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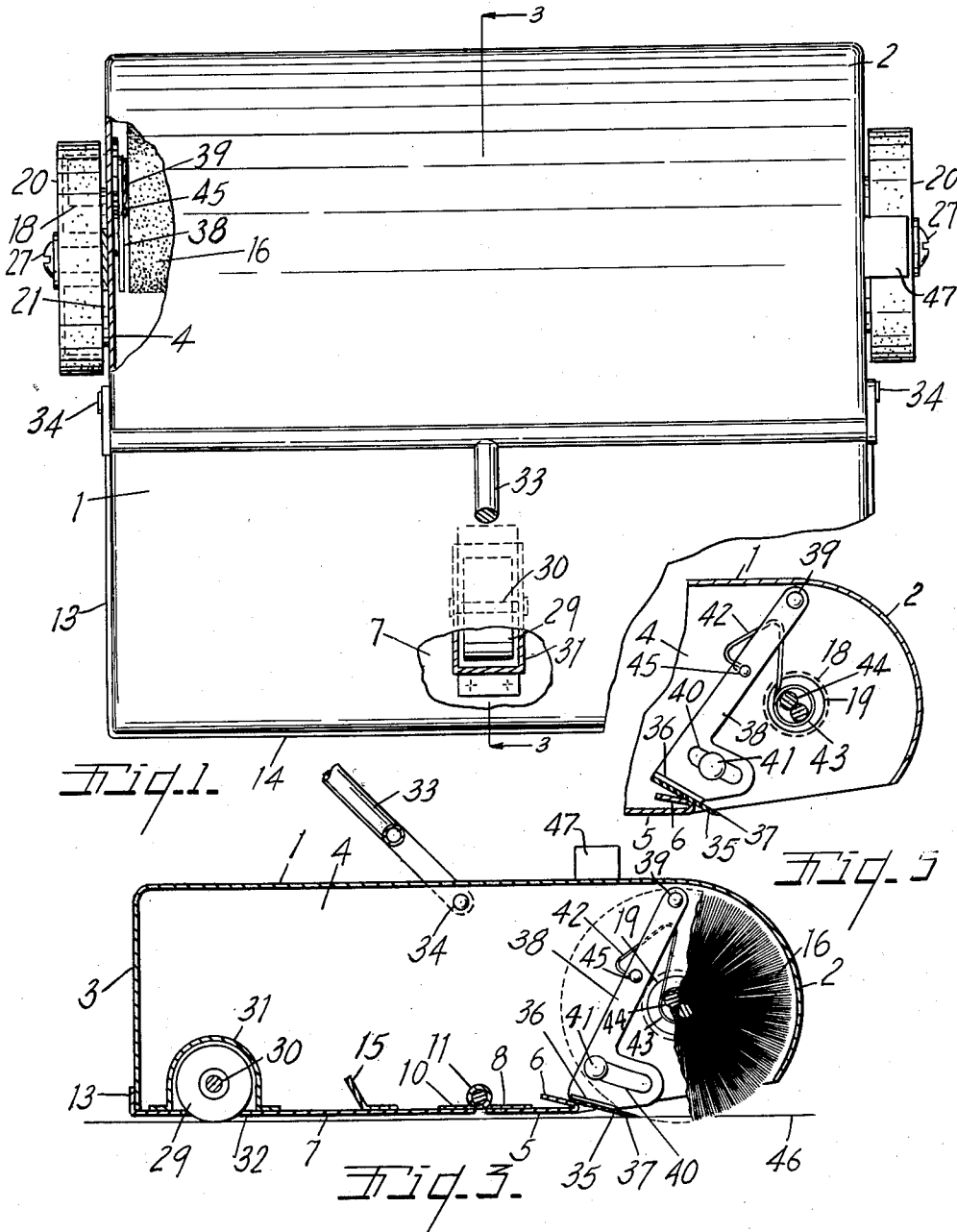
B. E. SOBIE ET AL

2,986,755

FLOOR SWEEPERS

Filed Jan. 19, 1959

2 Sheets-Sheet 1

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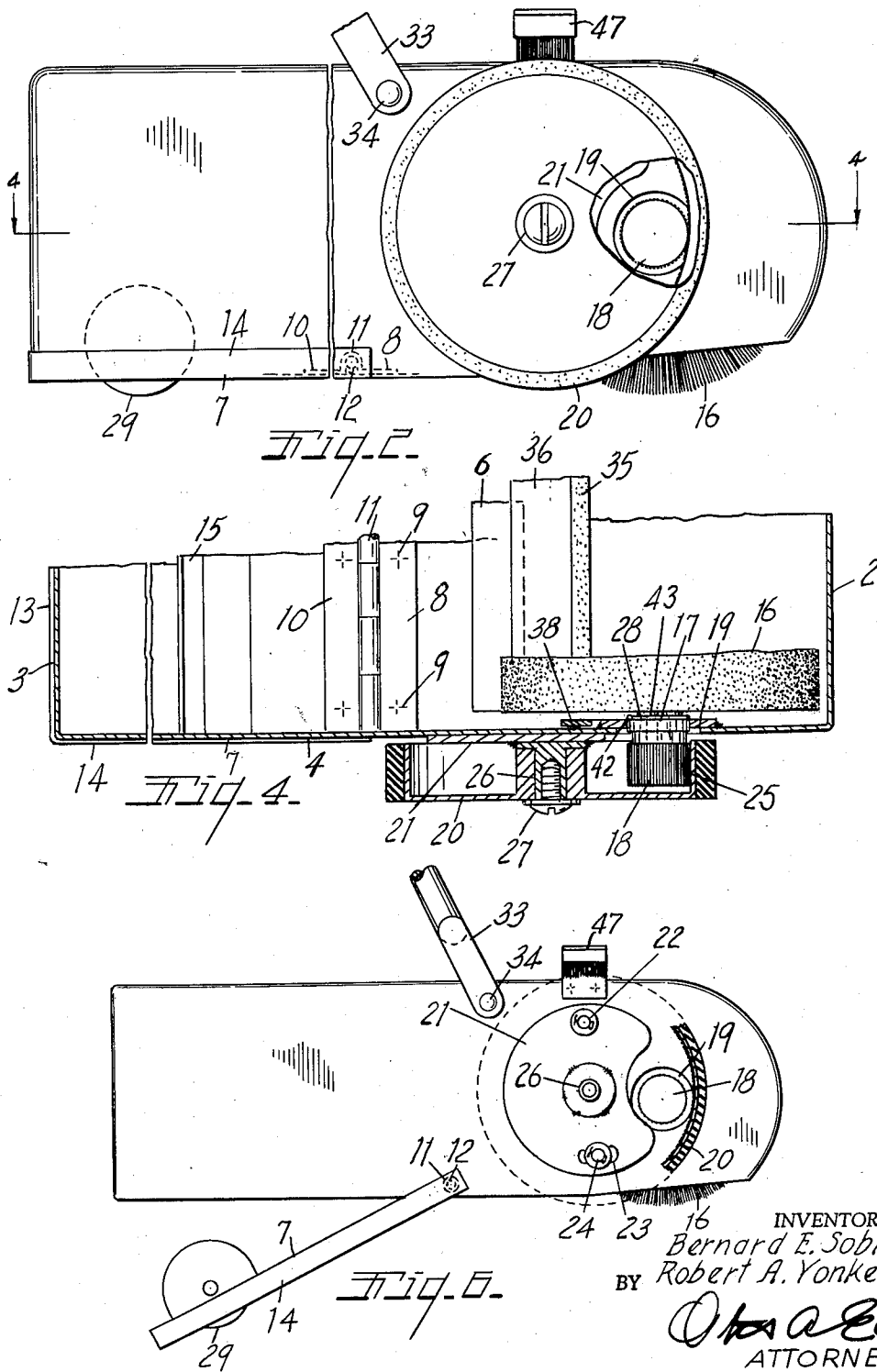
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2 Sheets-Sheet 2



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FLOOR SWEEPERS

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7 Claims. (Cl. 15-4)

This invention relates to a floor sweeper which is particularly desirable for use in sweeping hard surfaced floors as distinguished from floors provided with carpet or rugs. The main objects of this invention are,

First, to provide a floor sweeper well adapted for use in the sweeping of hard surfaces as distinguished from floors provided with carpets or rugs, which is highly efficient and at the same time compact and convenient to use.

Second, to provide a floor sweeper of the type stated which has a floor scraper blade operatively associated with the brush serving the double function of guiding material into the dust pan and loosening material from the floor.

Third, to provide a floor sweeper in which the brush is positioned closely adjacent to the front end of the casing and is driven only on the forward stroke of the sweeper.

Fourth, to provide a sweeper in which the weight and downthrust on the sweeper acts to hold the dust pan in closed position.

Fifth, to provide a sweeper having these several advantages which is light in weight and compact, and at the same time is highly efficient.

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 top view with a portion of the handle and parts of the casing broken away to disclose the relation of certain parts.

FIG. 2 is an end elevational view with portions of the handle and one of the floor wheels broken away to illustrate the relation of certain parts.

FIG. 3 is a vertical section on a line corresponding to line 3-3 of FIG. 1.

FIG. 4 is a fragmentary view partially in horizontal section on a line corresponding to line 4-4 of FIG. 2.

FIG. 5 is an enlarged fragmentary view in section corresponding to that of FIG. 3 with the floor scraper blade in partially retracted position.

FIG. 6 is an end elevational view corresponding to that of FIG. 2, the dust pan in open position and a fragment only of the brush driving floor wheel being shown in section to disclose the operative relation through a brush pulley.

In the accompanying drawing, certain of the parts are shown mainly in conventional form such, for example, as the structural details of the casing which comprises a top 1, a forwardly curved front wall 2, the rear wall 3 and end walls 4, these being desirably formed of sheet metal. The casing is provided with a bottom cross-piece 5 fixedly secured to the end walls. This cross-piece has an upwardly and rearwardly inclined flange-like portion 6 on its forward edge, see FIGS. 3 and 5. The dust pan 7 is hingedly secured to this cross-piece 5 desirably by hinge members 8 fixedly secured to the cross-piece as by welds indicated at 9, and the hinge member 10 fixedly secured to the inner side of the dust pan by welds 9, see FIG. 4. These extend full length of the casing and are provided with interengaging knuckles 11 receiving the pintle 12. This provides a closed joint between the dust

2

pan and the cross-piece. The dust pan is provided with an upwardly projecting flange 13 on its rear edge and end flanges 14 on its edge, which embrace the bottom portions of the rear and side walls. The upwardly projecting member 15 disposed rearwardly of the hinge 12 acts to prevent collected material working forwardly after it has been discharged into the rear portion of the dust pan. The brush, designated generally by the numeral 16, is disposed closely adjacent to the curved front wall 2 and is provided with spindles 17 provided with pulleys 18, these spindles projecting through the openings 19 provided therefor in the end walls.

The brushes are driven on the forward stroke of the sweeper by means of the front floor wheels 20 which are mounted on hangers 21 swingably supported on the studs 22 and provided with short slots 23 through which the stops 24 project, see FIG. 6. The rims or treads 25 of these floor wheels embrace the pulleys as shown in FIG. 4 and have frictional driving engagement with the pulleys at least on the forward stroke of the sweeper.

The hangers are provided with wheel journals 26, the wheels being removably retained thereon by means of the screws 27, see FIG. 4. Bearings 28 are provided for the brush. With this arrangement on the forward stroke of the sweeper the wheels 20 are brought into driving engagement with the pulleys and the pulleys are driven to discharge into the dust pan. A single rear wheel 29 is provided in the embodiment illustrated, this being mounted on the journal 30 carried by the housing-like bracket 31 mounted on the upper or inner side of the dust pan member 7 which has an opening 32 through which the wheel projects into floor engaging position.

The handle 33 is forked to embrace the casing and the arms of the fork are engaged with the pivots 34 on the end walls, these pivots being desirably located generally centrally of the casing, that is, in regard to the front and rear ends thereof.

To direct sweepings into the dust pan and to remove material adhering to the floor so that it is not picked up by the dust pan, a blade 35 is provided consisting of a body or supporting strip 36 extending across the casing in overlapping relation to the front edge of the cross-piece 5, see FIG. 3, and a flexible blade portion 37 which is desirably of rubber or resilient plastic material and projecting beyond the front edge of the body portion 36 of the blade. The blade is supported for limited swinging movement by hangers 38 projecting upwardly from each end of the body member 36 and pivoted at 39 on the end walls of the casing.

These hangers have slots 40 in their swinging ends coacting with the combined support and stop members 41 projecting inwardly from the end walls. Springs 42 are provided and act to yieldingly urge these hangers forwardly. In the embodiment illustrated, the springs are provided with eyes 43 at one end engaging the body member 44 of the brush, the other arms being secured at 45 to the hangers, see FIGS. 3 and 5. It will be noted in FIG. 3 that the scraper blade is normally supported in its forward position in contacting engagement with the floor or surface, conventionally illustrated at 46, see FIG. 3, and closely adjacent to the floor contacting portion of the brush. However, in the event of the scraper coming into contact with some fixed object on the surface being swept, it swings to clearing position upwardly and inwardly as is shown in FIG. 5, and as soon as the obstruction is passed it swings back to its normal operative position, to scoop up and direct the brush thrown material into the dust pan. To prevent accumulation of material on the floor wheels 20 during the operation thereof the brushes 47 are mounted on the casing to project therefrom in overhanging coacting relation with the floor wheels.

The embodiment of the invention illustrated is designed primarily for use in sweeping floors in publicly used places, restaurants and the like, for example, where there are confined spaces such as spaces around fixed stools, chairs or the like. Should the sweeper become fouled, it can be cleaned dipping as a unit into a water or cleaning solution.

The embodiment illustrated is compact and designedly so to adapt for the uses indicated, although of course it may be embodied in larger structures. The brush is so positioned that it effectively sweeps close to walls, counters or the like. While it is effective in sweeping it is in the embodiment illustrated very light and at the same time strong and substantially rigid.

We have illustrated and described the invention in a highly practical embodiment. We have not attempted to illustrate or describe other embodiments or adaptations, as it is believed that this disclosure will enable those skilled in the art to embody or adapt the invention as may be desired.

What is claimed as new is:

1. A floor sweeper comprising a casing including top, front, rear and end walls, a bottom crosspiece extending between and fixedly mounted on said end walls in spaced relation to the front and rear walls, a brush rotatably mounted in said casing closely adjacent the front wall thereof and provided with pulleys disposed at the outer sides of said end walls, supporting and brush driving wheel hangers disposed on the outer sides of said casing end walls for limited forward and rearward swinging movement, floor wheels journaled on said hangers and having inwardly facing pulley driving surfaces coacting with said pulleys on said brush and urged into frictional driving engagement therewith on forward work stroke of the sweeper, scraper blade hangers mounted on the inner sides of said casing end walls for limited forward and rearward swinging movement, a downwardly and forwardly inclined scraper blade mounted on said hangers in overhanging relation to said crosspiece and having a flexible front edge portion disposed rearwardly of said brush and being normally closely adjacent to the floor contacting portion thereof when the sweeper is in use, means for yieldingly biasing said blade forwardly, a dust pan hingedly mounted at its forward edge on said casing crosspiece, a rear supporting wheel for said casing mounted on said dust pan, and a handle swingably connected to said casing intermediate said brush driving wheels and said rear wheel.

2. A floor sweeper comprising a casing including top, front, rear and end walls, a bottom crosspiece extending between and fixedly mounted on said end walls in spaced relation to the front and rear walls, a brush rotatably mounted in said casing closely adjacent the front wall thereof and provided with pulleys disposed at the outer sides of said end walls, supporting and brush driving wheel hangers disposed on the outer sides of said casing end walls for limited forward and rearward swinging movement, floor wheels journaled on said hangers and having inwardly facing pulley driving surfaces coacting with said pulleys on said brush and urged into frictional driving engagement therewith on forward work stroke of the sweeper, scraper blade hangers mounted on the inner sides of said casing end walls for limited forward and rearward swinging movement, a downwardly and forwardly inclined scraper blade mounted on said hangers in overhanging relation to said crosspiece and having a flexible front edge portion disposed rearwardly of said brush and being normally closely adjacent to the floor contacting portion thereof when the sweeper is in use, and means for yieldingly biasing said blade forwardly.

3. A floor sweeper comprising a casing including top, front, rear and end walls, a brush rotatably mounted in said casing closely adjacent the front wall thereof and provided with pulleys disposed at the outer sides of said end walls, wheel hangers disposed on the outer sides of

said casing end walls for limited forward and rearward swinging movement, floor wheels journaled on said hangers and having inwardly facing pulley driving surfaces coacting with said pulleys on said brush and urged into frictional driving engagement therewith on the forward work stroke of the sweeper, a downwardly and forwardly inclined spring biased scraper blade disposed between and swingably mounted between said end walls and having a flexible front edge portion disposed rearwardly of said brush and normally closely adjacent to the floor contacting portion thereof when the sweeper is in use, a dust pan hingedly mounted on said casing crosspiece, a rear supporting wheel for said casing mounted on said dust pan, and a handle operatively connected to said casing.

4. A floor sweeper comprising a casing including top, front, rear and end walls, a brush rotatably mounted in said casing closely adjacent the front wall thereof and provided with pulleys disposed at the outer sides of said end walls, wheel hangers disposed on the outer sides of said casing end walls for limited forward and rearward swinging movement, floor wheels journaled on said hangers and having inwardly facing pulley driving surfaces coacting with said pulleys on said brush and urged into frictional driving engagement therewith on the forward work stroke of the sweeper, a downwardly and forwardly inclined spring biased scraper blade disposed between and swingably mounted between said end walls, a dust pan hingedly mounted on said casing crosspiece, a rear supporting wheel for said casing mounted on said dust pan, and a handle operatively connected to said casing.

5. A floor sweeper comprising a casing including end walls and a transversely disposed bottom member extending between said end walls, a brush rotatably mounted in said casing in forwardly spaced relation to said bottom member and provided with pulleys disposed at the outer sides of said end walls, casing supporting and brush driving wheel hangers mounted on said casing end walls at the outer sides thereof for limited forward and rearward swinging movement, floor wheels journaled on said hangers and having inwardly facing pulley driving surfaces coacting with said pulleys on said brush and having frictional driving engagement therewith on the forward work stroke of the sweeper, the swinging movement of said hangers being such that the driving engagement of said floor wheels with said pulleys is broken on the rearward stroke of the sweeper, a downwardly and forwardly inclined spring biased scraper blade swingably mounted between said end walls above said transverse bottom member to discharge rearwardly thereof and with its front disposed rearwardly of and normally closely adjacent to the floor contacting portion of the brush when the sweeper is in use, and a handle connected to said casing rearwardly of said floor wheels so that forward and rearward pull on the handle acts to engage and disengage said driving wheels from said brush pulleys.

6. A floor sweeper comprising a casing including end walls and a dust pan, a brush rotatably mounted in said casing in forwardly spaced relation to said dust pan and provided with pulleys at its ends, wheel hangers mounted at the ends of said casing for limited forward and rearward reciprocating movement, casing supporting and brush driving wheels journaled on said hangers and having inwardly facing pulley driving surfaces in frictional and driving engagement with said pulleys on the forward stroke of the sweeper, said driving engagement being broken on the rearward stroke of the sweeper, a downwardly and forwardly inclined spring biased scraper blade reciprocating mounted on said end walls for forward and rearward movement to discharge into said dust pan and having a flexible front edge portion disposed rearwardly of and closely adjacent to the floor contacting portion of said brush when the sweeper is in use, and a handle connected to said casing at the rear of said floor wheels and so that a forward thrust on the handle and

a rear pull thereon acts to engage and disengage said driving wheels from said brush pulleys.

7. A floor sweeper comprising a casing including end walls and a dust pan, a brush rotatably mounted in said casing in forwardly spaced relation to said dust pan and provided with pulleys at its ends, wheel hangers mounted at the ends of said casing for limited forward and rearward reciprocating movement, casing supporting and brush driving wheels journaled on said hangers and having pulley driving surfaces in frictional and driving engagement with said pulleys on the forward stroke of the sweeper, said driving engagement being broken on the rearward stroke of the sweeper, a downwardly and forwardly inclined sweeper blade reciprocatingly mounted on said end walls for forward and rearward movement to discharge into said dust pan and having a front edge portion disposed rearwardly of and closely adjacent to

the floor contacting portion of said brush when the sweeper is in use, and a handle connected to said casing so that a forward thrust on the handle and a rear pull thereon acts to engage and disengage said driving wheels from said brush pulleys.

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