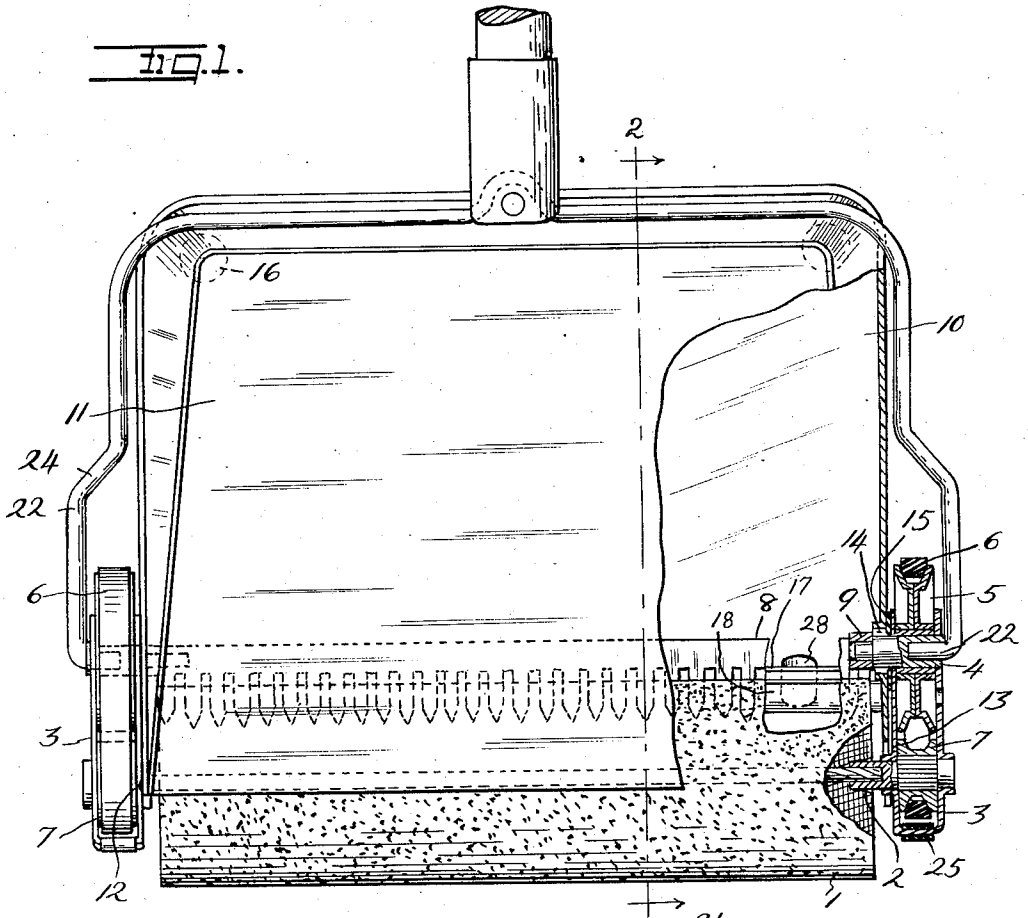
Dec. 31, 1935. O. G. BURCH 2,026,414

CARPET SWEEPER

Filed Sept. 24, 1934 2 Sheets-Sheet 1

Fig. 1.



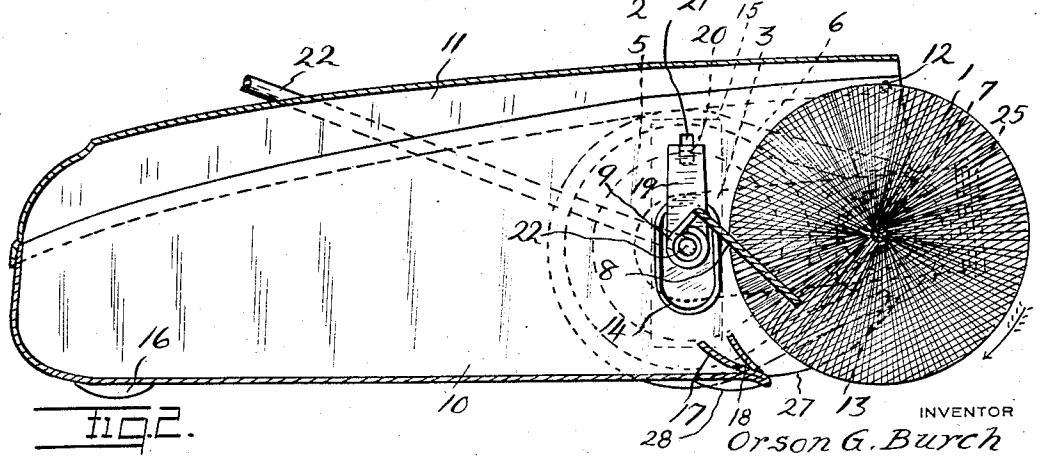


Fig. 2.

INVENTOR

Orson G. Burch

BY

J. D. Murray

ATTORNEY

Dec. 31, 1935. O. G. BURCH 2,026,414

CARPET SWEEPER

Filed Sept. 24, 1934 2 Sheets-Sheet 2

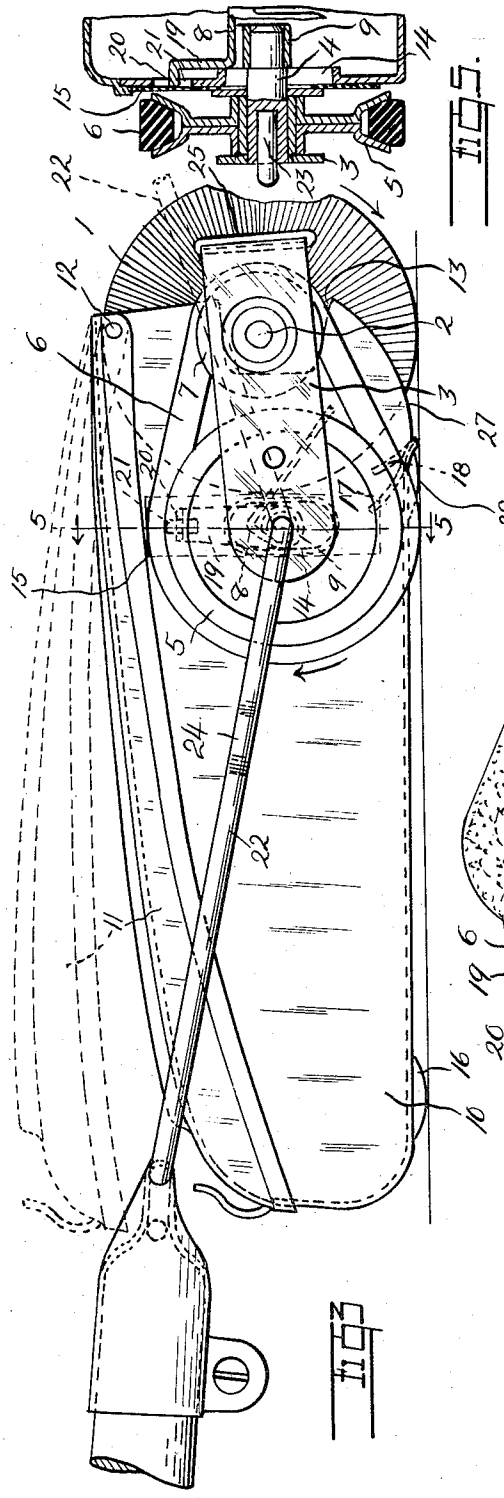


FIG. 3.

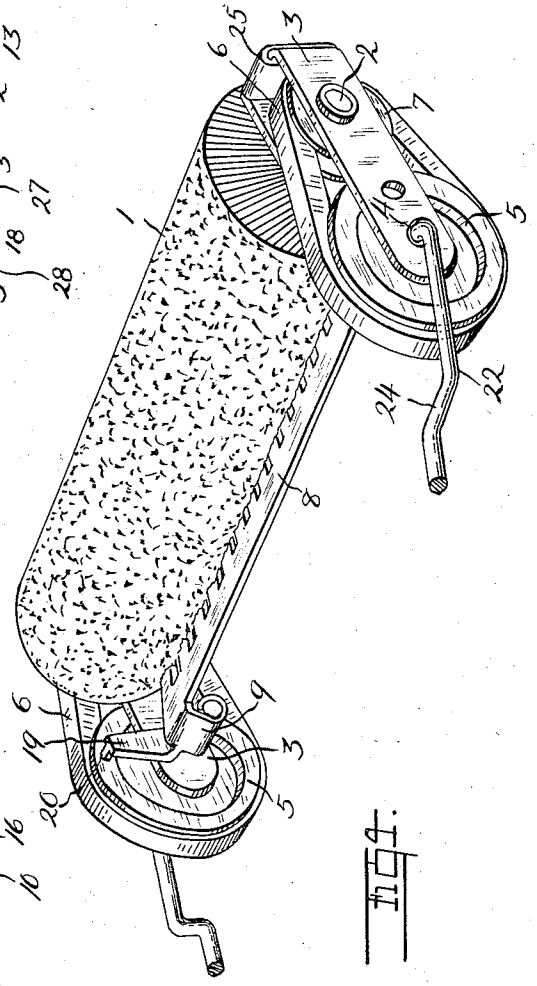


FIG. 4.

FIG. 5.

INVENTOR

Orson G. Burch

BY

J. S. Murray

ATTORNEY

Patented Dec. 31, 1935

2,026,414

UNITED STATES PATENT OFFICE

2,026,414

CARPET SWEEPER

Orson G. Burch, Highland Park, Mich.

Application September 24, 1934, Serial No. 745,249

18 Claims. (Cl. 15—48)

This invention relates to rotary sweeping appliances and particularly to carpet sweepers.

An object of the invention is to so simplify the construction of a carpet sweeper and the assembly of its parts, as to materially reduce the manufacturing cost as compared to that of prior sweepers.

Another object is to so pivot the sweepings receiver on the frame of a carpet sweeper as to effect a self accommodation of said receiver to normal variations of level in a surface traversed by the sweeper.

Still another object is to provide a carpet sweeper with a handle having a bail pivotally mounted in the sweeper frame and maintaining assembly of the sweepings receiver in such frame, and to adapt the receiver to swing on the bail from its horizontal position of use to a vertical position beneath the handle, when the sweeper is suspended by the latter.

A further object is to adapt the rotary brush of a carpet sweeper to sweep effectively, in close proximity to the legs of furniture or other uprights.

A further object is to journal a pair of wheels on a member forming a pivotal support for the sweepings receiver, and further serving to attach a handle to the sweeper.

A further object is to provide a comb to dislodge any sweepings that may adhere to the brush, and to mount such comb in a novel manner, within the sweepings receiver.

These and various other objects the invention attains by the construction hereinafter described, and illustrated in the accompanying drawings, wherein:

Fig. 1 is a top plan view of the improved sweeper, with the cover of the sweepings receiver partly broken away, and showing certain parts in section.

Fig. 2 is a longitudinal vertical sectional view, taken upon the line 2—2 of Fig. 1.

Fig. 3 is a side elevational view of the sweeper.

Fig. 4 is a perspective view of the same, with the pan removed.

Fig. 5 is a vertical section, taken on the line 5—5 of Fig. 3, showing the mounting of one of the drive wheels, and of the sweepings receiver and comb on the frame.

In these views, the reference character 1 designates a cylindrical brush, having journal members 2 rigidly projecting from its ends and mounted in a pair of spaced frame members 3. The latter are preferably U-shaped and elongated in the direction of sweeping travel with their bights at their front ends. The forward portions of said members are engaged by the journal members 2 and their rear portions are apertured to removably receive a pair of aligned stud shafts 4.

Journaled on the stud shafts 4 are wheels 5 from which drive connections are established to the brush by belts 6, engaging pulleys 7 fast on the journal members 2. Said wheels and pulleys are positioned within the elongated openings formed in the frame members between their spaced, parallel parts, and are preferably formed with approximately V-shaped peripheral grooves, snugly receiving said belts. The latter are preferably of rubber and tensioned to give them an ample driving grip on the pulleys. It will be noted that the belts 6 serve in the dual capacity of drive elements for the brush and tread members for the wheels 5. The journal members 2 have knurled portions (see Fig. 1) which are pressed into the pulleys 7, as the journal members are inserted in the frame members 3.

The stud shafts 4 have short end portions, of slightly reduced diameter, projecting inwardly from the frame members 3 to mount a comb 8 which engages the brush to relieve it of adhering sweepings. Said comb is formed on its ends with aligned tubular socket members 9 within which said reduced ends of the stud shafts are inserted (see Fig. 1).

Pivotally engaging the outer ends of said socket members, is a dust receiver, comprising a pan 10, provided with a cover 11 hinged at 12 to the front end of said pan. Said pan comprises a bottom having its front edge spaced a short distance rearwardly of the brush bottom, a pair of side walls, and a rear wall, and is open at its front end. The sides of the pan are adjacent to the brush extremities, extending slightly forward of the brush axis, and are notched at 13 to accommodate the journal members. Thus the latter limit pivotal play of the brush and frame relative to the sweepings receiver, and assure that the brush and frame will move with the receiver when the latter undergoes any considerable angular travel about the socket members 9. To accommodate said socket members, the pan is formed with oversize openings 14 in its side walls, preferably in the nature of vertical slots. Any escape of sweepings through such slots is prevented by closures 15 of felt or other suitable sheet material, vertically slitted to accommodate said rod. The sweepings receiver drags, at its rear end, on the surface traversed by the sweeper, and to minimize the drag, it is preferred to form the receiver bottom with a circular depression 16

in each of its rear corner portions to rest on said surface.

At its forward margin, the receiver bottom is preferably bent rearwardly at an upward inclination to form a sweepings retaining lip 17, and a second lip 18 may extend rearwardly and upwardly from said margin, above the lip 17 to retain such sweepings as fail to enter the pan on encountering the lip 17.

The teeth of the comb project forwardly, with a downward inclination of approximately forty-five degrees, to engage between the brush bristles, (see Fig. 2) and to maintain it so positioned, its ends are formed with a pair of upstanding lugs 19 each terminally formed with a tongue 20, bent to loosely engage in a vertical slot 21 in the adjacent wall of the pan. Thus the comb is held from turning about the axis established by the socket members 9, but does not interfere with the intended vertical play of the sweepings receiver relative to said axis.

Straddling the sweepings receiver and pivotally mounted in the frame members 3 is a substantially U-shaped bail member 22 to which a wooden or other handle is centrally rigidly attached in any desired manner. The ends of said bail member are bent toward each other, as indicated at 23 to pivotally connect with the frame members, and this connection is established, preferably, by inserting said ends in sockets formed in the outer ends of the stud shafts 4 (see Fig. 1). Thus said bail member serves to hold the stud shafts in their positions of use and in supporting relation to the comb, and upon removal of the bail member, the stud shafts, comb, and sweepings receiver are freely removable from the sweeper. It is preferred to form the bail member of heavy spring wire, whereby the ends 23 may be very quickly snapped into or out of the stud shaft sockets.

The described manner of connecting the sweepings receiver, comb, stud shafts, and bail to the frame member lends itself to a very rapid initial assembly, and simplifies and facilitates inspection, cleaning, and any necessary repairs or replacement of the specified parts.

The pulleys 7 are of course considerably less in diameter than the wheels 5, so as to insure proper functioning of the brush. A two to one speed ratio between the pulleys and wheels is found to secure very satisfactory operation.

The bail is preferably formed with offsets 24 in each of its legs, positioned to encounter the forward ends of the frame members, when the bail is swung sufficiently forward, to establish the proper relation of the bail to the sweeper for employing the handle to carry the sweeper or hang it on any support. When so carried, the contents of the receiver will readily discharge, upon uncovering the pan as indicated in dash lines in Fig. 3.

Upon the forward end of each frame member, it is preferred to mount a bumper 25 of rubber or the like, to avoid scarring of any piece of furniture against which the sweeper may be thrust.

It is to be noted that the described construction leaves the brush completely unobstructed, forwardly of its axis, by any other parts, and consequently the brush may be so driven against any upright, as a furniture leg, as to sweep any dirt cleanly away from the foot thereof, the forwardly projecting bristles flattening out against the leg to permit such an operation.

The fact that the dust receiver, frame members, comb, and wheels of the described sweeper may be produced as sheet metal stampings, permits very economical manufacture of the sweeper, as does likewise the rapidity and simplicity of its assembly.

It is believed a unique feature of the construction that the brush, of itself, is adapted to hold the two frame members in properly spaced relation, any shifting of the frame members axially of the brush being prohibited by the rigid mounting of the pulleys 7 on the journal members 2 within the elongated openings of the frame members.

The frame members may be formed with one or more holes 26 between the stud shafts and brush, as a provision additional to the sockets of said stud shafts for mounting the bail in the frame members. A greater downward pressure may be applied to the brush through the bail, where the latter engages in the holes 26. When the bail member is received by the holes 26, it no longer serves to hold the shafts 4 in place, and under such conditions the frictional engagement of said shafts in the socket members 9 will, of itself, exercise that function. When the bail is mounted, as shown, in the studs, retention of the latter is more secure, since the bail then supplements frictional restraint on the shafts.

It will be noted that the forward portions of the side walls of the sweepings receiver, in projecting beyond the receiver bottom, have their lower edges 27 curved upwardly toward their front ends, whereby the receiver is adapted to readily ride over the rugs or other obstacles encountered by said edges.

Preferably the bottom is formed with a pair of shallow downward proturberances 28 adjacent to its front edge and near the extremities of said edge. These prevent said edge from sinking into the nap of a rug far enough to unduly oppose advance of the sweeper and subject the nap to undue wear.

What I claim is:

1. A carpet sweeper comprising a rotary brush and a sweepings receiver arranged rearwardly of the brush and having a lip projecting rearwardly and upwardly from the forward margin of its bottom to retain sweepings in the receiver, and having a second lip projecting a lesser distance rearwardly and upwardly from said margin, above the first mentioned lip.

2. A carpet sweeper comprising a pair of spaced frame members, a rotary brush journaled in and disposed between the frame members, a sweepings receiver positioned between said frame members, rearwardly of the brush and having a sweepings inlet at its front end, a pair of axially aligned driving wheels disposed one at each side of the receiver, a drive connection from each wheel to the corresponding end of the brush, and a connection between the frame members, extending through and pivotally mounting the front portion of the sweepings receiver, rearwardly of the brush, and journaling the wheels and maintaining their alignment, the rear portion of the sweepings receiver being free to ride on the surface to be swept.

3. A carpet sweeper comprising a pair of spaced frame members, a rotary brush journaled in and disposed between the frame members, a connection between the frame members established rearwardly of the brush, a sweepings receiver pivoted on said connection between the frame members and having a sweepings inlet adjacent to the brush, means for rotatively driving the brush, and a handle member having a bail straddling the receiver and pivotally mounted in the frame

members, and restraining said connection from endwise displacement.

4. A carpet sweeper comprising a pair of spaced frame members, a rotary brush journaled in and disposed between said frame members, a sweepings receiver positioned between said frame members, rearwardly of the brush, and pivotally connected to the frame members to turn about an axis substantially parallel to the brush, a pair of wheels disposed one at each side of the receiver, shafts detachably engaging the frame and journaling said wheels, and a handle member having a bail swung in said frame members and maintaining assembly of said shafts in the frame members.

5. A carpet sweeper comprising a pair of spaced frame members, a rotary brush journaled in and disposed between said frame members, a sweepings receiver positioned between and mounted on the frame members, rearwardly of the brush, a pair of aligned shafts respectively mounted in the respective frame members, a pair of driving wheels mounted on said shafts, one at each side of the receiver, a drive connection from each wheel to the corresponding end of the brush, and a comb carried by said shafts within the receiver and engaging the brush.

6. A carpet sweeper comprising a pair of axially aligned wheels, a sweepings receiver pivoted at its forward end upon and at the axis of said wheels, and dragging at its rear end on the surface to be swept, said receiver having a sweepings inlet at its forward end, a rotary brush parallel to the axis of the wheels, forwardly of said sweepings inlet, a pair of members journaling the brush, projecting forwardly from the axis of the wheels, and a drive connection from each wheel to the corresponding end of the brush.

7. A carpet sweeper comprising a pair of spaced frame members, a rotary brush journaled in and disposed between the frame members, a sweepings receiver pivotally mounted upon the frame members rearwardly of the brush and adapted for a limited up and down floating movement relative to the frame members, and having a sweepings inlet adjacent to the brush, a pair of driving wheels for the brush carried by the frame members, one at each side of the receiver, a drive connection from each wheel to the corresponding end of the brush, and a handle member having a bail straddling the receiver and pivotally mounted in the frame members to swing about an axis substantially parallel to the brush axis.

8. A carpet sweeper comprising a pair of spaced frame members, a rotary brush comprising a shaft journaled in and disposed between the frame members, a sweepings receiver pivotally mounted upon the frame members rearwardly of the brush and having a sweepings inlet adjacent to the brush and comprising side walls extending forwardly of its pivotal axis and notched at their forward margins to accommodate the brush shaft, whereby said shaft limits pivotal movement of the receiver, a pair of driving wheels for the brush carried by the frame members, one at each side of the receiver, a drive connection from each wheel to the corresponding end of the brush, and a handle member having a bail straddling the receiver and pivotally mounted in the frame members to swing about an axis substantially parallel to the brush axis.

9. A carpet sweeper comprising a pair of spaced frame members, a rotary brush journaled in and disposed between the frame members, a sweepings receiver pivotally mounted upon the frame members rearwardly of the brush and having a sweepings inlet adjacent to the brush, a pair of driving wheels for the brush carried by the frame members one at each side of the receiver, a drive connection from each wheel to the corresponding end of the brush, and a handle member having a bail straddling the receiver and pivotally mounted in the frame members to swing about an axis substantially parallel to the brush axis, the frame members being similarly formed with a plurality of openings spaced longitudinally of the sweeper for selective engagement by the ends of the bail, whereby pressure applied by the handle to the brush may be regulated.

10. A carpet sweeper comprising a pair of spaced frame members, a rotary brush journaled in and disposed between the frame members, a sweepings receiver positioned between said frame members rearwardly of the brush and having a sweepings inlet at its front end, a pair of aligned driving wheels disposed one at each side of the receiver, a drive connection from each wheel to the corresponding end of the brush, a connection between the frame members extending through and pivotally mounting the sweepings receiver rearwardly of the brush and journaling the wheels and maintaining their alignment, and forming sockets at each side of the sweeper, and a handle member comprising a bail having end portions inserted in the sockets.

11. A carpet sweeper comprising a pair of spaced frame members, a rotary brush journaled in and disposed between the frame members, a sweepings receiver positioned between the frame members rearwardly of the brush and having a sweepings inlet at its front end, a pair of axially aligned driving wheels disposed one at each side of the receiver, a drive connection from each wheel to the corresponding end of the brush, and a connection between the frame members extending through and pivotally mounting the sweepings receiver rearwardly of the brush, and journaling the wheels and maintaining their alignment, the receiver being formed with oversized openings accommodating said connection between the frame members, whereby the receiver is afforded a limited up and down floating movement relative to the wheels.

12. A carpet sweeper comprising a pair of spaced frame members, a rotary brush at the front of the sweeper journaled in and disposed between the frame members, means carried by the frame members establishing a drive to the ends of the brush, and a sweepings receiver having its front portion pivoted on the frame members, rearwardly of the brush axis, and having its rear portion free to ride on the surface to be swept.

13. A carpet sweeper as set forth in claim 12, the brush comprising a shaft, and the sweepings receiver having its forward portion loosely engaging said shaft and thereby being limited in its pivotal movement by such shaft.

14. A carpet sweeper comprising spaced frame members, a rotary brush journaled in and disposed between the frame members, a pair of axially aligned drive wheels, means journaling the wheels in the frame members, drive connections from the wheels to the ends of the brush, a sweepings receiver connected to the frame members rearwardly of the brush, and a comb carried by the frame members engaging the brush within the receiver, said comb having means provided thereon for receiving the means journaling the wheels in the frame members and to thereby maintain axial alignment of the wheels.

15. A carpet sweeper comprising spaced frame members, a rotary brush journaled in and disposed between the frame members, a pair of axially aligned drive wheels, means journaling the wheels, individually, in the frame members, drive connections from the wheels to the ends of the brush, a sweepings receiver connected to the frame members rearwardly of the brush, a connection between the journal means of the wheels, maintaining axial alignment of the wheels, extending through the receiver and including a comb engaging the brush, and means carried by said connection and engaging the receiver to restrain the comb from rotation about the wheel axis.

16. A carpet sweeper comprising a pair of spaced frame members, elongated in the direction of sweeping travel and each comprising parts spaced transversely of the sweeper and rigidly connected at their front ends, a rotary brush journaled in and disposed between the frame members, a drive wheel journaled in each frame member between the parts thereof, a drive connection from each wheel to the corresponding end of the brush, and a sweepings receiver having its forward portion pivoted on the frame members, rearwardly of the brush, and extending rearwardly of the frame members and having its rear portion free to ride on the surface to be swept.

17. A carpet sweeper comprising a frame, a rotary brush journaled in the frame, a pair of drive wheels mounted in said frame, drive connections from the wheels to the ends of the brush, and a sweepings receiver having its forward portion pivotally mounted on said frame, and free to float vertically relative to the frame and having its rear portion free to ride on the surface being swept.

18. A carpet sweeper comprising spaced frame members, a rotary brush journaled in and disposed between the frame members, a sweepings receiver mounted on the frame members, a pair of driving wheels for the brush carried by the frame members, shafts detachably engaging the frame and journaling said wheels, and a handle member having a bail swung in said frame members and maintaining assembly of said shafts in the frame members.

ORSON G. BURCH.