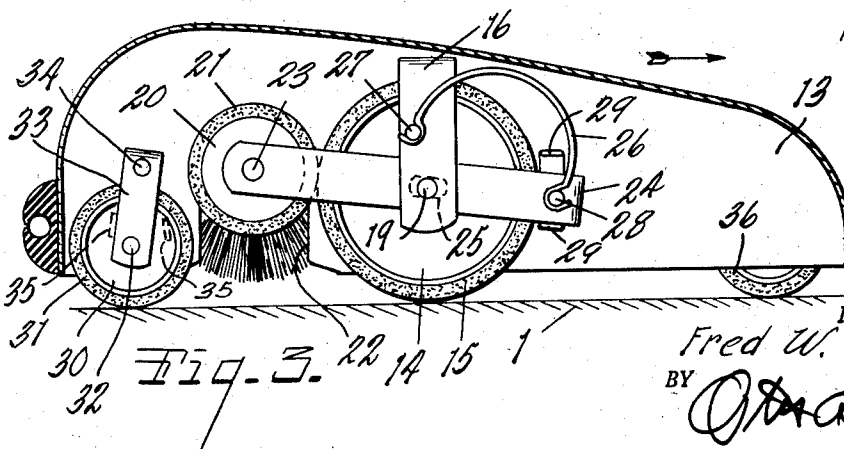
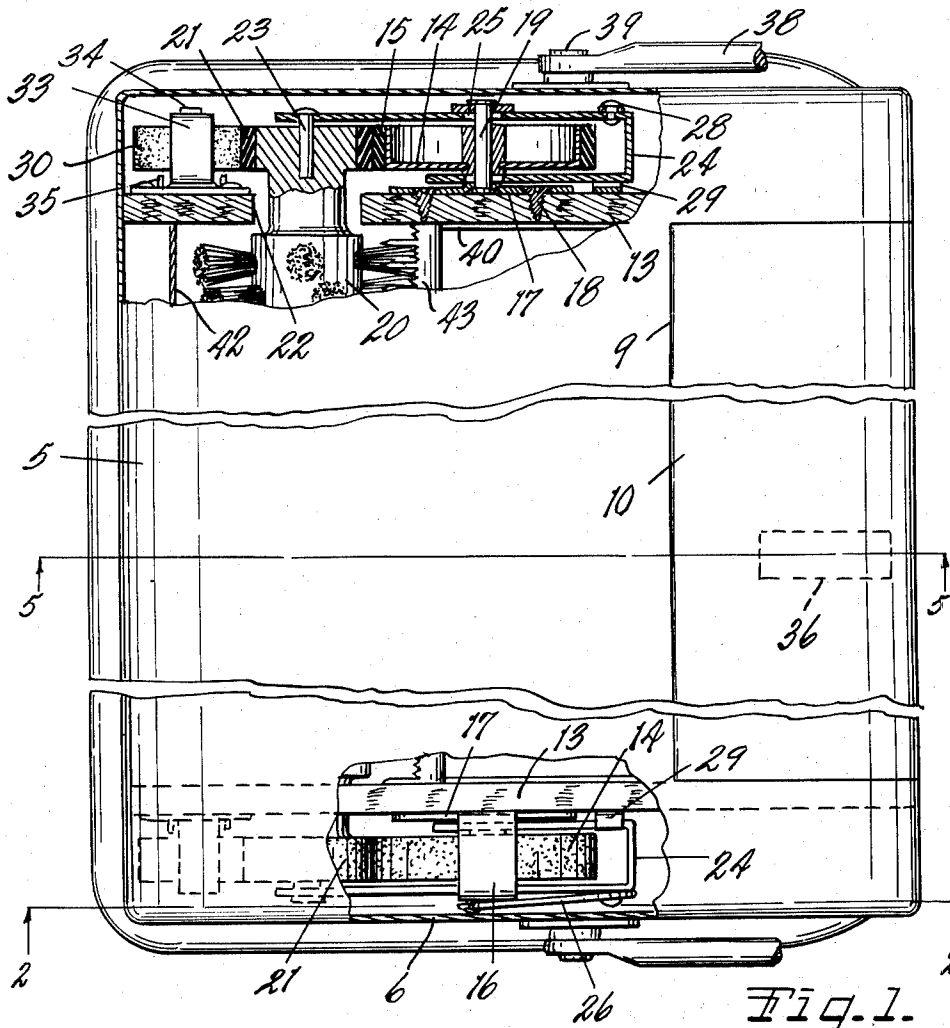


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2 Sheets-Sheet 1



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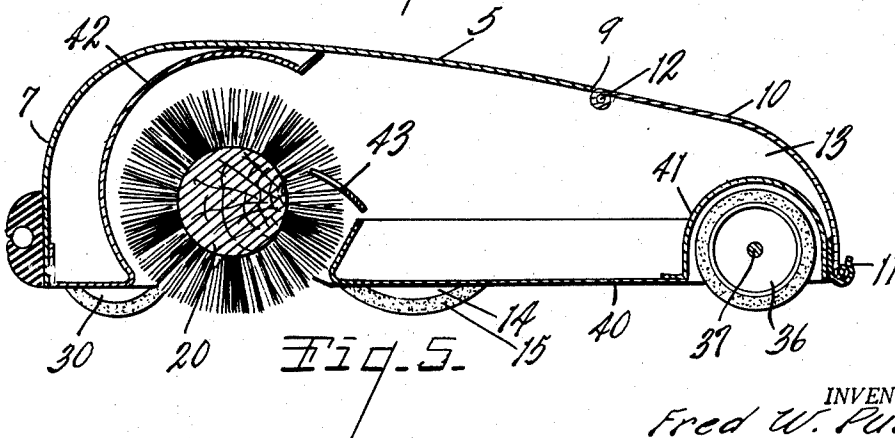
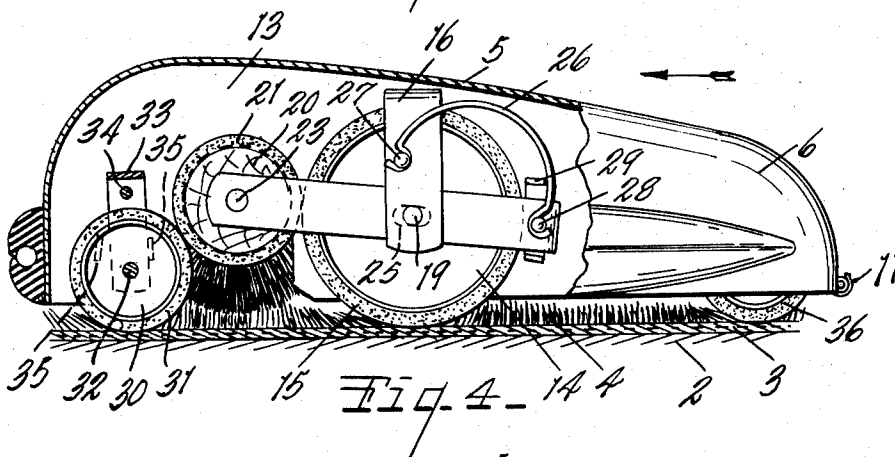
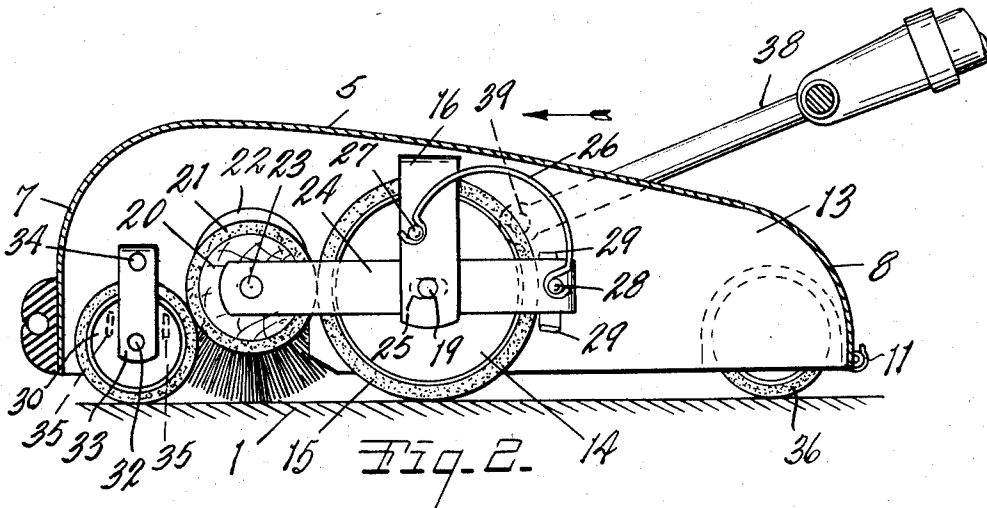
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CARPET SWEEPER

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2 Sheets-Sheet 2



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CARPET SWEEPER

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9 Claims. (Cl. 15—48)

This invention relates to improvements in carpet sweepers.

The main objects of this invention are:

First, to provide a carpet sweeper of the rotary brush type in which the brush is in sweeping position only on the forward stroke of the sweeper and is lifted from the surface being swept on the rearward stroke of the sweeper.

Second, to provide a carpet sweeper characterized by these features in which the brush is automatically actuated to sweeping position on the forward stroke and retracted from sweeping position on the return stroke, the sweeping positioning of the brush being varied in accordance with the surface over which the sweeper is propelled.

Third, to provide a sweeper of the rotary brush type which enables sweeping close to furniture, walls, and other objects or obstructions.

Fourth, to provide a structure of this character with a fixed dust pan in association with a casing having an opening therein through which the contents of the pan may be discharged.

Fifth, to provide a structure having these advantages which is simple and economical in its parts and the parts readily assembled.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary plan view of a sweeper embodying my invention, certain of the operating parts of the sweeper being sectioned and broken away.

Fig. 2 is a vertical section on a line corresponding to line 2—2 of Fig. 1 showing the relation of parts on the forward stroke of the sweeper on a hard surface.

Fig. 3 is a corresponding sectional view showing the relation of the parts on the return stroke of the sweeper.

Fig. 4 is a fragmentary sectional view corresponding to that of Figs. 2 and 3 showing the relation of parts on the forward stroke on a soft surface, such as a carpet or rug having substantial nap.

Fig. 5 is a sectional view on a line corresponding to line 5—5 of Fig. 1 illustrating the relation of the brush to the dust pan, and the door or closure for the pan discharge opening in the casing.

In the accompanying drawing 1 represents a hard surface such as a wood floor or linoleum, tile and the like, 2 a surface covered by a rug 3 having nap 4 of substantial depth. The sweeper casing illustrated is formed of sheet metal and comprises a top 5, end walls 6, front wall 7, and rear wall 8. The rear wall has an opening 9 therein provided with a door closure 10 which is retained in its closed position by means of a spring catch 11. The front edge of the door closure 10 is hinged at 12. The closure 10 is desirably symmetrically complementary to the remainder of the casing. The support members 13 are disposed in spaced parallel relation to the end walls 6. These in the embodiment illustrated are formed of wood.

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The floor wheels 14 are provided with rubber treads or tires 15. The wheel hangers or brackets 16 are of downwardly facing U-shape embracing the wheels 14 and provided with attaching plates 17 secured to the outer sides of the support members 13 as by means of the screws 18. The wheel journals or spindles 19 are supported at both ends by these wheel hangers or brackets. The brush 20 is provided with rubber tired pulleys or rollers 21 coacting with the floor wheels to be driven thereby. The ends of the rollers are disposed through openings 22 in the support members 13 and are journaled or rotatably mounted on the stub axles or spindles 23 carried by the U-shaped brush hanger members 24, the U-shaped portions of which embrace the floor wheels and are slotted at 25 to pivotally and slidably engage the wheel spindles 19. The brush thus supported may swing vertically as is indicated by the different positions thereof shown in the drawings. The brush pulleys are urged against the floor wheels and the brush is urged upwardly with a relatively light thrust by means of the U-shaped springs 26, one end of which engage studs 27 disposed on the wheel brackets 16 above the spindles 19 and the other with the studs 28 on the rear ends of the hanger members 24. This positioning of the springs yieldingly biases the brush pulleys against the floor wheels to insure driving engagement therewith, and biases the brush yieldingly upward.

On the forward stroke of the sweeper the floor wheels, through the contact of the brush pulleys therewith, rotate the brush and also impart downward forces to the brush overcoming the lifting thrust tension of the springs 26. On the rearward stroke of the sweeper the rotation of the floor wheels tends to lift the brush. The springs 26 also act to that end as is shown in Fig. 3. Vertically spaced stops 29 limit the vertical swing or movement of the brush hangers. This provides a floating support for the brush.

To render the sweeper automatically adjustable or adaptable to the surface cleaned, and to prevent undesirably severe brushing or sweeping action on rugs or carpets having nap of considerable length, I provide means for automatically controlling the downward movement of the brush on the forward stroke of the sweeper. In the embodiment illustrated this means comprises a pair of idler floor wheels 30 which for convenience I have designated as auxiliary floor wheels for the reason that they coact directly with the floor or surface over which the sweeper is passed. These auxiliary floor wheels are provided with rubber treads 31. They are journaled at 32 on the downwardly facing U-shaped hangers 33 pivoted at 34 on the support members so that the wheel hangers are swingable between the stops 35, which allows them to swing to position with the brush pulleys on the forward stroke of the sweeper and out of engagement therewith on the rearward stroke of the sweeper (see Figs. 1, 2, 3 and 4).

When the sweeper is used on a hard surface as indicated in Figs. 2 and 3, the driving engagement of the main floor wheels with the brush, not only drives the brush but moves it downwardly. The auxiliary floor wheels swing rearwardly to engage the pulleys but not far enough to prevent the brush acting on the hard surface, as the traction resistance on the hard surface is not sufficient to overcome the downward stresses resulting from the driving engagement of the brush roller with the main floor wheels. When, however, the sweeper is used on a soft surface such as a carpet, rug and the like having a substantial amount of nap, the auxiliary floor wheels 30 counteract this downward force or thrust to such an extent that the brush is supported in position to effectively operate on the nap surface. This action is entirely automatic and results in an effective sweeping action on var-

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ious kinds of surfaces without the brush gouging or tending to gouge into relatively soft surfaces.

A rear carrying wheel 36 journaled at 37 provides stability for the casing. The handle 38 is connected at 39 to the end walls of the casing, the connections being at the rear of the vertical plane of the axis of the carrying wheels so that downward thrust on the handle is sustained by the floor wheels 14 and the wheels 36. The auxiliary floor wheels 30 also serve in providing stability for the sweeper but their main function is not in carrying the casing but in controlling the brush.

The dust pan 40 is fixedly mounted in the casing, extending between the supports 13 and is provided with a housing portion for the wheel 36. The sweepings guide member 42 is disposed in front of the brush and substantially overhangs it to guide the sweepings or litter into the pan. A comb 43 is conventionally illustrated in Fig. 5 to clean the brush and guide the sweepings into the pan. To empty the pan the door or closure 10 is opened and the contents of the pan discharged through the opening 9. With the parts thus arranged the brush acts to sweep only on the forward stroke of the sweeper, and owing to the coaction of the auxiliary wheels with the brush pulleys, the brush becomes self adjusting to various thicknesses of carpets. It is not desired or contemplated that the user shall apply substantial down thrust through the handle, as all that is necessary or desirable in using the sweeper is that the operator shall reciprocate the sweeper back and forth, and of course to properly guide it.

The disengaging of the brush from the swept surface on the return stroke prevents lint from being picked up and discharged on the surface being swept. The structure is simple and economical in its parts and they are easily assembled.

I have illustrated and described my invention in a highly practical embodiment thereof. I have not attempted to illustrate or describe other adaptations or embodiments which I contemplate, as I believe this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

I claim:

1. In a carpet sweeper the combination of a casing comprising top, front, rear, and end walls, support members fixedly disposed within said casing in spaced relation to the end walls thereof, main floor wheels, downwardly facing U-shaped floor wheel brackets mounted on the outer side of said support members to embrace said floor wheels, spindles for said main floor wheels mounted on said brackets and disposed approximately centrally relative to the front and rear walls of the casing, a brush disposed for vertical movement through openings provided therefor in said support members and provided with rollers coacting with said main floor wheels to be driven thereby, U-shaped brush hanger members on which said brush is journaled disposed to embrace said floor wheels and having longitudinal slots in the arms thereof pivotally and slidably engaging said floor wheel spindles, stops on said support members coacting with said brush hanger members to limit the throw thereof, springs mounted on said floor wheel brackets and connected to said brush hanger members to yieldingly bias the brush rollers upwardly and against said floor wheels, auxiliary floor wheels swingably mounted on the outer sides of said support members to coact with said rollers on said brush on the forward stroke of the sweeper preventing excessive downward movement of the brush on the forward stroke of the sweeper and permitting the upward movement thereof on the return stroke of the sweeper, a rear floor wheel disposed centrally relative to the ends of the casing, and a handle pivotally mounted on the casing between the main and rear floor wheels.

2. In a carpet sweeper the combination of a casing comprising top, front, rear, and end walls, support members fixedly disposed within said casing in spaced rela-

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tion to the end walls thereof, main floor wheels, spindles for said main floor wheels mounted on said support members and disposed approximately centrally relative to the front and rear walls of the casing, a brush disposed for vertical movement through openings provided therefor in said support members and provided with rollers coacting with said main floor wheels to be driven thereby, brush hanger members on which said brush is journaled having longitudinal slots therein pivotally and slidably engaging said floor wheel spindles, stops on said support members coacting with said brush hanger members to limit the throw thereof, springs for yieldingly biasing the brush rollers upwardly and against said floor wheels, auxiliary floor wheels movably mounted on said support members to coact with said rollers on said brush on the forward stroke of the sweeper preventing excessive downward movement of the brush on the forward stroke of the sweeper and permitting the upward movement thereof on the return stroke of the sweeper, a rear floor wheel mounted on said casing, and a handle pivotally mounted on the casing between the main and rear floor wheels.

3. In a carpet sweeper the combination of a casing, main floor wheels, spindles for said floor wheels carried by said casing, a brush provided with rollers coacting with said main floor wheels, brush hanger members on which said brush is journaled having longitudinal slots in the arms thereof pivotally and slidably engaging said floor wheel spindles, stops coacting with said brush hanger members to limit the throw thereof, springs connected to said brush hanger members to yieldingly bias the brush rollers upwardly and against said floor wheels, and auxiliary floor wheels swingably mounted on the casing to coact with said rollers on said brush on the forward stroke of the sweeper and to be disengaged therefrom on the return stroke of the sweeper.

4. In a carpet sweeper the combination of a casing, main floor wheels, spindles for said floor wheels carried by said casing, a brush provided with rollers coacting with said main floor wheels, brush hanger members on which said brush is journaled having longitudinal slots in the arms thereof pivotally and slidably engaging said floor wheel spindles, springs connected to said brush hanger members to yieldingly bias the brush rollers upwardly and against said floor wheels, and auxiliary floor wheels swingably mounted on the casing to coact with said rollers on said brush on the forward stroke of the sweeper and to be disengaged therefrom on the return stroke of the sweeper.

5. In a carpet sweeper the combination of a casing, main floor wheels, spindles for said floor wheels carried by said casing, a brush provided with rollers coacting with said main floor wheels, brush hanger members on which said brush is journaled having longitudinal slots in the arms thereof pivotally and slidably engaging said floor wheel spindles, and auxiliary floor wheels swingably mounted on the casing to coact with said rollers on said brush on the forward stroke of the sweeper and to be disengaged therefrom on the return stroke of the sweeper.

6. In a carpet sweeper the combination of a casing, main floor wheels, spindles for said floor wheels carried by said casing, a brush provided with rollers coacting with said main floor wheels, brush hanger members on which said brush is journaled having longitudinal slots in the arms thereof pivotally and slidably engaging said floor wheel spindles, and auxiliary floor wheels swingably mounted on the casing to coact with said rollers on said brush on the forward stroke of the sweeper and to be disengaged therefrom on the return stroke of the sweeper.

7. In a carpet sweeper, the combination of a casing, main floor wheels fixedly journaled in said casing, a brush mounted on said casing for vertical swinging movement and provided with rollers disposed forwardly of and coacting with said floor wheels to be driven thereby, springs acting to lightly bias said brush upwardly and yieldingly

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against said floor wheels and auxiliary floor wheels mounted on the casing forwardly of the brush rollers and disposed to project below the casing to engage the surface to be cleaned and to be rotated by such engagement and mounted on the casing to move towards and away from the brush pulleys to engage the same on the forward stroke of the sweepers in a plane below the axis of the brush when it is in its lowermost position and to disengage therefrom on the rearward stroke of the sweepers.

8. In a sweeper, the combination of a casing, floor wheels journaled on said casing in fixed position relative thereto, a brush mounted on said casing for vertical swinging movement in an arc concentric with the periphery of the floor wheels and provided with rollers disposed forwardly of said floor wheels, spring means yieldingly urging said rollers into driving engagement with said floor wheels to be driven thereby in all positions of the brush and thereby swing the brush to and from sweeping position as a result of reciprocating movement of the sweeper and to drive the brush when in sweeping position on the forward stroke of the sweeper, stop means limiting the vertical swinging movement of said brush, and auxiliary floor engaging wheels swingably mounted on said casing at the front of and disposed to engage the brush rollers in a plane below the axis of the brush on the forward stroke of the sweeper when the brush is in its lowermost position and to disengage therefrom on the rearward stroke of the sweeper.

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9. In a sweeper, the combination of a casing, floor wheels journaled on said casing in fixed position relative thereto, a brush mounted on said casing for vertical swinging movement in an arc concentric with the periphery of the floor wheels and provided with rollers disposed forwardly of said floor wheels, spring means yieldingly urging said rollers into driving engagement with said floor wheels to be driven thereby in all positions of the brush and thereby swing the brush to and from sweeping position as a result of reciprocating movement of the sweeper and to drive the brush when in sweeping position on the forward stroke of the sweeper, and auxiliary floor engaging wheels swingably mounted on said casing at the front of and disposed to engage the brush rollers in a plane below the axis of the brush on the forward stroke of the sweeper when the brush is in its lowermost position and to disengage therefrom on the rearward stroke of the sweeper.

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