(Model.)

3 Sheets—Sheet 1.

P. H. WIEDERSUM.

CARPET SWEEPER.

No. 397,102. Patented Jan. 29, 1889.

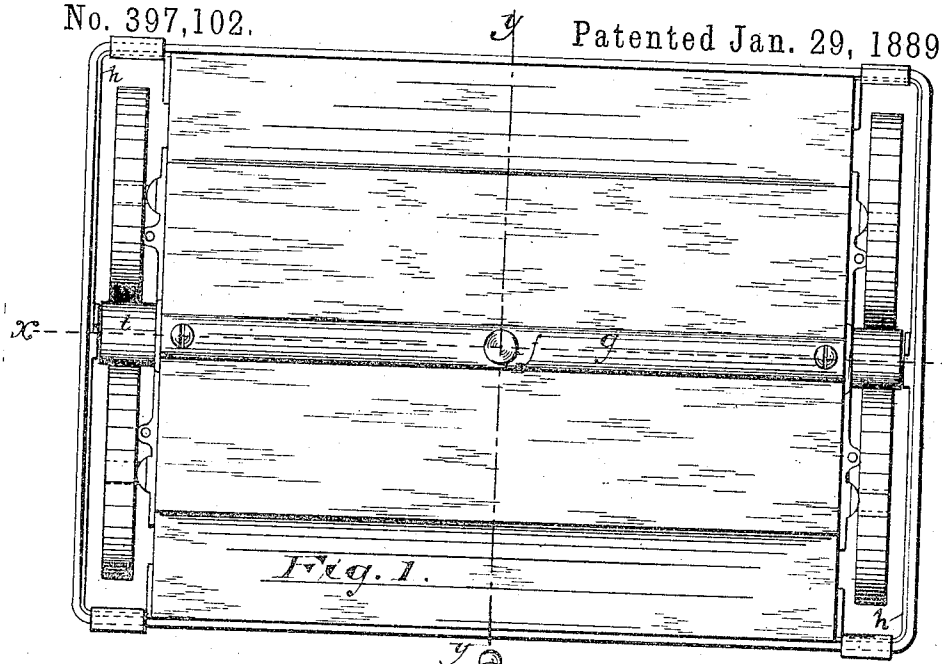


Fig. 1.

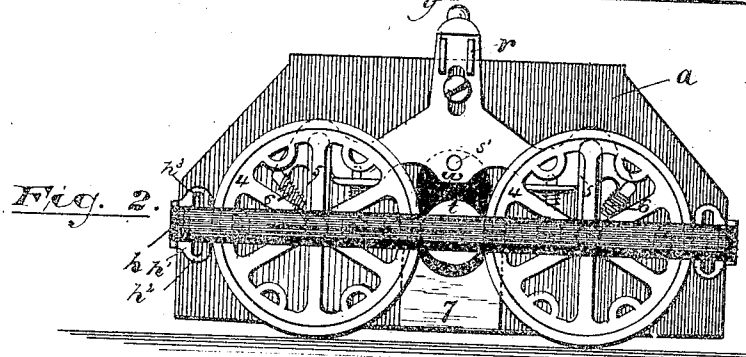


Fig. 2.

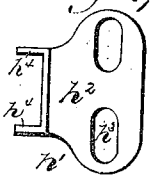


Fig. 2½

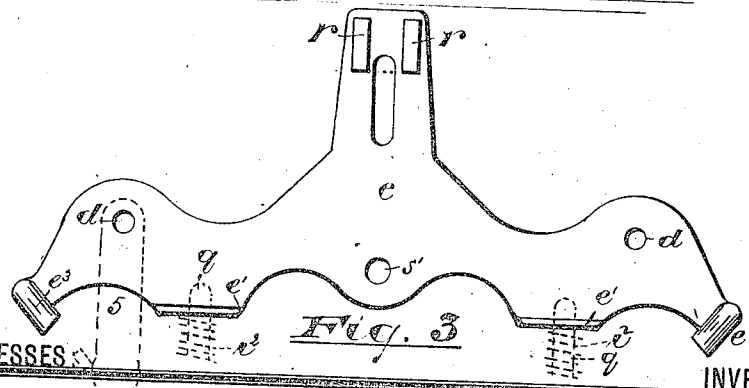


Fig. 3

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H. E. Reve

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(Model.)

3 Sheets—Sheet 2.

P. H. WIEDERSUM.

CARPET SWEEPER.

No. 397,102. Patented Jan. 29, 1889.

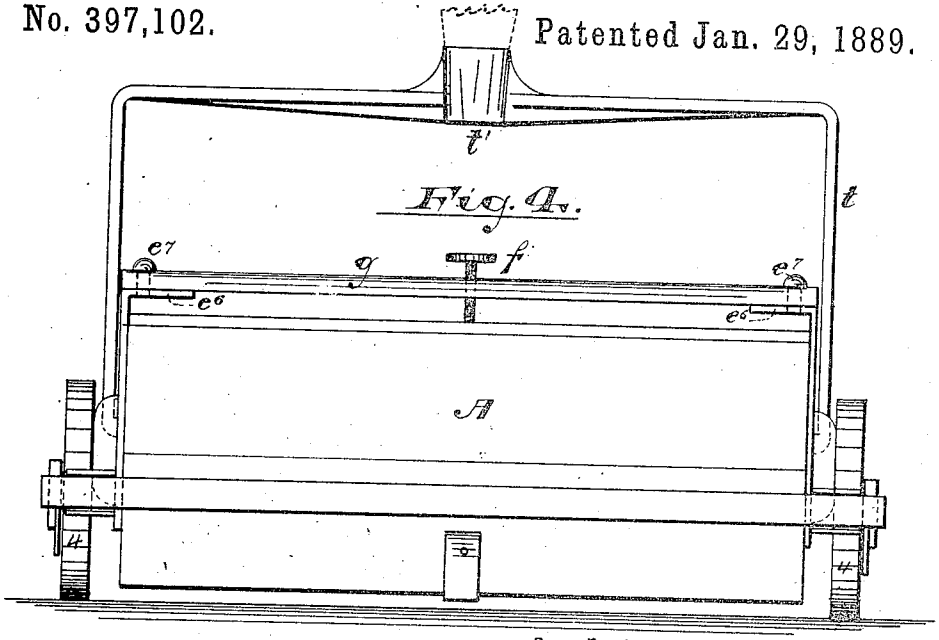


Fig. 1.

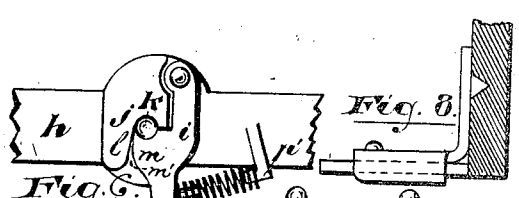


Fig. 6.

Fig. 8.

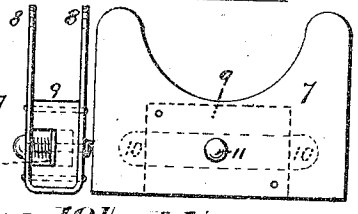


Fig. 10½ Fig. 10.

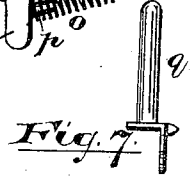


Fig. 7.

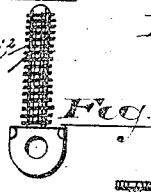


Fig. 9

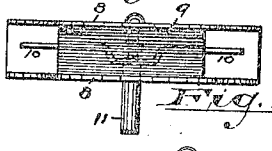


Fig. 11.

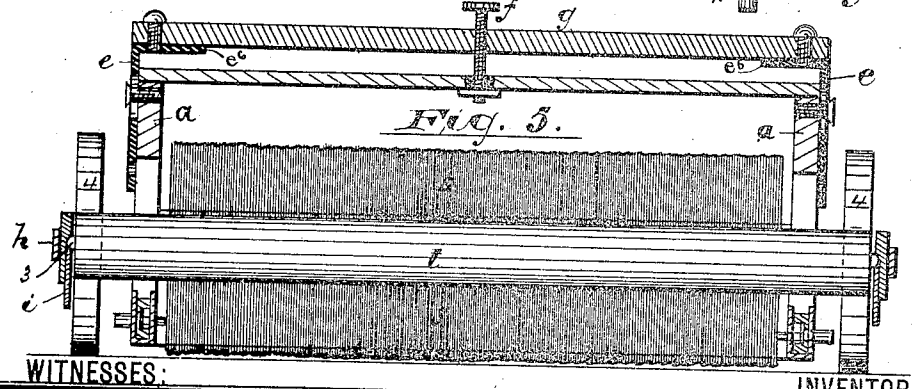


Fig. 5.

WITNESSES:

C. R. Burnett
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INVENTOR

Philip H. Wiedersum,

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(Model.)

3 Sheets—Sheet 3.

P. H. WIEDERSUM.

CARPET SWEEPER.

No. 397,102. Patented Jan. 29, 1889.

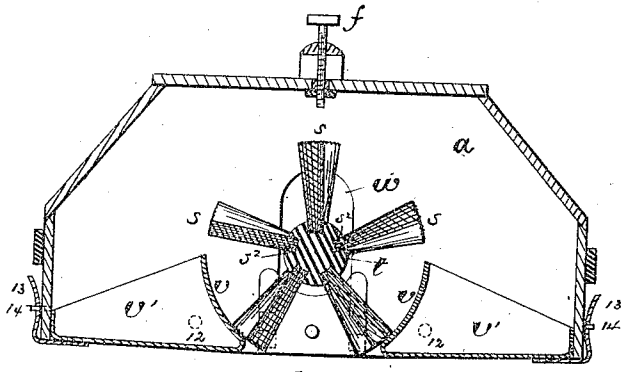


Fig. 12.

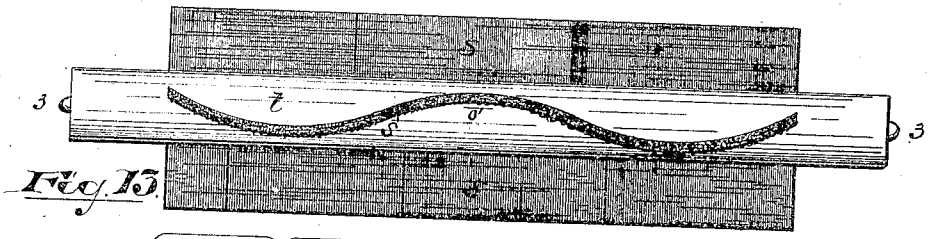


Fig. 13.

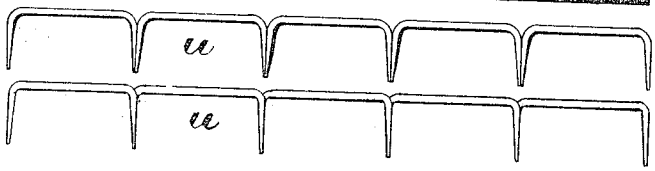


Fig. 14.

Fig. 15.



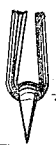


Fig. 16.

WITNESSES:

C. R. Bennett
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INVENTOR:

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BY Drake & Co., ATTY'S.

UNITED STATES PATENT OFFICE.

PHILIP H. WIEDERSUM, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO CHARLES G. CAMPBELL, OF SAME PLACE.

CARPET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 397,102, dated January 29, 1889.

Application filed August 19, 1887. Serial No. 247,336. (Model.)

To all whom it may concern:

Be it known that I, PHILIP H. WIEDERSUM, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Carpet-Sweepers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention consists in the improved carpet-sweeper having the arrangements and combinations of parts substantially as will be hereinafter set forth, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures of the three sheets, Figure 1, Sheet 1, is a plan of the improved sweeper, the bail being removed therefrom. Fig. 2 is an end view of the same. Fig. 2½ is a detail elevation of a certain bracket or support for holding a certain guarding band or cushion. Fig. 3 is an enlarged view of an end plate adapted to receive the bail and provide bearings for certain swinging arms for the wheels or rollers. Fig. 4, Sheet 2, is a front elevation of the said sweeper. Fig. 5 is a vertical section of the same, taken through line *x* of Fig. 1. Fig. 6 is a detail view of a journal-bearing for the brush. Figs. 7 and 9 are respectively a side view and a front view of studs for guiding the end plate. Fig. 8 is a plan of a bracket for holding the cross piece or bar upon which the brush has its bearing. Figs. 10 and 10½ are an elevation and end view, respectively, of a filling-piece or lock-case adapted to be inserted in the end boards of the sweeper beneath the stock of the brush to prevent cord, &c., from gaining access to said stock. Fig. 11 is an edge view of the same. Fig. 12, Sheet 3, is a transverse section taken through line Y of Fig. 1, showing the relation of certain pivotal dust-receptacles to the brush and pan apertures in the side boards and a filling device therein. Fig. 13 is a detail of the brush, showing the arrangement of the bristles thereon. Figs. 14, 15, and 16 illustrate the arrangement of certain staples when the same are employed with the stock of the brush, said staples being used to hold the bristles in place.

In carrying out the invention I first provide a body, box, or case, A, having end boards, *a a*, and open at the bottom in the ordinary manner to allow the brush to engage the floor, or at least to allow the bristles to exert an influence thereon, to draw up the dust and carry the same to a dust-receptacle. The said end boards, *a*, of the box or case are provided with an opening from the bottom, through which the stock of the brush extends to engage driving-wheels 4 4, the said driving-wheels being arranged, preferably, on the outside of the box at the ends thereof, and being covered with rubber or other frictional material to cause the same to give rapid revolving motion to the brush. The said driving-wheels are journaled on swinging arms 5, pivoted at their upper ends, as at *d*, to the end plates, *e*. Said end plates are formed substantially as shown in Fig. 3, and are arranged against the end boards, *a a*, of the box or case, and are adapted to slide vertically thereon under the influence of a set-screw, *f*, Figs. 1, 2, and 4, arranged in any suitable relation or position upon the sweeper. I prefer, however, to connect the end plates, *e e*, by a bar or rod, *g*, as indicated in Figs. 4 and 5, and to arrange the set-screw *f* at the center thereof, the set-screw having a fixed relation to the box A, so that when turned the cross or connecting bar *g* will be raised or lowered, carrying the end plates therewith equally, and thus raising or lowering the wheels in their relation to the box and bringing the bottom of the box or case closer to or farther from the surface of the floor being swept.

In my improved device the brush operates both as a sweeper and a fan to create suction.

In connection with the rapid movement of the brush, suction is attained by having the bristles disposed in a peculiar manner, as shown in Fig. 13, in which said bristles are shown to bow at the center, as at *o'*, to cause the same when in revolution to scoop up the

air, so as to form a vacuum and draw the dirt from the carpet without having the bristles hastily brush the same.

To draw in the air more perfectly, the bristles are arranged in longitudinal grooves s^2, formed in the stock of the brush, and are placed close together, forming a continuous fan having no opening through the same, such as would be caused by arranging the bristles in a series of small perforations or holes in the stock. The grooves are given the tortuous shape shown so that the bristles secured therein will be given a like shape as a collection.

I am aware that a spiral groove has been formed in a stock for a brush, a single spiral extending from one end of the stock to the other. It will be evident that a spiral fan would be of no practical value for the purposes herein referred to, and that such a groove would not be effective in holding the bristles in proper position. The said bristles are held in the groove of the brush by staple-tacks arranged, preferably, end to end, under which the bristles are bent.

I am aware that wires running longitudinally in a groove have been employed heretofore, but not by means of the series of staple-tacks driven one after the other in the manner shown in Figs. 14 and 15; but it will be evident that a single wire will not give the same firmness and security to the bristles as by the improved arrangement, and by means of said staple-tacks in series I am enabled to hold the bristles closely and firmly in the tortuous but not spiral grooves.

The extremities of the bristles extend to the inner surface, v, of the dust-pan v', so that the suction is more perfect at this point, the adjacent surfaces of the said pan being segmental or concave, and the concave surface being concentric with the path of the extremities of the bristles, so that vacuum producing the suction will be more complete.

The stock t of the brush has the grooves therein terminate at a point about in line with the inner surfaces of the end boards, so that as the brush revolves the bristles come in quite close contact with the inner end walls of the sweeper-box, so that there is no opportunity for the escape of air at said ends. From the grooved center portions the stock extends oppositely through the aperture w, Fig. 12, in the end boards to engage the driving-wheels. The said brush is provided with short pivotal pins 3 3, which are driven into the ends of the said stock and extend or project therefrom about one-fourth of an inch, more or less. The said pins serve as journals for the brush. To enable the brush to be readily inserted and removed from its bearings, I have provided a spring-catch, as shown in detail in Fig. 6, in which h is the guard bar or rail, which extends across the ends of the sweeper in front of or outside of the drive-wheels, as indicated in Figs. 1 and 2.

i is a spring-actuated lever, which co-operates with the bearing j of said bar to form the journal-box k, the said bearing j and lever i being recessed, so that together they form said box of a size adapted to receive the pin in the end of the brush-stock and hold the same steadily. The said bearing j and lever i are so formed, as at l and m, that a funnel-shaped recess, m', is formed beneath the box k, so that by simply pressing the brush upward between the two parts l and m the lever will be forced open against the pressure of the spring o (which normally tends to hold the parts together) and allow the pin 3 to slip into place without any trouble or expense of time.

When it is desired to remove the brush, the finger-pieces n, which project above and below the line of the bar h, may be re-pressed and the brush detached. The spring o causes the lever to engage the bearing j automatically. Any suitable arrangement of a spring or springs may be employed to operate the lever. When a spiral spring is employed, I may have suitable bearings, p and p', provided to hold the same in operative position. To guide the said plates e e when the same are moved vertically under the influence of the set-screw f, I have arranged upon the ends of the box A posts or studs q, which are held vertically at a little distance away from the outer face of the end boards. Upon said studs are arranged the sliding end plates, e, the latter being provided with eyes e' e', through which the said studs extend, said eyes serving as upper bearings for the spiral springs i^2, which are held at the base of the studs in any suitable manner and extend backward against the under side of the eyes. When the plates e e are depressed under the influence of the set-screw f, the act of depression is effected against the upward pressure of the springs i^2. Said springs i^2 i^2 serve to hold the sliding plates uniformly, so that one plate will not be lower than the other, the driving-wheels 4 4 thus being made uniform at both sides in their distance from the ground.

To cause the wheels to engage the periphery of the stock of the brush, I have journaled them on swinging arms 5 5, as shown in Figs. 2 and 3, which swinging arms are provided with springs 6, which serve to throw the same toward said brush-stock, so that should there be any variation in the size of the driving-wheel the same will not affect their positive engagement with the brush. The end plate is extended beyond the bearings d for said swinging arms to provide bearings e^3 for said springs 6. The guard-bars h, which protect the wheels when the same are exposed to view on the outside of the body of the box, being mere metal rods or pieces distinct from said body or a partition thereof, are riveted or otherwise secured upon brackets h', said brackets being slotted at the foot h^2 thereof, as at h^3, to allow the same to be vertically adjusted to raise or lower the brush after being secured upon the box or case. By having the guard-bar and brackets in independent pieces, in

stead of a single piece, I am enabled to obtain greater strength without increasing the bulk or rendering the device cumbersome, inasmuch as the brackets are of cast metal, while the bar is of wrought metal. It will be evident that should the whole of said parts be of a single casting the bar must necessarily be thick or wide to secure sufficient strength therein, and, on the other hand, should the device be struck up of sheet metal, then expensive dies would be necessary, and to secure sufficient strength in the brackets a large waste of metal would be entailed. Said brackets are also provided with guards h^1 h^1 at the upper and lower edges thereof to form a receptacle for the rubber bands, which extend around the sweeper, to prevent the same from injuring the woodwork, varnish, or paint on the furniture of the room being swept.

To hold the bail or handle of the sweeper in a vertical position without leaning it against the wall or other support of like nature, I provide the end plates with ribs or projections r r, between which the bail may be sprung and caught. It will be understood that the recesses formed between said ribs or projections are vertically in line with the pivotal bearing s', into which the bail works. The bail is provided with a suitable ferrule, t', at the center thereof, into which a wooden handle may be secured in any ordinary or suitable manner.

The cross-bar g and the end plates, e, may be integral; but I prefer to make them of separate pieces, as shown. The end plates in the latter are bent laterally inward, as at e^6, Fig. 4, to form seats for said connecting bar or rod, the latter being secured upon said seats by means of screws e^7.

After the brush has been brought into proper operative relation with the driving-wheels by extending through the openings w in the end boards, a a, of the case, as described, apertures of considerable size are formed beneath the stock of said brush in said end boards, which allow considerable air to pass under the brush from the ends, and thus interfere with the suction, and also allow threads to fly up or be drawn up upon the ends of the stock and wind around the same, and thus interfere with its proper operation. To avoid this objection, I have filled in said openings by a suitable device, (as a block or filling,) illustrated in Figs. 10 and 11. I am aware that in other devices having such openings side or end plates have been secured over said openings; but in the present device the said openings are filled in, so that the said opening is more perfectly closed, the filling lying flush or approximately flush with the inner and outer surfaces of the end or side boards, a a. Said device is preferably a spring-catch plate or lock formed, preferably, by bending or doubling a piece of sheet metal, as indicated in Fig. 10, to form flanges 8 8, which lie flush or approximately flush with the outer and inner surfaces of the board. Between said flanges is a suitable catch mechanism adapted to engage the side pieces of the box by a spring-tongue, so as to hold the filling-plates into said recess and allow the same to be readily removed when it is found desirable to take out the brush.

The flanges preferably extend a little over the surfaces of the board, forming therewith a tongue-and-grooved joint, and between said flanges may be arranged a block, 9, which holds the flanges apart. (See Figs. 10, 10½, and 11.) The spring-catching tongues 10 are operated by means of a finger-piece, 11, which extends through one side flange, so as to be operated by the fingers to release the filling device, so that it can be withdrawn from holding relation with the side board. The said removable filling device may be made in various ways, and I do not wish to be understood as limiting myself to the peculiar construction shown.

The receptacles for the sweepings from the brush are formed concave on their inner side, as before described, and extend up into close contact with the brush, so that there will be no space between to allow the air to move backward as it is drawn by the bristles. By this construction a more perfect suction is gained. Said receptacles are pivoted within the box or case, as at 12, Fig. 12, so as to be turned when discharging the dust. They are held in their normal position by means of spring-catches 13, which extend from the edges of said receptacles and engage catches 14 on the outer surfaces of the box or case, as shown in Fig. 12. By this construction, when it is desired to turn the receptacle, so as to allow the dirt or sweepings to be removed, the spring-catch is raised from the side of the box from engagement with the small projection thereon, and then turned, as described. When closing the receptacle into its normal position, the spring-catch enters into holding engagement automatically.

Having thus described the invention, what I claim as new is—

1. In a carpet-sweeper, the combination of the box A, end plates, e e, each of which has at its opposite ends sweeping-arms 5 5, pivoted on said plates and extending downward therefrom, and carrying the wheels 4 4, and a brush having a stock extending through the sides of said box into engagement with said wheels, substantially as set forth.

2. In combination with the box A of a carpet-sweeper, a brush, dust-pan, and end plates, e e, arranged at the outside of the boards a a, one on each end of the box A, and connected by a rod or bar, g, and wheels carried by said plates e e, substantially as and for the purposes set forth.

3. In combination with the box, rollers, and brush of a carpet-sweeper, end plates, e e, having rollers thereon, cross-bar g, and set-screw f, substantially as and for the purposes set forth.

4. In a carpet-sweeper, the combination

of the box, rollers, and brush, end plates having eyes e' e' and connected by a bar, g, studs q q, springs i^2, and adjusting-screw f, adapted to raise and lower said side plates in their relations to said studs, substantially as set forth.

5. In a carpet-sweeper, the combination of a box, A, adjustable end plates and rollers arranged thereon and held in driving relation to the brush by springs 6, said springs 6 having bearings on said side plates, substantially as set forth.

6. I a carpet-sweeper, the combination of a box, bail, driving-wheels, and brush, end plates connected by a bar, and means, as f, for raising or lowering the same, and provided with swinging arms 5 5, eyes e' providing bearings for springs i^2, and studs q, and bearings e^3 for springs 6 and stud q, substantially as set forth.

7. In a carpet-sweeper, the combination of a box having openings w w, filling-pieces composed of double plates, blocks 9, and a spring-actuated catching mechanism, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of August, 1887.

PHILIP H. WIEDERSUM.

Witnesses:
CHARLES H. PELL,
OSCAR A. MICHEL.