ARTICULATED HANDLE FOR A FLOOR CARE MACHINE

3 Claims, 11 Drawing Figs.

ABSTRACT: An articulated handle for a floor-treating apparatus in which a lower forked portion of the handle is pivotally hinged onto a base member. A yoke joins the ends of the lower forked portion remote from the base member and is provided with a channel in which is received a moveable latching bar and a depressable latch button which moves the bar against a spring. The handle also includes an upper forked portion having a handle at one end. The other end of the upper portion terminates in a pair of identical ears formed at the ends of the times of the upper fork and each of these ears is received in the yoke in operative relation with the bar. Each ear has an inclined surface which engages the bar locking the lower and upper forked portions in extended relation and when the bar is depressed the upper and lower portions of the handle fold into a collapsed position or juxtaposed relation.
ARTICULATED HANDLE FOR A FLOOR CARE MACHINE

This a division of application Ser. No. 647,378, filed June 20, 1967, and now U.S. Pat. No. 3,469,272.

BACKGROUND OF THE INVENTION

The invention relates to a multibrush combined floor polisher-rug scrubber machine of the type generally known from such patents as U.S. Pat. Nos. 3,155,251, 3,186,022 and 3,275,760.

The known machines for floor and rug cleaning have tended to be bulky and different to transport or store because the handle is not designed for easy carrying and for storage in a small space having a small head space.

A further improvement over the prior art machine is provided by this invention by virtue of an articulated handle which is quickly and simply folded to provide a convenient carrying for the machine and allow it to be stored in an area having a small head space. The handle of the invention is locked in extended position by spring biased camming bar which cooperates with a curved surface of a handle section to compensate for wear, i.e., the handle is rigidly locked in its extended position regardless of wear. In addition the handle according to the invention is provided with means for removable mounting a shampoo tank in a simple and secure manner and a shampoo dispensing control lever is incorporated in the handle for operating the valve of the shampoo tank without exposed use of chains as commonly found in the known machines.

Another object of the invention is to provide a floor polisher-rug scrubber which is less bulky in size and appearance than the known machines and which is provided with an articulated handle for readily carrying and storing the machine.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a floor care machine according to the invention.

FIG. 2 is a side elevation of the machine illustrated in FIG. 1 with the handle shown in stowed position.

FIG. 3 is a side elevation of the handle for a floor care machine according to the invention in greater detail than shown in FIG. 1 and an additional showing a shampoo tank in combination.

FIG. 4 is a rear view of the handle and tank assembly shown in FIG. 3.

FIG. 5 is a detailed cross-sectional view taken along line 5, 5 in FIG. 4.

FIG. 6 is a detailed cross-sectional view taken along line 6, 6 in FIG. 3.

FIG. 7 is a cross-sectional view taken on line 7, 7 of FIG. 6.

FIG. 8 is a perspective view illustrating the arrangement for holding and releasing a shampoo tank from the handle assembly.

FIG. 9 is a side elevation on an enlarged scale of the articulated joint of the handle assembly which is partly broken away.

FIG. 10 is a side elevation similar to FIG. 9 showing parts in another position.

FIG. 11 is a cross-sectional elevation showing details of the latching arrangement according to FIGS. 8 and 9.

A floor care machine according to the invention illustrated in FIGS. 1 and 2, consists of a handle, generally designated 1 which is pivotally connected to a base portion generally designated 2. A shampoo tank is adapted to be removably attached to the handle, and as seen in FIGS. 3, 4 and the handle is articulated at the carrying yokes for carrying and storage purposes. The outer housing of the base portion consists of a dome 4 attached to a hood 5 which is in turn attached to a base plate or casting 6. The handle is pivotally connected to the hood 5 in any suitable manner. A bumber skirt 7 of resilient material covers the base plate 6 and extends outwardly from the hood 5 to protect furniture from being marred by the machine. The handle 1 is provided with suitable fittings for holding an electric cord and associated plug in place on the handle as indicated in FIG. 1.

The articulated handle generally designated in FIG. 1 and FIG. 3, for guiding the base member 2 over a floor is shown in greater detail in FIGS. 3 to 10. The handle comprises an upper fork 100 and a lower fork 101. Each pair of legs or tines of the upper and lower fork members diverge from an intermediate yoke 102 which is connected to or formed integral with the lower fork. The upper fork is pivotally attached at a pivot 103 to the yoke 102 and the latching arrangement securing the upper fork in its extended position (FIG. 3) is best shown in FIGS. 8 and 9. The upper fork terminates in a pair of hand grips 104 integral with an intermediate piece 105. A shampoo dispensing control lever 106 and associated linkage is incorporated in one of the tine of the upper fork as seen in detail in FIG. 10. The lower fork is adapted to receive a shampoo tank 99 which is removably attached thereto as will be described in connection with FIGS. 6, 7 and 8.

FIG. 5 which is a cross-sectional view taken on line 5, 5 of FIG. 4 illustrates the shampoo dispensing linkage interconnecting the control level 106 and a valve actuating rod 120 of the shampoo tank 99. The lever 106 is shown in a stowed or retracted position in the figure and when it is elevated about pivot 107 by movement in the direction indicated by the arrows to the horizontal position, the inner end 108 of the lever bears against a shoulder 109 of the push rod 110. The push rod 110 is held in position within the recess of the fork 100 in any suitable manner. The other end of push rod 110 is bifurcated at its lower end. One branch 110a of the bifurcated end of push rod 110 has a helical compression spring 111 concentrically surrounding it whereby the rod is urged upwardly so that the upper end of the push rod 110 engages a stop defined by the upper end of the tine recess as shown.

In this position the branch 110b of push rod 110 is positioned in a retracted position within the tine 100. When the lever 106 is lifted the rod 110 is depressed and the branch 110b then projects beyond the end of the upper tine 100 into the yoke 102, thus depressing an intermediate motion translator 112. The motion translator 112 is urged upwardly within the yoke by a compression spring 1133, in which position the top of the actuator is just flush with the associated surface of the yoke. As is apparent from FIG. 5 the translator 112 is moved downwardly by the branch 110b of the rod 110 when the lever 106 is lifted.

The translator end 112a of the translator 112 is therefore moved into engagement with the valve actuator rod 120 of the shampoo tank 99 and moves rod 120 downwardly against spring 115 which normally urges the rod 120 upwardly. The lower end of rod 120 carries a valve 120a (FIG. 1) attached to the rod in any suitable manner and a valve seat 99a is formed integral with the tank 99. As a result the valve 120a is unseated when the lever 106 is lifted when in its extended position (FIG. 5) and the liquid in the tank flows into the mounting block 130 attached to the lower end of the tine 101. The mounting block 130 is provided with an opening which communicates the mounting block 130 with a tube 86. The tube 86 delivers the liquid shampoo to the foam generating brush. Alternatively the tube 86 may deliver liquid into a channel formed integral with the splash plate reference numeral 13a identifies an upstanding hollow conduit, integral with the splash plate and communicating with a channel (not shown) in the splash plate which conducts liquid to one of the brushes.

The upper end of conduit 13a terminates in a suitable opening in the hood 5 as shown in FIG. 1. As shown in FIG. 1 the tube 86 remains in position when the tank 99 is removed since the mounting block 130 remains connected with the tine of fork 101.

As seen in FIG. 7 the mounting block 130 consists of a resilient synthetic resin formed by moulding. The tine 101 of the lower fork is generally U-shaped and is dimensioned to receive the mounting block 130 as shown in FIG. 7. The mounting block is held on the tine by a finger 131 having a recess which receives the projection 118 of the tine 101. The block is free to move in a longitudinal direction relative to the
It is noted that over extended periods of time the surfaces 100b and 100c of the ears 100a may wear, however the upper yoke will be firmly locked in extended position nevertheless because the adverse effect of such wear will be offset by the bar 160 which will move a proportional distance upwardly in the recess 161. The bar 160 is connected with the release key 162 as best seen in FIG. 11. The release key 162 which slidably fits into a well in the yoke 102, has a plurality of depending legs 163 and the bar 160 is connected in any suitable manner with these legs. A light spring 164 urges the release key 162 and associated bar 160 in an upward direction as shown in these figures.

While I have shown a presently preferred embodiment of the invention, various modifications will be apparent from the teachings above.

What is claimed is:

1. Apparatus including a base member and a handle member connected with said base member, the improvement comprising in the handle member a lower fork connected with said base member, a yoke joining the ends of said lower fork remote from said base member, an upper fork pivotally connected with said yoke at one end, a handle connected with the ends of said upper fork remote from said yoke, and means for releasably locking said forks in extended position, said releasable locking means including a channel in said yoke, a bar movably mounted in said channel, a pair of ears connected with said upper fork and coupled with said yoke, said ears having a curved surface extending into said channel and engaging said bar, an inclined surface coextensive with the said curved surface of said ears, said inclined surface and the adjacent surface of said channel defining a pair of wedge-shaped recesses for receiving said bar when said forks in their extending position; and means connected with said bar for moving said bar out of said recesses.

2. Apparatus according to claim 1 wherein said bar has a wedge-shaped cross section.

3. Apparatus according to claim 2 wherein each of said forks converge toward said yoke.