Jan. 17, 1956 L. HERMAN 2,730,737

BRUSH ROTATING AND POSITIONING DEVICE

Filed Aug. 5, 1953 2 Sheets-Sheet 1

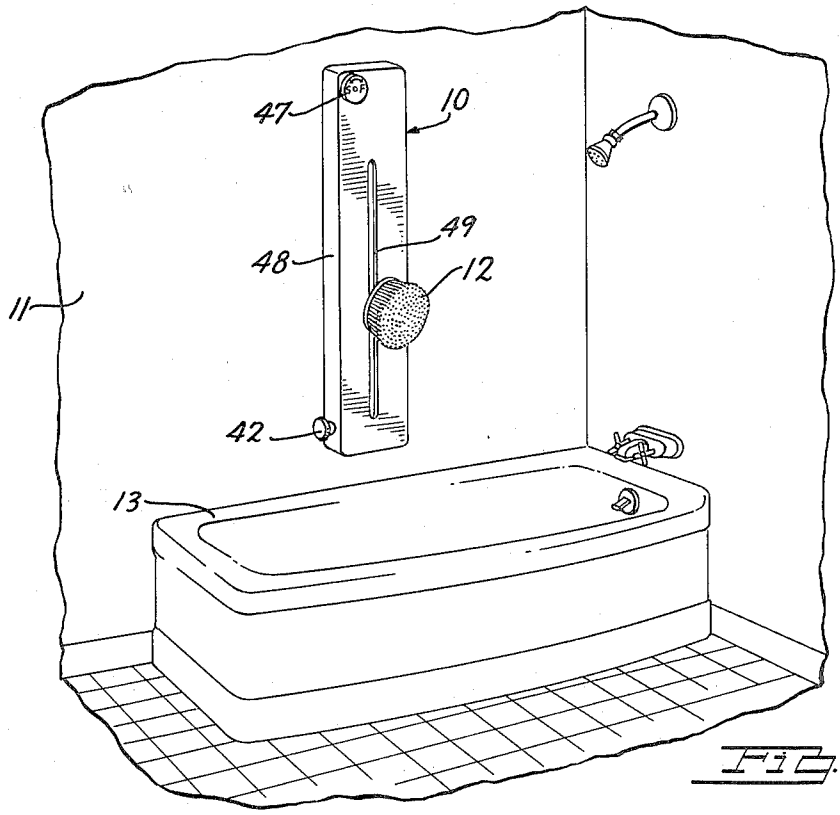

Fig. 1

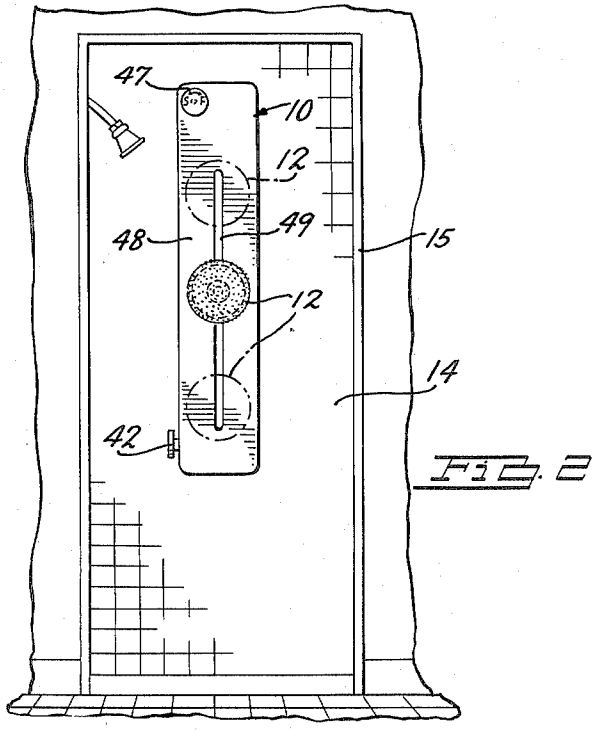

Fig. 2

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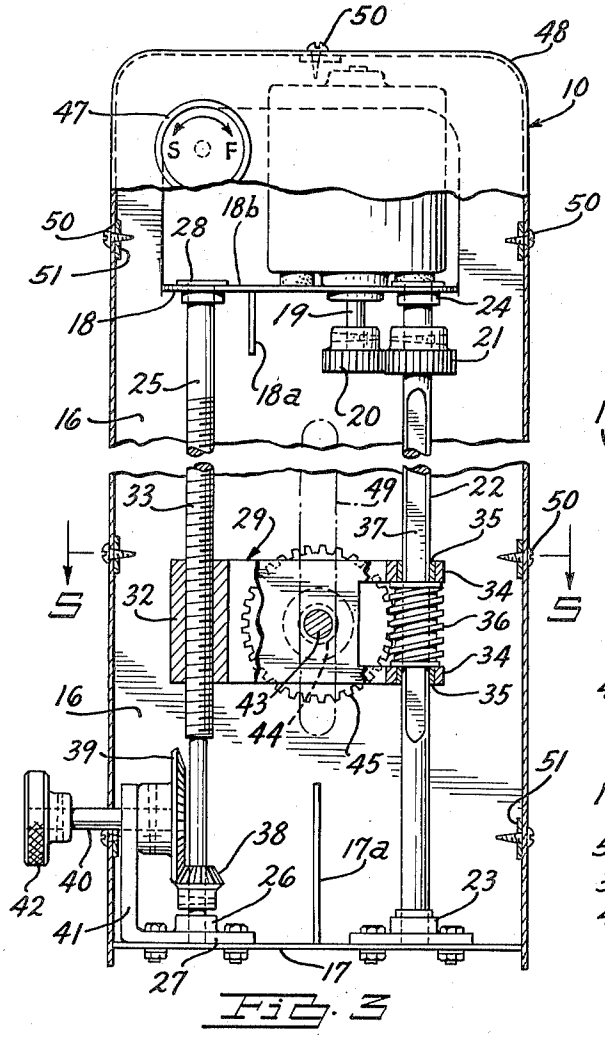

Fig. 3

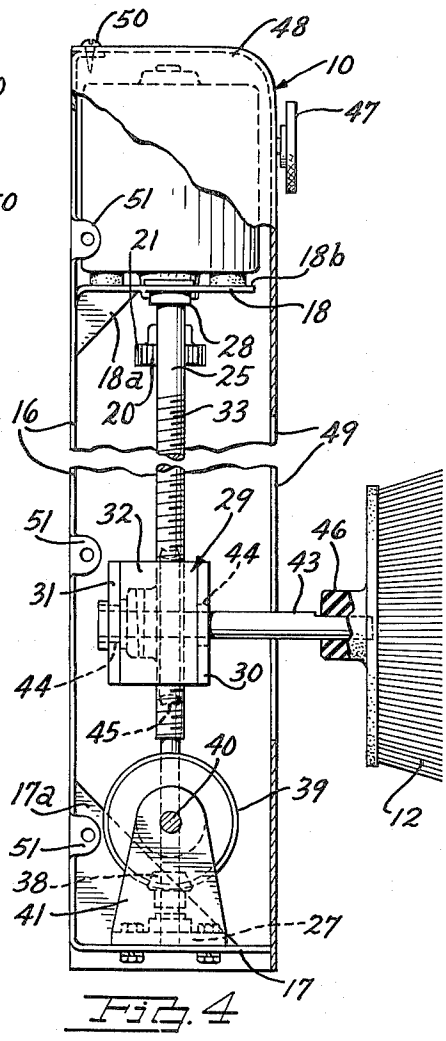

Fig. 4

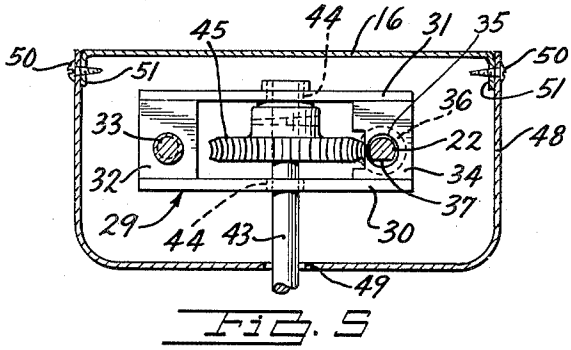

Fig. 5

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BRUSH ROTATING AND POSITIONING DEVICE

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Application August 5, 1953, Serial No. 372,508

4 Claims. (Cl. 15—21)

This invention relates to new and useful improvements in a bathing and/or massaging apparatus and more particularly to a device of the character herein described which is adapted for use in association with bath tubs or shower stalls, and the like, and in which a rotary brush, or the like, is employed for washing or massaging the body of the user, it being an object of this invention to provide a device of this class having utility, durability and ease of operation.

In its illustrated embodiment the present invention comprises a mounting panel adapted to be fastened to the bathroom wall above the bath tube or to a wall of a stall shower. The mounting panel supports at one end thereof a vapor sealed electric motor which is geared to a driving shaft, the driving shaft in turn being geared to an angularly related driven shaft adapted to support a rotary brush or the like. The driven or brush shaft is journalled on a bracket which is adapted to be raised or lowered preferably by manually operable screw means whereby the brush, or the like, may be positioned at any desired height. The foregoing operative structure is adapted to be enclosed in a suitably aesthetic cover having only the brush, or the like, and the necessary control knobs projecting therefrom.

Other features and objects will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification.

Fig. 1 is a view in perspective on a greatly reduced scale of a portion of a bathroom having the device embodied in the present invention mounted on the wall thereof above the bathtub.

Fig. 2 is a view illustrating the device embodied in the present invention mounted on the wall of a shower stall.

Fig. 3 is a fragmentary front elevation of the device embodied in the present invention with parts in section and with the cover portion cut away to reveal the mechanism thereof.

Fig. 4 is a fragmentary side elevation of Fig. 3 with parts in section.

Fig. 5 is a section taken substantially through line 5—5 of Fig. 3.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not limitation.

Referring to Fig. 1 of the accompanying drawings, the illustrated embodiment of the preesnt device, generally designated **10**, is adapted to be mounted on the wall surface **11** of a bathroom so that the rotary brush, or the like, hereinafter referred to as the brush **12**, will project somewhat over the bath tub **13**. In Fig. 2, the device **10** is illustrated as mounted on the wall **14** of a stall shower

15. As will be more fully explained, means is provided for moving the brush **12** upwardly or downwardly to any desired height. Because of this adjustability in the height of the brush **12** as well as the fact that a person may vary the position of his body, a person standing in the tub **12** or the shower **15** will be able to conveniently and effectively cause the brush **12** to contact the various upper portions of his body, particularly the back portions of the body which cannot be conveniently reached by the hands or even with a manually manipulable back scrubber.

The illustrated embodiment of the device **10** comprises a mounting panel **16**. The mounting panel **16** is provided with two spaced parallel flanges **17** and **18**. The lower flange **17** extends angularly from the lower edge of the panel. The upper flange **18** comprises a portion of the panel **16** formed or punched out and bent to parallel the lower flange **17**. Suitable support ribs **17***a* and **18***a* are welded between the flanges **17** and **18** respectively and the panel **16** to brace the flanges to support the operative parts of the device **10**.

A vapor sealed electric motor is mounted on the upper surface **18***b* of the upper flange **18**, the shaft **19** of the motor projecting through an aperture in the flange **18**. At its lower end the shaft **19** carries a gear **20** which is in mesh with a gear **21** secured to a longitudinally extending shaft **22**. The longitudinally extending shaft **22** is suitably journalled at each end thereof in bearing means **23** and **24** mounted on the flanges **17** and **18** respectively.

The shaft **22** is paralleled by a longitudinally extending screw **25** which is suitably journalled at its lower end in bearing means **26** carried in the base of a right angle bracket **27** and at its upper end in bearing means **28** carried by the flange **18**. The shaft **22** and the screw **25** provide a support for a gear box **29**. As illustrated, the gear box **29** comprises two spaced plate portions **30** and **31**. As viewed in Fig. 3, the plate portions **30** and **31** are spaced at their left ends by a block **32** which has a longitudinally threaded bore to accommodate the threaded portion **33** of the screw **25**. At their right ends the plates **30** and **31** are held in spaced relationship by horizontally spaced bearing plates **34** provided with suitable bushings **35**. Between the spaced bearing plates **34** the gear box **29** is provided with a worm **36** through which the driving shaft **22** projects. The worm **36** is keyed to the driving shaft in any convenient manner which will permit longitudinal movement of the worm **36** relative to the driving shaft **22** as the gear box **29** is raised and lowered by manipulation of the screw **25**. As illustrated, the shaft **22** is provided with a flat **37** thereon and the bore of the worm **36** is shaped to accommodate the shape of the shaft **22**, as shown in Fig. 5.

The raising and lowering of the gear box **29** is accomplished by means of hand operated gearing as best viewed in Fig. 3. At its lower end the screw **25** has secured thereto a bevel gear **38**. The gear **38** is in mesh with a second bevel gear **39** secured to a horizontally extending shaft **40**. The shaft **40** is journalled in the upright leg **41** of the bracket **27**. The shaft **40** is provided with any suitable hand grip or knob **42** by which it may be rotated in either direction to cause rotation of the screw **25** whereby the gear box **29** may be raised or lowered as desired.

The gear box **29** has journalled thereon a horizontally extending shaft **43** supported for rotation in bushings **44** carried in the front and rear plates **30** and **31** respectively. Pinned to the shaft **43** is a worm gear **45** in mesh with the worm **36**. The shaft **43** carries at its front or right end, as viewed in Fig. 4, the rotary brush or the like **12** which may be secured thereon in any convenient manner. As illustrated, the brush **12** is provided with a rubber hub **46** adapted to be press fit on the shaft **43**.

Rheostat means having the control knob **47** thereof accessible at the upper left hand corner of the housing **48**

may be provided to permit changes of speed to be made. The housing **48** comprises a rectangularly shaped member having an elongated vertically extending slot **49** therein to accommodate vertical movement of shaft **43**. The housing **48** is adapted to be secured to the mounting plate of bracket **16** by means of metal screws **50** adapted to be screwed into suitably apertured tabs **51** on the bracket **16**.

The operation of the present device is briefly as follows: The knob **47** controlling the rheostat, which may include the on-off switch, is adjusted to cause rotation of the brush **12** at the desired rate of speed. The knob **42** is rotated to cause the brush **12** to be positioned at the desired height. The copious application of soap and water to the brush and body of the user will result in maximum effectiveness and maximum cleanliness of the body of the user. In addition the massaging effect of the rotary brush will result in an invigorating stimulation of the body circulation. It will be understood that the brush **12** may be interchangeable with a sponge or rubber massaging device as desired.

In its illustrated embodiment the invention is shown adapted for use as an attachment to pre-existing bathroom or stall shower walls. It will be readily understood that in new construction the device is adapted to be built into the bathroom or stall shower wall. In such a case only the brushes and the control knobs would be visible, the knob **42** projecting from the front of the device rather than the left side as viewed in the drawings. In such an installation the housing would be replaced by a cover panel to provide access to the mechanism.

It is believed that the advantages and use of the invention will be clearly understood from the foregoing disclosure and accordingly, further description thereof at this point is considered unnecessary.

I claim:

1. In a brush rotating and positioning apparatus, an elongated support including a vertically extending panel, a prime mover mounted on said support, a pair of longitudinally extending shafts journalled on said support in spaced parallel relationship and lying in a plane substantially parallel to the plane of said panel, means operatively connecting one of said shafts to said prime mover for rotation thereby, bracket means straddling said pair of shafts, the other of said shafts having an operative connection with said bracket means, manually operable means actuatable to rotate said other shaft to move said bracket means in a vertical direction relative to said pair of shafts, a third shaft rotatably journalled on said bracket means between and substantially at right angles to said pair of shafts, means movable with said bracket means operatively connecting said third shaft to said one shaft for correlated rotation, and brush means mounted on said third shaft for rotation therewith.

2. In a brush rotating and positioning apparatus, an elongated support including a vertically extending panel, a prime mover mounted on said support, a pair of longitudinally extending shafts journalled on said support in spaced parallel relationship and lying in a plane substantially parallel to the plane of said panel, means operatively connecting one of said shafts to said prime mover for rotation thereby, bracket means straddling said pair of shafts, the other of said shafts having an operative connection with said bracket means, manually operable means actuatable to rotate said other shaft to move said bracket means in a vertical direction relative to said pair of shafts, a third shaft rotatably journalled on said bracket means between and substantially at right angles to said pair of shafts, gear means carried on said bracket means rotatably connecting said horizontally extending shaft to said one shaft, said gear means including a worm gear keyed to said one shaft for rotation thereby and movement longitudinally thereof, and brush means mounted on said third shaft for rotation therewith.

3. A bathing device comprising a vertically extending support structure adapted to be mounted on a vertical wall of a bathroom, said support structure having substantially horizontal upper and lower spaced support flanges thereon, electrical motor means mounted on the outer side of one of said support flanges, a first shaft and a second shaft journalled on said flanges in spaced parallel relationship, said shafts lying in a plane substantially parallel to the plane of the wall when the device is mounted on such wall, means operatively coupling said first shaft to said electric motor means for rotation thereby, bracket means straddling said first and second shafts, said second shaft having a screw connection with said bracket means, manually operable means for actuating said second shaft to raise and lower said bracket means, a substantially horizontally extending shaft rotatably journalled on said bracket means between said first and second shaft and extending substantially at right angles to the plane thereof, means operatively connecting said horizontally extending shaft to said first shaft for correlated rotation, and brush means mounted on said horizontally extending shaft for rotation therewith.

4. A bathing device comprising a vertically extending support structure adapted to be mounted on a vertical wall of a bathroom, said support structure having substantially horizontal upper and lower spaced support flanges thereon, electrical motor means mounted on the upper side of said upper support flange, a first shaft and a second shaft journalled on said flanges in spaced parallel relationship, said shafts lying in a plane substantially parallel to the plane of the wall when the device is mounted on such wall, means operatively coupling said first shaft to said electric motor means for rotation thereby, bracket means straddling said first and second shafts, said second shaft having a screw connection with said bracket means, manually operable means for actuating said second shaft to raise and lower said bracket means, a substantially horizontally extending shaft rotatably journalled on said bracket means between said first and second shaft and extending substantially at right angles to the plane thereof, gear means carried on said bracket means rotatably connecting said horizontally extending shaft to said first shaft, said gear means including a gear carried by said first shaft for rotation thereby while permitting movement longitudinally thereof, and brush means mounted on said horizontally extending shaft for rotation therewith.

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