March 3, 1964 H. F. DOERSAM 3,122,769

DUAL PURPOSE SPLASH GUARD FOR FLOOR SURFACE CLEANING APPARATUS

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Fig. 1.

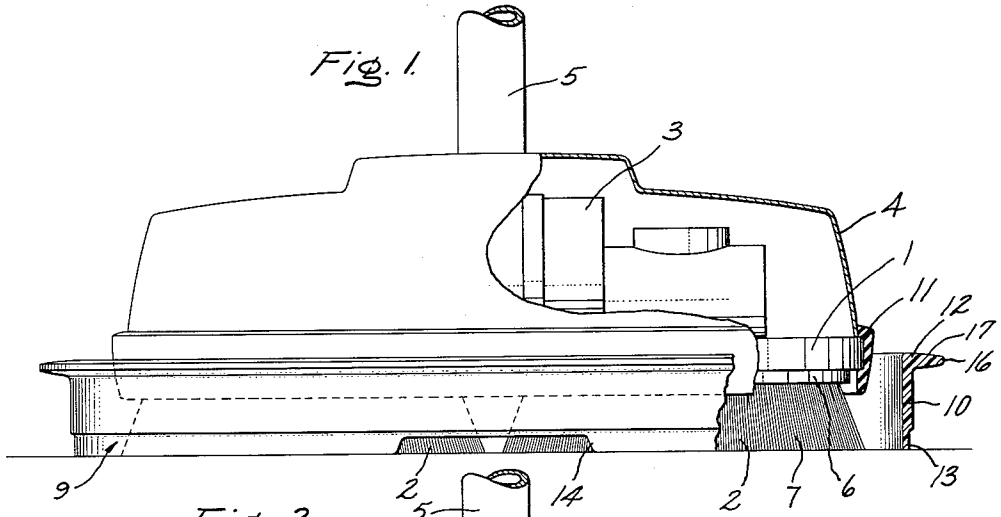


Fig. 2.

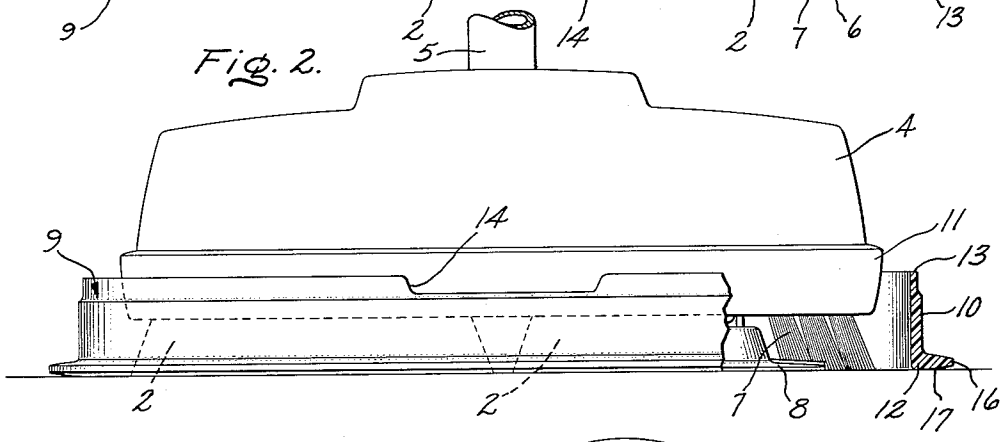
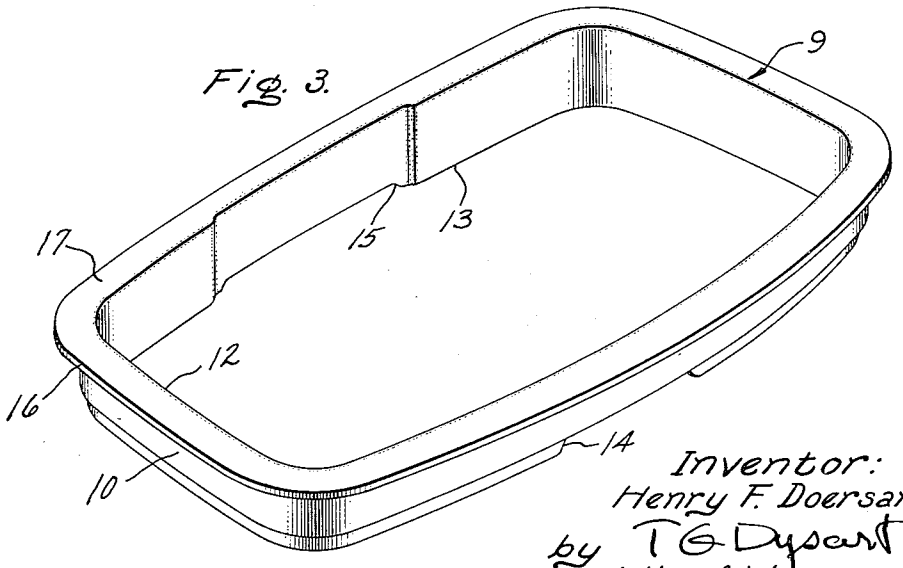


Fig. 3.



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DUAL PURPOSE SPLASH GUARD FOR FLOOR SURFACE CLEANING APPARATUS

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2 Claims. (Cl. 15—246)

This invention relates to floor surface cleaning apparatus, and more particularly to a skirt member or splash guard adapted for use with such apparatus.

For a number of years floor polishers suitable for domestic household use have been on the market. Typically, these polishers include a pair of rotary brushes mounted for rotation on vertical parallel axes and driven by a fractional horsepower electric motor. Devices of this type were first designed and used primarily for polishing and buffing waxed floors, but in recent years it has been found that they are also useful in scrubbing linoleum and other hard surface floor coverings with a soap or detergent and water mixture. Also, it has become rather common to provide the purchaser of such devices with a pair of brushes designed for cleaning carpets and rugs, utilizing either detergent foam or dry granulated rug cleaning materials.

In both floor scrubbing and rug cleaning in the manner just described it is important that the cleaning material (whether it be liquid, foam or solid granules) be confined in a small area surrounding the rotary brushes so as to prevent splashing or scattering of the material about the room. If the material is not so confined a loss in cleaning efficiency results, and also, in the case of liquids, adjacent baseboards and furniture may be splattered in an unsightly manner.

Various splatter collars or splash guards intended for use with floor care appliances of the type under discussion have been proposed or actually placed on the market, but to my knowledge none of these have been fully effective in performing their intended functions.

Accordingly, a principal object of the present invention is to provide an improved splash guard adapted to be used with floor care machines of the rotary brush type which effectively confines cleaning materials in the immediate vicinity of the floor area contacted by the rotary brushes.

Another object of the invention is to provide a splash guard of the aforesaid type which maintains contact with the floor under all normal conditions of operation.

Still another object of the invention is to provide a dual purpose splash guard which is fully effective on hard surface floors as well as rugs and carpets.

Briefly stated, in accordance with one aspect of my invention, I provide a splash guard for rotary brush floor care machines comprising a vertical wall member shaped so as to completely but somewhat loosely surround the lowermost portion of the housing or frame supporting the brushes and be supported on the floor or rug to be cleaned. An integral flange extending at right angles from one of the two edges of the wall member is also provided, and the other edge of the wall member is notched so as to provide openings of limited size adapted to permit liquid to enter and leave the scrubbing area when the splash guard is in operative position with the flanged edge up. In this position, if the machine is maneuvered too close to a wall and the splash guard strikes it, the flange is sufficiently above floor level to clear the quarter-round strip commonly used in baseboard construction, and is sufficiently wide to strike the baseboard before the vertical wall member makes contact with the quarter-round strip. Thus, tipping of the splash guard, which would result in loss of liquid in the scrubbing area, is avoided since contact of the flange with the baseboard

does not produce any tipping movement of the splash guard, such as that which would result if the vertical wall member struck the quarter-round strip at floor level.

Another function and advantage of the flange on the splash guard is that it provides a relatively large surface area supporting the splash guard during rug cleaning; under these circumstances the splash guard is positioned "up-side-down," so that it will guide over the pile of the rug in a stable condition.

The subject matter which I regard as my invention is particularly pointed out and distinctly claimed in the concluding portion of this specification. However, the organization and method of operation of my invention, together with further objects and advantages thereof, may be best understood by reference to the following description taken in connection with the accompanying drawing in which:

FIG. 1 is a fragmentary front elevation view of a floor care machine equipped with an embodiment of the splash guard which is the subject matter of the present invention, some of the parts being broken away to show details of construction;

FIG. 2 is similar to FIG. 1 but shows the splash guard in its inverted rug cleaning position; and

FIG. 3 is a perspective view of the splash guard.

Referring to the drawing, the floor polishing and scrubbing machine illustrated therein comprises a horizontally disposed motor frame 1, a pair of circular scrubbing brushes 2 mounted on frame 1 in side-by-side relationship for rotation about vertical parallel axes, and an electric motor 3 mounted on the frame. A hood 4 encloses motor 3 and the upper portion of frame 1 so as to protect these components and provide a pleasing appearance. A handle 5 is pivotally secured to frame 1 so that during operation of the machine the handle may be moved about a horizontal axis parallel to a plane passing through the axes of rotation of brushes 2. An electrical power cord and motor control switch (not shown) may be mounted on the handle 5 in accordance with conventional practice.

Motor 3 is connected in driving relation with brushes 2 by suitable well known means such as worm threads cut into the motor shaft and mating worm gears secured to brush shafts (not shown) mounted on the frame so as to rotate the brushes in counter-rotating directions. It is desirable that the directions of rotation be such that the direction of movement of the portions of the brushes most closely adjacent to each other (i.e., those portions lying closest to a vertical plane midway between the axes of rotation) is from front to rear. The advantage of this arrangement is that the rotary movement of the brushes tends to draw liquid on the floor lying in front of the machine into the scrubbing area beneath frame 1 and to direct a certain portion of the liquid outwardly from the rear of the machine. The utility of such an arrangement will become apparent as this description proceeds.

Each of scrubbing brushes 2 includes a body portion 6, means for removably securing it to the brush shaft (not shown) and a plurality of tufts of bristles 7 extending downwardly so as to support the machine when in use. When the machine shown in the drawing is used to clean rugs and carpets it is desirable that a portion of its weight be supported by means other than bristles 7. Therefore each brush used for this purpose may, as shown in FIG. 2, be provided with a centrally positioned flat disk 8, made of plastic or the like which is somewhat smaller in diameter than the brush. Under these circumstances the peripheral tufts of the brush work the cleaning material into the carpet in a satisfactory manner.

It will be understood that the floor polishing machine described thus far is of a conventional type well known in the art and that the features of my invention which

will now be described may be utilized in various machines of this general type. Also, the usefulness of my invention in its broader aspects is not limited to two-brush polishers of the type disclosed herein, but may also be utilized with polishers of the type including a single rotary brush.

In accordance with my invention, I provide a splash guard generally designated by the numeral 9 which includes a vertically disposed generally annular wall member 10 shaped so as to loosely encompass the peripheral edge portion 11 of the floor care machine and rest on the floor or carpet to be cleaned. Wall member 10 has a top edge 12 and a bottom edge 13 which are generally parallel to each other, and the height of the wall member is preferably greater than the height of a conventional quarter-round strip used in household baseboard construction.

The bottom edge of wall member 10 includes a pair of oppositely disposed notched portions 14 and 15 adapted to permit the entrance and egress of a limited quantity of liquid to and from the floor area enclosed by the wall member. As previously stated, the directions of rotation of brushes 2 is such that the brushes tend to draw liquid into the area enclosed by wall member 10 at the front of the machine and notched portion 14 on the front edge of the splash guard serves as an entrance passageway for such liquid. Likewise, notched portion 15 on the rear edge of the splash guard serves as an exit passageway for liquid enclosed in the scrubbing area.

Both notched portion 14 and notched portion 15 perform important functions, because it is necessary that liquid be permitted to enter the scrubbing area as the machine is moved back and forth across a floor on which liquid cleaning material has been spread, and also it is necessary that liquid be permitted to leave the scrubbing area in order to prevent a build-up of liquid within the area enclosed by the splash board. Such a build-up of water within the scrubbing area underneath the machine, if allowed to continue, could result in foamy liquid being splashed onto the frame of the machine and conceivably into the motor.

As previously mentioned, rotation of brushes 2 tends to draw liquid into the area surrounded by splash board 9 through notch 14 and to discharge a limited quantity to the rear through notch 15. This flow pattern is advantageous because the operator of the machine shown in the drawing stands a few feet to the rear in moving it to and fro across the floor and the liquid discharged through notch 15 thus flows onto an open floor area between the machine and the operator. Also, when the machine is pushed towards a baseboard or other obstruction in the room no splattering of liquid through notch 14 occurs since the liquid flow pattern in the area of front notch 14 is inwardly rather than outwardly.

Splash guard 9 also includes a generally horizontal flange 16 extending laterally outwardly from the top edge of wall member 10, as viewed in FIG. 1, the width of flange 16 being somewhat greater than the width of a conventional quarter-round strip. The top surface 17 of flange 16 is slightly convex and droops slightly at its outer edge so as to facilitate movement of the splash guard over a rug or carpet when it is in the inverted position shown in FIG. 2. It will be understood that splash guard 9 may be made of any suitable material, and in the presently preferred embodiment it is an integral molded plastic part.

In operation, when a hard surface floor covering such as linoleum is to be cleaned, the floor scrubbing machine shown in FIG. 1 is placed on the floor with the splash guard 9 in the position shown in FIG. 1 and a mixture of soap or detergent and water is spread about the floor. The machine is then energized by the operator and moved to and fro about the room, it being understood that the cleaning liquid enters the scrubbing area through notch 14 of the splash guard and a certain limited quantity

emerges from the scrubbing area through exit notch 15. However, liquid is not thrown outwardly from the brush bristles in any other direction since it is confined by wall member 10 which rides directly on the floor in loose contact with the periphery of the machine.

As the machine is maneuvered close to the walls of the room it is likely that the splash guard will strike the baseboard which in many houses includes a quarter-round strip at the intersection of the floor and the baseboard. In the absence of flange 16, the lower edge of wall member 10 (as viewed in FIG. 1) would strike the quarter-round strip and since the splash guard loosely encompasses the machine it would in all likelihood be tipped at an angle as a result of opposing forces applied by the quarter-round strip at the bottom edge of wall member 10 and by the peripheral portion 11 of the machine at the top edge 12 of the wall member. Such tipping movement of the splash guard would permit water or liquid to be thrown outwardly by the rotating bristles of the brushes 2 and the confining effect of the splash guard would be lost. However, in the presently preferred embodiment of my invention, flange 16 is sufficiently wide to make contact with the baseboard before the bottom edge of wall member 10 makes contact with the quarter-round strip and thus opposing horizontal forces are applied to the splash guard in essentially the same plane and hence there is no tendency for the splash guard to tip and allow liquid to be splattered around the room.

When the floor cleaning machine and splash guard disclosed herein are to be used for cleaning rugs or carpets, the parts are positioned on the rug surface in the manner indicated in FIG. 2, i.e., splash guard 9 is inverted so that surface 17 of flange 16 supports the splash guard. If dry granulated rug cleaning machine material is to be used, it is first spread about the rug and then the operator energizes the machine and, with the splash guard in the position shown in FIG. 2, moves it about the room so as to allow the bristles of brushes 2 to work the cleaning material into the pile of the rug. After this is done the loosened dirt and the cleaning material are removed by vacuum cleaning, utilizing any vacuum cleaner suitable for use with carpets.

The splash guard of my invention may also be utilized with floor surface cleaning machines arranged to deposit either a liquid cleaning material or a foamy cleaning material on the rug as the machine is moved about on the rug surface. Regardless of the cleaning material used, the splash guard functions to confine the cleaning material in the scrubbing area beneath the frame of the machine and prevents scattering or splattering of the material about the room.

While I have shown and described a particular embodiment of my invention, I do not desire the invention to be limited to the particular construction disclosed, and I intend by the appended claims to cover all modifications within the true spirit and scope of my invention.

What I claim is:

1. A dual purpose splash guard for use with a floor care machine including a rotary floor scrubbing means depending from a motor frame having a peripheral edge portion spaced above the floor when the scrubbing means rests on the floor in operative position, said splash guard comprising a generally vertically disposed annular wall member shaped so as to loosely encompass the edge portion of said floor care machine and rest on the floor the height of said wall member being greater than the height of a conventional quarter round strip used in household baseboard construction, said member having first and second segments positioned at opposite ends of said wall member, respectively, said first wall segment having a width less than the average width of said wall, said second wall segment having a width more than twice as large as the average width of said wall and greater than the width of the aforesaid quarter round strip so that when the first wall segment is in contact with the floor

the second wall segment will be moved into contact with the baseboard before said first wall segment contacts the quarter round strip as the floor care machine is moved across the floor, said second wall segment having a surface which is arranged generally perpendicular to the vertical axis of said annular wall member, said surface being slightly convex and sloping outwardly more than three-quarters of its width so as to facilitate movement of the splash guard over a rug when said surface is in an inverter position resting on the rug said first wall segment having a pair of oppositely disposed notched portions formed therein so that when the first wall segment is in contact with the floor the entrance and egress of a limited amount of liquid to and from the floor area enclosed by said wall member is permitted.

2. The splash guard recited in claim 1 wherein said first wall segment includes a front section and a rear section, and wherein said scrubbing means includes a pair of brush elements which converge during rotation adjacent said front section and diverge during rotation adjacent said rear section, one of said notched portions being formed in said front section adjacent the converging portions of said brush elements and the other of said notched portions being formed in said rear section adjacent the diverging portions of said brush elements.

References Cited in the file of this patent

UNITED STATES PATENTS

1,695,246	Ganmeter	Dec. 11, 1928
2,893,048	Martinec	July 7, 1959
2,981,966	Beffel	May 2, 1961
3,010,135	Pollnow	Nov. 28, 1961
3,011,191	Hulsh	Dec. 5, 1961
3,019,465	Bayless	Feb. 6, 1962

FOREIGN PATENTS

472,445	Germany	Feb. 28, 1929