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M. DE J. ORTEGA

2,793,384

CLEANING TOOL FOR VACUUM CLEANERS

Filed Nov. 29, 1952

FIG. 1.

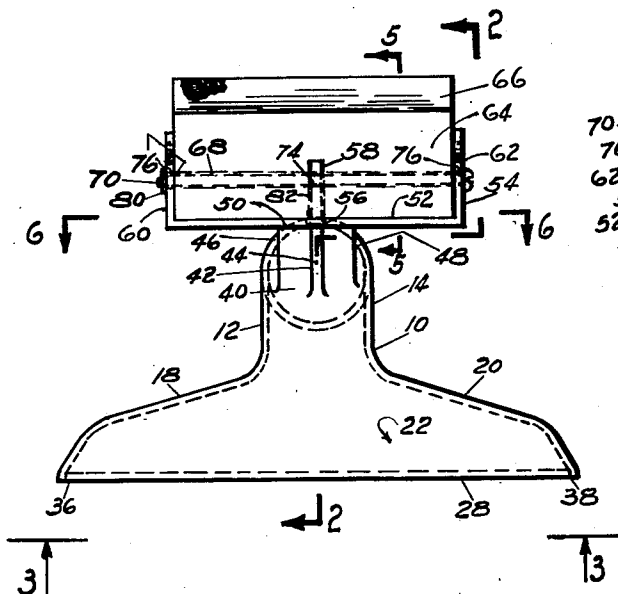


FIG. 2.

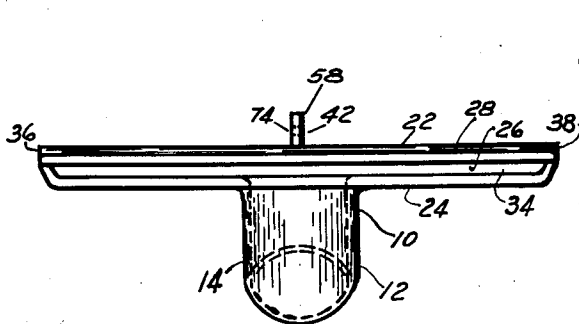
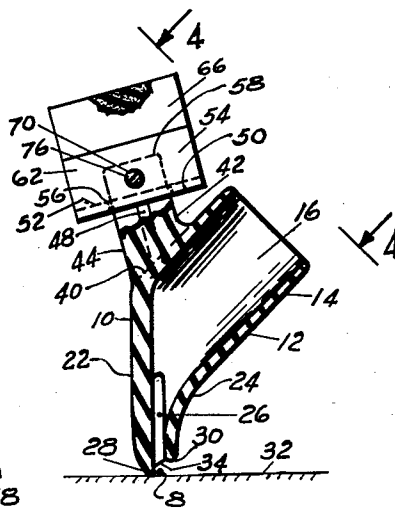


FIG. 3.

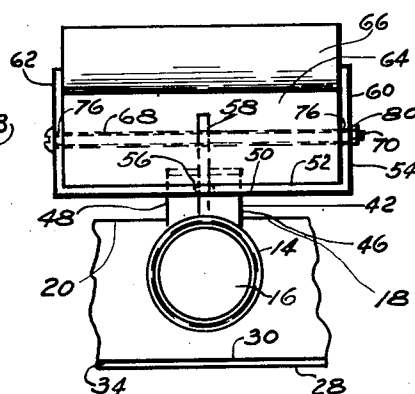


FIG. 4.

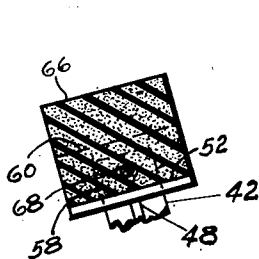


FIG. 5.

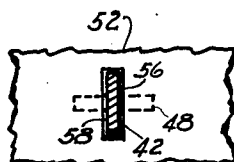


FIG. 6.

INVENTOR.
MARIO DE J. ORTEGA
BY *Peter Fries, Jr.*
ATTORNEY

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CLEANING TOOL FOR VACUUM CLEANERS

Mario De J. Ortega, Asharoken Beach, N. Y.; Pauline A. Ortega, administratrix of said Mario De J. Ortega, deceased

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1 Claim. (Cl. 15—328)

This invention relates to improvements in cleaning devices of a type which are adapted for cleaning and washing smooth surfaces, such as windows, floors, walls, and the like, with water or other forms of liquid washing solutions.

An object of the invention is to provide a novel and improved cleaning device which includes means for spreading the cleaning fluid onto the surface being cleaned, for rubbing the surface with the liquid if desired, and for applying suction thereto for aspirating the surplus liquid and providing a drying action for the cleaned surface.

Another object of the invention is to provide a novel and improved cleaning device in which there is a body formed with an integral squeegee lip on one side of its operating opening, an outlet opening being adapted for being coupled with a source of suction, so that as the squeegee lip is worked over the surface being cleaned, the application of suction will result in drawing surplus liquid into the device, drying the cleaned surface.

A further object of the invention is to provide a novel and improved cleaning device of the vacuum combination type, in which the cleaner head body has a suction passageway formed therethrough, one end being adapted for being coupled to a source of suction, while the other or working end opening is laterally widened and reduced in cross section, and provided with an integral working squeegee lip by means of which the operator can wipe the cleaning fluid off the surface being cleaned, so that all the fluid is drawn into the nozzle and through the suction tube by the suction applied, there being also a sponge support of novel construction on the body whereby cleaning fluid may be spread onto the surface to be cleaned and rubbed thereover.

Still another object of the invention is to provide a novel and improved cleaning device of the character described, which is simple in design, inexpensive to manufacture, and highly effective and efficient in operation.

These and other objects and advantages of the invention will become apparent from the following description of a preferred embodiment thereof, as illustrated in the accompanying drawings, forming a part hereof, and in which,

Figure 1 is a front elevational view of the device, the view being partly broken out.

Figure 2 is a right side elevational and sectional view of the device shown in Figure 1, the view being taken on the plane 2—2 of Figure 1.

Figure 3 is a bottom plan view of the device as seen on plane 3—3 of Figure 1, the sponge assembly being omitted.

Figure 4 is a view of the device as seen substantially on plane 4—4 of Figure 2.

Figure 5 is a fragmentary sectional elevation view taken on plane 5—5 of Figure 1.

Figure 6 is a fragmentary sectional plan view taken on plane 6—6 of Figure 1.

In the use of cleaning devices for washing windows,

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walls, floors, and the like, various problems arise. Thus the washing fluid must be spread onto the surface being cleaned, and rubbed thereover, and then the excess fluid remaining must be scraped or squeegeed from the surface and wiped or otherwise removed. The present device solves these problems in a novel manner and at low cost.

In order to understand clearly the nature of the invention and the best means for carrying it out, reference may now be had to the drawings, in which like numerals denote similar parts throughout the several views.

As shown in Figures 1 and 2, there is a hollow, pliable, main body member 10, which is narrowed at its throat portion 12 to provide an internally tapered or substantially cylindrical receptacle coupling portion 14 having a passageway or bore 16 extending therethrough. This stem 14 is adapted for being coupled to a hose or other connection from a vacuum producing device. Any suitable source or vacuum, such as a suction pump, for example, may be used, provided such source will not be adversely affected by the dirt bearing liquid aspirated during the cleaning process. In the event the vacuum source would be adversely affected by the liquid, a suitable water separator should be interposed between the vacuum producing device and the cleaning device shown in Figure 1. A satisfactory form of vacuum cleaning water separator is shown in my co-pending patent application Serial No. 173,292, filed July 12, 1950.

The hollow body member 12 may be laterally flared outwardly as shown to form sloping shoulders 18 and 20 as seen best in Figure 1, interconnecting the opposite walls 22 and 24 to define a thin but wide slotted passageway 26 therebetween. From Figure 2 it is seen that the wall 22 is thickened substantially in comparison with wall 24, and that its lower edge or margin 28 forms a squeegee or lip which extends below the level of the opposite lip 30 so that the device may be drawn along the surface 32 being cleaned, gathering any excess cleaning fluid thereon, as shown at 8, so that it may be aspirated through the mouth 34 under the influence of suction applied through coupling 16 from the vacuum pump. From Figures 1 and 3, it is seen that the squeegee blade 28 is quite wide, extending from locations 36 to 38, being quite efficient for this purpose as it is drawn or scraped over the surface 32. The entire main body member 10 may be formed in one piece of rubber or rubber-like material, commonly employed in squeegees or scrapers for cleaning purposes. The squeegee blade 28 is thus integral with the rest of the main body member 10.

The sloping from surface 40 of the throat portion 14 is provided with an integral outwardly extending wall or lug 42 which lies in a plane substantially perpendicular to the plane of wall 22, so that its forward edge 44 extends substantially at very little inclination upwards therefrom, as seen in Figure 2. A pair of lateral ribs 46 and 48 are also formed integral with the lug 42 and the throat coupling 12, extending at right angles to lug 42, it being noted that the ribs terminate at location 50 so as to provide underlying support for the web 52 of the sponge carrying bracket 54. The web 52 has an opening 56 formed therethrough to receive the upper portion 58 of the lug 42 which extends thereabove, the web undersurface which is supported on the shoulders 46 and 48. The sponge carrying bracket 54 has a pair of spaced parallel side walls 60 and 62 which are integral with the web 52, so as to form a sort of yoke opening or recess 64 for the reception of the sponge rubber block 66. A bore 68 is formed longitudinally through the sponge rubber washing block 66, to receive the fastening bolt or screw 70, which extends therethrough and through the axially aligned holes in the upper end portion 58 of the lug 42 at 74, and the two holding bracket

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walls 60 and 62 at 76. The bolt 70 may be provided with a nut 80 on one end, which may be removed to allow removal of the bolt and of the sponge 66. At the same time, the entire sponge carrier assembly, including the sponge 66 and the holding bracket 54 may be disengaged from the main body by merely lifting it off the lug 42. To accommodate the lug 42, the sponge 66 is provided with a slot 82 formed to receive the same. The upper portion of the sponge block 66 extends beyond the walls 60 and 62, as seen best in Figures 1 and 2, so that it may be dipped into washing solution or water, and rubbed or spread over the surface to be cleaned, by inverting the device to bring the sponge into contact with the surface such as 32. Then the device is turned again to the orientation shown in Figures 1 and 2, suction applied at 16, and the squeegee blade 28 drawn over the surface 32, gathering any surplus fluid being sucked up through the mouth 34, and wiping the surface 32 clean and dry.

It is thus apparent that the device is quite convenient, combining to apply the cleaning fluid by means of the sponge head 66, and then, after rubbing the fluid over the surface to clean it, inverting the device to bring the squeegee blade into wiping contact therewith, wiping it dry and sucking surplus fluid up through the nozzle and opening 16 toward the source of suction.

Although I have described my invention in specific terms, it is understood that various changes may be made in size, shape, materials, and arrangement without departing from the spirit and scope of the invention.

I claim:

A cleaning device comprising a pliable tubular coupling member having inlet and outlet ends and having a bore formed therethrough for being coupled at its outlet end to a source of suction, first and second spaced walls integral with said tubular coupling member and

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extending from its inlet end, first and second sloping shoulders interconnecting said first and second spaced walls to define a slotted passageway therebetween, the said first wall being substantially thicker than said second wall and having a resilient lip projecting from and integral with the lower marginal edge thereof to form a squeegee blade, said blade projecting beyond the level of the outer marginal edge of said second wall to define an aspirating space therebetween for the suction of excess fluid into the said bore, a lug integral with and extending upwards from said tubular coupling member, a pair of ribs integral with said lug and extending transversely in opposite directions therefrom and secured to said tubular coupling member, and being of lesser height than said lug to form supporting shoulders, said lug and ribs being adapted to rigidly support a sponge carrier bracket in operative association on said tubular coupling member.

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