Improvised brush with a main body and a selectively rotatable bristle-bearing base on the body. The brush is of the type having at least a predominant part of its bristles inclined in the same direction and is adapted for cleaning purposes. The brush of the invention employs a fabric to carry the bristles, the fabric preferably being backed by a resilient pad. The invention provides improved means for securing the fabric to the base of the brush, improved means for rotatably mounting the base of the brush on the body whereby the brush base can be turned by manipulations above the brush body, and means for indicating from above the body of the brush the position of the brush base relative thereto.

This invention relates to a brush having a body and a bristle-carrying base rotatable thereon. The bristle-carrying base is directional in its operation as by having all, or a predominant part of the bristles inclined in the same direction.

When using a brush element formed of inclined bristles for cleaning purposes, it is necessary for the brushing strokes to be always in the same direction. Brushes of this kind permit particles of dust, hair and any kind of fluff to be readily and completely removed, since particles which adhere firmly to a support are swept into the spaces between bristles. An essential feature is that the brush is always drawn in the same direction over the surface to be cleaned. When the brush is moved in the opposite direction, the particles of dirt retained in the spaces between the bristles are released and drop out. Since, however, it is frequently necessary to change the brush from one hand to the other, it is difficult, especially in brushes with handles, for the user quickly to find the correct direction of stroke. Therefore it is necessary to ensure that when changing hands, the direction of brushing also changes. To eliminate this inconvenience, it is expedient for the base supporting the brush element to be made rotatable, so that the brush, without disadvantage, may be moved constantly in the same direction when changing over hands.

It is an object of the invention to provide a brush with a rotatable base, the individual parts of which are so integrally formed that they may be assembled without screws or any additional fixing means in a simple and economical manner; the brush is especially easy to manipulate and adjust to the required direction of brushing.

According to a preferred embodiment of the invention, there is provided a brush having a rotatable base held in position by a spiral spring. The brush elements are embedded in a flat, flexible carrier part, such as a fabric or the like, or mounted thereto, and the flat carrier preferably padded by a flexible material, is inserted in a solid part preferably made of plastic material. The padded brush element is retained by a flat frame on a base plate which is provided with a centrally arranged upwardly extending hollow two-part sleeve which a bolt with a knob engages positively. The upper part of the brush has a bore which is coaxial with the bore in the sleeve into which the head of the bolt slides; the spiral spring is placed around the periphery of the upper sleeve part, with one end abutting the underside of the knob and the other end against a stop connected to the upper part of the brush.

The brush of the invention is described with reference to the accompanying drawings, in which:

FIG. 1 is a view in side elevation of the brush;
FIG. 1A is a fragmentary view in section on an enlarged scale, of a portion of the brush element per se;
FIG. 2 is a fragmentary view in longitudinal section through the brush of FIG. 1 showing a cross-sectional view of the upper sleeve section of the base plate;
FIG. 3 is a fragmentary plan view of the rear or spine of the brush; and
FIG. 4 is a view in transverse section through the second, inner sleeve section which is integral with the base plate of the brush, the section being taken along line 4-4 of FIG. 2.

The brush, apart from the pad P and the brush element B, consists of four individual parts, which are all so formed that they can be assembled without additional fastening means such as screws, pins or the like. These four parts are preferably made of plastic material and are assembled in a very simple manner. A base plate 1 with a pad P and a brush element B clamped firmly by a frame 13 forms the base which is rotatable about a center with respect to the upper part 10 and handle 16 of the brush. The brush element B is made up of a fabric 20 (FIG. 1A) which carries a plurality of short bristles 21 inclined in the same direction.

The peripheral edge 1' of the base plate 1 is bent upwards and inclined inwardly and provided with teeth at its edge 1z. The edge portion of the brush element B projecting beyond the plastic foam padding P is placed over these teeth, so that it is retained at this point from below.

A flat frame 13, about the circumference of which a defining ledge 14 extends, substantially vertically to the frame 13 is placed on the upper surface of the base plate 1. Substantially in the center between the outer and inner edge of the frame plate 13 there is an encircling rib 13a having a pointed tooth edge, the serrations of which, after placing the frame 13 in position, are firmly impressed in the edge portion of the brush element B, which is folded over against the surface of the base plate 1. The toothed ledge 13a on the underside of the frame plate 13 is so located that, when the frame is mounted, it assumes a position behind the serrated edge 1a on the periphery of the base plate 1. In this way the brush element B is retained firmly in position by oppositely acting rows of serrations 1e and 13a. The frame 13 is retained on the base plate 1 by bars 15 formed of the material of the surface of this base plate, which bars engage over the rim edge 13' on the inside circumference of the flat frame plate 13.

The base plate 1 has a central bore 2, an upstanding central sleeve 3, 4, with the lower portion 3 of the sleeve having a greater diameter than portion 4. The height of the sleeve 3, 4 corresponds substantially with the internal height of the brush handle body. The lower section 3 of the sleeve is defined by an inwardly projecting flange 3', which also forms a shoulder from which the second sleeve section 4 proceeds. The bore 2 of the lower sleeve section 3 may be of any desired size and is preferably cylindrical. The bore in the upper section 4 of the sleeve serves to receive and to retain a retaining member in the form of a bolt provided with a knob. It may, for example, be a tapped bore into which the
is retained in position by the spring 9 and the shoulder 3' between the sleeve sections 2, 3. The lower edge of the side walls 10' of the upper part 10 engage the upper surface of the flat frame plate 13 which is fast to the base plate 1. The square bolt 6 with barbed tips 6a establishes a positive connection with the base plate 1. The brush 6 is retained on the upper part of the base plate 10. The brush 6 may now be turned relative to the upper part 10 of the brush. On release of the knob, the spring 9 returns into its original position and pulls the base against the free edge of the side walls 10' of the upper brush part 10, and the knob 7 appears again above the surface of the back of the brush. This knob 7 renders manipulation and operation of the brush extremely simple, since it rotates with the brush base, a direction arrow 17 arranged on the surface of the knob 7 immediately allows the required direction of brushing to be ascertained. This is particularly important in handle brushes having bristles inclined in one direction, since due to the brush being changed from one hand to the other, a change of direction of the slope of the bristles of the brush element is necessitated. The readily visible arrow 17 immediately shows the user whether he is holding the brush correctly, or whether the brush element will operate in the direction shown. The brush may be used while the brush base is being rotated.

The base outline of the brush is optional, an oval or circular form being preferable. The connection between the knob and brush base may be effected in a number of other manners. The embodiment shown and described is preferred for manufacturing reasons. Where parts are, for clarity and convenience, referred to on the basis of their oriented position shown in the accompanying drawing, no limitation as to positioning of the entire structure is to be implied, since it will be understood that the entire structure may be inverted or that it may be used in any inclined position.

Although the invention is illustrated and described with reference to one preferred embodiment thereof, it is to be understood that it is in no way limited to the disclosure of such a preferred embodiment but is capable of numerous modifications within the scope of the appended claims.

What is claimed is:

1. A brush having a body and a bristle-carrying base plate mounted for selective rotation upon the brush body, the improvement which comprises a centrally disposed bearing means having an axis disposed normal to the broad extent to the base plate for securing the body and base plate together for relative rotation with respect to each other, and means secured to the base plate and operable from above the brush body for selectively rotating the base plate with respect to the body of the brush.

2. A brush according to claim 1, wherein at least a predominant number of the bristles are inclined in one direction with respect to the base plate.

3. A brush according to claim 2, wherein the bristles are mounted upon a flexible sheet, and comprising means securing the edge of the sheet to the periphery of the base plate.

4. A brush according to claim 3, comprising a resilient pad disposed between the base plate and the sheet, said pad including a bristle retaining the sheet to the base plate.

5. A brush according to claim 1, wherein the bearing means comprises telescoping sleeve members on the body and base plate of the brush, and comprising spring means constantly urging the base plate toward the brush body.

6. A brush according to claim 5, wherein the brush body has a peripheral side wall, and when the base plate is operatively positioned relative to the brush body the upper edge of the base plate adjacent its periphery engages the lower edge of the side wall of the brush body.
7. A brush according to claim 5, wherein the first sleeve member, on the brush body receives the upper portion of the second sleeve member, on the base plate, within it, and wherein the means for selectively rotating the base plate comprises an elongated member fixedly secured to the second sleeve member and slidable axially within the first sleeve member.

8. A brush according to claim 7, wherein the upper end of the elongated member normally protrudes somewhat above the upper surface of the brush body.

9. A brush according to claim 7, wherein the upper end of the elongated member has an enlarged head which is slidable in the first sleeve member, and the spring means is a coil compression spring telescoped about the elongated member and held in compression between the head of the elongated member and a spring seat on a lower portion of the first sleeve member.

10. A brush according to claim 7, wherein the lower end of the elongated member is split and the confronting portions of the second sleeve member and the elongated member have interfitting locking formations whereby the brush may be assembled by thrusting the elongated member into the second sleeve member against the opposition of the spring until the elongated member is locked in the second sleeve member.

11. A brush according to claim 1, wherein the bristles are inclined in one direction, and comprising an indicium visible from above the brush body and mounted on the brush base plate turning means for indicating the direction of inclination of the bristles.

References Cited
UNITED STATES PATENTS
2,202,215 5/1940 Lutz --------------- 15—172 X
2,799,037 7/1957 Grogan --------------- 15—172
3,008,165 11/1961 Scholl --------------- 15—176
3,421,171 1/1969 Tsarazawa --------------- 15—160 X

LEON G. MACHLIN, Primary Examiner
U.S. Cl. X.R.
306—3