

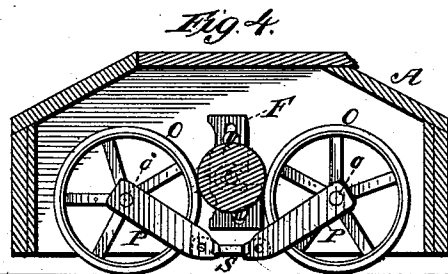
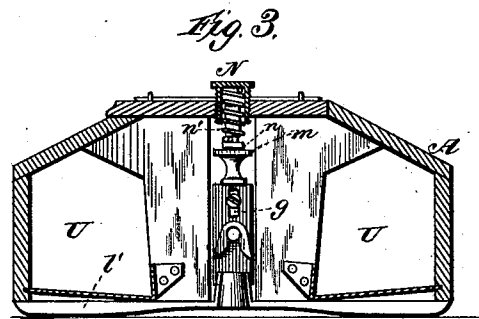
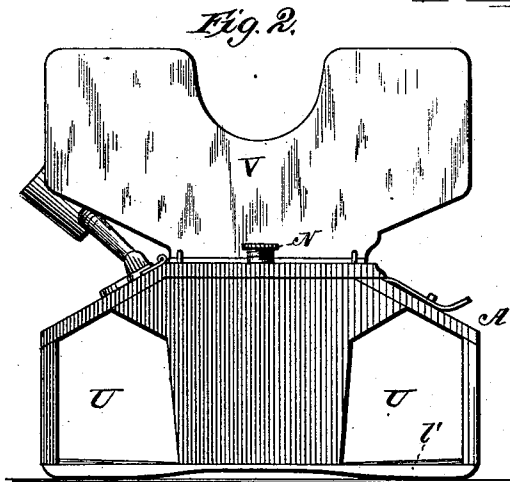
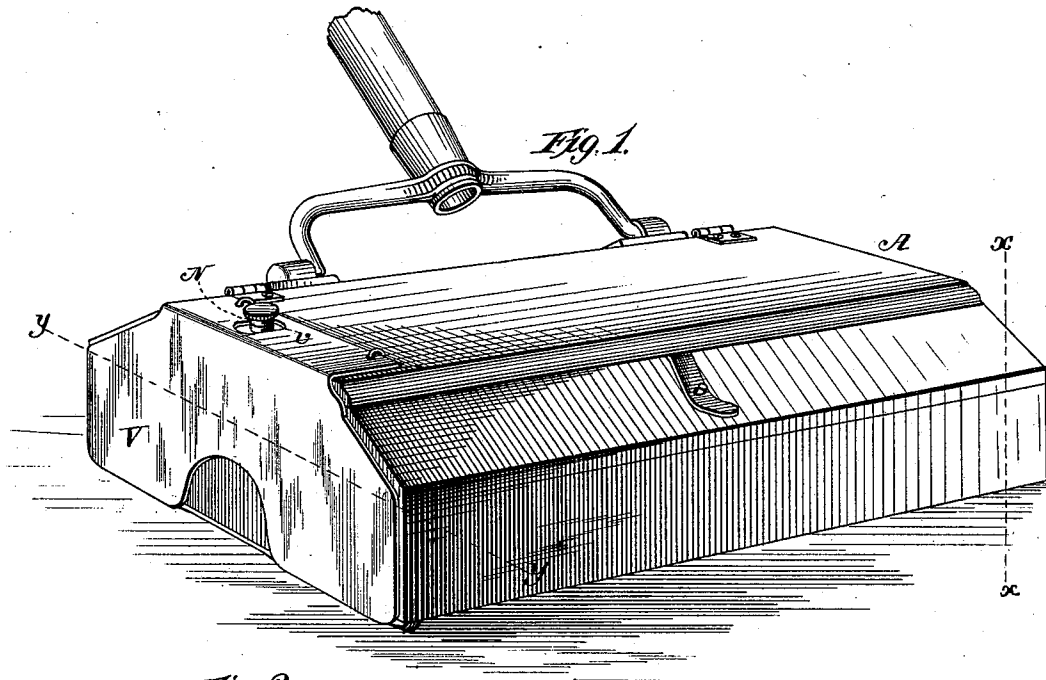
(Model.)

2 Sheets—Sheet 1.

M. R. BISSELL.
Carpet Sweeper.

No. 240,224.

Patented April 19, 1881.



Witnesses:
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Albert C. Norris.

Inventor:
Melville R. Bissell.
By *James L. Norris.*
Attorney.

(Model.)

2 Sheets—Sheet 2.

M. R. BISSELL.
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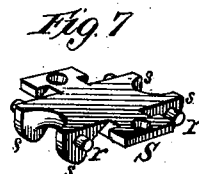
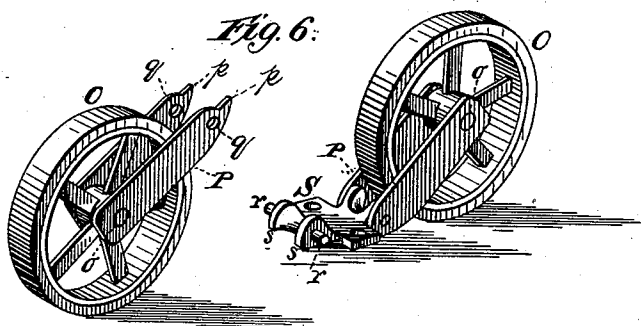
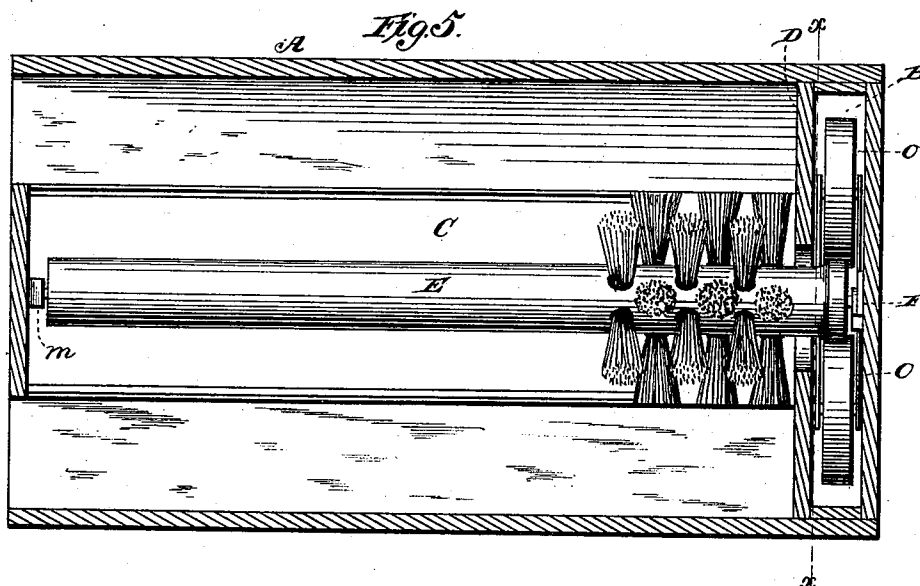


Fig. 10.

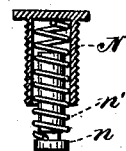


Fig. 8.

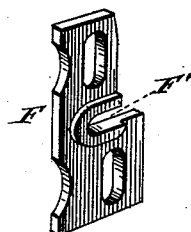
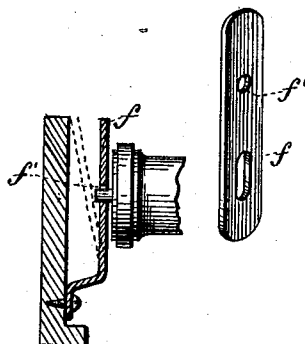


Fig. 9.



Witnesses:
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UNITED STATES PATENT OFFICE.

MELVILLE R. BISSELL, OF GRAND RAPIDS, MICHIGAN.

CARPET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 240,224, dated April 19, 1881.

Application filed January 20, 1881. (Model.)

To all whom it may concern:

Be it known that I, MELVILLE R. BISSELL, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Carpet-Sweepers, of which the following is a specification.

This invention relates to that class of carpet-sweepers in which the supporting and brush-driving wheels have their peripheries automatically forced in contact with a rotary bearing on the brush-shaft. Its objects are to secure an efficient frictional contact between the wheels and the bearing on the brush-shaft when the sweeper is in use, to secure an efficient action of the brush upon regular or irregular surfaces, and to permit the ready removal and replacement of the brush, and, further, to facilitate the removal of sweepings from the dust-receptacles arranged within the casing.

In the accompanying drawings, Figure 1 is a perspective view of a carpet-sweeper constructed according to my invention, the casing being provided with a hinged lid, handle, and bail, as usual. Fig. 2 is an end view with the door of the dust-receptacles opened. Fig. 3 is an inside view of the end wall shown in Fig. 2. Fig. 4 is a transverse section through the sweeper, in a plane indicated by the line *xx*, Figs. 1 and 5. Fig. 5 is a section on the plane indicated by the line *yy*, Fig. 1. Fig. 6 is a perspective view of the brush-driving and sweeper-supporting wheels and their mountings detached from the casing. Fig. 7 is a detached view of the plate or coupling to which the arms or housings carrying the wheels are pivoted. Fig. 8 is a view of one of the bearing-plates of the brush-shaft, which is used at the end of the casing where the wheels are located. Fig. 9 is a view, in perspective, and also in longitudinal section, of a modified form of bearing-plate, which may be used in lieu of that shown in Fig. 8. Fig. 10 is a view, partly in section and partly in perspective, of the opposite end bearing-plate and its adjusting or regulating devices.

The letter A designates the casing of the sweeper, which is divided into two compartments, B and C, by a partition, D, as shown in Fig. 5.

E is the brush-shaft, journaled in its bear-

ings in the opposite end walls of the casing, and passing through an opening in the partition D. In Fig. 5 the bristles are mainly removed from the brush-shaft in order to show the chamber C.

Upon the inner surface of the end wall of the casing, which is also the outer side wall of the chamber, is arranged the adjustable bearing-plate F, which is secured to the wall by screws passing through slots in said plate, the journal-bearing being formed by the walls of an open-end transverse slot, F', into which the journal of the brush-shaft may be readily inserted laterally when the brush-shaft is inserted into the casing from the top.

Instead of the plate F, an elastic or spring plate, *f*, having a simple hole, *f'*, as shown in Fig. 9, may be used, its lower end being adjustably secured by means of a screw passing through a slot. A recess, *f''*, cut in the wall behind the plate, permits the latter to be bent outward, as shown in dotted lines, to allow the journal of the brush-shaft to be inserted in the hole *f'*, after which the elasticity of the plate restores and holds it to its normal position. On the opposite end wall of the casing and in a vertical recess or groove therein is arranged a yielding bearing-plate, G, loosely secured by a screw passing through a longitudinal slot, *g*, as shown in Fig. 3, below which slot is a hole to receive the journal of the brush-shaft. At its lower end the plate G has two longitudinal extensions, *h h*, at its opposite sides, and between and parallel with these extensions projects a pin, *i*, of about equal length therewith, and surrounded by a spiral spring, K, the pin and spring being shown clearly in Fig. 10. This pin and spring, when the parts are placed together, as shown in Fig. 3, are inserted in a socket, *l*, which is formed on the metal runner *l'*, attached to the bottom edge of the end wall, the spring bearing against the end of the plate and tending to force it upward, and the extensions *h* sliding between the socket and the wall.

At the top of plate G is formed a seat, *m*, upon which bears the head of a pin, *n*, surrounded and driven downward by a spiral spring, *n'*, arranged in a hollow screw, N, which is arranged in a properly-threaded hole or nut in the cover of the casing, its head be-

ing above said cover and thus readily accessible. By having the pin *n* separate from the plate *G* said plate may be placed separately in position under the bearing of the pin and the pin inserted above it. Otherwise either the pin-bearing or the runner would have to be removed in order to insert or remove the plate *G*. Said plate and the pin are shown formed in one piece in my Letters Patent No. 233,596, granted October 26, 1880.

By properly turning the screw *N* the bearing-plate *G* may be forced downward with a yielding pressure, or permitted to be forced upward by the spring *k*, as desired. The object of the vertical adjustment of the plate is to increase or decrease the friction between the brush-driving and sweeper-supporting wheels, as will presently appear, and the object of the adjustable yielding bearings at the ends of the plate is to permit the brush-shaft to be readily adapted to sweeping carpets, matting, or bare floors, or, in other words, to adapt it for either light or heavy sweeping. For light sweeping the springs will not be subjected to much tension, and the brush will sweep lightly and yield upward, but for heavy sweeping the screw *N* will be driven down to increase the tension of the spring, so that it will not allow the brush to yield much, if any, and at the same time to increase the friction between the brush-shaft and the brush-driving and sweeper-supporting wheels at the other end of the brush-shaft.

The brush-driving and sweeper-supporting wheels *O O* are mounted on short spindles or shaft *o*, passing loosely through their hubs, and each rigidly connecting two metallic plates or arms, *P*, forming a housing, and which extend radially beyond the peripheries of the wheels and terminate in toes *p*, which are straight on their upper edges and rabbeted somewhat from the edges of the arms. Each pair of arms *P* is pierced with holes *q*, to engage with pivot-pins *r* projecting laterally from ears *s* extending from opposite sides of a plate or coupling, *S*, and when thus engaged the straight edges of the toes *p* should extend under the ends of said plate or coupling *S*, as shown in Figs. 4 and 6. The ends of the plates or couplings *S* are provided with holes for screws, by which they are secured to the centers of the bottom edges of the partition *D* and the adjacent side wall of chamber *B*, respectively, as shown in Fig. 7. When the plate or coupling is thus secured the wheels stand on opposite sides of the brush-shaft, as shown in Figs. 4 and 5, and when the arms *P* swing or move toward the brush-shaft, or the plate or coupling *S* is carried downwardly with the casing to which it is attached, the wheels will come in contact with the brush-shaft, or a pulley or enlargement, *E'*, thereon, at that part of said shaft which lies in chamber *B*. The peripheries of the wheels are preferably faced with india-rubber or similar noiseless frictional material, in order to give them a good frictional contact with the brush-shaft, or the en-

largement or pulley *E'* thereon; or said enlargement or pulley may be faced with rubber or other similar noiseless material, and both wheels and brush-shaft may be so faced, if desired. When the weight of the casing and brush-shaft rests upon the wheels said wheels strike the brush-shaft or its enlargement or pulley, and thus a frictional contact is caused, which results in a transmission of rotary motion from the wheels to the brush-shaft, when the wheels are themselves rotated by moving the sweeper on the floor or carpet.

As has been heretofore stated, the friction between the wheels and the brush-shaft may be modified by the vertical adjustment of the opposite end of the shaft, for as the bearing of the shaft-journal in the slotted plate is fixed, and said shaft comes in contact with the wheels at an intermediate point, the forcing downward of said opposite end will obviously swing down the brush-shaft and crowd it between the wheels, and vice versa.

The purpose of the toes *p* is to prevent the arms *P* and the wheels from swinging out of the chamber *B* when the casing is raised, as these toes will strike the under side of said plate or coupling and act as stops.

By the construction given to the plate or coupling *S*, and its employment in connection with the brush-driving and sweeper-supporting wheels, said wheels, with their arms or housings, can readily be attached and detached from the plate or coupling for the purpose of repair, oiling, cleaning, and changing defective or worn-out rubbers, by simply subjecting the said arms or housings to a twisting or torsional action, which will spring them out of engagement with the pivot-pins.

On each side of the brush are arranged the dust-receptacles *T*, extending from end to end of the casing, or nearly so, in the end wall of which casing are formed enlarged openings *U U*, coincident with the ends of said receptacles and permitting the collected sweepings to be removed therefrom.

A single door, *V*, suitably hinged to the top of the casing, fits across the entire end thereof, and serves to close both the openings *U U*, it being operated automatically and held in a closed position by gravity. When the door is turned back the casing may be turned to a vertical position and the sweepings will fall out. The upper portion of the door *V* is bent to form a leaf, *v*, which extends inwardly over the top of the casing, and has its edge hinged thereto, so that the door has less tendency to vibrate and partially open the dust-receptacles than if it were simply straight and hinged at its upper edge, as heretofore.

What I claim is—

1. The combination, with the casing and brush-shaft of a carpet-sweeper, of the brush-driving and sweeper-supporting wheels mounted between arms or housings pivotally connected to the case below the brush-shaft, and caused to impart rotary motion to the brush-shaft by being automatically forced into fric-

tional contact therewith by the weight of, or pressure exerted upon, the sweeper, substantially as described.

2. In combination with the brush-shaft of a carpet-sweeper, the brush-driving and sweeper-supporting wheels journaled between the plates or in housings, which plates or housings are connected together by a hinged or pivoted coupling, which is secured to the casing of the sweeper below the brush-shaft, substantially as described.

3. The combination, with the brush-shaft provided with a suitable friction-bearing, of the wheels O, mounted between arms P, pivoted to opposite sides of the plate or coupling S, secured to the casing below the brush-shaft, substantially as described.

4. The combination, with the brush-shaft, the brush-driving and sweeper-supporting wheels, and the plates or housings P, of the plate or coupling S, secured to the casing below the brush-shaft, and formed with journals for connecting with said housings, substantially as described.

5. The combination, with the plate or coupling, of the pivoted arms or housing carrying the brush-driving and sweeper-supporting wheel, and provided with the toes *p*, project-

ing under said plate, substantially as described.

6. The combination, with the brush-shaft and motive wheels, of the yielding vertically-adjustable bearing-plate G, having head *m*, extensions *h*, and pin *i*, surrounded by spring *k*, the runner having a socket to receive said pin, and the separate spring-actuated adjustable pin *n*, arranged to bear upon the head of said plate G, substantially as and for the purpose set forth.

7. The combination, with the casing provided with the sweepings-receptacles, having openings through the end wall of the said casing, of the single door V, having its upper portion bent at an angle, projecting over and hinged on the top of the casing, said door being arranged to lie across the said end wall, cover both of said openings, and be retained in its closed position by gravity, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MELVILLE R. BISSELL.

Witnesses:

JAMES L. NORRIS,

JAMES A. RUTHERFORD.