Nov. 5, 1963 J. McKINLEY GRAFMYER 3,109,177

MECHANICAL BACK BRUSH AND HEIGHT SCALE

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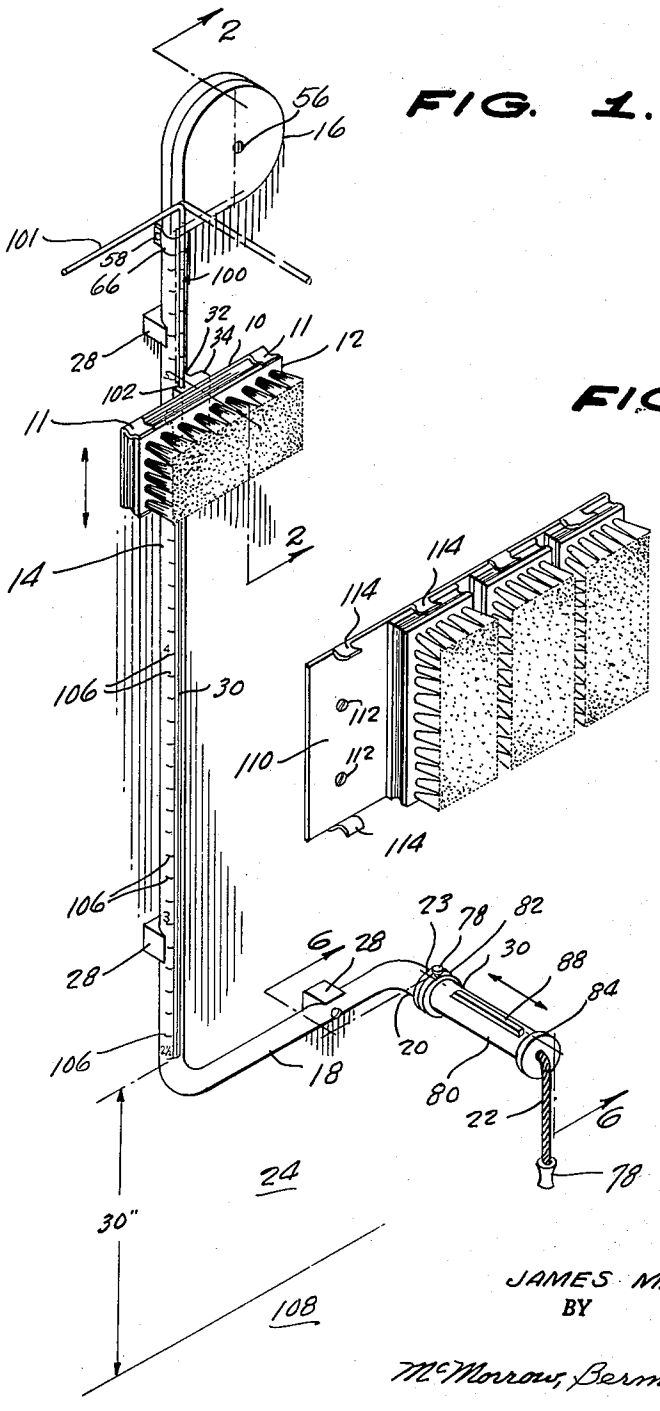


FIG. 1.

FIG. 8.

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FIG. 2.

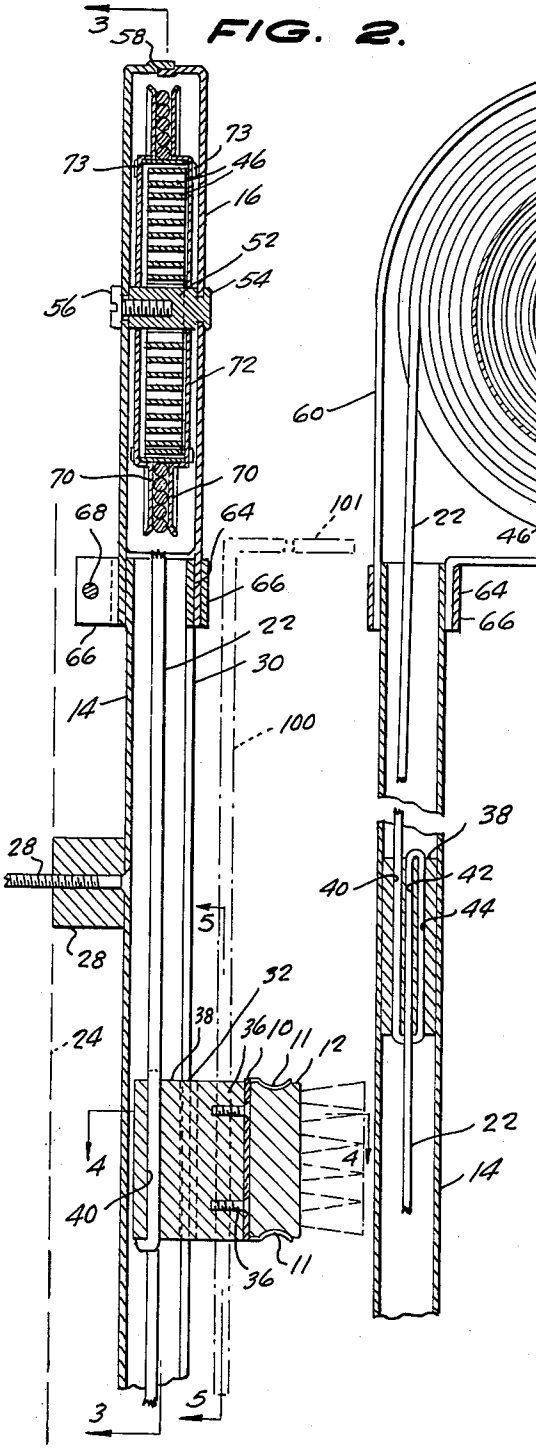


FIG. 3.

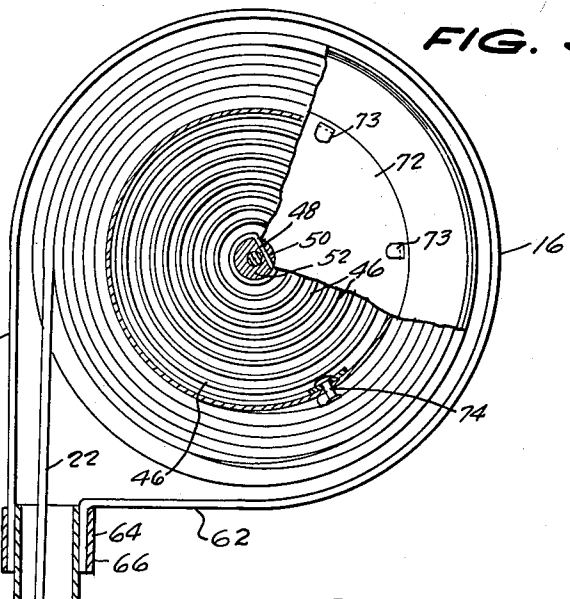
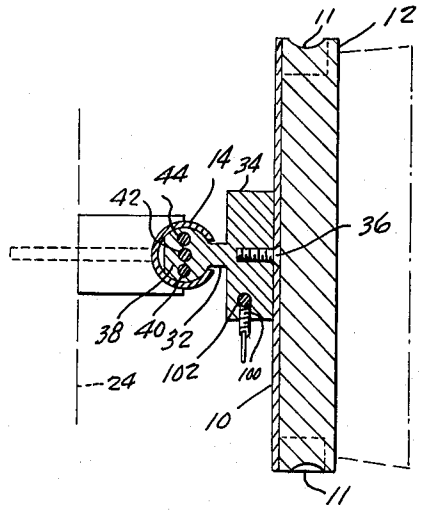


FIG. 4.



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FIG. 6.

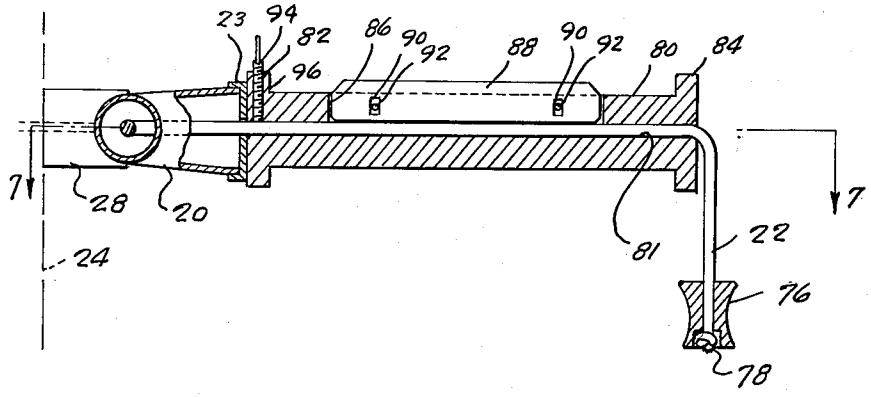


FIG. 7.

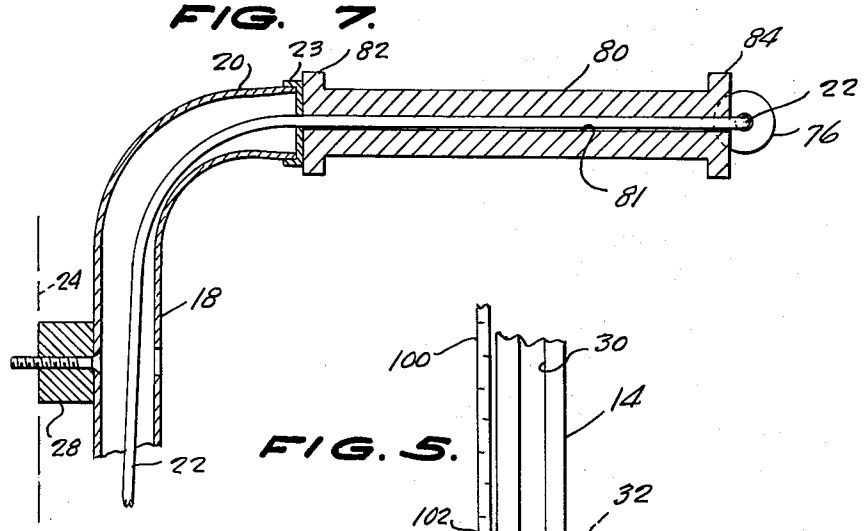
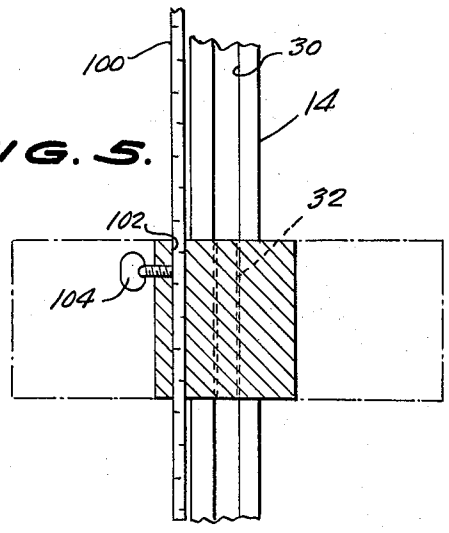


FIG. 5.



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MECHANICAL BACK BRUSH AND HEIGHT SCALE

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Filed Sept. 8, 1961, Ser. No. 136,820
2 Claims. (Cl. 4—158)

This invention relates generally to body cleansing apparatus, and in particular, to a back-scrubbing device in a mounting having a remote manual control, and adapted for selective positioning at various vertical positions, to conform to the height of the user. From the standpoint of delicacy, bathing is usually a sole effort, and since the normal human anatomy is ill-adapted for manual contact with the back, much less to scrub it, there results a problem which is one of long standing, and it is a general object of the present invention to remedy this difficulty.

More specifically, it is an object of the invention to provide a scrubbing brush unit, which is mounted for adjustable, vertical positioning through a control means, easy of access by the hands, and requiring no dexterity in manipulation. A further object is to provide a device of this nature which is automatically removed to an out-of-the-way position when not in use. Yet another object is to provide an adjustable scrubber which may either be moved up and down repeatedly to accomplish the scrubbing, or alternatively, clamped in an adjusted position where it may be engaged by the moving body of the user. A further, and related object is to combine, with the adjustable feature of the scrubber, a device for measuring the height of the user.

These and other objects which will be apparent to those skilled in the art, are attained by the present invention, which may be briefly described as comprising a mounting for a brush or the like, slidably carried in a vertically disposed tube, and suspended from a reel with a spring recoil, and with an operating cord running through a guide tube to a position convenient to the grasp of the user.

For a more detailed description of the invention, reference is made to the following specification, as illustrated in the drawings, in which:

FIGURE 1 is a view in perspective of the entire assembly,

FIGURE 2 is a sectional view through an upper portion of the assembly, taken on the line 2—2 of FIGURE 1,

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 2.

FIGURE 4 is a sectional view taken on the line 4—4 of FIGURE 2,

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 2,

FIGURE 6 is a sectional view taken on the line 6—6 of FIGURE 1,

FIGURE 7 is a sectional view taken on the line 7—7 of FIGURE 6, and

FIGURE 8 is a view similar to FIGURE 1, showing a storage rack for a plurality of brushes.

Referring to the drawing by characters of reference, contemplated as a whole the system comprises a holder **10**, with spring clamp tabs **11** holding a brush **12** and slidable along a vertically disposed tube **14** while suspended from a supporting line which is reeled into and out of a housing **16**. The tube has at its lower end a rectangularly-disposed portion **18**, the terminal end section **20** of which portion is disposed transversely to the planes of the axes of the tube **14** and portion **18** with a control cord **22** running through the tube and having operative connections to effect movement of the brush holder. Section **20**, which is perpendicular to both tube **14** and section **18**, is provided with an end cap **23**, having a central perforation through which the cord **22** passes.

Tube **14** and its leg **18**, are secured to a wall **24** by

screws **26**, passing through spacer blocks **28** having semi-circular recesses in which the tubes are nested, and the vertical tube **14** has a vertical slit **30** throughout most of its length to accommodate an intermediate neck portion **32** of a rider **34**, to which the brush holder **10** is secured by screws **36**, the rider **34** having a generally cylindrical head **38** beyond the neck portion which fits snugly within tube **14** for easy sliding movement. The head **38** has a series of three vertically disposed, parallel bores **40**, **42**, **44**, through which the cord **22** is alternately threaded so as to inhibit movement of the rider along the cord, but permit its adjustment along the cord by stepwise manipulation of the cord loops. Above the rider the cord leads to the storage reel housing **16**, where it is normally held stored in retracted, upward position by the action of a spring **46**, of the coiled ribbon type, having a terminal end **48** anchored in a slot **50** in the periphery of a fixed, central shaft **52**, secured, at one end, to the housing **16** by a peened, or riveted head **54**, and at the other end by a screw **56**. The housing **16**, composed of two, cup-shaped halves, united in a lap joint **58**, has two rectangularly disposed sides, **60** in the vertical direction, and **62** in the horizontal, and these have a depending, tubular collar **64** which is received on the tube **14**, being secured by a split clamp **66** with screw **68**.

The cord **22** is wound, in single strand layers, on a reel or spool comprising a pair of flanges **70**, extending from a hollow drum **72**, composed of cup-shaped halves secured by bent tabs **73**, and rotatably mounted on the fixed shaft **52**, and to which the outer end of spring **46** is attached as by a rivet **74**. The arrangement is such that with the spring in unstressed condition except for the dead weight of the rider and the mounted brush, the latter will be in their uppermost position, that is to say, the non-working position. However, the brush may be adjusted to any desired working level by a pull on cord **22**, against the resistance of spring **46**.

In the normal use of the device, the scrubbing action is achieved by a reciprocating, up-and-down movement of the brush, occasioned by alternately pulling on the cord **22**, and permitting it to recede under the restoring action of the spring. If the height of the user is such that the brush may be operated from its uppermost position, no adjustment is necessary, and the pull may be imparted by a knob **76**, through which the terminal end of the cord is threaded, and secured by a knot **78**. However, for persons of smaller stature, or for reaching lower portions of the back, the mean position of the brush will need to be somewhat lower, and for this purpose an auxiliary, spool-form handle **80**, with bore **81**, and end flanges **82**, **84**, slidably mounted on the cord, is adapted to grip the cord at selected positions along its length. For the gripping action the spool has a radially disposed notch or slot **86** communicating from without to the central passage, and in this slit is slidably mounted a pressure plate **88**, which has limited play in a radial direction by virtue of a pair of slots **90** in the plate, loosely mounted on a pair of pins **92**, carried by the spool. For adjustment of the mean, working position of the brush, the spool is held in one hand, in its position adjacent section **20**, while a pull is exerted on end knob **76** by the other hand, until the proper adjustment is obtained, after which the cord is seized in the adjusted location of the spool therealong, by pressure of the hand on plate **88**, whereupon knob **76** may be released, and reciprocations imparted to the cord by the hand holding the spool.

In order to lock the spool in adjusted position, the inner end flange **82** is provided with a set screw **94** received in a radially disposed, threaded bore **96** in the flange, and adapted to bite into cord **22**, to lock the spool in position. This lock is also useful in the case where it is desired to maintain the brush in a fixed position,

for movement of the body of the user across the brush.

The height measuring means comprises a vertical rod **100** having a horizontally bent, upper leg **101**, and mounted in a bore **102** in the rider **34**, where it is secured, in proper position, by a thumb screw **104**. Along its length, adjacent the longitudinal slot **30**, the tube **14** carries a series of graduations **106**, marking the height, in feet and inches, above the level of the bottom **108** of the bathtub, or shower stall, or other locale. As shown, the graduations commence at a height 2½ feet above the bottom, or standing level, and go up about 6 feet. To measure a height, the leg **101** is turned from a position parallel to the wall, as in FIGURE 1, to a position 90° thereto, as shown in dotted lines, and the rider is lowered by pulling on the knob **86** until the leg **101** contacts the top of the head of the party being measured. The rider is then locked in position by screw **94**, as described above, and the party may turn about and make the height reading. The reading is most conveniently made by the position of a portion of the rider, or an index mark thereon, on the scale markings, and if these give the true height at the point of the graduation, there must be added a correction in the amount of the distance of leg **101** above the index mark, which can be kept constant for all cases. However, it will be found convenient to so arrange the graduations **106** on the tube, so that they give, not their actual height, but the actual height plus the distance of the leg **101** above the index mark.

For family convenience, or for the general sake of variety, the brushes may be stored, in plurality, in a rack adjacent the assembly. Thus, in FIGURE 8, is shown a plate **110** secured to the wall as by screws **112**, having a width corresponding to the length of brushes, such as brush **12**, and of a length adapted to mount a desired number of brushes, which in the case shown mounts to four. In storage, the brushes are arranged with their lengths across the width of the plate, and are clamped in place by opposed pairs of spring tabs **114** similar to the tabs **11** on the adjustable scrubber. Thus, each member of a family may have his own brush handy for use in the system, and these may bear appropriate identification, such as coloring, as in the case of tooth brushes.

While a certain preferred embodiment has been shown and described, various modifications will be apparent to those skilled in the art, in the light of this disclosure, and the invention should not, therefore, be deemed as limited, except insofar as shall appear from the spirit and scope of the appended claims.

I claim:

1. A back-scrubbing device comprising an elongated upstanding cylindrical guide tube having a longitudinally extending slit in its wall, a storage unit comprising a cylindrical housing carried on the upper end of said tube, with its axis transverse to the axis of said tube, a fixed shaft in said housing, concentric therewith, a reel mounted for rotation on said shaft, a coil spring with one end anchored on said shaft and the other end attached to said reel, a rider of generally cylindrical form, slidably mounted in said tube, and having a neck portion projecting through and slidable along said slit, and a block exteriorly of and adjacent to the slit of said tube and secured to said neck portion, spring clamp means on said block for holding a brush, said tube having, at its lower end, a rectangularly disposed portion, and said portion having a terminal end section disposed transversely to the plane of the axes of said tube and said portion, said rider having a series of bores arranged parallel to its axis, a cord attached to said reel, threaded alternately through the bores in said rider and passing through the tube and said portion, and exending outwardly of said section, a tubular handle received on said cord outwardly of said section and having a radial longitudinal slot, a braking bar mounted in said slot for limited movement, radially of said handle, and adapted to frictionally engage said cord, and a screw threaded in said handle and adapted to engage said cord.

2. A back-scrubbing device comprising an elongated upstanding cylindrical guide tube having a longitudinally extending slit in its wall, a storage unit comprising a housing carried on the upper end of said tube, with its axis transverse to the axis of said tube, a fixed shaft in said housing, concentric therewith, a reel mounted for rotation on said shaft, a coil spring with one end anchored on said shaft and the other end attached to said reel, a rider slidably mounted in said tube, and having a neck portion projecting through and slidable along said slit, and a block exteriorly of and adjacent to the slit of said tube and secured to said neck portion, spring clamp means on said block for holding a brush, said tube having, at its lower end, a rectangularly disposed portion, and said portion having a terminal end section disposed transversely to the plane of the axes of said tube and said portion, said rider having a series of bores arranged parallel to its axis, a cord attached to said reel, threaded alternately through the bores in said rider and passing through the tube and said portion, and extending outwardly of said section, a tubular handle received on said cord, outwardly of said section and having a longitudinal slot, and a braking bar mounted in said slot for limited movement, radially of said handle, and adapted to frictionally engage said cord.

References Cited in the file of this patent

UNITED STATES PATENTS

1,103,816	Newhouse et al.	July 14, 1914
1,484,681	Tamarin	Feb. 26, 1924
1,488,076	Tebo	Mar. 25, 1924
2,670,168	Magnan et al.	Feb. 23, 1954