J. F. EVERT.

CARPET SWEEPER.

APPLICATION FILED JUNE 10, 1912.

1,081,375.

Patented Dec. 16, 1913.

2 SHEETS—SHEET 1.

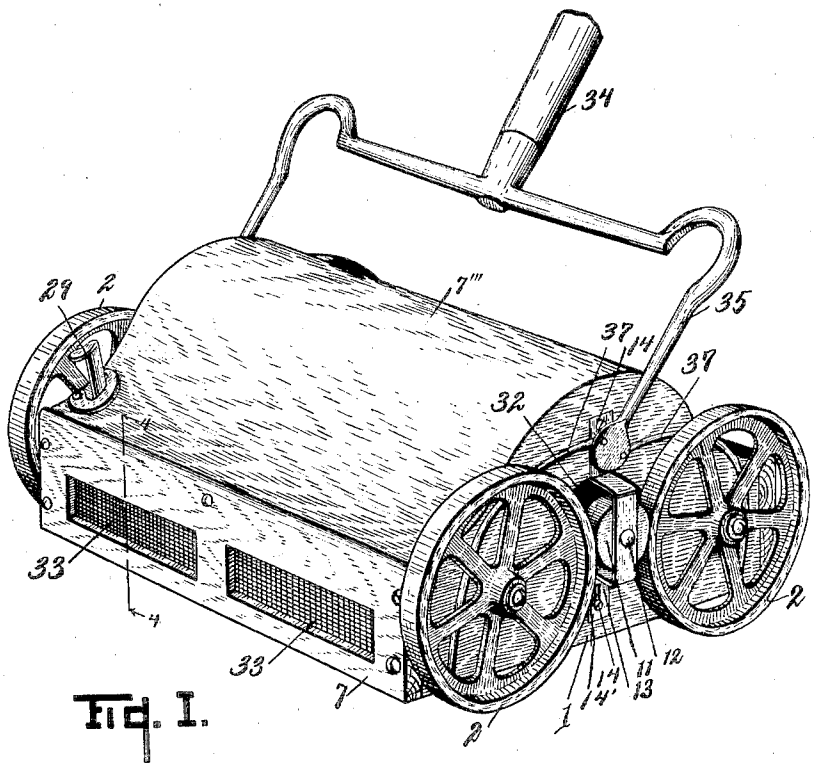


Fig. I.

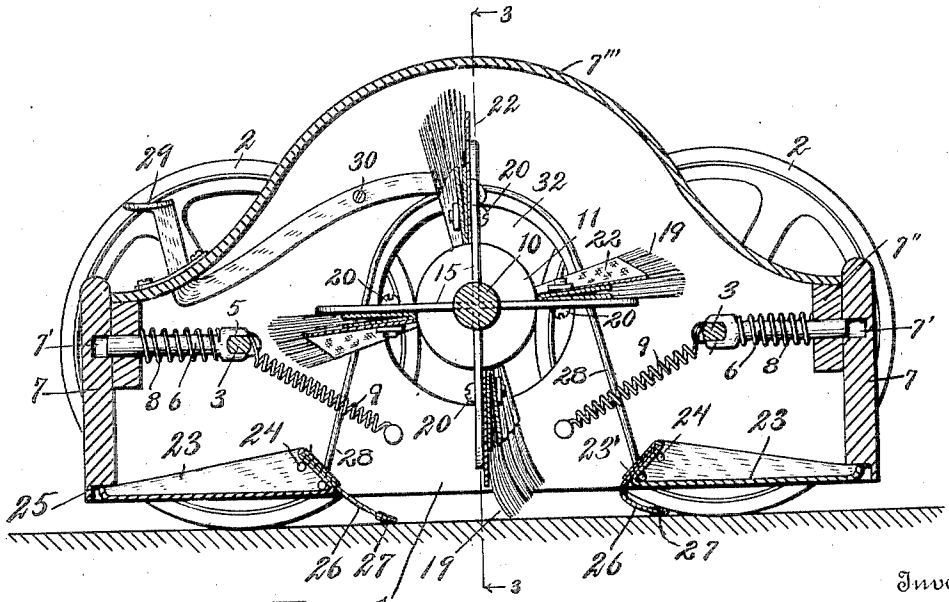


Fig. II.

Witnesses

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2 SHEETS—SHEET 2.

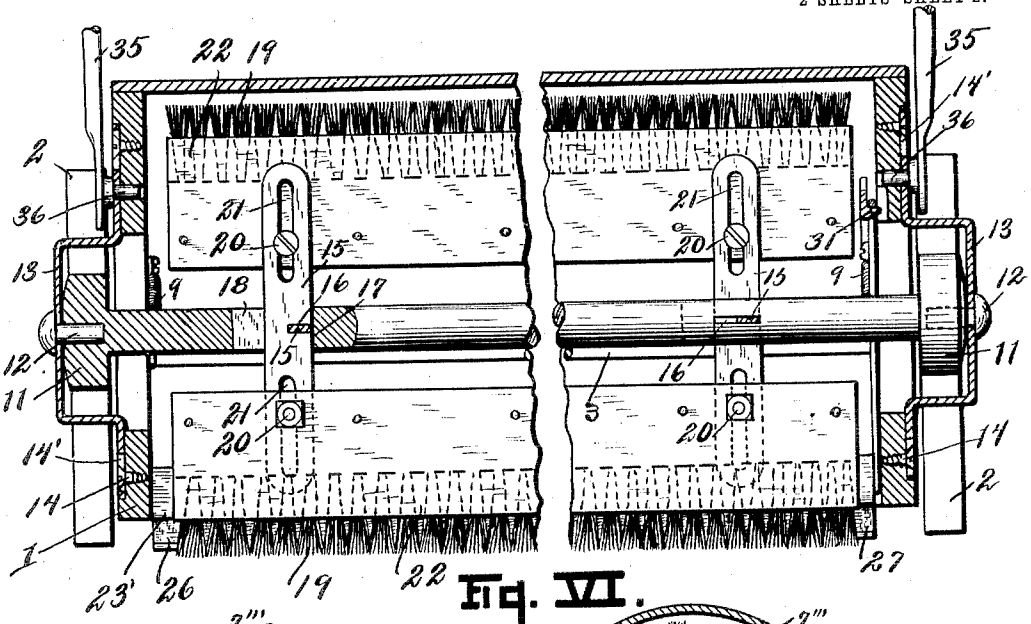


Fig. VI.

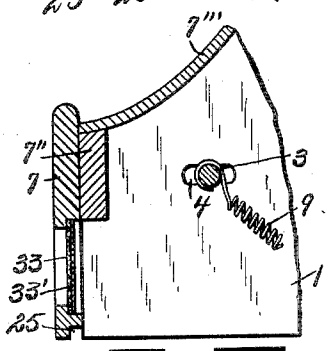


Fig. IV.

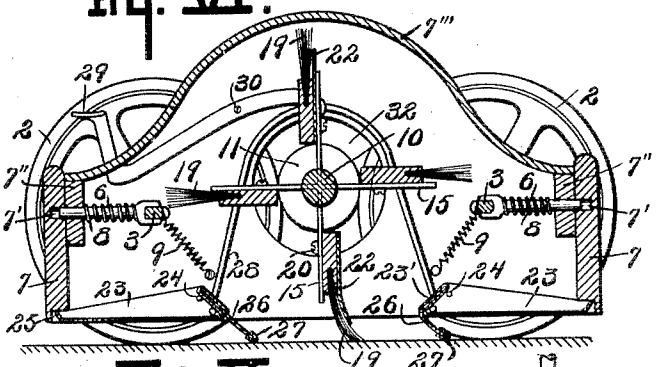


Fig. V.

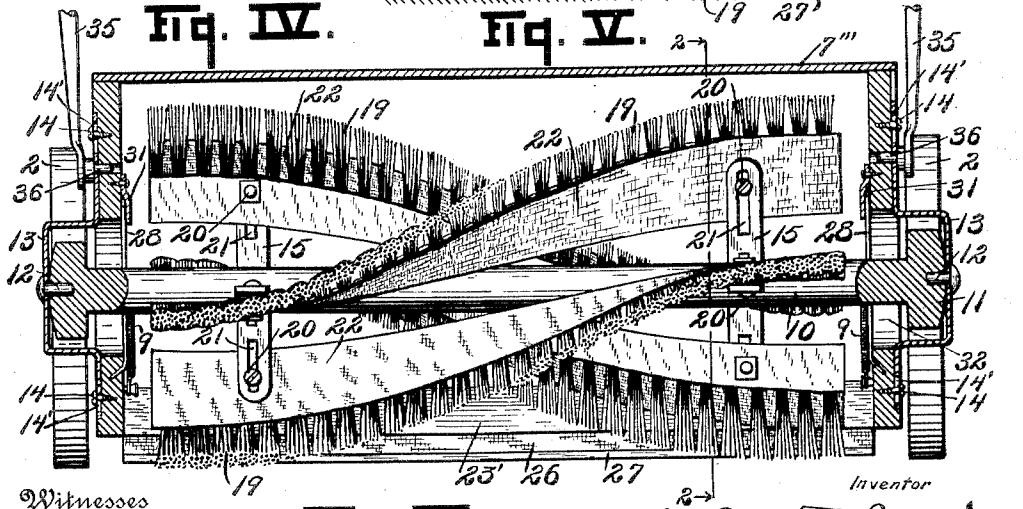


Fig. III.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN F. EVERT, OF MENDON, MICHIGAN.

CARPET-SWEEPER.

1,081,375. Specification of Letters Patent. Patented Dec. 16, 1913.

Application filed June 10, 1912. Serial No. 702,877.

To all whom it may concern:

Be it known that I, JOHN F. EVERT, a citizen of the United States, residing at Mendon, Michigan, have invented certain new and useful Improvements in Carpet-Sweepers, of which the following is a specification.

This invention relates to improvements in carpet sweepers.

The objects of this invention are: First, to provide a carpet sweeper utilizing an improved pneumatic means for the collection of the dust or dirt that may be raised by the brush. Second, to provide an improved flexible fan brush means which will develop a suction effect and large displacement of the air to carry and accumulate the dust. Third, to provide improved tensioning means for insuring the driving of such brush means. Fourth, to provide improved flexible dust collectors with weighted rigid contact devices to coöperate with the brushes in the collection of the dust and dirt from the carpet or floor. Fifth, to provide an improved construction of brush which will develop a suction effect and displacement of the air to raise and collect the dust. Sixth, to provide a spiral brush with sufficient clearance space between the spirals formed by the bristles to avoid the accumulation of hair, threads, strings and other clogging materials and thus insure a brush that is, in effect, self cleaning. Seventh, to provide an improved fan brush structure. Eighth, to provide an improved brush structure especially adapted to coöperate with the parts of a carpet sweeper.

Further objects, and objects relating to details of construction, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure constituting a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure I is a perspective view of a carpet sweeper embodying the principles of my invention. Fig. II is an enlarged detail central sectional elevation from front to rear through the said carpet sweeper, showing the relation of the various parts. Fig. III is an enlarged detail longitudinal elevation view partly in section, taken on a line corresponding to line 3—3 of Fig. II, showing details of the various parts, the brush construction being shown substantially in full lines. Fig. IV is an enlarged detail transverse sectional view on a line corresponding to line 4—4 of Fig. I, showing the disposition of the screen structures, and the arrangement of the tension springs for urging the friction driving wheels into actuating contact with the brush wheel and taking up all lost motion and slack between these parts. Fig. V is a transverse detail sectional view similar to Fig. II, of a modification. Fig. VI is a longitudinal detail sectional view similar to Fig. III of the same modification.

In the drawings, the sectional views are taken looking in the direction of the little arrows at the ends of the section lines, and similar numerals of reference refer to similar parts throughout the several views.

Considering the numerals of reference, the case is made up of ends 1—1 connected by suitable side pieces 7, the same being carried by the carrying and driving wheels 2, which are freely revoluble on the axles 3, which are disposed in slots 4—4 through the ends. A central bolt 6 is forked onto each axle 3, and is urged into contact by the spring 8, the outer end of this bolt being disposed in a socket 7′ formed in the side piece 7 and disposed through a frame member 7″, which is an additional support. The case is covered over by a suitable cover of veneer or sheet metal 7‴.

Downwardly and inwardly disposed springs 9 at each end of the case assist in putting tension upon the axle 3 to urge the driving wheels 2 into contact with the brush wheel 11, which is supported on the brush axle 10. The brush is supported by inwardly-projecting pins 12 at each end thereof, see Fig. III, and is freely revoluble thereon. A vertical cross bar 13 carrying said pins is adjustably secured to the end of the case by suitable screws 14 in slots 14′, thus supporting the brush centrally. Cross arms 15 are disposed through the brush shaft 10, the same being notched into each other at 16 and disposed through apertures or slots 17 and 18 in the said brush shaft. These cross arms 15—15 are slotted at 21, and the brushes 19, spiral in form, which have broad thin backs, are retained on these arms adjustably by the bolts 20 disposed through the said slots 21. A flexible backing 22 of leather, or similar mate-

rial, is secured to the back portion of each brush and extends outwardly well toward the ends of the tufts or bristles of the brush to render support thereto, and to close up the spaces so that the brush, owing to the flat face thereof, will act like a fan. This flexible backing is very important and of great advantage over a rigid fan plate in that it does not hinder the flexible action of the brush. The action of the brush is greatly enhanced thereby because the air is forced forward.

The ends 1 of the case are open at the center 32 to admit air to circulate through the brush and radially outward.

Dust pans 23—23 of the usual construction for carpet sweepers are supported on pivots 24 in the ends of the case, and are adapted to close up against the sides 7, as clearly appears in Fig. II. These are controlled by links 28—28, which are connected by pivots 31 to the hand-lever 29, which is fulcrumed at 30 in the end of the case, so that the dust-pan can be readily dumped. The outer edges of the dust-pan fit into recesses 25 in the sides 7 of the case.

A flexible apron 26 is provided on each dust-pan 23, to which is secured a rigid bar 27, formed preferably of a fold of sheet metal. This bar drags along the floor and the apron affords a very effective incline surface for the dust and dirt that is swept by the brush so that the dirt and dust is thus readily collected and passed up into the pans. As this apron is flexible and is weighted, it rests very close to the floor and the operation of the device is exceedingly effective. The collector at the rear folds back under the pan, making a tight joint and compelling the air to circulate out through and above the pans. Wire screens 33, with fabric linings 33′ are covered over windows or openings in the sides 7 of the case above the dust pans and permit the air to readily circulate therethrough and collect the dust which drops down into the dust pans 23.

A handle 34, with a suitable bail connection 35, with pivot pins 36, is provided for manipulation of the sweeper. This bail is held in central position by the balancing springs 37—37, which are connected from opposite sides of the case. See Fig. I.

I have shown my improved structure in its preferred form. The spiral flat brushes, with flexible backings, secure a very effective sweeping action, which coacts effectively with the dust collectors 26, but these dust collectors would also be effective with other styles of brushes. I know from observation and test that the weight bars 27 might be omitted and the device would operate quite effectively, though the weight bars are of decided advantage. The particular construction I have adopted enables the application of the spring pressure very effectively, as I have indicated, and this means would likely be valuable in other kinds and styles of sweepers.

The dust pans and their dumping means can be of any desired form, the form I have shown being slightly modified from the standard construction of carpet sweepers. It is of advantage that the brush sections be adjustable on the radial arms, but it is clear that the sweeper would be effective for a long time if this adjustable feature was not incorporated in the sweeper.

In Figs. V and VI, I show a modification in which the brush members, in place of being spiral, are straight, like the blades of a fan in a fanning mill. This makes an effective structure, but it is not nearly so effective as the spiral arrangement, and is slightly irregular in its operation.

I desire to claim the invention in the specific form in which I have illustrated it because I believe the parts coact, but I also desire to claim the combination broadly, and also to claim the various novel sub-combinations which are present in the structure.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a carpet sweeper, the combination with a suitable case with a central opening in the end and screened apertures at each side; a skeleton fan brush, the blades of which are of spiral form, centrally disposed with its axis lengthwise of said case; driving traction wheels suitably connected to drive the said brush; and dust pans supported in the lower part of said case beneath the screened openings in the sides of the case to receive the dust collected by said fan brush.

2. In a carpet sweeper, the combination with a suitable case with a central opening in the end and screened apertures at each side; a skeleton fan brush centrally disposed with its axis lengthwise of said case; driving traction wheels suitably connected to drive the said brush; and dust pans supported in the lower part of said case beneath the screened openings in the sides of the case to receive the dust collected by said fan brush.

3. In a carpet sweeper, the combination of a suitable case; a rotatable brush therein; traction driving wheels for actuating the said brush; a pivoted dust pan supported in the lower part of said case and disposed to receive the dust collected by said brush; flexible dust aprons secured to said dust pans on the sides toward the brush and disposed to contact with the floor beneath and to coact with said brush, as specified.

4. In a carpet sweeper, the combination of

a suitable case; a rotatable brush therein; traction and driving wheels for actuating the said brush; suitable axles on which said driving wheels revolve, disposed in suitable slots at the ends of the case; spring pressure bolts connected to the centers of said axles and supported on the sides of the case for putting tension thereon; oblique springs connected to said axles toward each end and disposed to draw the same inwardly; and suitable dust pans for collecting the dust, as specified.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

JOHN F. EVERT. [L. S.]

Witnesses:
M. PHINA WOODRUFF,
MARGARET L. GLASGOW.