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3,401,415

CARPET SWEEPER WITH AUXILIARY BRUSH

Filed July 15, 1966

FIG. 1.

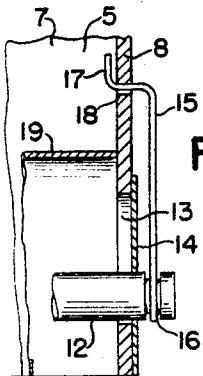
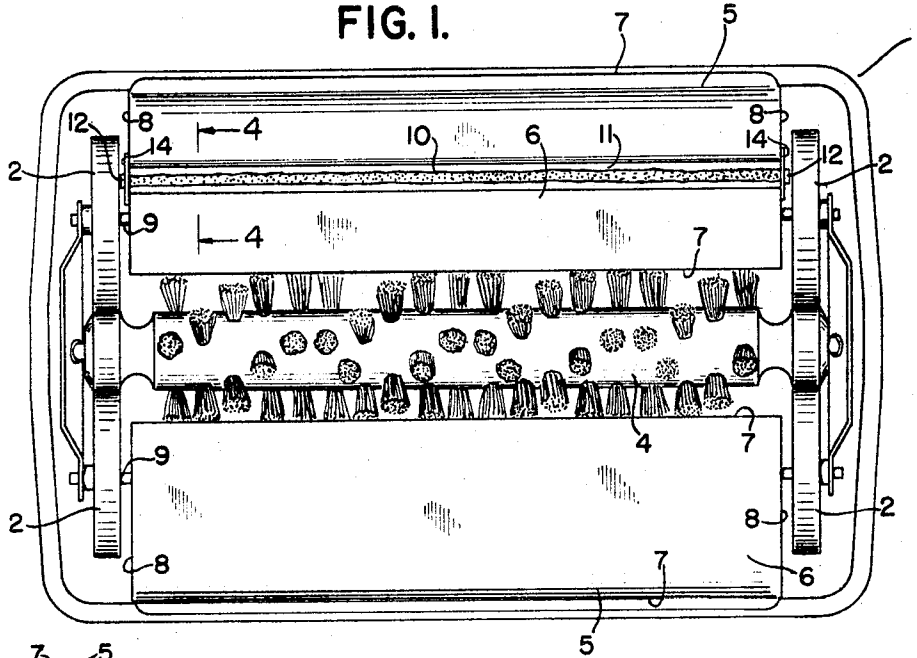


FIG. 3.

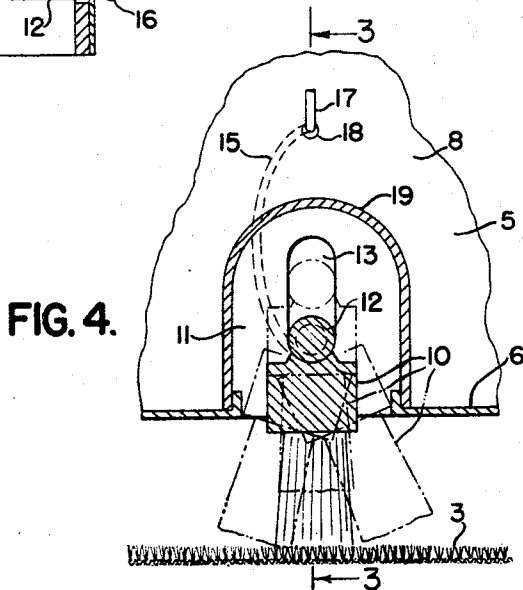
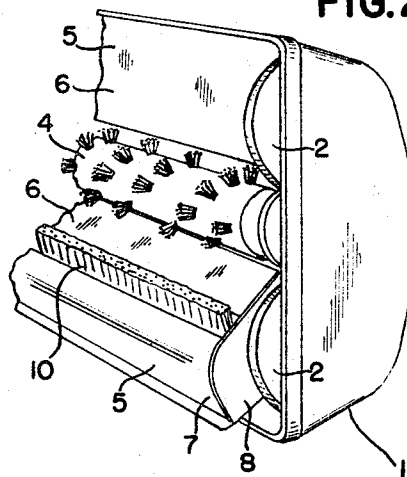


FIG. 4.

FIG. 2.



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CARPET SWEEPER WITH AUXILIARY BRUSH
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3 Claims. (Cl. 15—42)

ABSTRACT OF THE DISCLOSURE

A carpet sweeper having a rotary brush with dust pans on each side. One of the pans has a slot which receives an auxiliary brush. The auxiliary brush is pivotally mounted within the pan and extends down through the slot. Stop means for the pivotal brush action are provided, and the brush is spring biased.

This invention relates to a carpet sweeper with an auxiliary brush, and more particularly to a carpet sweeper having a brush mounted in the dust pan thereof, said brush assisting the usual rotary brush.

In the art of sweeping carpets, rugs and the like, difficulties are sometimes encountered in that the nap surface is not properly conditioned and/or short threads and the like resist the sweeping action of the device.

The present invention helps to reduce the above-mentioned problems, and is based on the use of means which cooperate with the sweeper's rotary brush to loosen and condition the nap surface.

The accompanying drawing illustrates the best mode presently contemplated by the inventor for carrying out the invention.

In the drawings:

FIGURE 1 is a bottom plan view of a carpet sweeper constructed in accordance with the invention;

FIG. 2 is a perspective fragmentary view showing the sweeper with the dust pan open;

FIG. 3 is a view taken on line 3—3 of FIG. 4; and

FIG. 4 is a section taken on line 4—4 of FIGURE 1 with the sweeper right side up and showing various positions of the auxiliary brush.

As shown in the drawings, the concept of the invention is embodied in a carpet sweeper 1 of generally conventional design, having suitably mounted rotary wheels 2 adapted to support the sweeper on the nap surface 3 as the sweeper is translated forwardly and rearwardly over the floor. Wheels 2 are disposed to engage and rotatably drive a rotary brush assembly 4 centrally located relative to the sweeper frame.

Sweeper 1 includes dust receiving areas comprising one or more dust pans 5 mounted on the frame. As shown, two such pans are utilized, one forwardly and one rearwardly of brush assembly 4. Pans 5 include a bottom floor 6, fore and aft side walls 7 and end walls 8. The pans are mounted to pivotally open and close for emptying purposes, such as about the wheel axles 9.

The sweeper construction described above is generally similar to that disclosed in U.S. Patent 2,975,449, issued Mar. 21, 1961 and assigned to a common assignee. Reference is made to that patent for other details which are unnecessary to the present inventive concept.

In accordance with the present invention, auxiliary brush means are provided to assist brush assembly 4 in the sweeping action. For this purpose, an elongated brush 10 is mounted on a dust pan 5 and disposed to have its bristle ends engage nap surface 3 during translation of the sweeper back and forth. While only a single forwardly disposed brush 10 is shown in the drawings, more than one brush may be mounted on a single dust pan, or one or more brushes may be mounted on each pan without

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departing from the spirit of the invention. The bristles of brush 10 are substantially stiffer than those of brush assembly 4 and may be made of plastic or any other suitable material.

For brush mounting purposes, an elongated slot 11 is disposed in pan floor 6. Brush 10 is disposed so that its bristles extend downwardly through slot 11 beyond the lower level of brush assembly 4 and toward the nap surface, and is parallel to and spaced from brush assembly 4. The elongated base of brush 10 is secured to or forms an elongated shaft 12 which is rotatably mounted within pan end walls 8 above floor 6. For this purpose, a vertical slot 13 is disposed in each wall 8 for receipt of shaft 12 therethrough. A retaining washer 14 of greater diameter than the length of slot 13 is secured to shaft 12 and abuts the outer face of each wall 8 adjacent slot 11 for retaining purposes.

In addition, spring means are provided to bias shaft 12 and brush 10 downwardly toward nap surface 3. As shown, an arcuate spring 15 is disposed with its lower end surrounding a groove 16 in each shaft end portion. The upper end of spring 15 is secured to pan wall 8, as by an L-shaped spring flange 17 which extends through a hole 18 in wall 8.

Since pan 5 will receive an accumulation of debris during sweeping, a cover 19 is secured over slot 11 and brush 10 within the pan to prevent debris from interfering with the brush action.

As sweeper 1 is translated over the floor, brush 10 will pivot about the axis of shaft 12, and will raise and lower against the spring biasing force in accordance with undulations in the nap surface. As the sweeper is moved forwardly, brush 10 will pivot so its bristles are inclined toward brush assembly 4 and will condition nap surface 3 and loosen any embedded particles which tend to tightly adhere to the surface, preparatory to sweeping action thereon by brush assembly 4. Upon rearward return motion, brush 10 will pivot so its bristles are inclined away from assembly 4, and will continue to condition the nap surface and further loosen any firmly embedded particles not swept up on the first stroke. This action continues during repeated reciprocating translations.

Pivotal movement of brush 10 in either direction is limited by the edges of elongated slot 11, while vertical motion of brush 10 is limited by the ends of slot 13.

The invention provides an improved carpet sweeper with increased ability to remove dust and other debris from a nap surface.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

I claim:

1. In a carpet sweeper having a rotary brush and a dust pan with a bottom floor as well as fore and aft side walls and end walls, said dust pan being mounted adjacent said rotary brush for receiving debris swept thereinto by said rotary brush from a nap surface, the combination comprising:

- (a) means in said dust pan floor forming an opening,
- (b) an auxiliary brush mounted within said pan above said floor and extending downwardly through said opening to adjacent the lower level of said rotary brush for engaging the nap surface,
- (c) said auxiliary brush being pivotable toward and away from said rotary brush,
- (d) and cover means within said dust pan and disposed over said opening and said auxiliary brush to prevent debris within the pan from interfering with pivotal action of said auxiliary brush.

2. In a carpet sweeper having a rotary brush and a dust pan with a bottom floor as well as fore and aft side

walls and end walls, said dust pan being mounted adjacent said rotary brush for receiving debris swept thereinto by said rotary brush from a nap surface, the combination comprising:

- (a) means in said dust pan floor forming an elongated slot disposed parallel to said rotary brush,
 - (b) an elongated auxiliary brush including a shaft mounted to said pan end walls above said floor, with said brush extending downwardly from within said pan through said slot to adjacent the lower level of said rotary brush for engaging the nap surface,
 - (c) said auxiliary brush being pivotable toward and away from said rotary brush during translation of the sweeper over the nap surface,
 - (d) and cover means within said dust pan and disposed over said slot and said auxiliary brush to prevent debris within the pan from interfering with pivotal action of said auxiliary brush.
3. The sweeper of claim 2 wherein the ends of said brush shaft are mounted in vertical slots in said pan end

walls, a retaining washer of greater diameter than the length of said vertical slots is secured to each shaft end and abuts the outer face of each end wall, and a brush biasing spring is attached between each said end wall and the respective end of said shaft.

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