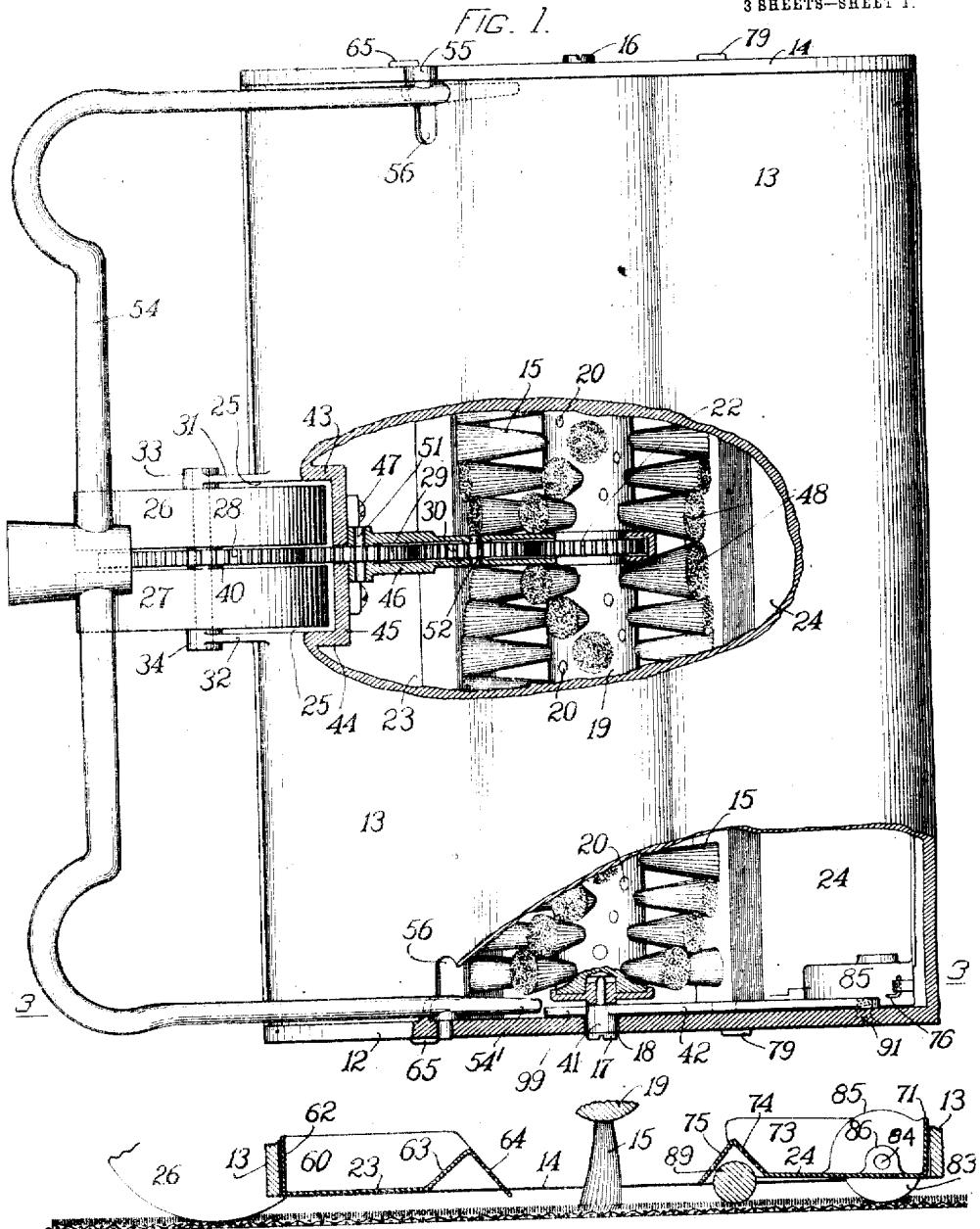


O. R. CHAPLIN.
CARPET SWEEPER.
APPLICATION FILED NOV. 13, 1906.

909,366.

Patented Jan. 12, 1909

3 SHEETS—SHEET 1.



WITNESSES

A. F. Palmer
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FIG. 4.

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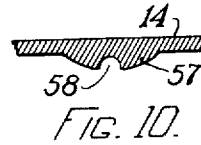
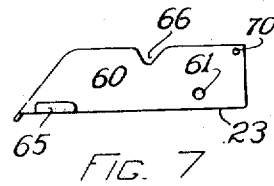
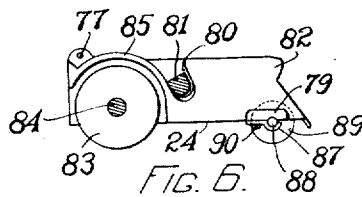
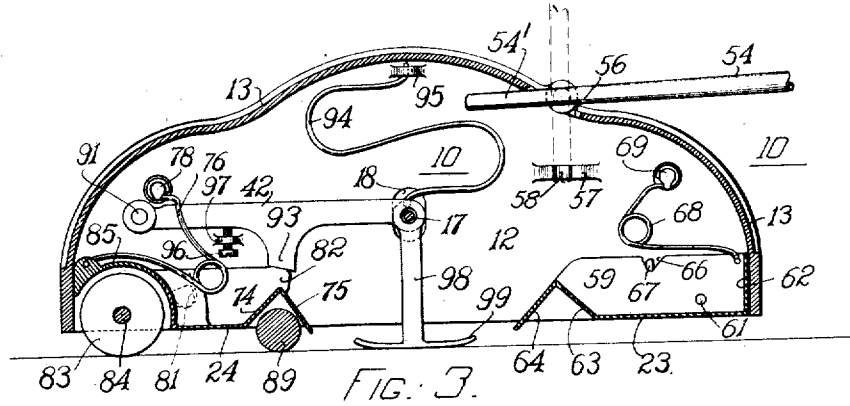
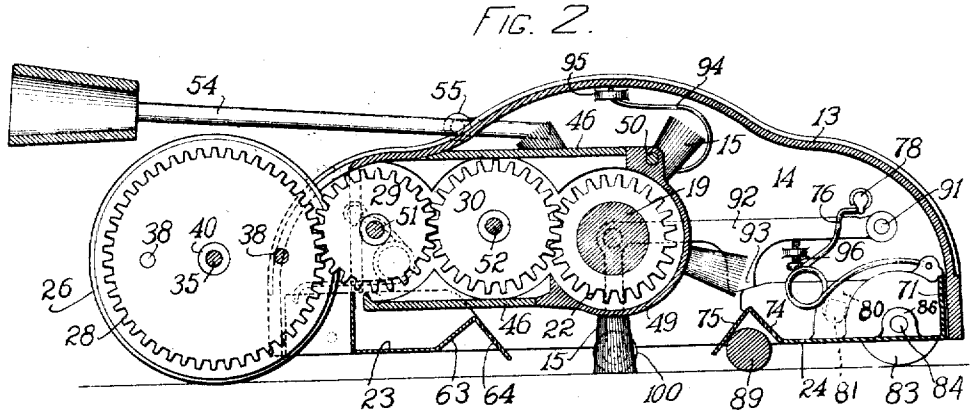
BY Charles H. Smith,

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3 SHEETS—SHEET 2.



WITNESSES
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3 SHEETS—SHEET 3.

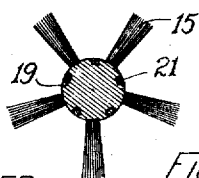
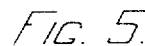


FIG. 8.

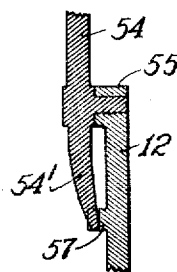


FIG. 9.

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UNITED STATES PATENT OFFICE.

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CARPET-SWEEPER.

No. 909,366.

Specification of Letters Patent.

Patented Jan. 12, 1909.

Application filed November 13, 1906. Serial No. 343,232.

To all whom it may concern:

Be it known that I, ORRIL R. CHAPLIN, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Carpet-Sweepers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain improvements in carpet-sweepers, particularly carpet-sweepers of that class which comprise a casing, a rotating brush within the casing with means for quickly and easily adjusting the pressure of the brush upon the carpet, driving-wheels in the rear end of the casing which have contact with the floor, and driving-connections between said wheels and the brush for rotating the latter.

The invention also relates to novel forms of sweeping-pans and their connections with the sweeper, whereby the dirt is easily removed, and to various other improvements, as will hereinafter appear, designed to lighten the labor incidental to the use of carpet-sweepers.

The invention consists in the combination of elements and in certain parts of construction entailed in the combination of said elements to obtain the desired result.

A full understanding of the invention can best be given by a detailed description of a preferred construction embodying the various features of the invention, and such a description will now be given in connection with the accompanying drawings, and I attain my object by the mechanism there illustrated showing such preferred construction, and the features forming the invention will then be specifically pointed out in the claims.

In said drawings, Figure 1 is a plan view of the sweeper, partly in section, parts of the upper casing being broken away. Fig. 2 is a transverse vertical central section and showing the left inner end of the sweeper. Fig. 3 is a vertical sectional view of the right inner end of the same. Fig. 4 is a sectional view of the lower part of the sweeper showing the position of some of its parts when pressure is applied to the handle and the sweeper put in forward motion. Fig. 5 is a bottom view of the sweeper. Fig. 6 is an

end view of the forward sweeping-pan. Fig. 7 is an end view of the rear sweeping-pan. Fig. 8 is a sectional view through the brush. Fig. 9 is a sectional view of a portion of the bail and casing. Fig. 10 is a detail sectional view of a portion of the end of the casing on the line 10—10 of Fig. 3.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

As shown in the drawings, the inclosing casing consists of the end walls 12 and 14 and the top wall 13, which extends, as shown in Figs. 1 to 3 inclusive, entirely over the top, front, and rear sides of the machine and incloses all of the mechanism of the carpet-sweeper except part of the drive-wheels and their gear. The ends are preferably made of rigid material, such as sheet metal, and the top wall is preferably of papier-mâché or aluminum, although the ends and top wall can be made of wood or other material. The pans of the sweeper are preferably made of tin or galvanized iron and the gears or a portion of them can be made to run noiseless by using fiber or rawhide gears.

The numeral 15 designates a rotating brush, mounted horizontally in the casing and projecting at its lower portion below the casing, so as to have contact with the floor (see Figs. 2 and 4). The top wall 13, which is designed to cover the rotating sweeping-brush 15, has the end plates 12 and 14, and the rotative brush 15 is mounted within the frame by studs 16 and 17 extending inwardly through elongated slots 18 in the end walls 12 and 14. The heads of the studs 16 and 17 press against the outer sides of the hubs 41 and the stud parts project into the ends of the core 19. When the sweepers are new or when a new brush is inserted in the sweeper, the studs are about mid-way of the elongated slots and a free upward play is allowed when downward pressure is applied to the sweeper and the brush 15 pressed against the carpet or floor.

The core 19 of the brush 15 is provided with one or more holes 20 in which a camphorated composition or other disinfectant 21 is inserted. The core is also provided mid-way of its ends with a gear 22 fixedly attached to and extending around the periph-

ery, whereby the brush 15 is driven. The brush 15 can be easily removed by raising the cover 49 of the frame-work 46, opening the sweeping-pans 23 and 24 and unscrewing the screw studs 16 and 17.

The center of the rear side of the upper casing 13 is cut away, as at 25, far enough to allow a portion of the drive-wheels 26 and 27 and their spur-gear 28 to extend inwardly a sufficient distance to mesh with the pinion 29, which passes through the slot or opening 25 in the casing and meshes into another intermediate gear 30, which gear 30 meshes with the gear 22 on the core 19 whereby the brush is revolved.

Extending rearwardly on each side of the opening 25 from the upper main casing or frame 13 and at right angles to it, are the two horizontal bearings 33 and 34 adapted at their outer ends to support the driving-shaft 35, that carries the two main supporting driving-wheels 26 27, located between the said arms 31 and 32 and which impart motion to the series of gearing 28, 29, 30 and 22 that drives the revolving brush. The two supporting drive-wheels 26 and 27, which are suitably mounted in the center of the rear side of the main upper casing, are provided on their peripheries with yielding friction-tires of rubber or other suitable material.

The supporting-drive wheel 26 consists of a thin rim 36 (upon which the yielding friction-tire is stretched), which is provided with a web 37 on the inner end crosswise, forming at the center a hub 39, which is attached to the main shaft 35. On the inner side of the web is a fastening pin or lug 38, extending into a hole in the web of the spur-gear 28 on the shaft 35. The supporting drive-wheel 27 is constructed similar to the drive-wheel 26 and has the thin rim 36, with web 37, having a similar inward-extending pin or lug 38.

The rear inner side of the top wall 13 is provided with inwardly extending flanges 43 and 44 and a plate 45 is extended across the inner ends of the flanges 43 and 44 to prevent the dust from escaping from the sweeper. The plate 45 is provided with an elongated slot through which the pinion 29 extends. The portion of the pinion 29 within the sweeper and the gears 22 and 30 are covered by a suitable frame-work 46 attached by screws 47 to the plate 45. This frame-work 46 protects the gearing from the sweepings of the brush 15. A portion of the frame-work, which I term the cover 49 is hinged as at 50 to the upper portion of the frame-work 46 and this cover closes over the gear 22 but must be raised in order to remove the brush 15 from the sweeper. The series of bristles 48 on the core 19 adjacent to the frame-work 46 are slanted slightly towards the center of the carpet sweeper (see Figs. 1 and 5) so that a complete sweeping surface is obtained from one end of the brush to the other end. The

frame-work 46 also serves as bearings for the shaft 51 of the pinion 29 and for the shaft 52 of the gear 30.

The bail 54, the handle of which I have deemed it unnecessary to show, is pivoted on each side of the sweeper in bearings 55 extending from the upper rear outer edges of the end walls 12 and 14. Openings 56 in the top wall allow the prongs 54' of the bail to extend downward into the sweeper, and ears 57, provided with slots 58, on the inner side of the end walls 12 and 14 are adapted to hold the prongs 54' when they are sprung into the slots 58 as the bail 54 is raised to a vertical position so as to hold the bail in an upright position when not in use. The location of the bail out of the center and towards the rear of the machine is made to bring the pressure more nearly over the drive-wheels. The slots 56 are T-shaped to allow the easy removal of the bail from the sweeper. (See Figs. 1 and 3).

In the carpet sweeper I use two sweeping-pans 23 and 24, longitudinally arranged one on each side of the brush in position to receive its sweepings from the brush, both being differently constructed and of new and original designs. One of these pans, which is designated 23, is pivoted in the rear portion of the machine, extending lengthwise of the sweeper between the brush 15 and the driving-wheels and so arranged as to receive the sweepings on rearward motion of the sweeper. The other pan, designated 24, is pivoted in the forward portion of the machine, extending lengthwise of the sweeper, forward of the brush and is so arranged as to receive the sweepings on the forward motion of the sweeper. (See Figs. 2 and 4). The rear pan 23 is provided with a rear vertical side 62, ends 59 and 60, and an inverted V-shaped forward side consisting of the inclined walls 63 and 64. Screw studs 61 extend through the end walls 12 and 14 and are screwed into the ends 59 and 60 of the pan 23 allowing the forward end of this pan to be swung downward when it is desired to clean the pan or remove the brush 15. Ears 65 extend from between the inclined walls 63 and 64 outward from the ends 59 and 60 through notches in the end walls 12 and 14 projecting a sufficient distance to allow the side of a person's foot or finger to be placed on one of the ears 65 to swing the pan 23 downward and empty the pan of sweepings. Each of the ends 59 and 60 is provided with a recess 66 into which a lug or stop pin 67 passes when the pan is swung back into its normal position. The lugs or stop pins 67 project inward from the inner sides of the end walls 12 and 14 and prevent the pan from swinging too far upward by force of the curved tension springs 68, which springs are attached at their upper end to pins 69 in the inner sides of the end walls 12 and 14, and

their lower ends inserted into the openings 70 in the ends 59 and 60 of the pan 23.

The forward inclined wall 64 up which the sweepings are pushed is lengthened a trifle to allow the brush to more readily push the sweepings upon it. The forward pan 24 is also provided with a rear vertical side 71, ends 72 and 73, an inverted V-shaped side adjacent to the brush consisting of the inclined walls 74 and 75, curved tension springs 76 inserted in the openings 77 on each end of the pan and having their upper ends attached to the pins 78, ears 79 similar to the ears 65 of the pan 23, and slots 80 into which the stop pins 81 on the end walls 12 and 14 project when the pan 24 is in its normal position. The inclined wall 75 is lengthened similar to the wall 64 but the ends 72 and 73 project forward a considerable distance as at 82 forming a curved seat for the inclined face of the lugs 93.

The ends of the pan 24 are recessed to allow of the inserting of the two supporting-rollers 83, that are preferably in the front part of the machine. These rollers 83 are journaled on stud pins 84 extending through the end walls 12 and 14 and screwed into the ears 86 on the framework of the pan 24. The pan 24 is therefore pivotally mounted on the stud pins 84. Each roller is protected from the sweepings by the hoods or covers 85.

Each ear 79 has screwed thereon a plate 87, held in a locked position by a screw 90, and an opening in the ear and plate form a bearing for the shaft 88 carrying a roller 89 which roller extends longitudinally of the sweeper from one end wall 12 to the other end wall 14 and allows the adjusting of the pan 24 to the sweeping brush when pressure is placed upon the bail in the act of sweeping. This roller also allows of the ready turning around of the sweeper while sweeping a carpet with a deep nap (see Fig. 4); if this roller was left off, the brush would sink into the nap of the carpet and prevent the easy turning of the sweeper when in the act of sweeping.

A stud pin 91 screwed through the end wall 12 has pivotally mounted thereon an arm 42 having a downward extending lug 93 having an inclined face adapted to rest on one of the curved projections 82 (see Fig. 3). The arm 42 is provided with a hub 41 extending into the elongated slot 18 and into which hub the screw stud 17 is screwed; the head of the stud coming against the outer end of the hub 41 and its smooth shank passing into the end of the core 19. A downwardly pressing spring 94, attached at its upper end to an ear 95 on the inner side of the end wall 12, has its lower end inserted into the hub 41 and serves to keep the brush pressed down against the floor, and the inclined face of the lugs 93 against the curved upper edge 82 of the forward pan, as adjusted

by the screw 96 held by the ear 97 and against the under side of the arm 42.

The arm 42 at its forward end has a downwardly extending lever 98 carrying at its lower end a shoe 99 whereby the pressure of the brush to the floor is regulated. A similar arm, lever and shoe can be attached to the opposite end of the sweeper adjacent to the end wall 14, if so desired. The shoe is preferably of considerable length and as much breadth as possible to give the greatest amount of pressure surface.

A lever 92 similar to the lever 42 is pivotally mounted on a stud pin 91 adjacent to the side wall 14 and has the adjusting screw 96, lug 93, provided with an inclined face hub 41 extending into the elongated slot 18, lever 98, but instead of the shoe has rotatively mounted on its lower end a roller 100 normally in contact with the floor when the machine is rightside up on the floor. If desired a similar roller could be carried by the lever at the opposite end.

Having described my invention, I claim as new and desire to secure by Letters Patent—

1. In a carpet sweeper the combination of a frame consisting of parallel end walls, a convex upper wall supported by the end walls and provided with elongated slots adjacent to the end walls, notched ears attached to the inner side of the end walls below said slots, and a bail provided with prongs adapted to extend through said slots and lock in said ears when the bail is raised to a vertical position.

2. In a carpet sweeper, a casing, levers pivoted to the casing, a pair of parallel sweeping pans having inverted V-shaped adjacent sides, an upper curved edge on the forward pan, a rotating sweeping-brush between said pans journaled in the levers, a revolving roller mounted within the inverted V-shaped side of the forward pan extending the entire length of and parallel with the brush, and lugs 93 of the levers resting upon the upper curved edge of the forward pan whereby the upward movement of the roller will cause a corresponding upward movement of the brush, substantially as shown and described.

3. In a carpet sweeper, a casing, levers pivoted to the casing, a pair of parallel sweeping pans having inverted V-shaped adjacent sides, an upper curved edge on the forward pan, a rotating sweeping-brush between said pans journaled in the levers, a revolving roller mounted within the inverted V-shaped side of the forward pan extending the entire length of and parallel with the brush, springs 76 for pressing up the outer edge of the forward pan, lugs 93 of the levers provided with inclined faces, and springs 94 pressing the inclined faces of the lugs upon the upper curved edge of the forward pan whereby the upward movement of the roller will cause a corresponding upward move-

ment of the brush, substantially as shown and described.

4. In a carpet sweeper, a casing, levers pivoted to the casing, a rotating sweeping-
5 brush journaled in the levers, a pair of parallel sweeping pans having inverted V-shaped adjacent sides adjacent to the brush and adapted to have their ends nearest the
brush swung downward, means for driving
10 the brush, a revolving roller mounted within the inverted V-shaped side and extending longitudinally of the forward pan for regu-

lating the pressure of the brush upon the floor, and lugs 93 of the levers resting upon the upper curved edge of the forward pan whereby the upward and downward movement of the roller is transmitted to the brush.

In testimony whereof I affix my signature in presence of two witnesses.

ORRIL R. CHAPLIN

Witnesses:

CHARLES F. A. SMITH,
ROBERT W. HOWARD.