

Aug. 14, 1962

P. D. CLARK
INDUSTRIAL SWEEPER

3,048,868

Filed Oct. 17, 1958

2 Sheets-Sheet 1

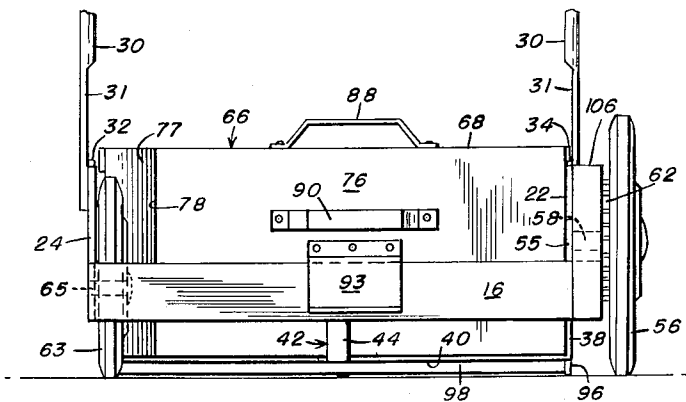
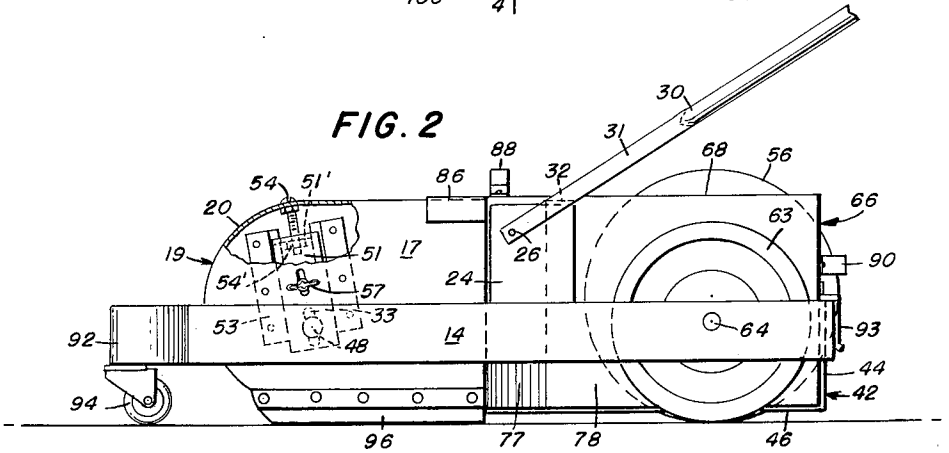
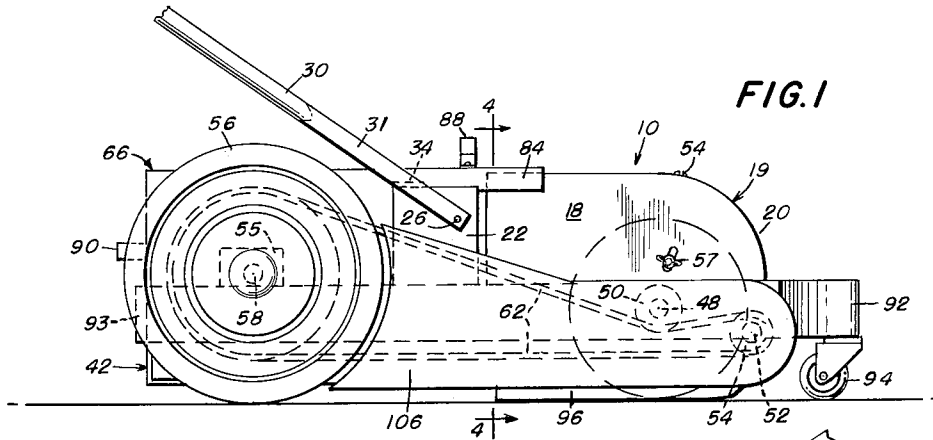


FIG. 3

INVENTOR
PAUL D. CLARK

BY *Fisher, Christen & Goodson*
ATTORNEYS

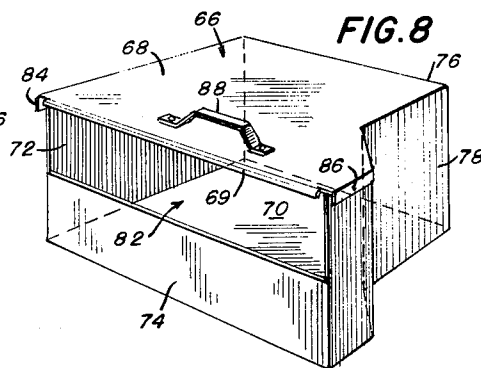
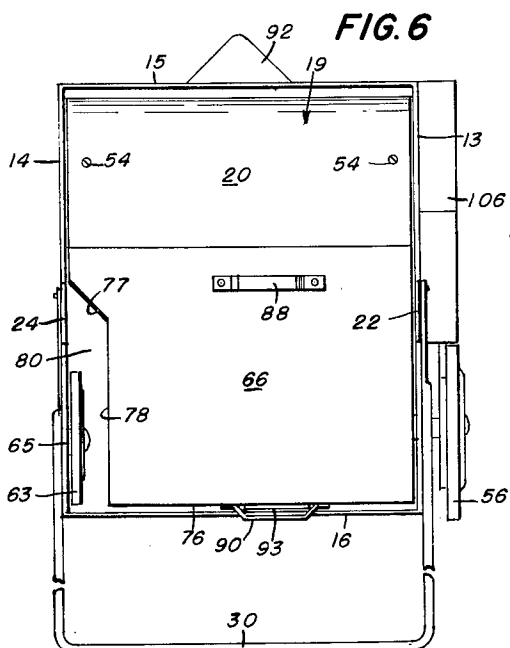
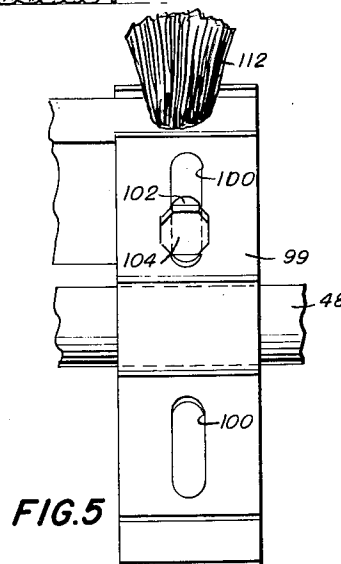
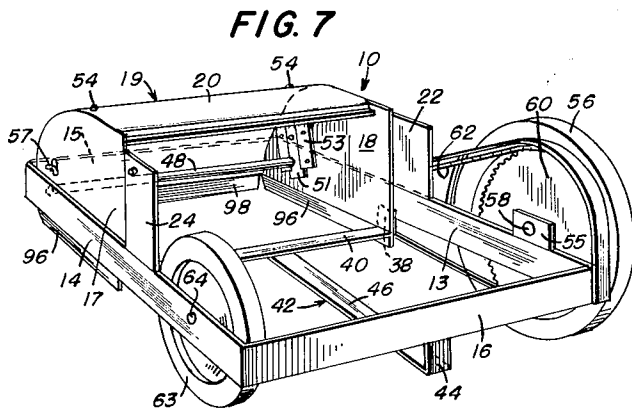
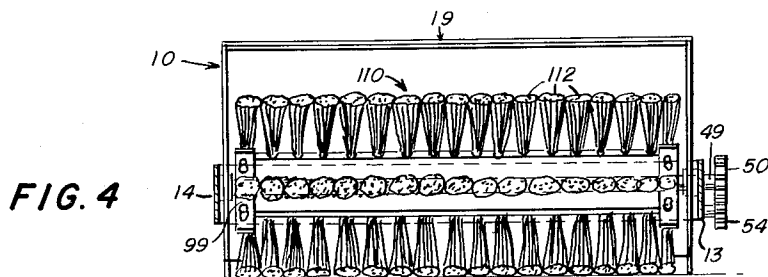
Aug. 14, 1962

P. D. CLARK
INDUSTRIAL SWEEPER

3,048,868

Filed Oct. 17, 1958

2 Sheets-Sheet 2



INVENTOR
PAUL D. CLARK

BY *Fisher Christie & Goodson*
ATTORNEYS

1

3,048,868

INDUSTRIAL SWEEPER

Paul D. Clark, 1330 27th St., Marion, Iowa

Filed Oct. 17, 1958, Ser. No. 767,860

2 Claims. (Cl. 15-79)

This invention relates to sweepers and more particularly to sweepers of the industrial type adapted to remove debris and dirt particles from a floor area.

It is an object of this invention to provide a sweeper of efficient and sturdy design which may be produced economically and can be operated with a minimum of expense and mechanical difficulties.

It is a further object of this invention to provide an industrial sweeper which may be operated with a minimum of effort, through the use of a novel sprocket arrangement.

A still further object of the invention is to provide a sweeper which has its brushes rotating against the line of travel and has one of its supporting wheels so arranged to permit sweeping extremely close to vertical walls.

Other objects and advantages of this invention will appear from the following description and claims.

In the accompanying drawings:

FIG. 1 is a side elevation;

FIG. 2 is a side elevation opposite that of FIG. 1;

FIG. 3 is a rear view;

FIG. 4 is a sectional view taken along the line 4-4 of FIG. 1;

FIG. 5 is an enlarged view of a portion of FIG. 4 showing the adjustable feature in detail;

FIG. 6 is a plan view;

FIG. 7 is a perspective view of the sweeper with the hopper removed; and

FIG. 8 is a perspective view of the removable hopper.

Referring now to the drawings, the numeral 10 designates the sweeper unit. The sweeper unit comprises a rectangular frame 12 consisting of sides 13, 14, front 15 and rear 16. Securely mounted to the front portion of said frame is brush hood 19. The hood consists of two vertical sides sections 17 and 18 and a curved front and top panel 20. Fixedly secured to the members 13 and 14 as by welding are two upright members 22 and 24. The upright members have studs 26 and 28 which permit the looped handle 30 to be pivotally secured thereto. The handle 30 has welded thereon metallic beads 32 and 34 whereby the handle may rest on the top of uprights 22 and 24 to maintain the handle at an angle to the horizontal when the sweeper is not being operated. The beads also provide a pivot for the handle in the event the operator wishes to raise the front end of the sweeper slightly. The handle 30 is preferably made of tubular metal but is flattened to avoid a protuberance to either side of the sweeper.

Intermediate the ends of side members 13 and 14 is a downwardly extending strap 36 best seen in FIG. 7. The strap is made of a rigid metal and consists of short downwardly extending portions 38 and 39 and cross member 40. Another strap member 42 extends from the center of rear frame member 16 and has a downwardly extending section 44 and an inwardly extending section 46. The section 46 extends to the center of cross member 40 and at that point the two straps are welded. These strap members form a support for a removable hopper 66, described below.

A brush axle 48 is journaled in side members 13 and 14 of the brush housing and near the front of the sweeper as best seen in FIG. 1. The axle 48 extends beyond the side member 13 a short distance 49 and terminates at drive sprocket 50. As shown in FIG. 2, the axle 48 is rotatably secured in plates 51. These plates are adapted

2

to slide in brackets 53, which are respectively fixedly secured to plates 17 and 18. The plates at their upper ends have inwardly projecting flanges 51' each with a hole therein. These holes are adapted to receive screws 54 which extend through hood 19. Retaining nuts 54' are placed on the under portion of the said flange whereby a turning movement of the screws 54 will result in a raising or lowering of brush axle 48. This provides a means to adjust the entire brush assembly in its relationship with the ground. Only the bracket and plate arrangement on side member 17 is shown, but an identical arrangement is on side member 18. Wing nuts 57 on either side are tightened to lock the assembly in place once the proper relationship is obtained. Slots 33 and brackets 53 are at an angle to the ground to permit the brush to move closer to the hopper as it is moved closer to the ground. Journaled in side member 13 at a point 52 nearer the front of the frame is idler sprocket 54.

An upright extension 55 is welded or otherwise secured to the frame member 13 at a point spaced rearwardly from upright 22. Journaled in extension 55 is stub axle 58. Mounted on the stub axle 58 is the wheel 56. Fixedly secured to the axle is drive sprocket 60 which lies intermediate the wheel 56 and the frame member 13.

The wheel 56 and the sprocket 60 are large in comparison with the rest of the sweeper. This permits the rapid rotation of the brush axle 48 through the much smaller sprocket 50 even though the sweeper may be pushed relatively slow. However, while maintaining this mechanical advantage, the ability of the device to sweep close to vertical walls is not sacrificed because of the placement of the wheel 63 described more fully below.

A link chain 62 is looped around drive sprocket 60 and idler sprocket 52, and is connected in such a manner that drive sprocket 50 is rotated in the opposite direction as wheel 56 and the associated sprocket 60. As viewed in FIG. 1, when the sweeper is moved to the right, wheel 56 and sprocket 60 and sprocket 54 will all rotate in a clockwise direction, whereas sprocket 50 will rotate in a counter-clockwise direction. This is accomplished by having the brush drive sprocket 50 lie without the chain loop.

As best seen in FIGS. 2 and 6, a second rear wheel 63 is rotatably secured near the rear of frame member 14 at point 64 by stub axle 65. It is important to note that wheel 63 is mounted on the inside of frame 12 and is much smaller than wheel 56. The use of a small wheel results in keeping to a minimum the hopper volume sacrificed to accommodate this wheel.

Best shown in FIG. 8 is hopper 66 which is removably mounted in the sweeper and is adapted to receive sweepings from the rotating brushes. The hopper comprises a top 68, a bottom 70, a side wall 72, a front trap section 74, a rear 76 and an indented side wall 78 which forms space 80 to receive the wheel 62 when the hopper is placed in the sweeper. An opening 82 is formed in the hopper and is in a position immediately in rear of brushes 49. Top 68 borders opening 82 by a slight downwardly turned strip 69. This strip extends a short distance beyond the side walls. Also extending from the top 68 are downwardly turned flanges 84 and 86. When the hopper is placed in the sweeper the strip 69 is inserted under top 20 of the casing 19 and the flanges 84 and 86 receive and rest on portions of the sidewalls 17 and 18. In this manner, a tight seal is made at the point the hopper and casing are joined.

As best seen in FIG. 2, the hopper has attached handles 88 and 90, and a spring catch 93 mounted on rear 76 adapted to clamp on frame member 16. The hopper bottom, of course, rests on the rigid straps 40 and 46.

3

The tight seal at the front and the clamp at the rear provides a very tight and secure attachment of the hopper to the casing and frame.

Welded or otherwise secured to the front frame member 15 is extension 92 which provides a mounting for swivel wheel 94. The weight of the sweeper then is supported by swivel wheel 92, and the two rear wheels 56 and 63.

Rubber shields 96 and 98 are secured to and extend from the casing 19 at the front and sides to prevent dust and other particles stirred up by the rotating brushes from leaving the sweeper until they have settled. These shields extend to very near the floor, and in addition direct debris to the brush area. If accumulations of cigarette butts, or other trash will not fit under the rubber shield the front of the sweeper can be tilted upwards by pressing on handle 30. The brushes will then sweep the accumulation into the hopper.

A further feature of this invention is the manner in which the individual brush members 112 are mounted to the axle 48. This is best shown in FIGS. 4 and 5. Secured to the axle 48 are brush brackets 99 with elongated slots 100 therein. The brushes 112 each have a hole in their bristle support members 112' to receive a bolt 102. The brush member 112 is secured to the brush brackets 99 by the bolt 102 and nut 104. As the brushes wear, they can be adjusted outwardly by moving the bolt 102 in slot 100. This adjustable feature together with the means to adjust the entire brush assembly 110 through axle 48 as described above provides a maximum of flexibility in the use of any one set of brushes.

A cover plate designated as 106 is removably attached in a conventional manner to the frame 12. This shield protects the chain and sprockets from accidental bumps while using the machine.

In a general manner, while I have in the above description disclosed what I deem to be a practical and efficient embodiment of my invention, it should be well understood that I do not wish to be limited thereto, as there might be changes made in the arrangement, disposition and form of the parts without departing from the principles of the present invention as comprehended within the scope of the accompanying claims.

I claim:

1. A sweeper comprising in combination, a frame 45

4

having a front end and a rear end, a brush hood having openings at its bottom and rear mounted on the front end of said frame, a generally rectangular removably mounted hopper disposed within the rear of said frame and having a front opening adapted to mate with the rear opening of said hood, said hopper having a vertically indented side wall in one rear corner thereof, a small wheel journaled inside said frame and positioned in the spaced provided by said indented wall, a large drive wheel journaled on the outside of said frame, directly opposite said small wheel, and on the opposite side of the hopper from said small wheel, a brush shaft and rotatable brush rotatably mounted in said hood, and means operatively connecting the drive wheel to the brush shaft.

2. A sweeper comprising in combination, a frame having a front end and a rear end, a brush hood having openings at its bottom and rear mounted on the front end of said frame, a generally rectangular removably mounted hopper disposed within the rear of said frame and having a front opening adapted to mate with the rear opening of said hood, a brush shaft and rotatable brush rotatably mounted in said hood, bearings, in which said brush shaft is journaled, spaced parallel brackets, inclined downwardly toward the hopper on opposite sides of said bearings for slidably supporting said bearings for said brush shaft, and means for variably positioning and securing said brush shaft bearings in said brackets, for varying the effective height of the brush and brush shaft.

References Cited in the file of this patent

UNITED STATES PATENTS

260,257	Travis	June 27, 1882
283,318	Zeigler	Aug. 14, 1883
283,415	Passmore	Aug. 21, 1883
548,659	Rogers	Oct. 29, 1895
552,887	Branth	Jan. 14, 1896
777,175	Baragar	Dec. 13, 1904
1,507,317	Laberge	Sept. 2, 1924
2,587,038	Goodell	Feb. 26, 1952
2,657,518	Hill et al.	Nov. 3, 1953
2,918,687	Lathrop	Dec. 29, 1959

FOREIGN PATENTS

765,671	Great Britain	Jan. 9, 1957
---------	---------------	--------------