

BRIEF EXPLANATION OF THE DRAWINGS

FIG. 1 is a cross-sectional front view of a proposed device;

FIG. 2 is a cross-sectional side view of the above;

FIG. 3 is a cross-sectional front view of another embodiment of the invention;

FIG. 4 is a cross-sectional view of the embodiment of FIG. 3;

FIG. 5 is a cross-sectional front view of a further embodiment of the invention;

FIG. 6 is a cross sectional side view of the above embodiment of FIG. 5;

FIG. 7 is a cross-sectional view of a still further embodiment of the invention;

FIG. 8 is a cross-sectional side view of the embodiment of FIG. 7; and,

FIG. 9 is a comparative explanatory graph showing vibrations of the proposed device and that of the prior one.

DETAILED DESCRIPTION

The invention will be explained with reference to the accompanying drawings showing a grip **1** in which a motor **2** is housed and which has a cord **3** with a plug **4** and a switch **5.** Also there is a casing **6** in which a massage head is connected to grip **1** with a spring **7,** this connection being covered **8** with an appropriate material to prevent injuries by dust and give a neat appearance. A rotary shaft **9** is connected to the motor **2** at one end and is rotatably supported in the massage head of the casing **6** with the other end through bushing **19** and further is equipped with a worm gear **11** to rotate with it on a side where shaft **9** is positioned within the casing. There is also a second gear **12** to engage gear **11** which is rotatably supported on a shaft **13** at right angles to shaft **9.** Fixed on said gear **12** is a gearpin **14** in such a manner that a buffer ring **15** is held by a stopper **17** via a washer **16.** Reciprocation action is provided by a lever **18** of L-shape when viewed from the side, an upper portion of which is formed with a rectangular gearpin slot or hole **19,** and gearpin **14** is rotated within this hole **19** by the gear **11** by the rotation of the motor **2** so as to push down on the lever **18.** Looking now specifically at FIG. **2** and more specifically at gear **12,** pin **14,** lever **18** and vibrating rod **20** connected to the lever, it must be remembered that the pin **14** is fixed to gear **12.** As the gear turns, pin **14** also moves together with the periphery of the gear. In FIG. **2** lever **18** and rod **20** are in the uppermost position. As the gear **12** turns, pin **14** moves. As pin **14** engages lever **18** in rectangular gear pin hole **19,** an intermittent motion is imparted to rod **20.** Considering the top position of the pin **14** as the 0° point, a slow vibrating motion is imparted to rod **20** for about 120°. At about 120° a forceful downward motion in produced until about 180° or the lowest point when the sequence is repeated in the reverse direction. Vibrating rod **20** is connected under lever **18** and a part extends out of the casing **6** and has a vibrating head portion **21.** This vibrating head portion **21** may be covered with an appropriate buffer material so that the massaging action for the affected parts will be more effective. A spring **23** is disposed between a flange **22** of the vibrating rod **20** and the bottom of the inside of the casing **6** and acts so as to always pull up the vibrating head portion **21.**

FIGS. **3** and **4** show another embodiment as to the relation between a gearpin **14** and a lever **18,** as this gearpin **14** is inserted in an elongated rectangular hole **19***a* and always contacts at least the upper and lower portions of this hole **19***a*, no buffer action is created. For this reason, a vibrating rod is divided into two parts **20***a* and **20***b*, and when no force is given to vibrating portion **21,** there is play between said parts **20***a* and **20***b*, accordingly a well conditioned buffer action may be effected as in the previous embodiment. In this connection, it will be convenient that a buffering material **24** is put between the two parts as shown in FIG. **3.**

FIGS. **5** and **6** show a further embodiment. There are provided two gearpins **14***a*, **14***b* at both ends of a shaft **13** having thereon a second gear **12** to engage gear **11** on a rotary shaft **9** connected to motor **2.** Gearpins **14***a*, **14***b* are disposed in holes **19***a*, **19***b* of levers **18***a*, **18***b* so that those gearpins are parallel, and vibrating por-

tions 21*a*, 21*b* at the outsides of the vibrating rods 20*a*, 20*b* are reciprocated alternatively. In this way the vibrating shock to the mechanism is moderated and good massaging may be expected.

FIGS. 7 and 8 show a still further embodiment according to the invention. A lever is divided into two parts 18*a* and 18*b*, the upper lever part 18a being formed with a hole 19*a* for a gearpin 14. The divided lever parts, 18*a* 18*b* are coupled to each other and a buffer material 24*a* is placed at the bottom of a groove of the lever 18*b*. The vibrating rod is also divided into two parts 20*c*, 20*d* which are held together with screw couplings which are adjustable. There is also a stopper between the casing 6 and the vibrating portion 21.

According to the invention, as hereinbefore explained, the buffer materials are arranged on the lever or the vibrating rod. Thus, while the prior art devices generate the upper and lower vibration as shown in the graph of FIG. 9*a*, the invention cancels the useless upper vibration as shown in FIG. 9*b*, thus generating vibrating shocks to the vibrating portion instantaneously and this heightens the massaging effect. Further, the buffer materials are set at the connecting part between the grip and the casing to moderate vibration to the grip for well conditioned massaging so that the machine can be used for a long period of time and as the structure is simple, the device may be manufactured econimically.

I claim:

1. A massaging vibrator comprising in combination:

a. a grip portion (1) having a motor (2) therein and a motor drive shaft (9) extending therefrom with a drive gear (11) thereon;

b. a massage head (6) connected to said grip portion receiving said drive shaft (9) with said gear therein;

c. a vibrating rod disposed in said massage head (6) normal to said drive shaft with an outer portion extending out from said massage head, an inner portion connected to a lever (18) having a rectangular gear slot (19) therein and a spring between said vibrating rod outer portion and said massage head;

d. a driven gear (12) connected in said massage head (6) with a gear pin (14) thereon, said driven gear (12) being driven by said drive gear (11), said gear pin (14) always engaging said slot and being in contact with one of the longer rectangular sides during the rotation of said driven gear so as to reciprocate said vibrating rod (20) in an intermittent vibrating motion as said drive gear (11) turns.

2. A massaging vibrator according to claim **1**, wherein said lever is divided into two parts which are coupled with play in the direction of movement and one part of the divided lever is formed with said slot to mount said gear pin therein.

3. A massaging vibrator according to claim **2** having a stopper between the casing and the vibrating portion of the divided vibrating rod parts.

4. A massaging vibrator according to claim **1** wherein the vibrating rod is divided into two parts and these divided rod parts have a play in the direction of movement.

5. A massaging vibrator according to claim **4**, wherein said two parts are coupled by an adjustable screw.

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