

March 20, 1934.

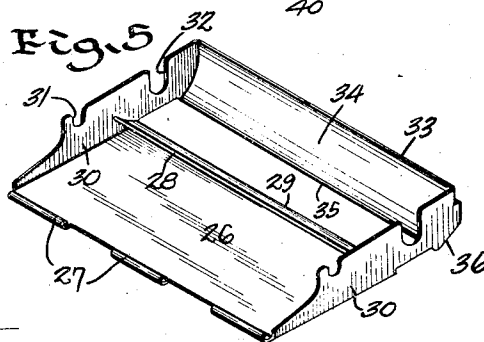
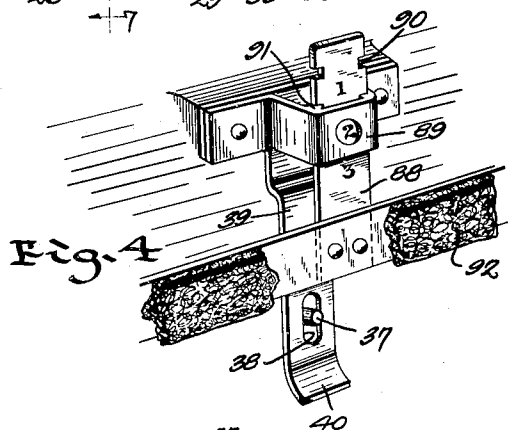
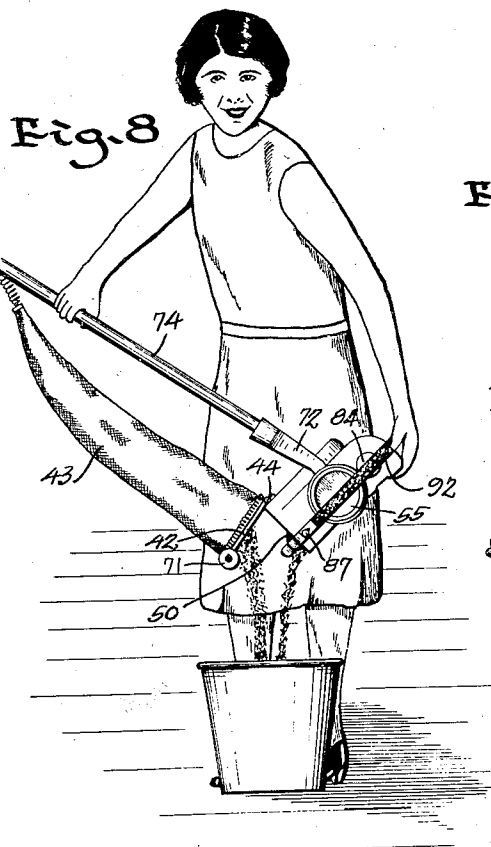
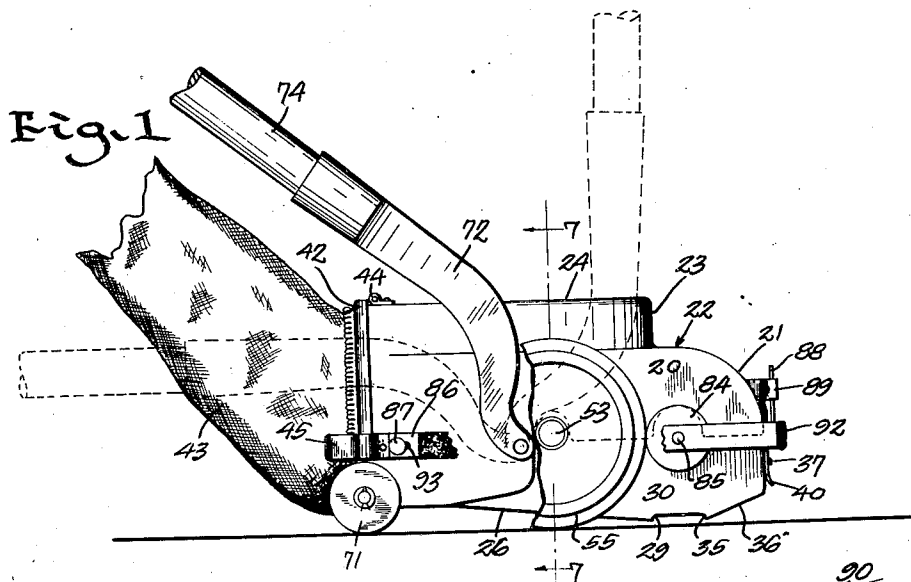
J. B. KIRBY

1,952,014

SUCTION CARPET SWEEPER

Original Filed July 19, 1930

4 Sheets-Sheet 1



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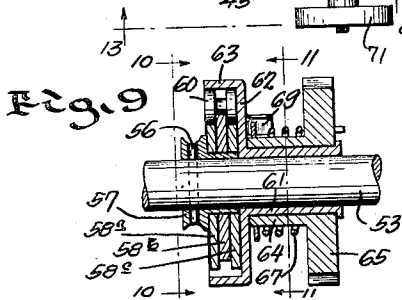
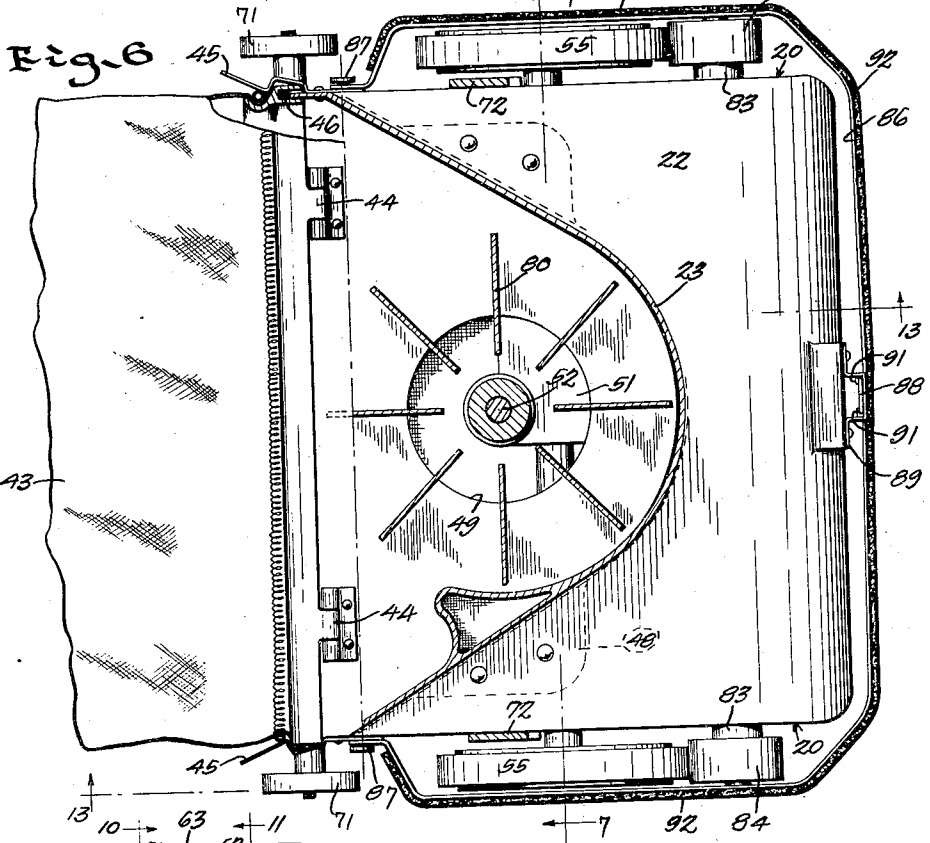
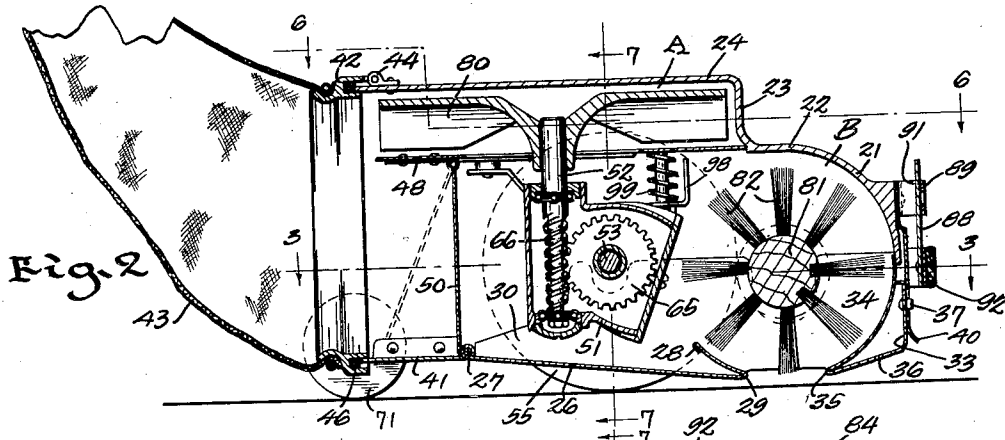
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Original Filed July 19, 1930 4 Sheets-Sheet 2



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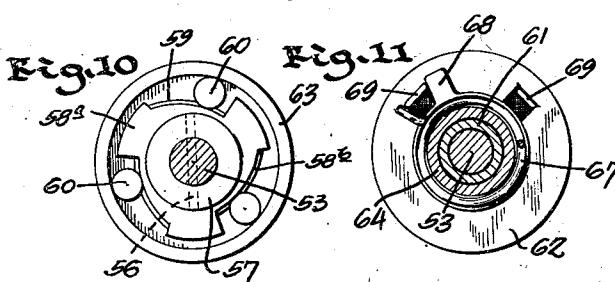
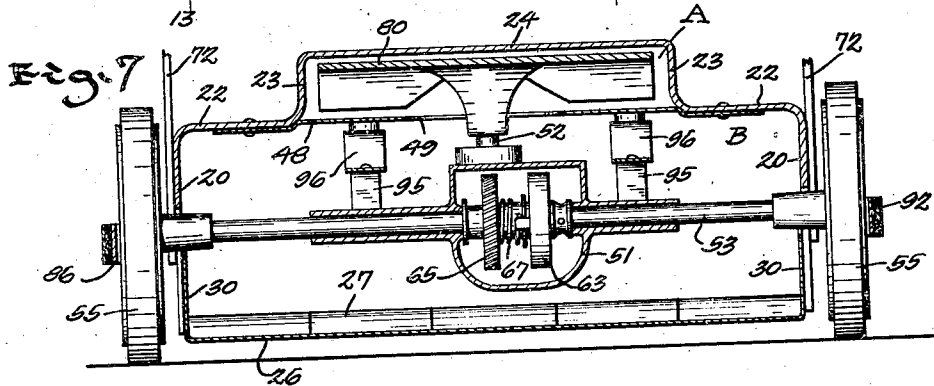
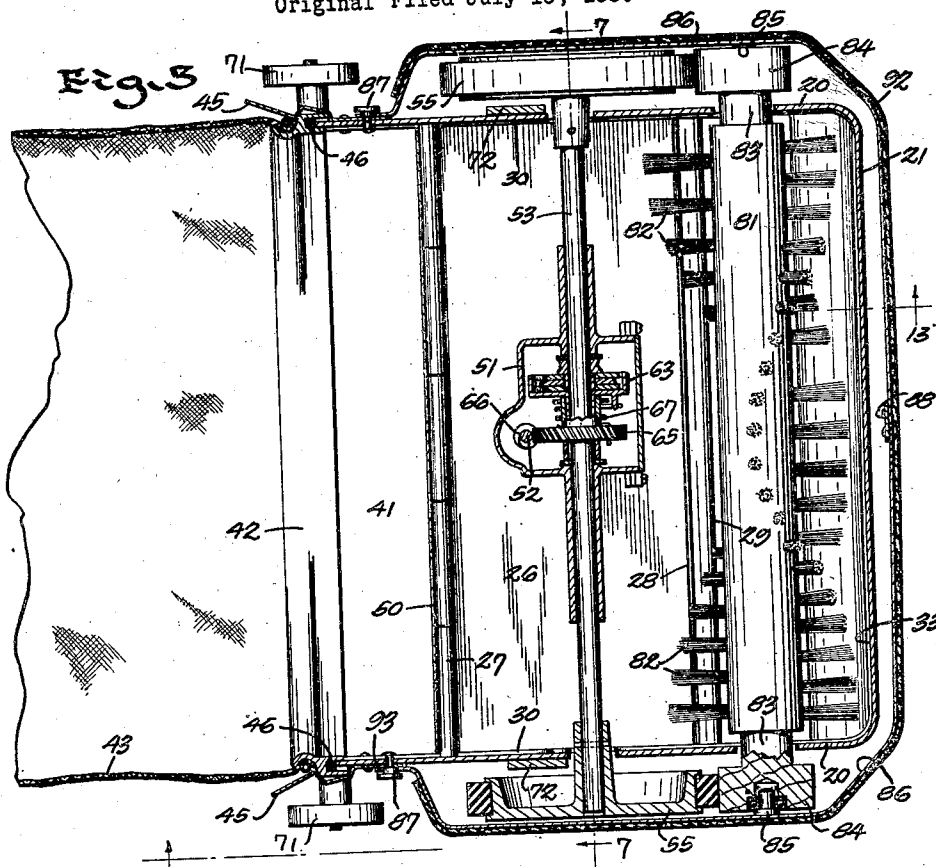
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1,952,014

SUCTION CARPET SWEEPER

Original Filed July 19, 1930 4 Sheets-Sheet 3



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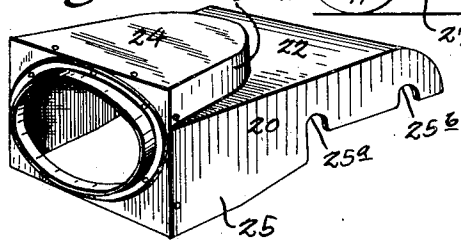
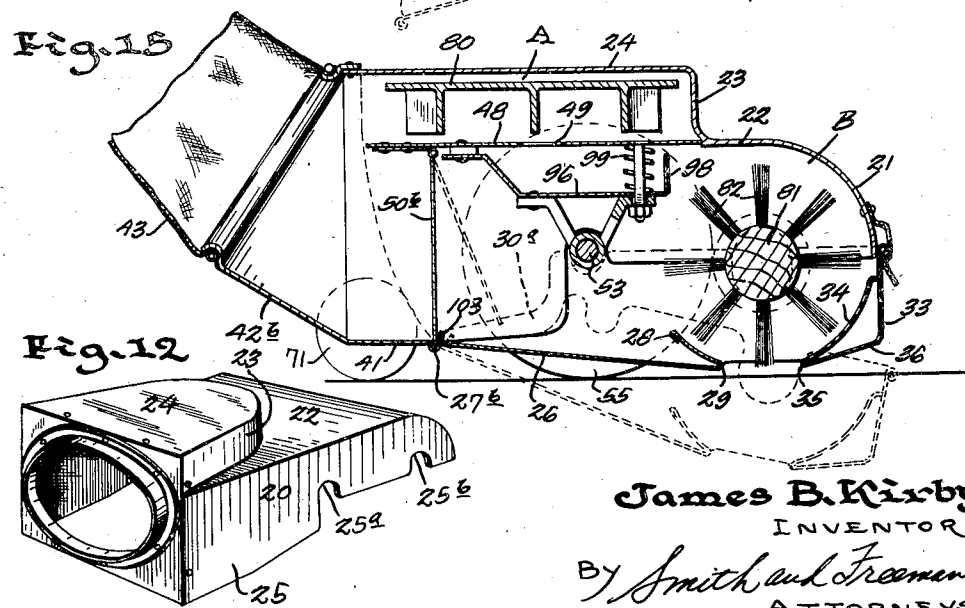
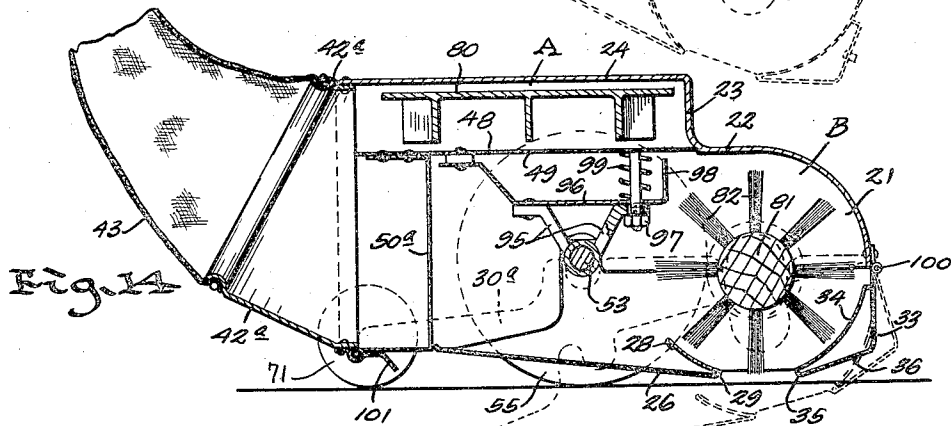
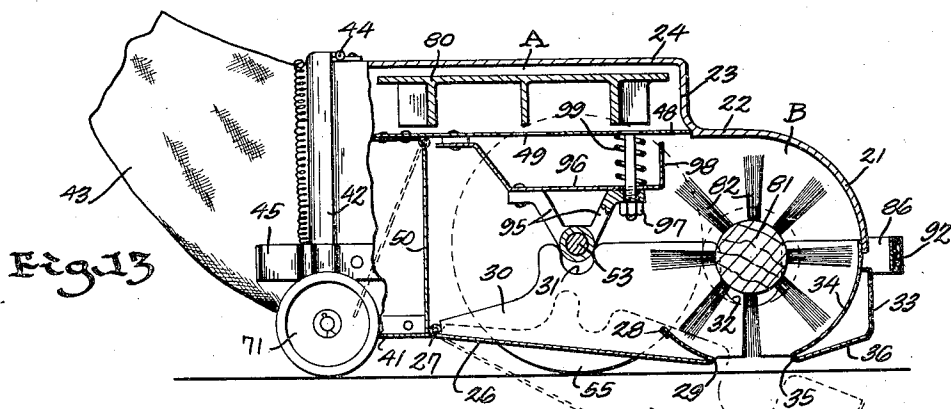
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SUCTION CARPET SWEEPER

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

1,952,014

SUCTION CARPET SWEEPER

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Application July 19, 1930, Serial No. 469,140
Renewed September 5, 1933

28 Claims. (Cl. 15—17)

This invention relates to suction-sweepers and has for its objects the provision of a new, simplified, and improved device of this character combining the functions and actions of a carpet-sweeper and of a suction-cleaner and characterized by cheapness of manufacturing and assembling costs, ease of manipulation, especially of emptying, and certainty of operation both as regards heavy litter and as regards dust, as well as ravellings and lint which are ordinarily difficult to take up. Subsidiary objects are the provision of a new and improved design and construction of casing and bottom-pan; the provision of new and simplified expedients for supporting and operating the brush and adjusting its height; the provision of a new and improved assemblage of fan mechanism; the provision of new mode of fastening the bag and of catching the litter and of emptying the cleaner; the provision of a sweeper of this nature equally operative on floors and floor coverings and varying in its operation according to the pressure exerted thereon; while further objects and advantages of the invention will become apparent as the description proceeds.

This application is, in part, a continuation of application 382,665, filed Aug. 1, 1929.

In the drawings accompanying and forming a part of this application, I have shown an illustrative embodiment of my inventive idea. Fig. 1 is a side elevation of one of my improved cleaners with parts broken away and the handle occupying different positions; Fig. 2 is a longitudinal sectional view and Fig. 3 is a horizontal sectional view of the cleaner shown in Fig. 1; Fig. 4 is an enlarged perspective view of certain of the parts carried by the front of the cleaner casing; Fig. 5 is a perspective view of the bottom-pan shown in Figs. 2, 4, and 13; Fig. 6 is a horizontal sectional view corresponding to the line 6—6 of Fig. 2; Fig. 7 is a cross section taken on the line 7—7 of Figs. 1, 2, and 6; Fig. 8 illustrates the mode of emptying the litter collected by the cleaner; Fig. 9 is a longitudinal sectional view through the driving gearing drawn to enlarged scale; and Figs. 10 and 11 are sectional views of Fig. 9 taken on the lines 10—10 and 11—11 respectively; Fig. 12 is a perspective view of the top-member of the casing; Fig. 13 is a longitudinal sectional view corresponding to the broken line 13—13 in Figs. 3 and 6; and Figs. 14 and 15 are views similar to Fig. 13 showing modified forms of bottom-pan.

My improved cleaner is of the type which comprises a rotating brush to clean the carpet and dislodge adherent litter, in combination with a

centrifugal fan to create a current of air through and over the carpet to assist in dislodging the litter and to carry the fine dust into a suitable bag or other separator, both the fan and the brush being operated by traction effect without the employment of electric or other mechanical energy. According to my present invention the casing of the cleaner comprises a box-like top-structure having a pair of vertical parallel side-walls 20—20 connected at their forward ends by a rounded front-wall 21, and at their upper edges by a top-wall 22, the latter having intermediate between its lateral margins an elevated hollow portion defined by upright sides 23 and flat top 24. The rearward part of each side wall depends below the forward part thereof as best shown at 25 in Fig. 15 and the forward part of each side wall is formed with notches 25^a and 25^b for a purpose to be explained later. The wall 23 is preferably intermediate in shape between a V and a U, its extremities merging with the side walls 20 at the rear as shown in Figs. 1, 6, and 15. This casing is preferably made in a single piece of metal, pressed-wood, condensation-resin, etc. Hinged beneath this casing on a horizontal axis is a dust pan, preferably made of sheet metal, and the hinge preferably located at the rear part of the casing. The preferred form of this dust pan is shown in perspective in Fig. 5 and consists of a flat bottom 26 having eyes 27 at its rear margin for the hinge pintle and an upwardly and rearwardly turned flange 28 at its forward margin, the angle 29 of this flange defining the dust lip of the inlet-mouth. The lateral margins of this dust pan are turned upwardly as shown at 30 to lap past the walls 20 in close fitting but freely movable relation, preferably inside the same as shown in Figs. 3 and 7. These margins are formed with notches 31 and 32 which register with the notches 25^a and 25^b respectively to define shaft-openings, and also extend past the lip 29 clear to the front wall 21 where they are connected by a transverse wall 33 which laps closely but movably past the wall 21. Located at the rear of the wall 33 is a shield 34 terminating in a transverse lip 35 parallel to and spaced from the lip 29, and the bottom of the pan is formed with a portion 36 slanted gradually upwardly and forwardly from the lip 35 to the wall 33 so as to ride easily over rugs or obstructions. The bottom 26 is likewise slanted rearwardly for the same purpose, and I preferably secure this pan somewhat loosely to the casing so that it may rise and fall freely (within limits) independently of the casing, the better to follow

the inequalities of the working surface. One mode of doing this is to provide the wall 33 with a forwardly projecting stud 37 received in the vertical slot 38 of a spring catch 39 depending from a place of attachment on the wall 21, the lower end of this latch being bent outwardly as at 40 to enable the dust-pan to be snapped into place and readily released.

Securely fastened between the walls 20—20 at their rear ends is a horizontal sheet-metal plate 41 whose rearward margin terminates flush with the edges of the walls 20 and 24 for the joint reception of the rectangular end-ring 42 of the dust-bag 43. This ring may be fastened to the casing by means of a hinge 44 at the top and one or more snap catches 45 elsewhere, its forward edge being channeled as shown at 46 for the reception of the edges of the casing and provided with a suitable packing to prevent dust-leak. The forward margin of the plate 41 is formed with eyes complementary to the eyes 27 for the reception of the hinge pintle.

Secured to the under side of the wall-portion 22 is a horizontal, sheet-metal, plate 48, constituting a partition between a fan chamber A above and a brush-chamber B therebelow and is formed with an inlet opening 49. This plate is easily inserted from the open rear end of the cleaner casing, and has hinged to its lower face at the rear of the inlet opening a metal flap 50, which extends from one wall 20 to the other and from the plate 48 to the plate 41. This flap is free to swing between the side-walls as shown in Fig. 8 and in dotted lines in Fig. 2, its forward movement being limited by engagement of its free edge with the hinge 27.

Located in the brush-chamber B below the plate 48 is the gear-housing 51 in which is journaled a vertical shaft 52 coaxial with the inlet opening 49, and a horizontal shaft 53 which traverses the casing and projects through the openings defined by the notches 25^a and 31. Fastened to the ends of this shaft are the rubber-tired floor-wheels 55, and contained inside the housing is suitable gearing by which the motion of the shaft 53 is transmitted to the shaft 52. This gearing preferably comprises a one-way clutch and a cushioning spring as set forth in my U. S. Patents Nos. 1,421,957 and 1,421,958, issued July 4, 1922; viz: there is rigidly secured to the shaft 53 by a pin 56 a collar 57 to which is rigidly attached one element of a silent ratchet, here comprising three, sheet-metal, plates 58^a—58^b, and 58^c, having camming portions 59 with which cooperate hardened rollers 60. These rollers are preferably reduced in size at their middles and the plate 58^b is enlarged to fit in the groove so formed, thereby holding the rollers against endwise movement. Loosely mounted on the shaft 53 is a sleeve 61 having at one end an enlargement 62 formed with a cylindrical part 63 surrounding the rollers 60 in engageable relation. Rotatably mounted on the exterior of the sleeve 61 is the hub 64 of a spiral gear 65 which meshes in turn with spiral teeth 66 formed on the shaft 52; and surrounding the hub 64 is a helical spring 67, having its opposite ends secured to the enlargement 62 and gear 65, respectively, so as to allow a certain amount of movement of the shaft 53 without moving the shaft 52, but with the storing up of power which is afterwards recovered. I have shown the hub 64 as provided with a washer having a projecting finger 68 interposed between fingers 69—69 on the enlargement 62 so as to constitute limits

for the relative movement between the spring-connected members.

At the rear end of the casing are auxiliary floor wheels 71 (here carried by the ring 42) which cooperate with the wheels 55 in supporting the casing horizontally above the supporting surface. Pivoted on opposite sides of the casing are the arms 72—72 of the handle fork to which is attached the operating handle 74, from which the outer end of the dust bag 43 is suspended. The fork is so fashioned as to enable any position of the handle from the horizontal to an elevation somewhat forward of the vertical as shown in Fig. 1.

Secured to the upper end of the shaft 52 inside the fan chamber A is the centrifugal fan 80; and secured in the brush-chamber is the horizontal rotary brush of the type common in carpet-sweepers, comprising a body 81 and tufts of long, flexible bristles 82. The ends of this body are formed with reduced necks 83 to pass through the slots 25^b and terminate in enlarged cylindrical heads 84 which engage the rubber-tires of the wheels 55 in driven relation. This brush is journaled upon horizontal opposed studs 85 riveted to a spring-metal strip 86 bent to rectangular form and embracing the wheels 55 and 84. The two ends of this strip are pivoted to studs 87 carried by the side walls 20 near the rear of the casing, and at the front of the cleaner a suitable securing device is provided to hold said strip securely while preferably enabling vertical adjustment to accommodate different types of floor coverings. In the form here shown this device consists of a vertical tongue 88 carried by the strip and projecting through a bracket 89 carried by the casing, the edges of the tongue having spaced notches 90 cooperating with tongues 91 carried by the bracket so that adjustment is permitted by pressing the tongue rearwardly against the tension of the strip. The exterior of this strip is preferably provided with a covering 92 of felt, rubber or other soft material so that protection to furniture is secured both by the softness of the padding and the springiness of the strip. The pivot studs 87 are preferably received in elongated slots 93 formed in the strip 86 so that the elasticity of this strip, due to its middle being held by the bracket 89 produces driving engagement between the wheels 55 and the brush-ends 84.

Preferably the connection between the wheels 55 and the casing is of a yielding construction to enable the operator, by bearing-down on the handle, to depress the brush into closer contact with the working surface. One way of effecting this is to secure the brackets 95 of the gear housing 53 to flexibly mounted arms 96 carried by the plate 48, one at each side of the opening 49 and movable between duly defined limits established for example by the nut 97 and finger 98, the casing normally being held in elevated position by springs 99. The fan 80 is spaced sufficiently between the top and bottom walls of the fan-chamber to permit this movement. The attachment of the driving mechanism to the plate 48 is advantageous in enabling complete assembling prior to introduction into the casing.

The operation of the device is as follows: the brush rotates first in one direction and then in the other depending upon the direction of movement of the casing, but always in a direction to sweep the floor in the direction of casing-movement. During the time that the brush is sweeping rearwardly, any heavy litter will be thrown

over the flange 29 on to the dust-pan where it is safely detained; during its forward sweeping such litter will either be thrown over the top of the brush onto this pan, which action is assisted by the air stream, or merely heaped upon the shield 34, whence it will be transferred to the pan upon reversal of brush motion. This shield is made to conform to the sweep of the brush for this purpose.

10 The fan rotates entirely in one direction, its inertia causing a certain tensioning of the spring 67 upon the beginning of each stroke, and helping to maintain a uniform speed between strokes. This fan assists the action of the brush in dis-
15 lodging litter from the carpet, assists in freeing the brush of entangled litter, and collects floating dust which would otherwise escape into the room. The air discharged by this fan passes into the bag, return of the same into the brush chamber
20 being prevented by the flap 50. The lighter dust finds its way into the bag, the heavier litter remaining on the dust-pan. To empty the cleaner the catch 45 is displaced and the casing lifted by its forward end and handle as shown in Fig.
25 8, whereupon the ring 42 swings freely away from the casing and the flap 50 swings freely rearwardly about its hinge, so that the contents of both bag and dust-pan are discharged at once into a single receptacle after which the parts are
30 re-connected. In the form just described, the flanges 30 of the dust-pan have been located inside the casing.

It has heretofore been stated that the dust-pan or cleaning tool 26 is able, due to its movable mounting, to rise and fall freely (within limits) independently of the casing, the better to follow the inequalities of the working surface. This is not a mere scraping action over the floor, since the suction of the fan creates a lifting force upon
40 this tool, whenever the inlet mouth is closed or sufficiently obstructed by contact with the floor or rug, so that the operation is entitled to be called one of "floating" in a decidedly literal sense.

45 In Fig. 14 I have shown a different and cheaper way of securing the dust-pan in place by hinging it to the front wall 21 at 100 and securing its rear end by means of a latch 101 to a bag ring 42^a, which in this case is rigidly riveted to the casing. The flap 50^a in this case is also rigid, since the dropping of the dust-pan opens both compartments. In Fig. 15 I have shown the dust-pan hinge 27^b as secured directly to the bag ring 42^b, which in this case is rigidly secured outside
55 the casing, the hinge being on the bottom side so that the flap 50^b which is here hinged, can swing forwardly as soon as the downward movement of the dust-pan has removed the retaining finger 103 out of its way. In the above forms I have
60 shown the flanges 30^a as located outside the casing walls. A great many other modifications in design, construction, and arrangement can be made and I do not limit myself in any wise except as specifically recited in my several claims
65 which I desire may be construed broadly each independently of limitations contained in other claims.

Having thus described my invention what I claim is:

70 1. A suction sweeping device comprising a casing having a bottom wall formed with a lip defining one side of an inlet opening adjacent the front end of the casing, a rotary brush cooperating with said lip, carrying wheels at the rear of
75 said casing, traction-wheels at opposite sides of

said casing between said lip and said carrying wheels, an exhaust-fan for removing air from the space around the brush, driving-connections from said traction wheels to said fan, and means for driving said brush, the means which connect
80 said traction wheels to said casing having a vertically yielding resilient support.

2. A sweeping device comprising a casing, a rotary brush traversing said casing from side to side, means for driving said brush, and a dust-pan constituting at least a part of the bottom of said casing and defining an inlet mouth for said brush, means loosely securing said dust-pan to said casing whereby it may freely move up and down relatively to the rest of the casing so as to follow the contour of the surface being cleaned, and means including brush bearings and brush bearing supports adjustably carried by said casing for rotatably supporting said brush at various predetermined fixed heights relative thereto.
85 90 95

3. A suction sweeping device according to claim 2 wherein a suction fan is provided having its inlet communicating with that part of the casing interior which holds the brush.

4. A suction sweeping device comprising a casing, a brush traversing said casing, means for supporting said brush at a predetermined fixed elevation with respect to said casing, traction-wheels journaled to said casing at opposite sides thereof, an exhaust fan for removing air from the space around the brush, a dust-pan forming at least part of the bottom of the casing and defining an inlet-mouth beneath said brush and means for securing said dust-pan to said casing for free movement about a horizontal axis in response to pressure conditions in the casing independently of said brush whereby said dust-pan has a limited freedom to move up and down relative to the rest of the casing to follow the surface being cleaned.
100 105 110 115

5. A suction sweeping device comprising a casing, a brush traversing said casing, a support for said brush carried by said casing, traction-wheels journaled to said casing at opposite sides thereof, an exhaust fan for removing air from the space around the brush and a wall member forming at least part of the bottom of the casing and defining an inlet-mouth beneath said brush, characterized in that said wall member and brush support are pivoted to said casing independently of each other and said wall member is formed on its bottom with portions which slant upwardly from each side of said inlet mouth, said wall member being loose relative to the rest of the casing to allow the inlet-mouth to follow the surface being cleaned subject to the pressure conditions inside the casing and the sides of the wall member having upturned edges which lap past adjacent portions of the casing.
120 125 130 135

6. In a suction cleaner, a casing member having top and side walls, a brush, means hinged with respect to said casing member for rotatably supporting said brush, a bottom wall part hinged with respect to said casing member upon a horizontal axis and loosely fitting said side walls so as to be vertically movable relative thereto independently of any movement of said brush, and means for limiting such movement whereby said wall part is enabled to rise and fall between prescribed limits following the surface to be cleaned subject to the pressure conditions inside said casing, said wall part having abrupt lips at the floor-contacting portion to define an inlet mouth, a suction fan having its inlet communicating with
140 145 150

said inlet mouth, and means for driving said fan and brush.

7. In a suction sweeping device, a casing having its bottom constituting a dust-pan which is formed with an inlet mouth, the rear end of said casing having a chamber formed at least in part with a pervious wall to retain litter while allowing air to escape, a suction pump in said casing having its inlet communicating with said inlet mouth and its outlet with said chamber, a brush in said casing adjacent to said inlet mouth, said casing having therein a litter chamber for said brush which is adjacent to but normally separate from said first chamber and parts of said casing being hinged to other parts to open both said chambers simultaneously to discharge their contents.

8. In a suction cleaning device, a casing having a collecting mouth adjacent to one end, a dust bag secured to its opposite end, and suction producing means therebetween, supporting wheels carried by said casing, a handle for manipulating the casing and supporting said bag, a rigid annular member secured to the mouth of the bag, and means including a hinge for securing said annular member to the casing.

9. In a cleaning device, a casing having a collecting mouth adjacent to one end and a dust bag secured to its opposite end, supporting wheels carried by said casing, a floor brush in said casing, means for operating said brush, a handle for manipulating the casing and supporting said bag, a rigid annular member secured to the mouth of the bag, a horizontal hinge securing said annular member to the top of the rear of said casing, and catch means for securing said member in closed position.

10. In a sweeper, a hollow casing having an inlet mouth adjacent to one end and a discharge opening adjacent to the other end, an annular member conforming to the shape of said discharge opening, means hinging one side of said member to one side of said casing at the discharge end, means for detachably securing another part of said member to said casing in sealing relation to said discharge opening, wheels carried by said casing for supporting the same above the floor, a handle pivoted to said casing for manipulating the same, filtering means carried by said annular member, means inside said casing for causing litter to enter through said inlet mouth, and means preventing escape thereof excepting through said discharge opening.

11. In a sweeper, a casing having its top, front, and sides consisting of a one-piece hollow member, having its bottom and rear open and having its top imperforate, a bottom secured in said hollow member and defining an inlet mouth near the front of said casing and extending to the open end of said casing, a brush in said inlet mouth, a litter-retaining lip adjacent to said mouth, a pivoted flap extending across the casing behind said lip and cooperating with said bottom and said lip to provide a litter receptacle, and means for moving said cleaner over the floor and for operating said brush.

12. In a suction sweeper, a casing having therein two communicating chambers, a brush in one chamber, means for operating said brush, the bottom of said chamber having an inlet mouth beneath said brush and a litter-pan at one side of said brush, a pumping device having its inlet communicating with said first chamber and its outlet discharging into the other chamber which thereby becomes a receptacle for the pumping

device, and means whereby the contents of both chambers can be discharged simultaneously through a single opening.

13. In a cleaner, a hollow casing having near one end a downwardly facing inlet mouth and at the opposite end a discharge opening, a partition traversing said casing between said mouth and said opening, a pumping element having its inlet communicating with the casing interior in front of said partition and having its outlet communicating with the casing interior at the rear of said partition, a rotatable brush located inside said casing in operative relation to said inlet mouth and means for operating said pumping element and brush, the chamber between said brush and partition constituting a litter receptacle for said brush, and the chamber at the rear of said partition constituting a litter receptacle for said pumping element.

14. In a sweeper, a casing having its top, front, and sides consisting of a one-piece hollow member, having its bottom and rear open and having its top imperforate, a bottom secured in said hollow member and defining an inlet mouth near the front of said casing, a brush in said inlet mouth, a litter-retaining lip adjacent to said mouth, means for moving said cleaner over the floor and for operating said brush, and a wall movably supported in said casing and cooperating therewith and with said bottom and lip to provide a litter compartment, said wall being automatically movable upon the tilting of said sweeper from a horizontal position whereby the litter may be discharged from the litter compartment.

15. A suction cleaner comprising in combination, a body having a downwardly facing inlet mouth and a litter compartment and a filter arranged one behind the other in the order named and suction pumping means in said body having its inlet communicating with said litter compartment at a point behind said inlet mouth for transporting air and the lighter dirt particles from said litter compartment to said filter.

16. In a portable suction cleaner for cleaning floor coverings and the like, a casing structure comprising normally concealed wall means and a hollow exteriorly finished shell open at its underside and having provisions for receiving said wall means, said wall means forming normally unexposed oppositely located spaced walls of a fan case and a communicating suction chamber in said shell, means for securing said wall means to said shell, said wall means defining in part at least the lips of a downwardly presented working mouth communicating with the suction chamber, said shell having a front wall, a top wall and side walls forming an exposed exteriorly finished unit of the casing and constituting in part at least the walls of the suction chamber and the fan case, a fan in the fan case of said casing, a brush operably carried in the working mouth of said casing, means for driving said fan and brush, and floor engaging wheels for supporting said casing.

17. In a portable suction cleaner for cleaning floor coverings and the like, a casing comprising a hollow shell open at its underside and wall members, said shell having provisions for receiving said wall members and cooperating therewith to form a fan case and a communicating suction chamber, means for securing one of said members to said shell for forming the fan case, means for detachably securing another of said members to said shell for forming the suction chamber,

one of said members defining in part at least a downwardly presented working mouth communicating with the suction chamber, said shell being exteriorly finished and having a front wall, a top wall and side walls formed from a single piece and constituting in part at least the walls of the suction chamber and the fan case, a fan in the fan case of said casing, a brush operably carried in the working mouth of said casing, means for driving said fan and brush, and floor engaging wheels for supporting said casing.

18. In a portable suction cleaner for cleaning floor coverings and the like, a casing comprising wall members and a hollow shell open at its underside and having provisions for receiving said wall members and cooperating therewith to form a fan case and a communicating suction chamber, means for securing one of said members to said shell for forming the fan case, hinge means for movably securing another of said members to said shell for forming the suction chamber, said last named member defining in part at least a downwardly presented working mouth communicating with the suction chamber, said shell having a front wall, a top wall and side walls formed from a single piece and constituting in part at least the exposed walls of the suction chamber and the fan case, a fan in the fan case of said casing, a brush operably carried in the working mouth of said casing, means for driving said fan and brush, and floor engaging wheels for supporting said casing.

19. In a portable suction cleaner for cleaning floor coverings and the like, a compartmental casing comprising a hollow shell forming in part at least the exposed walls of a fan case and suction chamber and associated wall means for forming the other wall parts of the fan case and suction chamber, part of said wall means and shell being joined to each other at the outer peripheral edge of the fan case with a part at least of such peripheral junction located in the suction chamber where it is exposed to suction pressure and whereby dust and dirt escaping from the junction will be kept in the cleaner, filter means communicating with the outlet of the fan case, a fan in said fan case, and means to drive said fan.

20. In a portable suction cleaner for cleaning floor coverings and the like, a casing comprising normally concealed wall members and an exposed hollow shell open at its underside and having provisions thereat for receiving said wall members and cooperating therewith to form a fan case and a communicating suction chamber, means for securing one of said members to said shell for forming the fan case, means for securing another of said members to said shell for forming the suction chamber, one of said last members defining in part at least a downwardly presented working mouth communicating with the suction chamber, said shell being exteriorly finished and having a front wall, a top wall and side walls forming a single unit of the cleaner casing and constituting in part at least the walls of the suction chamber and the fan case, a fan in the fan case of said casing, a brush operably carried in the working mouth of said casing, means for driving said fan and brush, and floor engaging wheels for supporting said casing.

21. In a portable suction cleaner, a casing structure comprising wall means and a hollow shell open at its underside and having provisions for receiving said wall means, said wall means forming generally concealed oppositely located

spaced walls of a fan case and a communicating suction chamber in said shell and in part at least the lips of a downwardly presented working mouth communicating with the suction chamber, means for securing said wall means to said shell, said shell forming an exposed exteriorly finished unit of casing and having wall portions constituting in part at least the side walls of the fan case and having other wall parts constituting in part at least the walls of the suction chamber, a fan in the fan case of said casing, and means arranged on an axis substantially parallel to the side walls of the fan case for driving said fan.

22. In a portable suction cleaner, a compartmental casing comprising a hollow shell forming in part at least the walls of a fan case and suction chamber and associated wall means for forming the other wall parts of the fan case and suction chamber, said shell forming an exposed exteriorly finished part of the casing, part of said wall means and shell being joined to each other at the outer peripheral edge of the fan case with a part at least of such peripheral junction located inside a compartment of the casing whereby dust and dirt escaping therefrom will be kept in the cleaner, filter means communicating with the outlet of the fan case, a fan in said fan case, and means to drive said fan.

23. In a portable suction cleaner, a casing comprising wall members and a hollow shell, said shell having provisions for receiving said wall members and cooperating therewith to form a fan case and a communicating suction chamber, the fan case having a discharge outlet and the suction chamber having a working mouth defined in part at least by one of said wall members in juxtaposed relation to said shell, means for securing said wall members to said shell for forming portions of the fan case and the suction chamber, said shell constituting in part at least the walls of the suction chamber and the fan case and having exteriorly finished front, top and side walls, a bumper strip carried by said casing and extending about the front and side walls thereof in concealing relation with respect to the juxtaposed edges of said shell and one of said wall members, a fan in the fan case of said casing, and means for driving said fan.

24. In a suction cleaner, a casing structure built up from a plurality of sections forming a fan chamber and a communicating suction chamber having a downwardly presented working mouth, means for securing said casing sections to each other, said casing sections comprising a hollow shell open at its underside forming in part the walls of the fan chamber and suction chamber and constituting an exposed exteriorly finished part of the casing, and a plurality of separate and individual wall parts secured beneath said shell for forming a wall of the fan chamber, a wall of the suction chamber and in part at least the lips of the downwardly presented working mouth, said wall parts forming generally concealed sections of said casing with one at least of said wall parts located inside said hollow shell.

25. In a suction cleaner, a built-up sectional casing structure defining a fan chamber and a communicating suction chamber having outer openings one of which forms the fan chamber discharge outlet and the other of which communicates with the suction chamber and forms the working mouth of the cleaner, said casing structure comprising an exteriorly finished hollow shell and cooperating wall means, said shell

- constituting the major exposed part of the cleaner casing and defining the fan chamber discharge outlet and in part at least the walls of the suction chamber, said wall means being mounted in the interior of said shell and defining the working mouth of the cleaner and in part the walls of the fan chamber, and means for securing said shell and wall means together.
26. In a portable suction cleaner, an enclosing casing comprising a plurality of separate and individual wall members and a shell open at its under side and having top, side and end walls merging into each other to provide an unbroken exposed outer surface which may be readily polished, said shell having provisions for the reception of said wall members on the interior thereof, the sides of the shell and also said wall receiving provisions having surfaces so disposed with respect to each other as to provide cavities in the interior of the shell with non-reentrant sides, whereby the shell may be cast with non-collapsible cores, said shell and wall members defining a fan chamber and a suction chamber with a communicating opening therebetween, and a working mouth communicating with said suction chamber.
27. In a suction cleaner, a casing defining a fan chamber and a suction chamber communicating with a working mouth at the forward end of the casing, the work contacting lips of the mouth and the lowermost side portion of the casing having marginal portions located in juxtaposed relation with respect to the marginal portion of that part of the casing which extends about the front and sides thereof, a pair of casing supporting wheels behind the working mouth, and a bumper strip carried by said casing in concealing relation with respect to such juxtaposed marginal portions, said supporting wheels being located within the confines of said bumper strip.
28. In a portable suction cleaner, an enclosing casing comprising a plurality of separate and individual wall members and a shell open at its underside and having top, side and end walls merging into each other to provide an unbroken exposed outer surface which may be readily polished, said shell having provisions for the reception of said wall members on the interior thereof, the sides of the shell and also said wall receiving provisions having surfaces so disposed with respect to each other as to provide cavities in the interior of the shell with non-reentrant sides whereby the shell may be formed with non-collapsible dies, said shell and wall members defining a fan chamber and a communicating suction chamber with a downwardly presented working mouth at the forward end of the casing, a rotatable brush carried by said casing and operably disposed in said working mouth, one of the wall members of the suction chamber being releasably secured to said shell to permit removal of the brush.
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