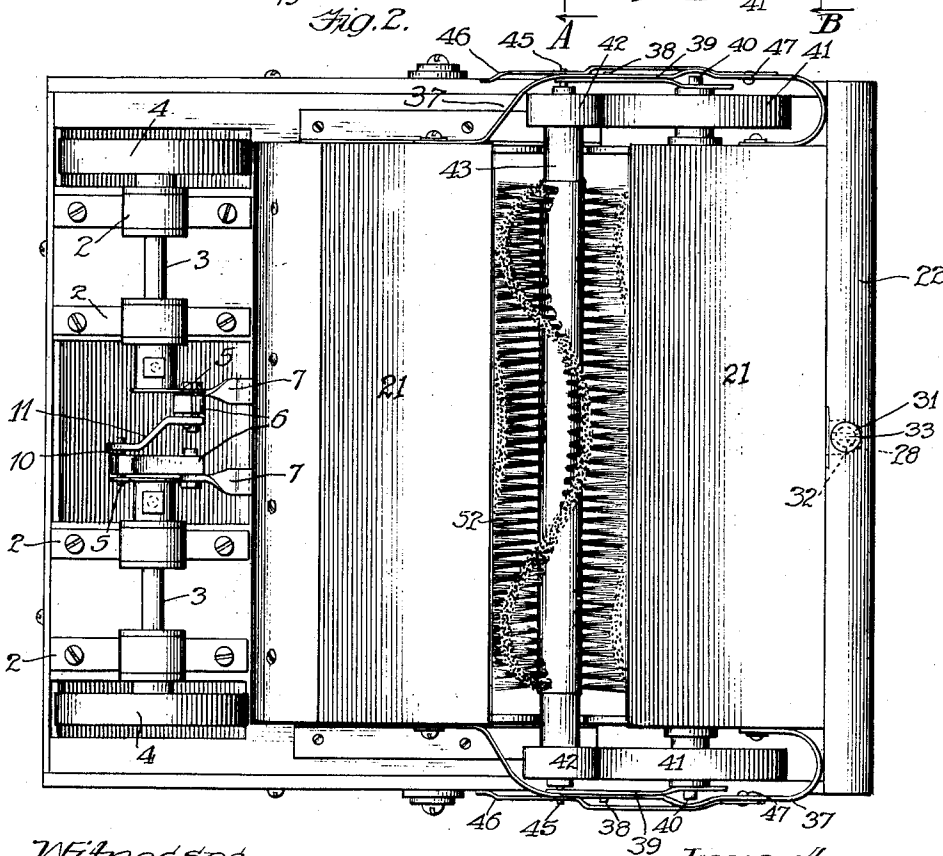
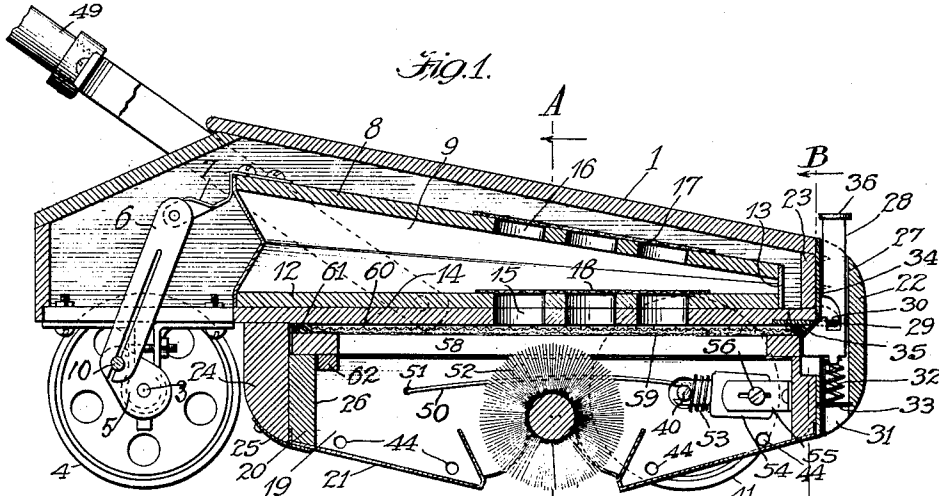


L. L. FERGUSON.
CARPET SWEEPER.
APPLICATION FILED DEC. 8, 1913.

1,104,977.

Patented July 28, 1914.

3 SHEETS-SHEET 1.



Witnesses
Martin H. Olsen.
William E. Hann.

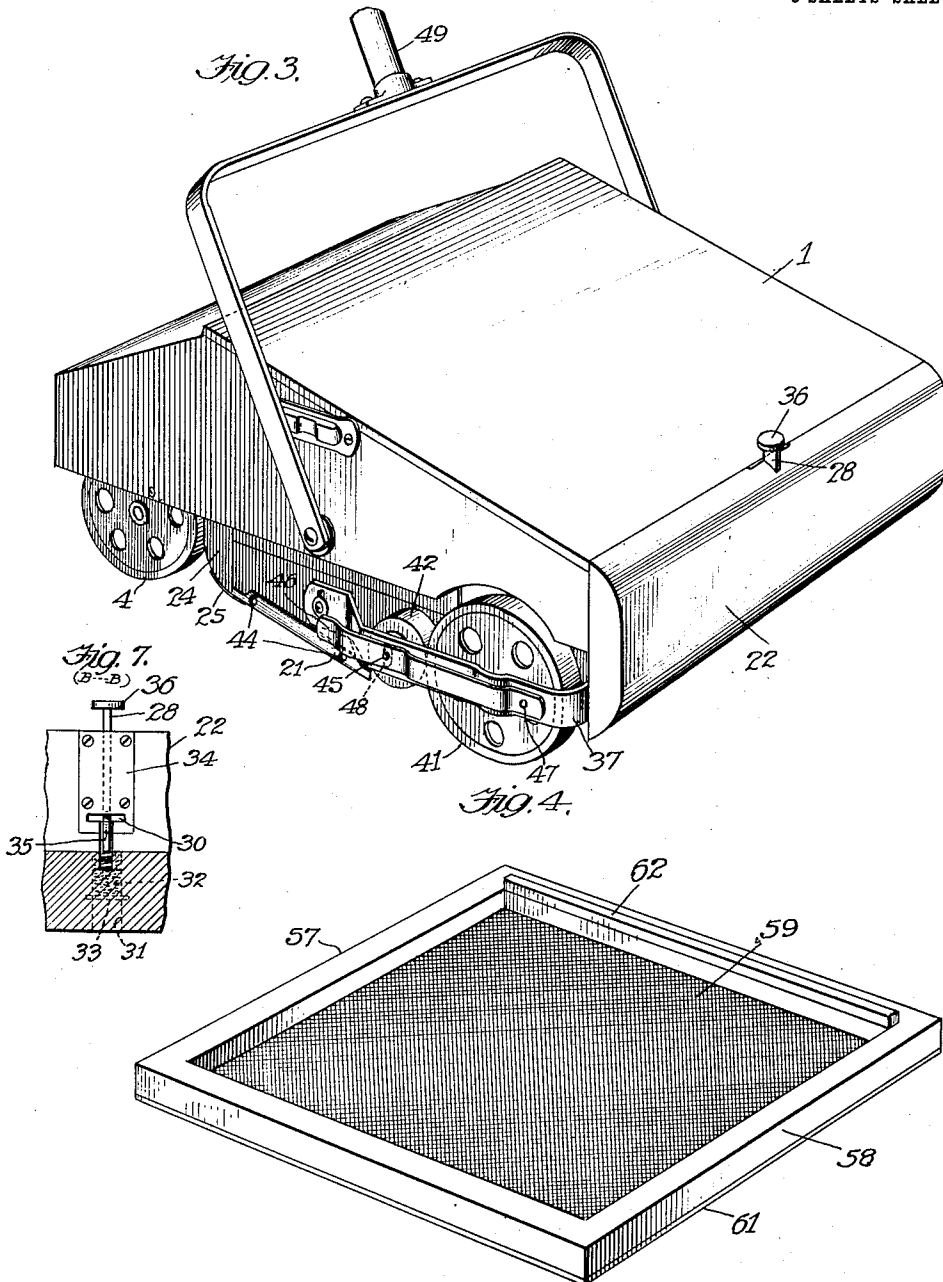
Inventor
Leonard L. Ferguson,
By Kummer & Kummer, Attys

L. L. FERGUSON.
CARPET SWEEPER.
APPLICATION FILED DEC. 8, 1913.

1,104,977.

Patented July 28, 1914.

3 SHEETS—SHEET 2.



Witnesses
Martin H. Olsen.
William E. Hann.

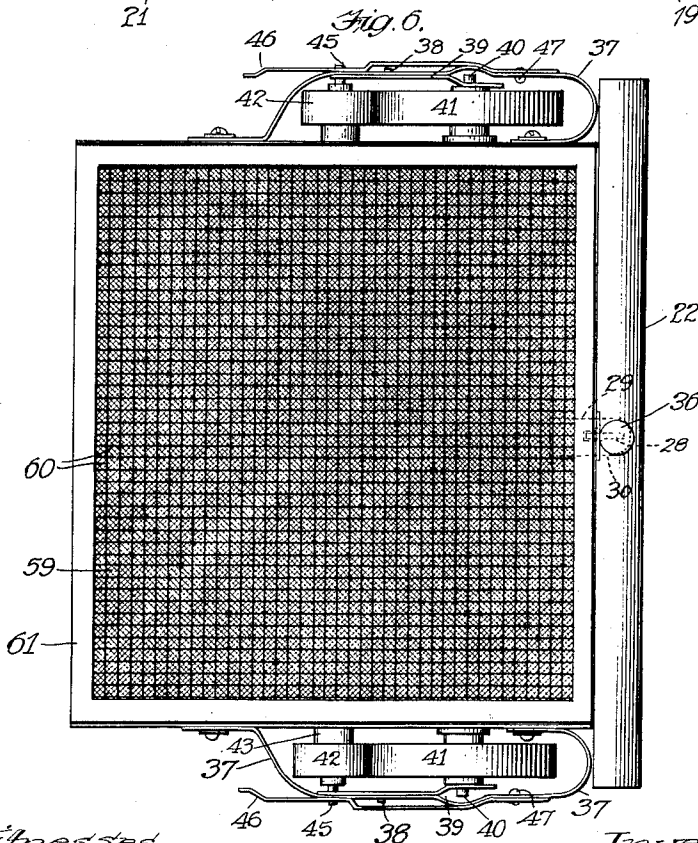
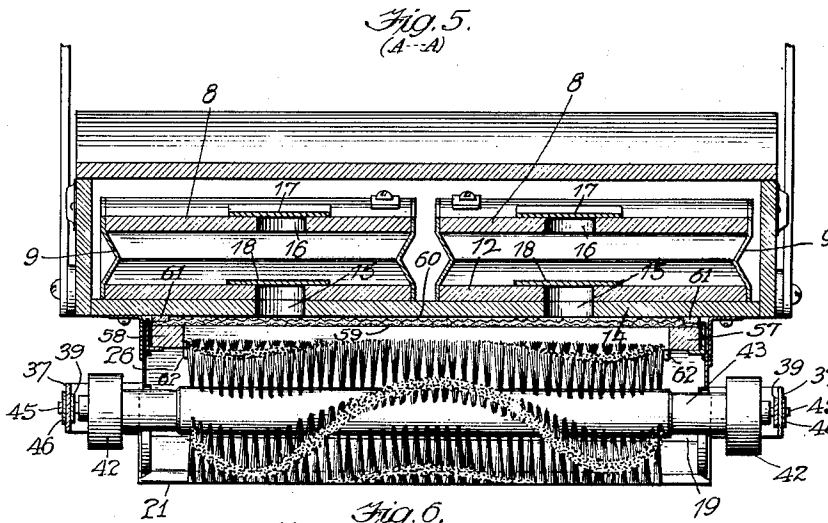
Inventor
Leonard L. Ferguson,
By Hummel & Hummel, Attys

L. L. FERGUSON.
CARPET SWEEPER.
APPLICATION FILED DEC. 8, 1913.

1,104,977.

Patented July 28, 1914.

3 SHEETS—SHEET 3.



Witnesses
Martin H. Olsen.
William E. Hann.

Inventor
Leonard L. Ferguson,
By *Rummler & Rummler*
Attys.

UNITED STATES PATENT OFFICE.

LEONARD L. FERGUSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO DUNTLEY PNEUMATIC SWEEPER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

CARPET-SWEEPER.

1,104,977.

Specification of Letters Patent.

Patented July 28, 1914.

Application filed December 8, 1913. Serial No. 805,306.

To all whom it may concern:

Be it known that I, LEONARD L. FERGUSON, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Carpet-Sweepers, of which the following is a specification.

The main object of this invention is to provide a well known type of carpet sweeper having a rotative brush with pneumatic means for causing a current of air to flow through spaced openings in the sweeper and then to filter such air for the purpose of preventing fine particles of dust lifted from the surface being cleaned from floating free of the carpet sweeper.

A further object of this invention is to provide a carpet sweeper with a detachable dust receptacle and an improved arrangement of filtering means between the dust receptacle and the body part of the carpet sweeper.

Another object of the invention is to provide an improved latch whereby the dust receptacle may be easily attached to or detached from the body part of the sweeper.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which—

Figure 1 shows the improved device in longitudinal vertical section. Fig. 2 is a bottom plan view. Fig. 3 is a perspective view of the improved sweeper. Fig. 4 is a detail in perspective showing the lower side of the dust receptacle filtering screen. Fig. 5 is a transverse vertical section of the sweeper taken on the line A—A of Fig. 1. Fig. 6 is a plan view of the detachable dust receptacle showing the filtering device thereon. Fig. 7 is a detail showing a latch for connecting the dust receptacle to the suction apparatus.

Carpet sweepers of the general form shown in the drawings are in extensive use at the present time, generally being provided with a rotative brush and a dust receptacle arranged to receive sweepings from the brush when the device is reciprocated over a surface being cleaned. The same general type of machine has been provided in addition to the brush, with suction creating devices and a nozzle whereby some of the finer particles of dust which the brush fails to deposit in the dust receptacle are lifted from the floor and retained in a suitable re-

ceptacle or filtering device in the machine. The function of the suction mechanism in the present device is different from the foregoing arrangement in that it does not assist in the cleaning operation, its function in the present case being simply to remove the lighter particles of dust from the air which are lifted by the brush but fail to be deposited thereby in the dust receptacle. Therefore in the present machine it is not essential that the machine be provided with a nozzle having an inlet of small dimensions either at the brush or removed therefrom, considerable open space being provided in the dust receptacle in front and back and at the sides of the brush to permit a flow of air toward the brush under the action of the suction creating mechanism.

In the drawings the casing 1 of the device is shown provided at its rear end with brackets 2 in which are journaled the shafts 3. Fast to the shafts 3 are supporting wheels 4 for the purpose of rotating these shafts when the device is reciprocated over a surface being cleaned. The shafts carry cranks 5 connected by pitmans 6 to metallic ears 7 secured to the movable leaves 8 of bellows 9. Pins 10 connecting the cranks 5 with pitmans 6 also pass through a link 11 which serves to maintain the cranks in such relation that while one bellows 9 is closing the other one will be opening and in this manner maintaining a continuous suction.

The leaf 8 of each bellows is hinged to a fixed leaf 12 at its forward end by a flexible connection 13. The lower leaves 12 of the bellows are secured to the base 14 of casing 1 and ports 15 passing through base 14 and leaves 12 permit of air entering the bellows. Similar ports 16 are provided in the leaves 8 to permit air to pass out of the bellows. The ports 15 and 16 are normally closed by canvas or similar valves 17 and 18, so arranged that when the leaves 8 and 12 of the bellows approach each other the valves 17 will automatically open, while the valves 18 are held in closed position. When the leaves separate the valves 17 are closed while the valves 18 are open.

Detachably connected with the casing 1 is a dust receptacle 19 consisting of a frame work 20 and dust pans 21 secured thereto and having a suitable brush opening in the bottom and openings 44 in its sides, all of said openings being adapted to admit an

inflow of air. The frame 20 is provided with an end piece 22 extending upwardly from the frame and bearing against the forward end 23 of casing 1. The base 14 of casing 1 also carries rigidly a downwardly extending part 24 to which is secured a curved metal plate 25 adapted to support the rear wall 26 of the receptacle.

The end piece 22 of the dust receptacle has a vertically extending cut 27 to provide a seat for a vertically movable latch 28. The latter cooperates with a notched plate 29 secured to the baseboard 14 of casing 1 and extending forwardly of the casing 1 into a horizontal cut 30 in the end piece 22. The part 22 is drilled at 31 below latch 28 to provide a seat for a spring 32 bearing between the lower end of the latch and a suitable retaining means 33 for the spring. The shank of latch 28 is suitably cut away at 34 to permit it to clear the plate 29 when the latch is forced downwardly by engagement with plate 29 at the inclined edge 35 of the latch. The latch 28 is provided with a suitable head 36 to facilitate depressing the latch to disengage it from plate 29. With this arrangement, to separate the dust receptacle or sweepings compartment from the suction apparatus for the purpose of removing dust from the dust receptacle, the user of the device need only lightly press the latch 28 downward and then withdraw the casing 1 and suction creating mechanism from the receptacle, moving the former to the left, Fig. 1, with respect to the dust receptacle, thereby causing the plate 25 on the member 24 to pass from beneath the rear wall 26 of frame 20.

Secured to each side of frame 20 is a bracket 37 to which is pivoted by a pin 38 a lever 39. The levers 39 are connected by a rod 40 on which are journaled a pair of rubber covered supporting rollers 41. These rollers engage the small rubber rollers 42 fixed to shaft of the brush 43. Seated in the ends of this shaft are pins 45 carried by springs 46 pivoted by pins 47 to brackets 37. Pins 45 pass through elongated slots 48 in brackets 37 to permit the brush shaft to rise or lower while lever 39 and spring 46 rock on their respective pivots 38 and 47. With this arrangement by applying downward pressure to the machine through the operating handle 49 rollers 41 are rocked upwardly, thereby rocking the levers 39 around their pivots 38 and carrying the brush 43 downward increasing the pressure between the latter and the surface being cleaned, as desired. The upward movement of rollers 41 at such times takes place against the action of springs 50, which are supported on frame 20 at 51 and bear between fixed pins 52 on the frame and rod 40. Rod 40 is normally bowed inwardly to maintain the rollers 41 and 42 in driving relation by a spring 53

bearing between the rod 40 at its center and shoulders on an arm 54 pivotally mounted on a bracket 55 carried by frame 20. The pivot 56 of arm 54 may be clamped to bracket 55 in any position along a slot therein and in this manner provide for regulating the pressure between the rollers 41 and 42.

A filtering screen 57 rests upon frame 20 between the dust receptacle and the ports 15 in casing 1 and the bellows. It comprises a rectangular frame 58 of approximately the same size as frame 20, and supports a cloth filtering fabric 59 and a metallic screen 60 over the fabric. A rubber gasket 61 is secured to the upper side of frame 58 and serves to space the latter from the base 14 of casing 1, thereby permitting the entire area of the filtering fabric to be utilized. The fabric is prevented from being drawn upward into contact with base 14 by the metallic screen 60. Frame 58 is provided with a downwardly extending flange 62 in order that it may be conveniently seated in frame 20, flange 62 cooperating with the rear wall of said frame. When the dust receptacle is removed from the suction apparatus it still remains covered by the screen 57, but it is not essential that the screen be removable with the dust receptacle, as it may be permanently secured to base 14 if desired.

In the operation of the device when it is reciprocated over a floor in the manner of carpet sweepers of this general class, rotation of wheels 40 and 41 results in the operation of bellows 9 and rotation of brush 43. The latter operates in the usual manner to throw the sweepings into dust receptacle 21 and the bellows, by causing a current of air to pass through the brush opening and openings 44 in the sweepings receptacle, prevent the escape of dust, the latter being filtered from the air by screen 57 in its passage from the dust receptacle into the bellows. From the foregoing it may be seen that the function of the suction apparatus is not to lift sweepings from the surface being cleaned but simply to remove the dust from the air as it rises through operation of brush 43. For this purpose a comparatively large opening is provided at each side and the ends of brush 43 in addition to the openings 44 in the sides of the dust receptacle.

To empty the dust receptacle a user of the device depresses the latch 28 disengaging it from the plate 29 secured to casing 1, permitting the latter to be drawn rearwardly with respect to the dust receptacle. To replace the dust receptacle casing 1 and the dust receptacle are pushed together horizontally with the rear wall 26 of the dust receptacle coming to rest on the plate 25 secured to flange 24 of casing 1. The engagement of the inclined edge 35 of latch 28 with plate 29 causes the latch to be depressed against the action of its spring 32 until the

latch comes to position to enter the recess in the plate when it is forced upward into locking position by the spring.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:—

1. In a carpet sweeper, the combination of suction-creating means, an air filtering device, a sweepings receptacle in communication with said suction-creating means and having spaced openings through the ends thereof, said receptacle being provided with an opening through its bottom, and a brush mounted to rotate in said opening.
2. In a carpet sweeper, the combination of a casing, supporting wheels journaled upon

said casing, a plurality of bellows in said casing, connections between said supporting wheels and bellows whereby the latter on rotation of the supporting wheels are operated to create a continuous draft of air, a sweepings receptacle detachably mounted on said casing, and having spaced openings through the ends thereof, said bellows having ports communicating with the sweepings receptacle, an air filtering screen located between said ports and the sweepings receptacle, said receptacle being provided with an opening through its bottom, and a brush mounted to rotate in said opening.

Signed at Chicago this 4th day of December 1913.

LEONARD L. FERGUSON.

Witnesses:

RUDOW RUMMLER,
M. IRENE HUTCHINGS.