March 30, 1943. E. C. HEARD 2,314,981

VIBRATOR ATTACHMENT FOR WASHING MACHINES

Filed Feb. 14, 1940

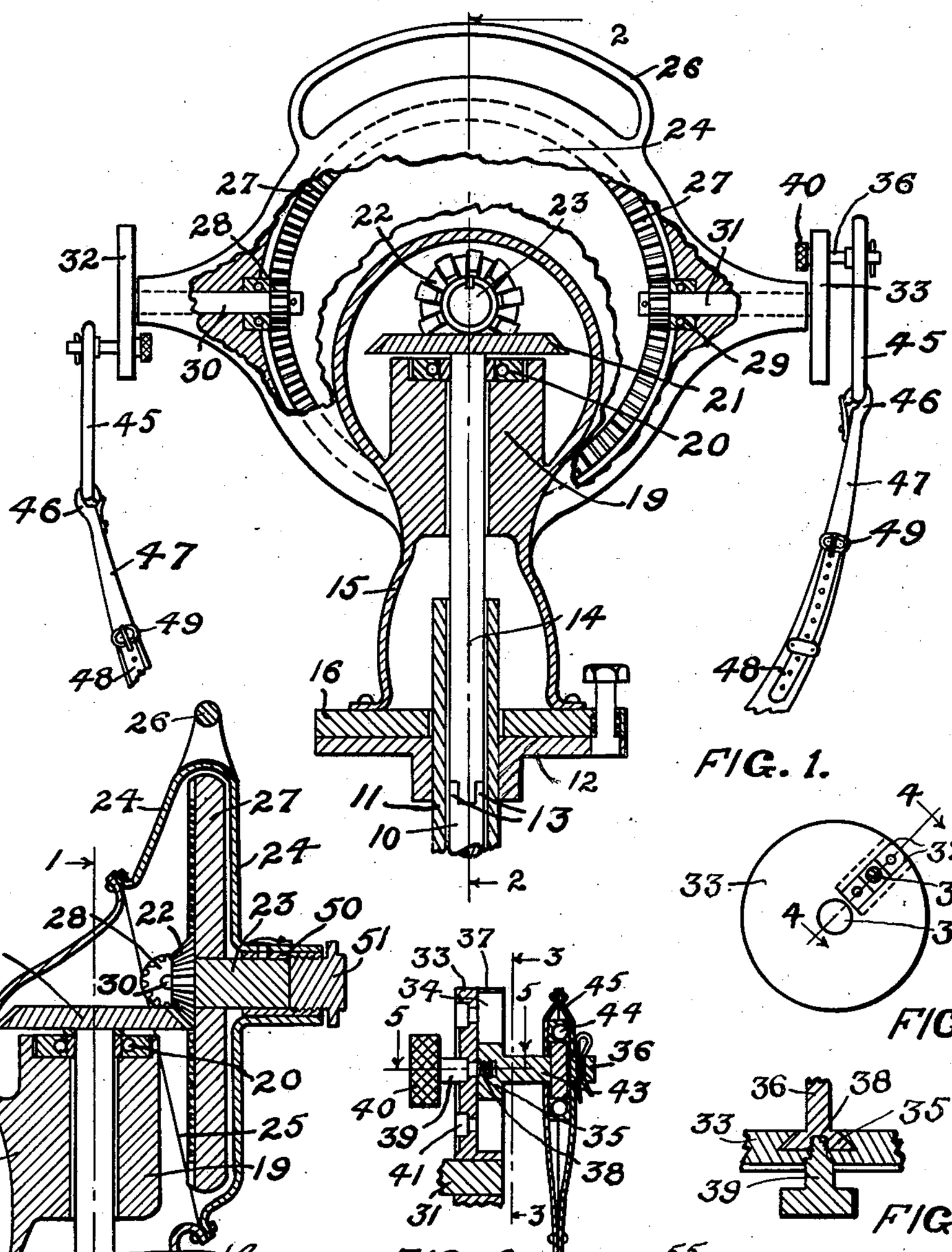

FIG. 1.

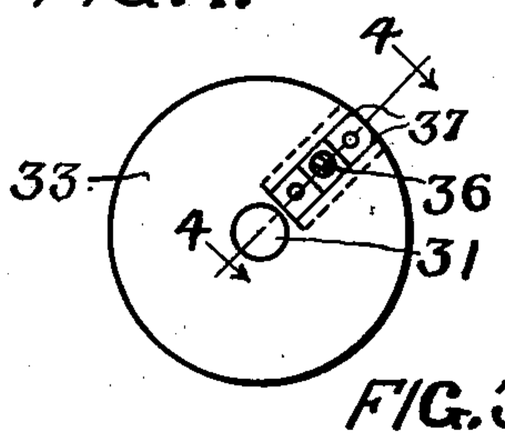

FIG. 3.

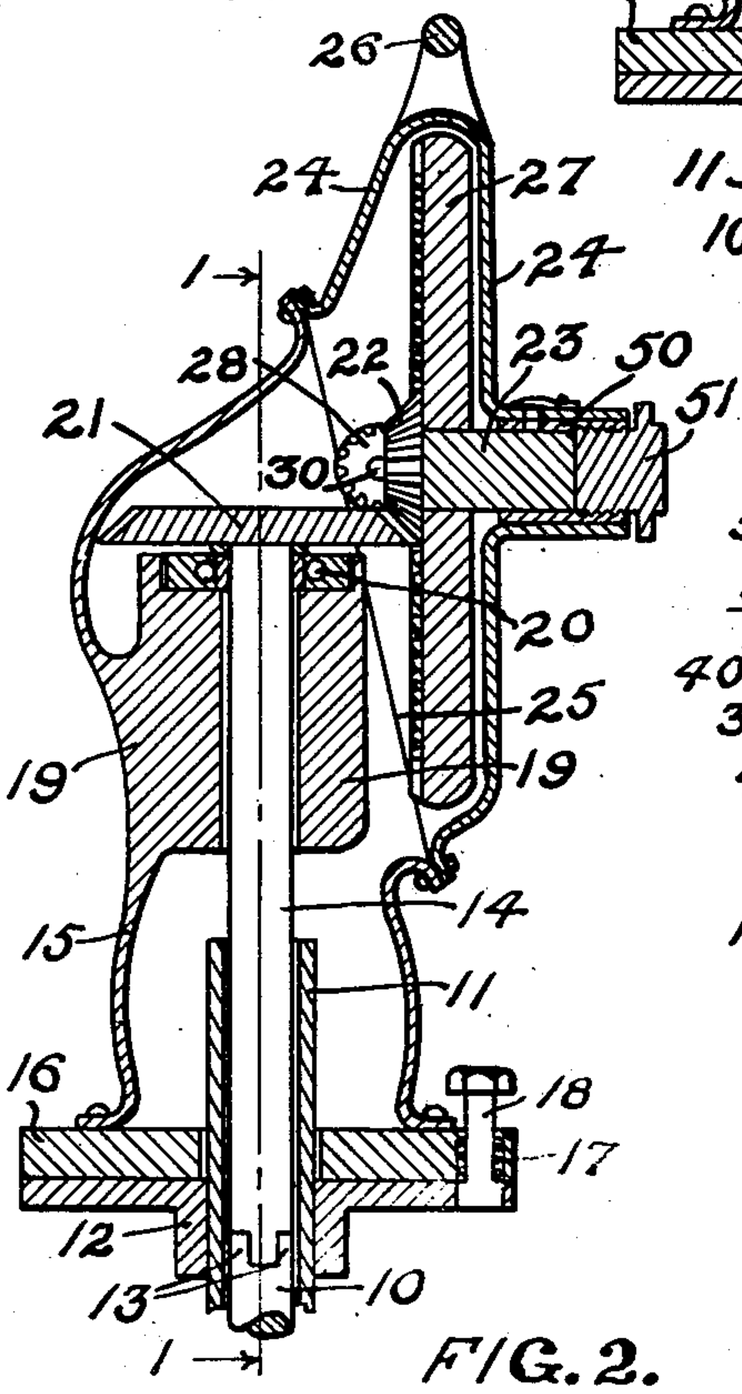

FIG. 2.

FIG. 4.

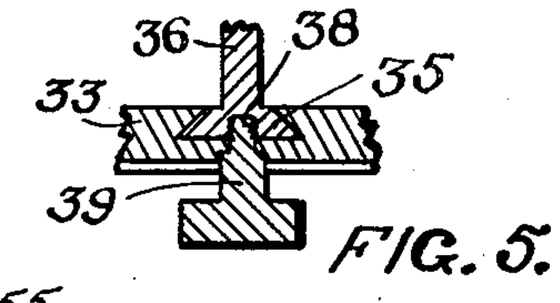

FIG. 5.

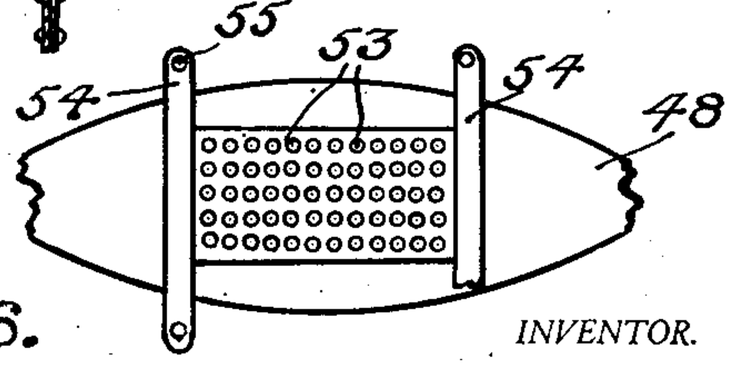

FIG. 6.

INVENTOR.

EDWARD C. HEARD

BY

Samuel E. Foulke

ATTORNEY.

Patented Mar. 30, 1943 2,314,981

UNITED STATES PATENT OFFICE

2,314,981

VIBRATOR ATTACHMENT FOR WASHING MACHINES

Edward C. Heard, Los Angeles, Calif.

Application February 14, 1940, Serial No. 318,857

2 Claims. (Cl. 128—63)

This invention relates to a device which is adapted for attachment to a washing machine to convert it temporarily into a vibrator for massaging purposes.

Most of the modern washing machines are electric driven and are provided with roller wringers which are adapted to be swung about into various angular positions with respect to the tub or container in which the clothes are washed. The rollers are rotated by power transmitted through a vertical shaft which is journaled at one side of the tub. This shaft is usually divided transversely and the abutting ends of the two parts are provided with clutch members. The wringer is adapted to be removed from the rest of the washing machine by lifting it vertically, thus unclutching the two parts of the shaft, one part remaining geared to the driving mechanism of the machine and the other part coming away with the wringer.

My vibrator attachment is provided with a shaft which has a clutch member at its lower end that is adapted to engage with the clutch member on the shaft part which remains geared to the driving mechanism, so that when the said mechanism is operated the shaft of the attachment is rotated. The attachment is thus substituted for the wringer. Both the wringer and the attachment are relatively light and this substitution can be easily and quickly effected. The vibrator is of the belt type which is vibrated by means connected with the said shaft of the vibrator, the massaging being effected by the operator leaning on or otherwise presenting a part of his body to the vibrating belt.

As is well known, washing machines are large and take up considerable floor space. Moreover, they are expensive. Belt vibrators take up almost as much floor space and are also expensive. Few homes can afford the room and expense of both of these machines. My invention adds nothing to the floor space required for the washing machine alone, and it adds but little to the cost of that machine. In doing a family wash, the wringer is used but a relatively small part of the time. During the major part the wringer may be removed and the vibrator substituted, and the operator may use it at the same time that the clothes are washing, or at any other time except when the wringer is in use.

In the accompanying drawing I have shown, for illustrative purposes only, my present preferred structure. Many details shown may be modified and would be modified so as to best adapt the vibrator to the particular machine to which it is to be applied. I desire it to be understood therefore, that the claims hereof are not to be interpreted as limited to details any further than their express terms require.

In the drawing, Fig. 1 is a vertical sectional view on line 1—1 of Fig. 2, the central part of the belt being broken away as unnecessary to the disclosure; Fig. 2 is a central vertical section on line 2—2 of Fig. 1; Fig. 3 is a view on line 3—3 of Fig. 4, showing one of the crank disks in elevation; Fig. 4 is a section through a part of one of the crank disks on line 4—4 of Fig. 3; Fig. 5 is a section taken on line 5—5 of Fig. 4, and Fig. 6 is a side elevation of the central part of the belt showing the same with a scalp masseur applied thereto.

Taking up a detailed description by the use of reference characters which apply alike to all of the views, 10 represents the rotatable wringer shaft of the washing machine proper, the same being suitably geared to the power mechanism of the machine. This is all well understood and, since this machanism varies in the machines of different manufacturers, no attempt is made to show it. The shaft 10 extends into and rotates in a sleeve 11 which rises from the machine frame. Surrounding the sleeve and stationarily attached to the machine proper is a disk 12. The upper end of the shaft 10 is provided with clutch members 13. All these parts are conventional elements of the washing machine. When the machine is rigged up for use of a wringer, a shaft enters the sleeve from above and engages with the clutch members 13. This latter shaft is mounted in a frame member which is part of the wringer and which has a base supported upon the disk 12, being attached to it by some suitable means.

Similarly, the vibrator is provided with a shaft 14 which is adapted to enter the sleeve 11 and clutch with the shaft 10. The shaft 14 is carried by and is journaled in a frame member 15, at the base of which is a disk 16 which rests and turns upon the disk 12. The disk 16 is provided with a socket containing a coiled spring 17. The spring 17 rests upon the head of a bolt 18, which projects upwardly through the socket and the upper wall thereof. The head normally extends into an aperture in the disk 12 and thus holds the disk 16 from turning horizontally. By pulling up on the bolt 18, the head is released from the disk 12 and the frame 15 may then be swung about the shafts 10 and 14 until the head of the bolt snaps into another aperture in the disk. Fig. 1 shows the bolt engaged in one aperture while in Fig. 2, which is taken at a right angle from Fig. 1, it is

shown engaged in another aperture. The advantages secured by providing the plurality of apertures in disk 12 will be set forth hereinafter.

The frame member 15 is provided with a boss 19 through which the shaft 14 loosely passes and this boss supports a ball or roller bearing 20 in which the shaft rotates. As its upper end, a bevel gear 21 is fixed on the shaft. This gear meshes with a bevel pinion 22 which is secured to a short horizontal shaft 23, said shaft being rotatably mounted in a housing 24 which constitutes part of the frame member 15, being rigidly secured to said member on a diagonal plane, as represented at 25 in Fig. 2. The frame is thus divided to facilitate assemblage of the various parts. At the top of the housing is a rigid handle 26 by means of which the frame 15 and the entire vibrating mechanism may be lifted and carried. Further, this handle may be grasped by the operator of the vibrator to steady herself and the machine.

Mounted rigidly upon the shaft 23 so as to turn therewith is a large bevel gear 27. The gears 22 and 27 may be cast integrally, if preferred, or both may be keyed or otherwise affixed to the shaft 23. At two diametrically opposite points, the gear 27 meshes with bevel pinions 28 and 29 which are rigidly attached to shafts 30 and 31, respectively, said shafts being journaled in the housing 24 and extended radially from the gear 27. As will be understood, the shafts 30 and 31 are driven from the shaft 14 but at very much higher speeds depending upon the ratios of the connecting gearing. Any desired ratios may be employed, but I now prefer to use a 3 to 1 ratio between gears 21 and 22 and 20 to 1 between gears 27 and 28—29. If these ratios be employed, the shafts 30 and 31 will be given sixty rotations to each rotation of the shaft 14.

The shafts 30 and 31 are in alinement and are horizontally arranged. On their outer ends crank disks 32 and 33, respectively, are secured. Since these disks and their connections with the vibrating belt are alike in all particulars, a description of one will suffice for both. Of course, ordinary cranks could be used instead of the disks, but the latter are considered preferable from the standpoint of safety. Figs. 3, 4 and 5 are assumed to show disk 33. As will be seen from Fig. 3, the disk 33 is perfectly round in side elevation and has no projecting parts on its perimeter to catch clothing or anything else that may accidentally or carelessly contact the disk. The latter is relatively thin and, like all other parts of the apparatus, is made as light as practicable. On its outer side, the disk is provided with a groove 34 which extends only part way through the disk and radiates from one side of the shaft 31. The sides of the groove are beveled to form a slideway for the head 35 of a bolt or pin 36. The said head is beveled to fit the groove as in Fig. 5. To prevent the head from coming entirely out of the groove, the outer end of the latter is partially closed by lips 37 on the disk. The inner side of the head 35 is provided with a threaded socket 38 into which screws the outer end of a holding bolt 39 having a knurled head 40. The bolt is adapted to enter any one of a series of sockets 41 in the inner side of the disk 33 opposite the groove 34. The sockets are in a line which radiates from the shaft 31 so that they are different distances from the shaft. In Fig. 4, three sockets 41 are shown and the bolt 39 is seated in the middle socket. By loosening this bolt until it clears its socket, the bolt and the pin 36 with which it is engaged can be shifted either from or toward the shaft 31 and thus the throw of the pin be varied.

Mounted on the pin 36 is a circular collar or disk 43 forming the inner raceway of a ball or roller bearing 44, the outer raceway of which is confined within a suitable member 45 which, for lightness, is preferably made of sheet metal, the sides of the member being drawn together and secured by rivets, as indicated. Any other suitable structure for holding the outer raceway may be substituted. Attached to the members 45, as by snaps 46, is a strap 47 to which the ends of the vibrating belt 48 are secured, as by buckles 49. The ends of the belt are shown in Fig. 1 and it is to be understood that the central part of the belt, not shown in that figure, expands in width to or near the center where the belt has its maximum width. In Fig. 6 this central part is indicated.

In using the device, the operator usually faces the machine and passes the belt behind him, snapping its ends to the members 45. She then starts the washing machine and leans back against the belt which is now vibrating rapidly due to the arrangement of the crank disks 32 and 33 which are set 180 degrees apart, as shown. As stated, the operator may hold onto the bail or handle 26 to steady herself and the machine. Of course, one may present different parts of her body to the action of the belt, and may vary the amplitude of the vibrations by changing the position of the holding pins 39, as has been explained.

In Fig. 2, I have indicated the housing 24 as drawn out to a tubular formation about the shaft 23. Within this tubular part is a bushing 50 which is threaded interiorly to receive a plug 51. By screwing in on this plug, the shaft 23 may be moved endwise to assure that the gears 22 and 27 mesh properly with the respective gears 21 and 28—29.

In Fig. 6, the belt 48 is shown provided with a pad 52 having a series of projecting nipples or slender and flexible fingers 53 projecting therefrom. This pad is secured to the belt in any suitable way as by straps 54 at its ends which are passed about the belt and are secured by snaps 55 similar to ordinary glove fasteners. This pad is used to massage the scalp by pressing the head against the pad, whereupon the nipples 53 manipulate the scalp, as will be understood without further explanation. Fig. 6 shows the pad simply laid upon the belt. It is secured thereto by bending the projecting ends of the straps over to the rear side of the belt and snapping the fasteners 55.

Having thus described my invention and the manner in which it is used, I claim:

1. In a vibrator attachment for a washing machine of that type which has a removable roller wringer and a shaft with gears connecting the shaft and rollers, the shaft being divided intermediate its ends and having a lower part which remains with the machine proper when the wringer is removed and an upper part which is removable with the wringer, said shaft parts having mating clutch members at their adjacent ends, the combination of a vibrator shaft, a clutch member on the end of said shaft adapted to engage with the clutch member on the end of the lower part of the machine shaft, a frame member within which the vibrator shaft is journaled, a bevel gear attached to the upper end of the vibrator shaft, a short shaft mounted in said frame member and extended at a right angle to

the vibrator shaft, a bevel pinion on the short shaft meshed with the said bevel gear, a large gear on said short shaft and rigidly connected with the bevel pinion, a pair of shafts diametrically arranged on opposite sides of said large gear, each shaft of the pair having a pinion attached thereto and meshed with the said large gear, the ratios of said gears and pinions being such that the shafts of said pair are rotated at high speed as compared with the speed of rotation of the vibrator shaft, a crank disk for and attached to each of the shafts of the pair, a vibrator belt extended loosely from one crank disk to the other and means for attaching the ends of the belt to the respective crank disks.

2. A device as set forth in claim 1 in which the frame member forms a housing for the said large gear and in which the housing is provided with means for moving the short shaft longitudinally to assure proper meshing of the gears and pinions..

EDWARD C. HEARD.