July 25, 1939. E. R. SMITH 2,166,977

CARPET SWEEPER

Filed April 6, 1936 3 Sheets-Sheet 1

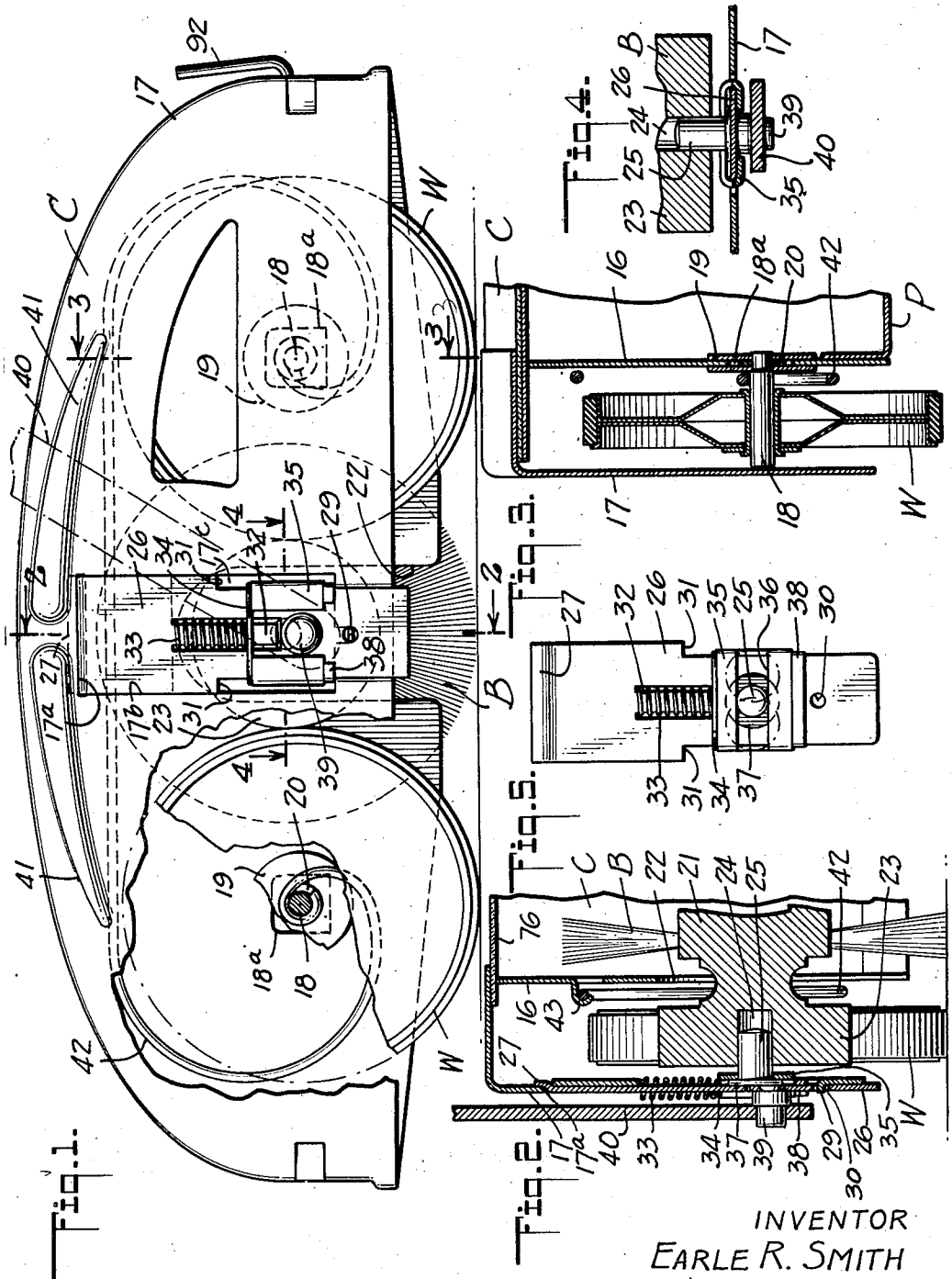


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

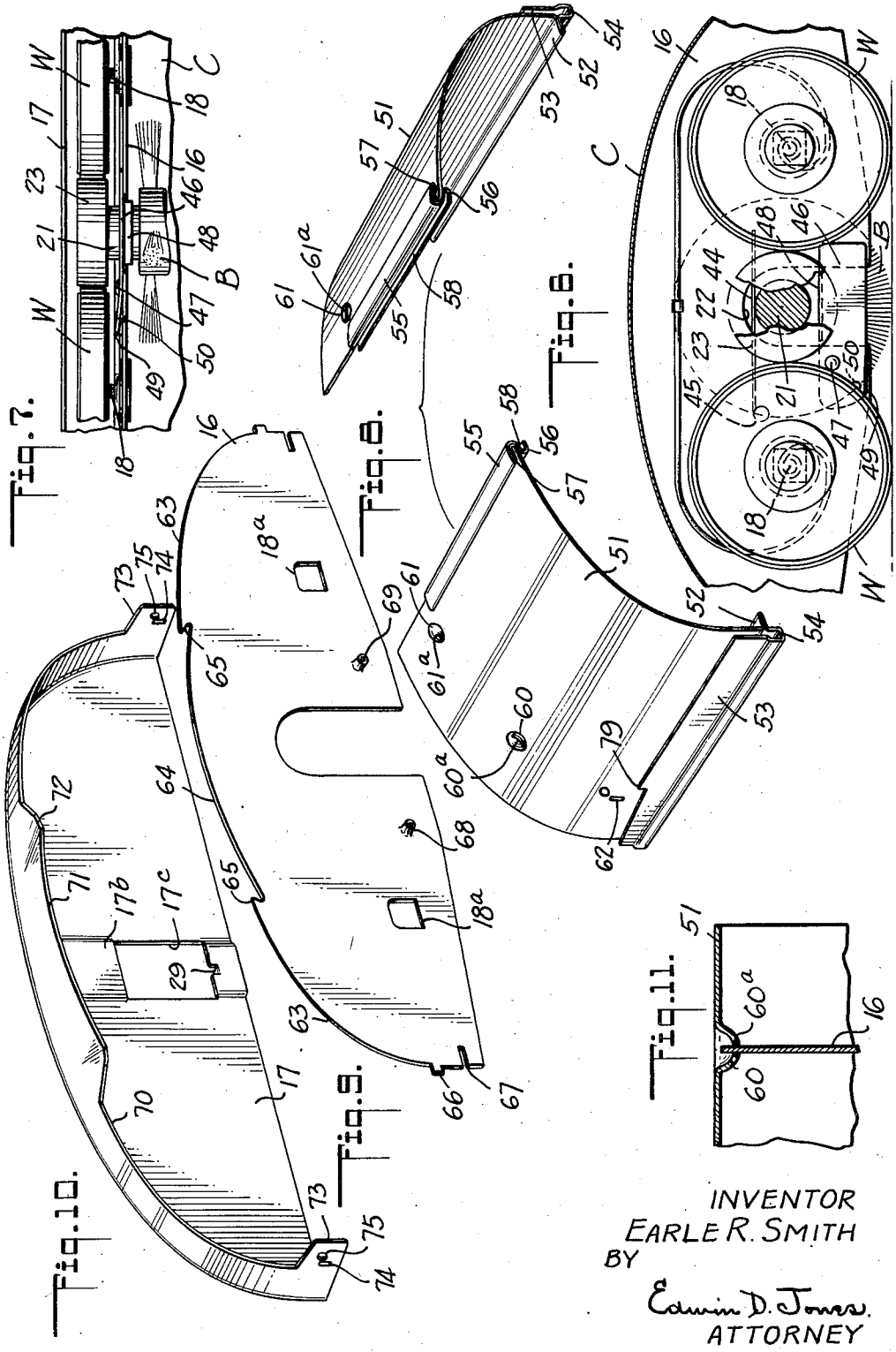
Fig. 5.

INVENTOR
EARLE R. SMITH
BY
Edwin D. Jones.
ATTORNEY

July 25, 1939. E. R. SMITH 2,166,977

CARPET SWEEPER

Filed April 6, 1936 3 Sheets-Sheet 2



INVENTOR
EARLE R. SMITH
BY
Edwin D. Jones.
ATTORNEY

July 25, 1939. E. R. SMITH 2,166,977

CARPET SWEEPER

Filed April 6, 1936 3 Sheets-Sheet 3

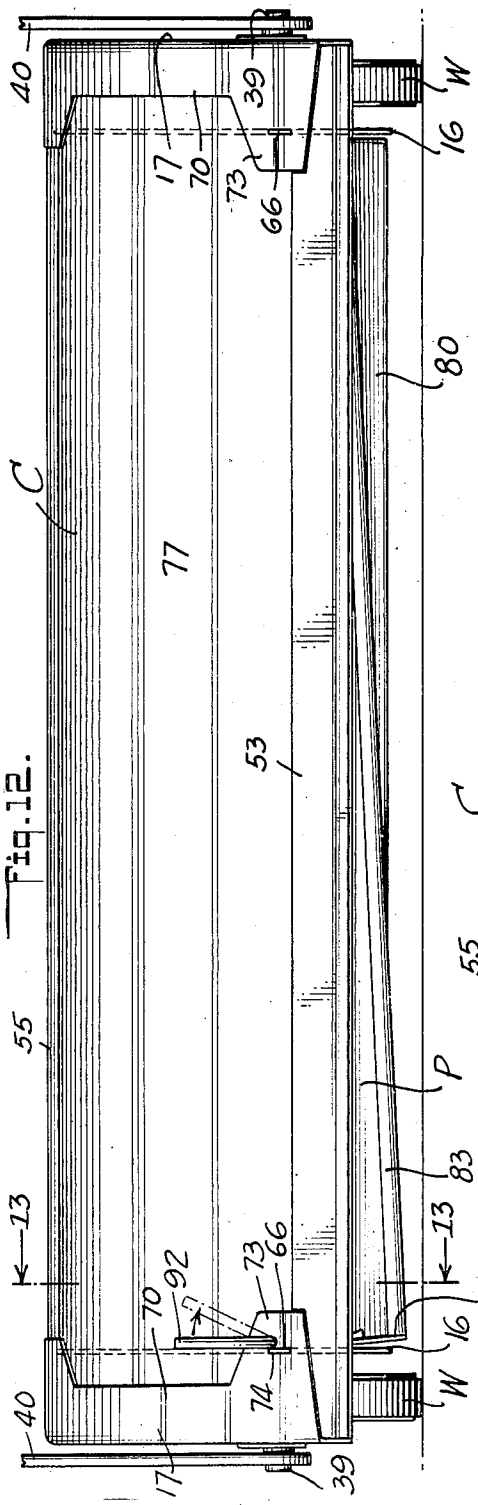


Fig. 12.

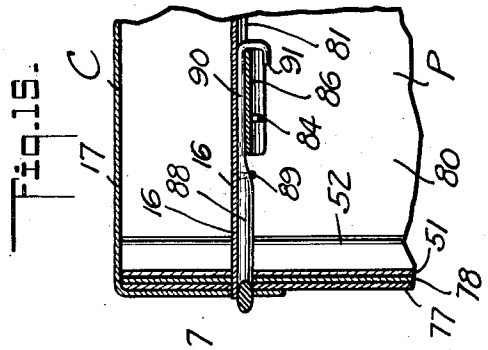


Fig. 15.

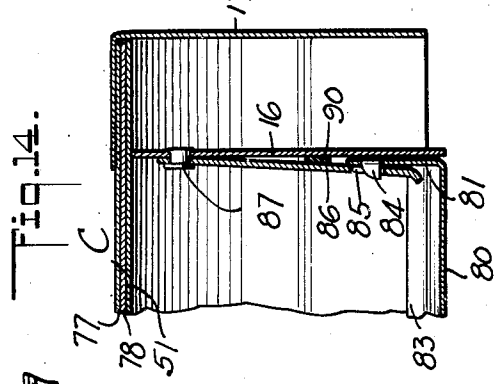


Fig. 14.

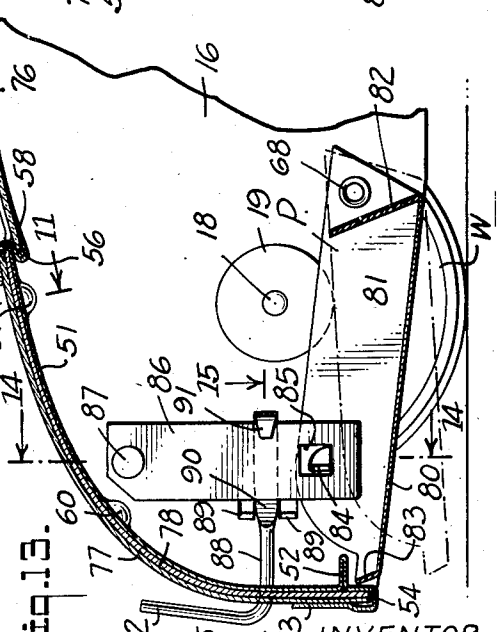


Fig. 13.

INVENTOR
EARLE R. SMITH
BY
Edwin D. Jones.
ATTORNEY

Patented July 25, 1939

2,166,977

UNITED STATES PATENT OFFICE

2,166,977

CARPET SWEEPER

Earle R. Smith, Alhambra, Calif., assignor to Deborah P. Holmes, Alhambra, Calif.

Application April 6, 1936, Serial No. 72,841

17 Claims. (Cl. 15—41)

My invention relates to carpet sweepers having a rotary brush adapted to be driven by floor wheels arranged at opposite ends of the sweeper casing in pairs to have frictional driving engagement with opposite peripherial portions of pulleys fixed to the ends of the brush. The floor wheels are mounted to move vertically relative to the sweeper casing so that either by the operator exerting downward pressure on the casing through the sweeper handle or by an adjustment of the bail on the casing, high and low adjustments of the brush can be effected to compensate for long or short pile of carpet.

In such sweepers springs are employed for yieldingly supporting the casing in elevated position on the wheels to effect a high adjustment of the brush. These springs also serve to urge the floor wheels against the brush pulleys with the intended purpose of establishing and maintaining all four wheels in driving contact with the pulleys to rotate the brush positively in both directions of movement of the sweeper.

In actual practice, however, the springs are only partially operative to maintain the wheels in driving contact with the brush pulleys because, during movement of the sweeper in either direction, those wheels which trail the pulleys are not maintained in driving contact with the pulleys, leaving the leading wheels only to drive the brush. This is due to the fact that the springs, which of necessity are limited in the pressures they exert on the wheels, yield under the rearward pull exerted by the trailing wheels, and this allows the wheels to move either completely out of driving contact with the pulleys or to so reduce the firmness of contact therewith as to cause the wheels to slip on the pulleys producing a drag on the latter which retards rotation of the brush by the leading wheels. With slippage of the wheels rapid wear of the wheel and pulley treads results.

When the operator pulls the sweeper toward himself, the condition above described becomes exaggerated to the point of causing the brush to merely roll on the floor without producing any sweeping action. This is due to the fact that in pulling the sweeper as against pushing it, no downward pressure by the operator is exerted on the floor wheels, and, hence, the leading wheels have practically no traction with the floor.

Normally, the springs exert equal and opposite pressures through the wheels on the pulleys, but once this balanced condition is disturbed by the pulling or dragging action of the trailing wheels, a one sided pressure is imposed on the pulleys which causes the bearings thereof to rapidly enlarge. This produces such freedom of movement of the pulley supporting pintles in their bearings as to provide another serious obstacle to proper driving of the brush.

It is a purpose of my invention to provide a carpet sweeper by which all of the above described disadvantages are overcome through the simple expedient of mounting the brush and the floor wheels so that their axes of rotation are all movable together as a unit laterally in either direction and in a manner to maintain all four wheels permanently in driving contact with the brush pulleys, and to thereby impart to the brush that proper rotational movement necessary to effectively sweep the surface over which it is moved during pulling as well as pushing movements of the sweeper.

It is also a purpose of my invention to provide a carpet sweeper having an all metal casing made up of sheet metal sections which are interlocked in casing formation without the use of spot-welds, rivets, screws, or the like, to the end of greatly facilitating and reducing the cost of assembly of the casing sections. The casing is characterized also by a construction which permits the use of sound deadening material in a manner to render the casing silent in the operation of a sweeper embodying such a casing. Further, the casing construction permits as an outer or finish covering, the use of sheets of any material such as wood veneer, composition, or metal, and to thereby give to the casing any ornamental finish desired.

A further purpose of my invention resides in the provision in a carpet sweeper of a dust-pan and latching means therefor by which the pan when latched in closed position is distorted or flexed so as to be under tension or stress, so that when released by operation of the latch, it springs to open position in a manner to automatically eject the sweepings therefrom.

I will describe only one form of carpet sweeper embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawings:

Fig. 1 is a view showing in end elevation with portions thereof broken away, one form of carpet sweeper embodying my invention.

Fig. 2 is a fragmentary vertical sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2 taken on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a detail view of one of the brush hangers and looking at the reverse side thereof from that shown in Fig. 1.

Fig. 6 is a view showing in end elevation another form of carpet sweeper embodying my invention, and with the corresponding cover plate removed.

Fig. 7 is a fragmentary view showing in bottom plan the sweeper shown in Fig. 6.

Fig. 8 is a perspective view showing two of the top panels of the sweeper casing shown in Fig. 2.

Fig. 9 is a view showing in perspective one of the end plates of the sweeper casing.

Fig. 10 is a view similar to Fig. 9 showing one of the cover plates of the casing.

Fig. 11 is a fragmentary sectional view taken on the line 11—11 of Fig. 13.

Fig. 12 is a view showing the sweeper of Figs. 1 and 6 in side elevation.

Fig. 13 is a transverse sectional view taken on the line 13—13 of Fig. 12.

Fig. 14 is a vertical sectional view taken on the line 14—14 of Fig. 13.

Fig. 15 is a horizontal section view taken on the line 15—15 of Fig. 13.

The carpet sweeper embodying my invention comprises a casing, designated generally at C, which includes two end plates 16 and two cover plates 17, the latter situated to the outer sides of the end plates and spaced from the latter, as clearly illustrated in Fig. 3. Four floor wheels W are arranged in pairs at opposite ends of the sweeper casing, with each pair disposed between the plates 16 and 17. As the arrangement and mounting of one pair of wheels W are identical to that of the other pair, a description of one pair will suffice for both, and as the mounting of each wheel is identical to that of the other a description of one mounting will suffice for both.

As best shown in Fig. 3, each wheel W is of conventional construction, and it is mounted for rotation on an axle 18 extending through the hub of the wheel. The inner end of this axle is reduced in diameter and extends through a square opening 18a in the end plate 16. Upon the reduced end of the axle are secured a pair of cheek plates 19 disposed at opposite sides of the end plate and of a diameter to span the opening 18a. Between the plates 19 and disposed within the opening 18a is a disk 20 formed of fiber so that no noise is produced when it strikes the walls of the opening under lateral movements of the axle 18. It will be understood that the disk is considerably smaller than the opening so as to permit the required degree of movement of the axle laterally to allow the wheel supported thereon to shift as intended.

Contained within the casing C is a brush B having a shaft or spindle 21 extending through openings 22 in the end plates 16 and terminating in pulleys 23 situated between the plates 16 and 17. Each pulley is recessed to provide a bearing 24 for a pintle 25, the latter being mounted on a corresponding cover plate 17 by a hanger.

This hanger comprises an arm 26 formed at its upper end with a lip 27 which engages within a slot 17a to suspend the arm in a recess 17b and in spanning relation to an opening 17c, the slot, recess and opening being formed in the cover plate. The lip 27 coacts with a lug 29 on the plate 17 which engages the arm 26 within an opening 30, for detachably mounting the arm on the plate, it being understood that once the lip is inserted into the slot 17a the lug 29 prevents downward displacement of the lip. The lower half of the arm is reduced in width to form shoulders 31, and the arm is also slotted to form a tongue 32 on which a spring 33 is mounted. This spring engages a wire strap 34 to urge downwardly a bracket 35 slidable on the arm.

The bracket is constructed to provide a transverse slot 36 in which one end of the pintle 25 is received. On this pintle end a flat head 37 is formed and positioned between the bracket and the arm to confine the pintle in the bracket for vertical movement therewith and yet allow movement of the pintle horizontally or transversely of the arm. Downward movement of the bracket is limited by a lower strap 38 fixed to the arm.

On the outer side of the arm 26 is fixed a stud 39 on which one arm of a resilient bail 40 is mounted. With the other arm of the bail mounted on the stud 39 of the other hanger arm (Fig. 12) and the spacing of the studs being such as to require the bail arms to be spread and thus placed under tension when engaging the studs, it will be clear that the contracting action of the bail arms serves to securely hold the hanger arms in position on the casing.

For stabilizing the sweeper casing in respect to the bail, the cover plates 17 are formed on their outer sides with beads 41 (Fig. 1), and the confronting ends of each pair of beads are spaced to accommodate the bail arms therebetween, and in this manner to support the bail in upright position.

With both pintles 25 mounted as described and extending into the pulleys 23, the brush is supported on the sweeper casing for movements vertically and also horizontally in both directions from what may be termed a central or intermediate position. The springs 33 yieldably urge the brush downwardly causing it to automatically find its own sweeping level according to the length of the pile of carpet or the roughness of a bare floor over which the sweeper moves.

As shown in Figs. 1 and 2, each pulley 23 is disposed between the corresponding pair of floor wheels W. By means of a wire spring 42 the wheels of each pair are urged downwardly and inwardly to cause their tires to have such frictional engagement with the pulleys that the wheels when rotated operate to drive the brush. The spring 42 has its ends looped about the axle 18, while its medial portion is secured to the end plates 16 by an outstruck lip 43. The two springs 42 for the two pairs of wheels W also serve to urge the casing upwardly on the wheels to what may be termed a high position of adjustment of the brush. A low position of adjustment of the brush is obtained by the operator forcing the casing downwardly through the handle (not shown) which is connected to the bail.

A pair of pans P are mounted in the casing C and at opposite sides of the brush B to receive the sweepings lifted from a floor by the brush. The construction and mounting of the pans will be described hereinafter.

In operation of the sweeper as thus far described, pushing movement of the sweeper causes both pulleys and both pairs of floor wheels to shift rearwardly, and this is rendered possible only because the brush shaft is shiftable horizontally or transversely under the movement permitted by the shiftable pintles 25. Thus, that pair of wheels trailing the brush as well as those wheels leading the brush are maintained in proper frictional contact with the brush pulleys to drive the brush at the rotational speed required to cause the brush to sweep effectively. Manifestly, the trailing wheels cannot drag or

otherwise impede rotation of the brush by the leading wheels, and thus the brush propelling action of both pairs of wheels is utilized fully during pushing movement of the sweeper.

During pulling movement of the sweeper the same full propelling action of the two pairs of wheels is utilized. With inception of this pulling movement both pulleys and both pairs of floor wheels shift forwardly or in the other direction, the brush being moved likewise so that again those wheels now trailing the brush, as well as those wheels leading the brush, are maintained in proper frictional contact with the brush pulleys to again propel the brush at the proper speed for effective sweeping.

From the preceding operation, the brush, manifestly, is driven positively by all four floor wheels during movement of the sweeper in both directions. As the brush pintles at all times shift laterally with the axles for the floor wheels, the axes of rotation of the wheels and brush are maintained in fixed spaced relationship, and thus the pressures exerted by the springs 42 on the brush pulleys through the floor wheels, remain equalized to preserve the original contour of the pintle bearings.

With each lateral shifting of the brush, its bristles are moved away from the leading pan and toward the trailing pan. Thus an increased clearance is automatically provided between the leading pan and the brush in both directions of movement of the sweeper. This increased clearance permits the brush to more effectively elevate the sweepings from the floor, and, also, allows the use of wider pans without increasing the width of the sweeper casing.

Referring now to Figs. 6 and 7, I have here shown another form of carpet sweeper embodying my invention in which the floor wheels and brush pulleys are shiftable horizontally or laterally in either direction to maintain positive driving connections between the pulleys and all four wheels during pushing and pulling movements of the sweeper in the same manner as the sweeper in Fig. 1. Similarly, the brush is supported for vertical movements to automatically seek its own sweeping level but by a different although equivalent means. This means comprises a pair of wire springs 44, one on each end plate 16 and secured at one end thereto by a pin 45 so that it extends across the plate opening 22 adjacent the arched end thereof to bear upon the brush shaft 21. Thus the two springs yieldably urge the brush downwardly in the end plates 16 in a manner to allow the brush to seek its own sweeping level.

The brush is confined in the end plates 16 by a pair of latch bars 46, each of which is pivoted on the respective end plate as at 47 to occupy one position in which it spans the lower end of the opening 22 and another position in which the opening is no longer spanned to allow the brush to be removed for cleaning. As shown, each bar 46 comprises a flat strip of steel or other resilient metal having on its upper edge a flange 48 to form a relatively wide bearing surface for the brush shaft.

To latch the bar in spanning position the left lower corner of the bar is slightly offset, as indicated at 49, (Fig. 7) to ride onto a lug 50 on the end wall 16 and so that the lug can serve to frictionally retain the bar in latching position.

As also constituting a part of my invention is the manner in which the sweeper casing is constructed to reduce the cost of manufacture and facilitate assembly of its parts and permit the use of sheets or any desired material to produce any desired ornamental finish of the casing. As shown in Figs. 8 to 13, the casing C comprises two side sections or panels 51 identical in construction. Each side panel is made of a single sheet of steel curved transversely and bent along its lower edge to form a flange 52 coextensive in length with the panel and projecting to the inner or concave side thereof. From the flange 52 the panel is bent to form an upstanding flange 53 at the outer side of the panel which is spaced at its free edge to form an intervening channel 54.

At its upper edge the panel 51 is formed with reversely extending flanges 55 and 56 which are spaced from opposite sides of the panel to form intervening channels 57 and 58, respectively. Beyond the ends of the flanges the panel is indented at two points to form bracing lugs 60 and 61, the lower one of which is formed with a half-circle slot 60^a and the other with a quarter-circle slot 61^a. Below the lug 60 a slot 62 is formed in the panel, and as shown in Fig. 8 the slots 60^a, 61^a, and 62 are alined one with the other transversely of the panel.

Each end plate 16 is made of steel or other metal and, as shown in Fig. 9, it has an upper edge the end portions 63 of which are curved the same as the inner sides of the side panels 51, while the intermediate portion 64 is of a different curvature. At the ends of the edge portion 64 tongues 65 are formed, the purpose of which will be described hereinafter. Adjacent the lower ends of the edge portions 63, lugs 66 are formed, and beneath the latter the edge is slotted horizontally inward as indicated at 67. A pair of tubular pintles 68 and 69 are drawn from the end plates at opposite sides of the opening 22 and upon which one of each of the pans P are adapted to be supported.

Each cover plate 17 is of the same shape as the end plate, and it is formed with an inturned flange 70 the intermediate portion 71 of which is widened and formed with indentations 72 at its extremities. Tongues 73 extend inwardly from the ends of flange 70 and the tongues for one cover plate are formed with slots 74 and openings 75.

The casing also includes a top panel 76 adapted to span the side panels 51 and which may be transparent or opaque as desired, and if opaque its outer surface could be ornamented. Likewise, for purposes of ornamentation, the side panels are covered by sheets 77 of any suitable material having an ornamental outer surface. Between the panel sheets and the cover sheets, sheets 78 of felt paper are interposed for deadening sound produced by vibration of the steel panels.

To assemble the parts of the casing, first the sheets 77 and 78 are applied to the side panels 51 by extending them lengthwise into the channels 54 and 57. Now the end plates 16 are connected to the side panels by first inserting the tongues 65 into the slots 61^a of the lugs 61, then the edge portions 63 into the slots 60^a of the lugs 60, the studs 66 into the slots 62, and finally the flanges 52 into the slots 67. In order to so connect the end plates to the side panels it is necessary to flex the side panels and to thereby place them under stress when in final position. This serves to maintain the panels connected to the plates and effectively braced in relation to each other.

The next assembling operation consists in the

application of the top panel 76 to the side panels 51. This is effected by inserting and sliding the top panel endwise in the channels 58 so that its ends rest on the edge portions 64 of the end plates. This operation is followed by application of the cover plates 17, through extending the flange 70 of each cover plate over the corresponding ends of the side panels so that the inner edge of the intermediate portion 71 abuts the ends of the flanges 55, and then springing the tongues 73 over the outer sides of the panels so that the studs 66 engage within the slots 74. The upper edge of each flange 53 is shaped to form a shoulder 79 against which the corresponding tongue 73 abuts. The indentations 72 cause the flange edges to lie flush with the ends of the flanges 55 where they abut, and to lock the cover plates against shifting lengthwise on the panels.

With the casing parts assembled as described, it becomes manifest that without the use of rivets, screws or similar fastening members the panels, end plates and cover plates are interlocked one with the other to provide a sweeper casing of rigid and durable construction, and that through the use of ornamental cover sheets the possibility of exterior finishes for the casing becomes unlimited. Further, the sheets 78 deaden vibrations of the casing so that it is noiseless in operation.

Also as constituting a part of my invention is the construction of the pans P and the means for latching them in closed position. Each pan is made from a single sheet of spring metal having a rectangular shaped body 80, end flanges 81, an inner side flange 82, and an outer side flange 83. The pan is pivoted on the end plates 16 by extending the respective pintles 68 and 69 through the end flanges 81 and then swaging their free ends, as shown in Fig. 13.

One end flange is instruck to form a latch lug 84 which in closed position of the pan engages within the opening 85 of a keeper tongue 86 secured by a pin 87 to one end plate 16. By means of an actuator this tongue 86 can be flexed inwardly to disengage the latch lug 84. This actuator comprises (Figs. 13, 14 and 15) a shaft 88 mounted in the adjacent side panel 51 and the opening 75 of one tongue 73. From the panel the shaft extends inwardly between positioning lugs 89, 89, and between the tongue 86 and the end plate 16 where it is flattened to form a cam 90. Its inner end terminates in a lip 91 which engages the tongue 86 to limit rotation of the shaft to half a turn, while the outer end of the shaft is bent to form a handle 92.

From the foregoing, it will be clear that by partial rotation of the shaft through the handle, the cam is actuated to flex the keeper tongue so that the latch lug can be disengaged to release the pan. As will be understood, the free or lower end of the keeper tongue 86 is flared outwardly and the latch lug 84 is beveled to permit the lug to be extended into the opening 85 when the pan is moved to closed position. In assembling the keeper tongue and actuator therefor, the pin 87 provides a pivot for the keeper tongue to permit it to be swung from an inclined position to the vertical position illustrated and simultaneously flexed to clear the lip 91.

Each pan is characterized by a construction which, in order to close it, necessitates flexing thereof in such manner that its outer flange 83, throughout its entire length, is forced into and held tightly against the casing flange 52. This prevents rattling of the pan during operation of the sweeper, and provides a dust-tight joint between the flanges 52 and 83. Also, in closed position, the pan is under such a tension by reason of its flexing that, upon release, it springs to open position and in so doing automatically dumps therefrom the sweepings accumulated therein.

In the present instance, these pan functions are attained by constructing the pan body 80 so that it is curved transversely and longitudinally toward that outer corner thereof which is adjacent the latch lug 84. Thus, in the unlatched position of the pan as illustrated in Fig. 12, the outer pan edge along which the flange 83 extends, is curved downward from the right to the left hand end thereof. Now it becomes evident that to latch the pan it is necessary to press the left hand outer corner of the pan body manually inward until the flange 83 at this point abuts the casing flange 52. In this manner the pan body is flexed to straighten the flange 83 so that for its entire length it now abuts the casing flange, and, at the same time, placed under such tension so that when unlatched it springs to open position.

Although I have herein shown and described only two forms of carpet sweepers embodying my invention it is to be understood that various changes and modifications may be made herein without departing from the spirit of my invention and the spirit and scope of the appended claims.

I claim:

1. A carpet sweeper having a casing; a brush rotatable in the casing; pulleys on the ends of the brush; floor wheels arranged in pairs at opposite ends of the casing so as to have frictional contact with said pulleys; axles for said wheels transversely movable horizontally in the casing; means on the casing for yieldably urging said axles toward each other so that said wheels have driving contact with said pulleys; and means for mounting said brush in the casing so that the pulleys move horizontally with the axles in a manner to maintain driving connections with all of said wheels.

2. A carpet sweeper having a casing; floor wheels arranged in pairs at opposite ends of the casing and having axes movable transversely in the casing; a brush having pulleys fixed to the ends thereof each disposed between a pair of said wheels; springs for yieldably urging said wheels toward said pulleys to establish a driving contact with the pulleys; and means for supporting said pulleys on the casing so that they are movable horizontally to allow all of said wheels to maintain driving contact with said pulleys in both directions of movement of the casing.

3. A carpet sweeper having a casing; floor wheels arranged in pairs at opposite ends of the casing and having axles mounted in the casing for universal transverse movement; a brush having pulleys on the ends thereof, each disposed between a pair of said wheels to have driving contact therewith; hangers on the casing having pintles in which the pulleys are journaled; and means for supporting said pintles for universal transverse movement on the hangers whereby the brush may be correspondingly moved relative to the wheel axles.

4. A carpet sweeper having a casing; provided with end walls formed with openings; floor wheels arranged in pairs at opposite ends of the casing and having axles mounted therein for universal transverse movement; a brush having a shaft, the ends of which extend loosely through said openings to permit universal transverse movements of the brush; pulleys fixed on the ends of said shaft,

each disposed between a pair of said wheels to have driving contact therewith; means on the casing for urging the brush shaft downwardly and for allowing free movement of the brush shaft in a horizontal plane; and means on the casing for releasably securing the brush shaft against lateral displacement from the openings.

5. A carpet sweeper, comprising; a casing having end walls formed with openings; floor wheels arranged in pairs at the opposite ends of the casing and having axles movable in the casing to allow the wheels to move vertically and horizontally relative to the casing; a brush having a shaft extending loosely through said openings and between said wheels for allowing the brush to move horizontally with the wheels; means for urging the wheels into driving contact with the brush shaft; means on the casing for urging the brush shaft downwardly within said openings; and means on the casing for releasably securing the brush shaft against displacement axially and laterally from said openings.

6. A carpet sweeper having a casing; a pair of pans in the casing; floor wheels arranged in pairs at opposite ends of the casing and having axles mounted in the casing for universal transverse movement in either direction; a rotary brush mounted in the casing between said pans for universal transverse movement; and pulleys on the ends of the brush, each disposed between a pair of said wheels to have driving contact therewith and to move transversely with the wheels, whereby the brush is moved transversely away from that pan which leads the brush toward that pan which trails the brush, according as the casing is moved horizontally in one direction or the other.

7. A carpet sweeper having a casing; a rotary brush in the casing; driving wheels for the brush mounted on the casing to move horizontally thereof; and means for supporting the brush on the casing for horizontal movement so as to maintain positive driving connections with driving wheels in both directions of the movement of the casing.

8. A carpet sweeper having a casing; a rotary brush in the casing; driving wheels for the brush mounted on the casing to move horizontally thereof; means for supporting the brush on the casing for horizontal movement so as to maintain positive driving connections with all driving wheels in both directions of movement of the casing; and means for so urging the brush downwardly in the casing as to permit it to seek its own sweeping level.

9. A carpet sweeper comprising; a casing having end plates formed with openings; a brush in the casing having a shaft projecting loosely through said openings to permit horizontal and vertical movements therein; pulleys fixed to the ends of said shaft and disposed to the outer sides of said plates; latch bars mounted on said plates to close the lower ends of said openings and confine the ends of said shaft within the openings; floor wheels at the opposite ends of the casing having axles movable horizontally in the casing; said wheels being arranged in pairs with the wheels of each pair at opposite sides of the respective pulley; springs on the casing for urging the wheels into driving contact with the pulleys; and other springs on the casing for urging the pulleys downwardly between the wheels.

10. A carpet sweeper having a casing; floor wheels for supporting the casing for rolling movement arranged in pairs at opposite ends of the casing; a brush rotatable in the casing and having friction drives with said wheels; means for mounting said wheels on the casing for rotation about axes which are transversely movable horizontally in one direction or the other according as the casing is moved in one direction or the other over a floor; and means for mounting said brush in the casing for transverse movements horizontally with the wheels so that the brush maintains friction drives with all of said wheels in both directions of movement of the casing over a floor.

11. A carpet sweeper having a casing, floor wheels arranged in pairs at opposite ends of the casing, a rotary brush mounted in the casing, a pulley on each end of the brush in driving contact with the adjacent pair of floor wheels, and the mounting for each end of the brush including a member fixed on the casing, and a pintle body movable on said member and rotatably supporting the brush.

12. A carpet sweeper having a casing, floor wheels arranged in pairs at opposite ends of the casing, a rotary brush mounted in the casing, a pulley on each end of the brush in driving contact with the adjacent pair of floor wheels, and the mounting for each end of the brush including a member fixed on the casing, a member mounted for movement on the fixed member and a pintle mounted for movement on the movable member and rotatably supporting the brush.

13. A carpet sweeper having a casing, floor wheels arranged in pairs at opposite ends of the casing, a rotary brush mounted in the casing, a pulley on each end of the brush in driving contact with the adjacent pair of floor wheels, and the mounting for each end of the brush including a member fixed on the casing, a member mounted for movement on the fixed member and a pintle mounted for movement on the movable member and rotatably supporting the brush and yieldable means for urging the movable member on the fixed member to increase frictional contact between the pulleys and floor wheels.

14. A carpet sweeper having a casing, floor wheels arranged in pairs at opposite ends of the casing, a rotary brush mounted in the casing, a pulley on each end of the brush in driving contact with the adjacent pair of floor wheels, and the mounting for each end of the brush including an arm fixed on the casing, a bracket axially movable on the fixed arm and having a slot therein, and a pintle for the support of the brush movable lengthwise in said slot and having a head wider than the diameter of the slot to retain the pintle in the slot.

15. A carpet sweeper having a casing, floor wheels arranged in pairs at opposite ends of the casing, a rotary brush mounted in the casing, a pulley on each end of the brush in driving contact with the adjacent pair of floor wheels, and the mounting for each end of the brush including an arm fixed on the casing, a bracket axially movable on the fixed arm and having a slot therein, and a pintle for the support of the brush movable lengthwise in said slot and having a head wider than the diameter of the slot to retain the pintle in the slot and a spring on the arm engaging the bracket for yieldingly urging the bracket and pintle in an axial direction on the arm to increase frictional contact between the pulleys and floor wheels.

16. In a carpet sweeper, a casing, floor wheels arranged in pairs at opposite ends of the casing, a rotary brush shaft having end pulleys engaged with the floor wheels, hangers for the shaft detachably secured in the end walls of the casing

and each comprising an arm removably secured to the respective end walls; a bracket mounted for vertical movement on the arm, having a horizontal slot therein; and a pintle mounted in said slot to move lengthwise thereof and journaled in the shaft.

17. In a carpet sweeper, a casing, floor wheels arranged in pairs at opposite ends of the casing, a rotary brush shaft having end pulleys engaged with the floor wheels, hangers for the shaft detachably secured in the end walls of the casing and each comprising an arm removably secured to the respective end walls; a bracket mounted for vertical movement on the arm, having a horizontal slot therein; a pintle mounted in said slot to move lengthwise thereof and journaled in the shaft; and a spring interposed between the arm and the bracket for urging the latter downwardly on the arm.

EARLE R. SMITH.