Jan. 4, 1949. E. L. SNYDER 2,458,309

SUCTION CLEANER

Filed June 26, 1944 3 Sheets-Sheet 1

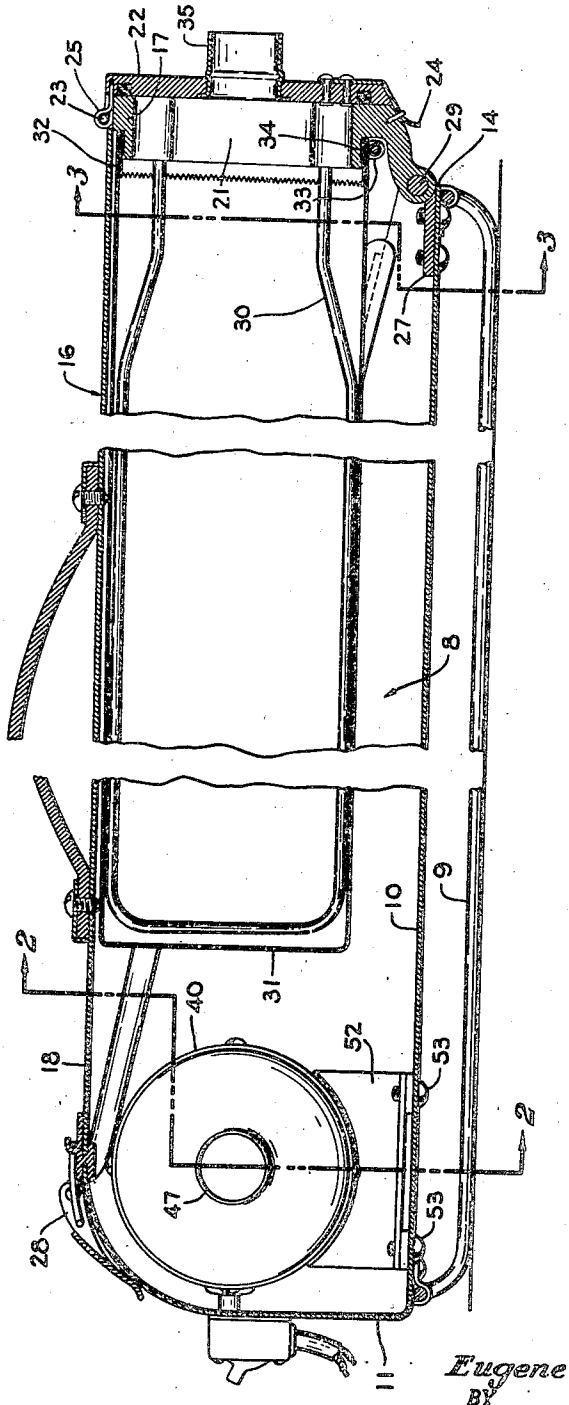


Fig. 1

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SUCTION CLEANER

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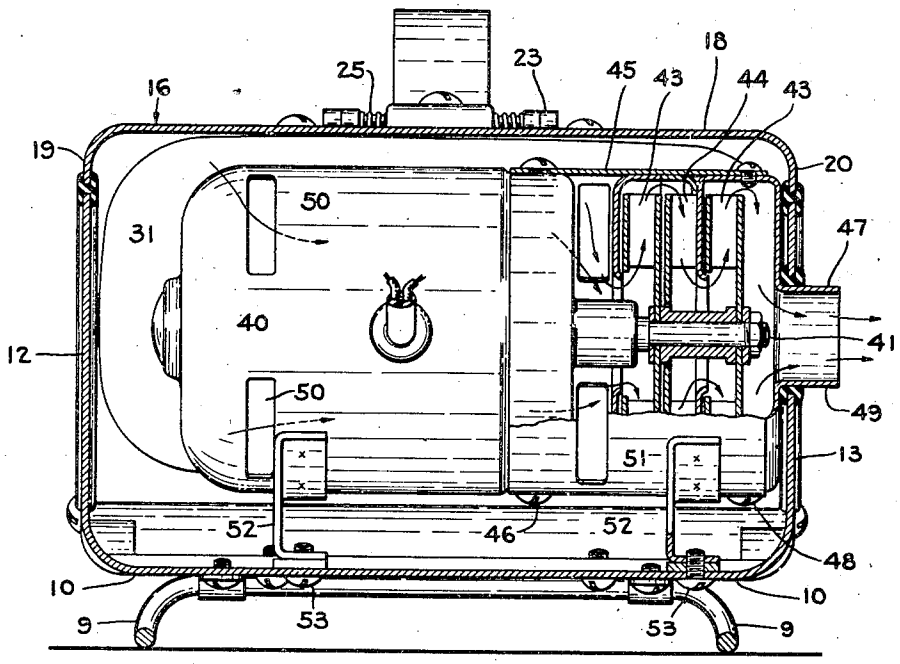


Fig. 2

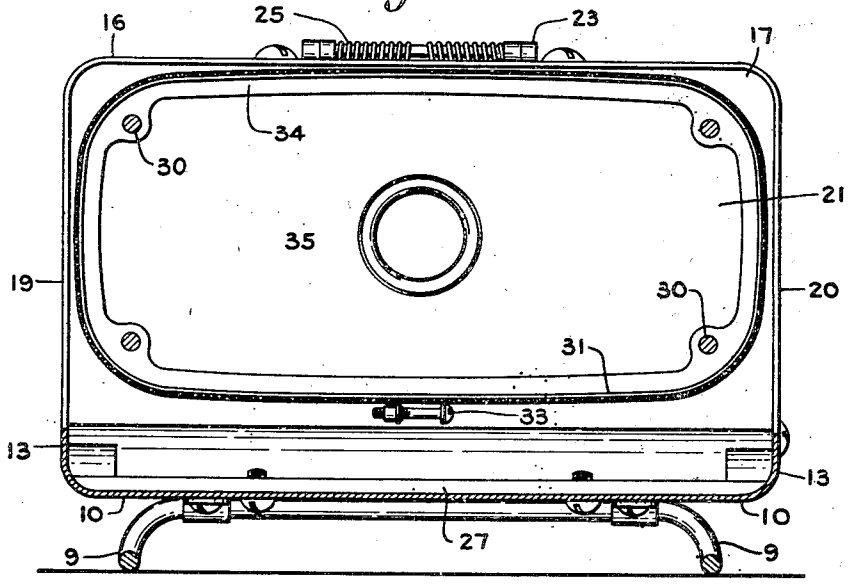


Fig. 3

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SUCTION CLEANER

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3 Sheets-Sheet 3

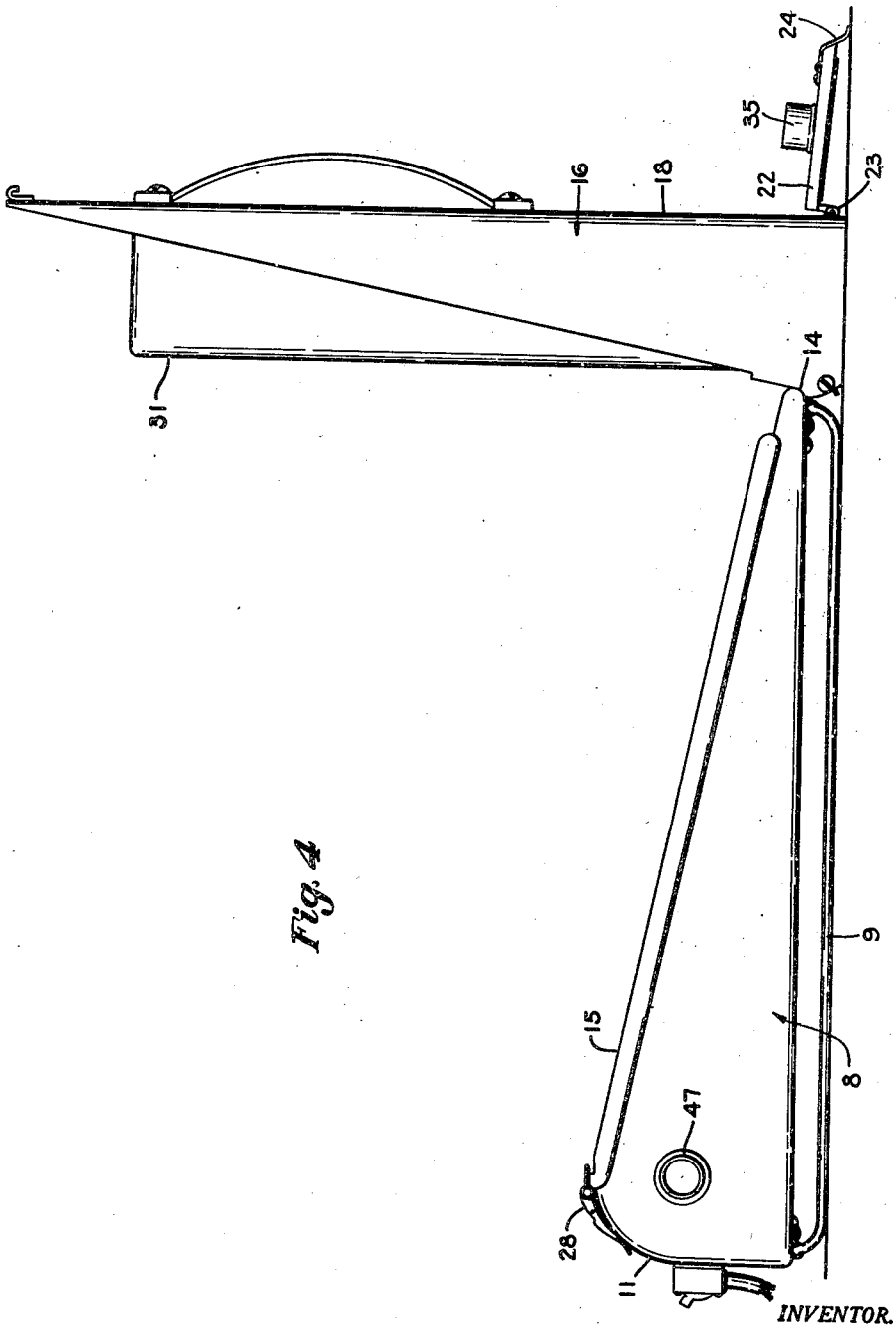


Fig. 4

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UNITED STATES PATENT OFFICE

2,458,309

SUCTION CLEANER

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Application June 26, 1944, Serial No. 542,107

15 Claims. (Cl. 183—52)

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The present invention relates to suction cleaners and more particularly to supporting the dirt-collecting bag on the cleaner while the dirt is being removed from the bag.

An object of the invention is to provide a new and improved suction cleaner. Another object is to provide a suction cleaner wherein the dirt collecting bag is supported on the cleaner while the dirt is being removed from the bag. A further object is to provide a suction cleaner wherein the dirt bag is pivoted into dirt-receiving and dirt-emptying positions while attached to the cleaner casing. Other objects and advantages of the invention will be apparent from the following specification and drawings, wherein:

Figure 1 is a broken longitudinal section of a suction cleaner;

Figure 2 is a section along the line 2—2 of Figure 1;

Figure 3 is a section along line 3—3 of Figure 1, and

Figure 4 is an elevation of the suction cleaner showing the bag moved into bag-emptying position.

The embodiment of the invention herein disclosed comprises a suction cleaner having an elongated substantially rectangular casing 8 supported from the floor by skids 9 and is provided with a bottom wall 10, a rear wall 11 and opposed side walls 12 and 13 which extend from the top of the rear wall 11 downwardly to the front end 14 of the bottom wall 10 to define an elongated inclined opening 15. Forming part of the casing is a cover 16 having a front wall 17, a top wall 18 and opposed side walls 19 and 20, the latter being complementary to the defining edge of the inclined opening 15. A handle is mounted on the cover 16 for carrying the cleaner.

An opening 21 in the cover front wall 17 is closed by an end cap 22 pivoted to the cover front wall 17 is indicated at 23 and is held in closed position by a latch 24. The end cap 22 is biased by a spring 25 to swing the end cap 180 degrees to open position as shown in Figure 4 when the latch 24 is released. Rigidly mounted on the end cap 22 is a conduit 35 for detachably receiving one end of an unshown hose having a cleaning nozzle for engagement with the surface to be cleaned in a manner well known in the art.

The cover 16 is pivoted to the bottom wall 10 by means of a hinge 27 and is held in closed position by a latch 28 on the rear wall 11 and cover top wall 18. The cover front wall 17 projects

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forwardly of the pivot 29 of the hinge 27 so that when the cover 16 is moved to its bag-emptying position, as indicated in Figure 4, and the end cap 22 is swung to open position, the opening 21 in the cover front wall 17 lies substantially in the plane of the surface supporting the cleaner. If desired, the pivot 29 may be spaced a greater distance rearwardly from the cover front wall 17 so that when the cover 16 is moved to the bag-emptying position shown in Figure 4, the cover front wall 17 will raise the front end of the casing from the floor to insure that the cover front wall 17 will lie substantially in the plane of the floor.

Supported on the cover front wall are two substantially U-shaped rods 30, 30 which extend rearwardly to support a dirt-filtering bag 31 of paper or cloth or other suitable dirt-filtering material. The forward end 32 of the bag is removably attached by a clamp 33 to a collar 34 forming part of a front wall 17, and the opening 21 in the latter is slightly smaller than the cross-sectional area of the dirt bag 31.

The suction creating means comprises a motor 40 having a shaft 41 on which is rigidly mounted a double-stage suction creating fan having movable blades 43, 43 at opposite sides of a stationary partition 44, the latter forming part of a fan housing 45 secured to the motor housing by screws 46. A fan exhaust conduit 47 is removably attached to the fan housing 45 by screws 48 and projects through an opening 49 in the casing side wall 13 to detachably receive an unshown hose and cleaning nozzle when it is desired to remove the dirt by blowing air on the surface to be cleaned. Openings 50 are provided in the motor housing for the passage of filtered air to cool the motor, and the fan housing 45 has openings 51 for the passage of filtered air into the interior of the fan housing and thence through the exhaust conduit 47. The motor and fan housings are supported on a pair of brackets 52 removably mounted on the casing bottom wall 10 by screws 53. The motor and fan may be inserted as a unit inside the cleaner casing through the inclined opening 15 and secured in position transversely of the cleaner casing and rearwardly of the bag 31 by the screws 53.

In operation, assume the cleaner parts are in the position shown in Figure 1, and the unshown cleaning nozzle in contact with the surface to be cleaned. Operation of the suction creating means causes the dirt removed from the surface being cleaned to pass through the unshown nozzle and hose through the opening 21 into the dirt bag

31 where the dirt is collected, and the air passes through the bag and is filtered and enters the openings 50 to cool the motor and thence through the fan housing and the exhaust conduit 47, and the filtered air also passes through the openings 51 into the fan housing and thence through the exhaust conduit 47.

When it is desired to remove the accumulated dirt from the bag 31, the latch 24 is released and the spring 35 swings the end caps 22 through an arc of 180 degrees to expose the opening 21 to the bag. Thereafter the latch 28 is released and the cover 16 is rotated substantially 90 degrees to shift the bag and the cover to the bag-emptying position shown in Figure 4. When the bag 31 is in bag-cleaning position the forward end 17 of the cover 16 lies substantially in the plane of the supporting surface to form a substantially air-tight seal therebetween so that when the dirt drops out of the bag 31 through the opening 21 onto the supporting surface, very little dust will escape. If desired a paper may be placed upon the supporting surface to receive the dirt as it is removed from the bag and thereafter the removed dirt may be wrapped in the paper and the latter thrown away. Due to the arrangement of the bag mouth forwardly of the pivot point 29 of the bag 31, the dirt drops out of the bag as the latter is gradually moved downwardly to its bag receiving position. When the bag 31 is in bag-emptying position a portion of the bag is exposed and may be grasped by the operator and shaken to loosen the dirt from the bag.

I claim:

1. In a suction cleaner, a casing, a cover for said casing and at all times movably mounted on the latter to open and close said casing, a dirt filter for receiving the dirt removed from the surface being cleaned, said filter mounted on said cover and movable therewith as a unit, movement of said cover to open position disposing said filter in filter cleaning position to remove the dirt therefrom, said movement of said cover to its open position exposing a portion of the exterior wall of said filter for shaking the latter to aid in removing the dirt therefrom.

2. In a suction cleaner, a casing having an opening for inserting a suction creating unit in proper arrangement in said casing, a cover for said opening at all times pivotally mounted on said casing, a dirt filter mounted on said cover and movable with the latter into operative relation with said suction creating unit disposed in said casing when said cover is moved to close said opening in said casing.

3. In a suction cleaner, a cleaner body, a dirt filter on said cleaner body for collecting the dirt removed from the surface being cleaned, means supporting said filter on said cleaner body in one position to collect said dirt, and supporting said filter in another position for removal of the dirt accumulated on said filter, said means maintaining said filter connected to said cleaner body during movement of said filter to said different positions.

4. In a suction cleaner, a sectional cleaner body, one body section having suction creating means, another body section, means movably connecting said body sections together for movement with respect to each other, a filter in said cleaner body and supported on said another body section and movable with the latter, said another body section in one position with respect to said one body section supporting said filter to collect the dirt removed from the surface being cleaned, and said another body section when moved to another position supporting said filter for removal of the dirt accumulated on said filter, said means maintaining said another body section, connected to said one body section during movement of said filter to said different positions.

5. In a suction cleaner, a cleaner body adapted to rest on a supporting surface, a dirt filter supported in said body for collecting the dirt removed from the surface being cleaned, an opening in said body for entrance of dirt to said filter, a cover, means movably connecting said cover to said cleaner body for movement of said cover to opened and closed positions with respect to said dirt entrance opening, said filter collecting the dirt thereon when said cover is in closed position, said cover being movable with respect to said body to uncover said dirt entrance opening for engagement of the latter with the supporting surface to remove the accumulated dirt from said filter through said entrance opening.

6. In a suction cleaner, a casing, a filter for filtering dirt removed from a surface being cleaned, means for movably connecting said filter to said casing for movement of said filter with respect to said casing to dirt filtering and to filter cleaning positions, said different positions of said filter being at an angle to each other, and said means maintaining said filter connected to said casing when in said different positions.

7. In a suction cleaner, a casing, a filter in said casing for receiving dirt removed from a surface being cleaned, a cover for said casing, means movably connecting said cover to said casing to open and close said casing, means connecting said filter on said cover for movement therewith, movement of said cover to its open position disposing said filter in a position to remove the dirt from said filter, and said means maintaining said cover and said filter connected to said casing when said filter is in said position to remove dirt therefrom.

8. In a suction cleaner, a casing, a cover movably mounted on said casing for movement to opened and closed positions, a filter in said casing having an inlet for dirt-laden air, a hose connection for conveying dirt-laden air to said filter inlet, means connecting said hose connection to said cover and movable to expose said filter inlet, and means supporting said filter on said cover for movement therewith, movement of said cover to said open position disposing said filter in a position for removal of dirt from said filter through said exposed inlet.

9. In a suction cleaner, a casing, a filter in said casing and having an inlet for dirt-laden air, a hose connection, means at all times maintaining said hose connection connected to said casing for movement of said hose connection to opened or closed positions with respect to said filter inlet, and means maintaining said filter on said casing in filter cleaning position to remove the dirt through said inlet when said hose connection is moved to its open position to expose said inlet.

10. In a suction cleaner, a casing adapted to rest on a platform surface, a filter for removing dirt from a dirt-laden air stream and having a filter cleaning dirt-emptying mouth, means supporting said filter on said casing for movements to dirt collecting and filter cleaning positions, said means movably connecting said filter on said casing at a point offset with respect to said dirt-emptying mouth, whereby as a result of said offset connection movement of said

filter to said filter cleaning position disposes said dirt-emptying mouth into substantially the plane of said supporting surface.

11. In a suction cleaner, a casing, a filter for receiving dirt removed from a surface being cleaned, means connecting said filter to said casing for movement of said filter to dirt receiving position within the confines of said casing and for movement of said filter outwardly of said casing to filter cleaning position, said means maintaining said filter connected to said casing when in said different positions, movement of said filter to its filter cleaning position exteriorly of said casing exposing that portion of said filter disposed within said casing when said filter is in said dirt receiving position, whereby said filter may be shaken.

12. In a suction cleaner, a casing, a filter for receiving dirt removed from a surface being cleaned, means connecting said filter to said casing for movement of said filter to dirt receiving position within the confines of said casing and for movement of said filter outwardly of said casing to filter cleaning position, said means maintaining said filter connected to said casing when in said different positions.

13. In a suction cleaner, a casing adapted to be supported upon a supporting surface, a filter, means movably connecting said filter on said casing for movement of said filter to filter cleaning position at an angle with respect to said casing, and a removable cover for said filter, said filter when said cover is removed presenting an open end adapted to seal upon said supporting surface when said filter is moved to said filter cleaning position.

14. In a suction cleaner, a casing adapted to be supported upon a supporting surface, a filter, means movably connecting said filter on said

casing for supporting said filter in dirt receiving position within said casing and for supporting said filter on said casing when moved to filter cleaning position to expose said filter, whereby said exposed filter may be shaken to remove the dirt from said filter, and a removable cover for said filter, said filter when said cover is removed presenting an open end adapted to seal upon said supporting surface when said filter is in said filter cleaning position for depositing said removed dirt on said supporting surface.

15. In a suction cleaner, a casing, a filter, means movably connecting said filter on said casing for supporting said filter in dirt receiving position within said casing and for supporting said filter on said casing when moved to filter cleaning position to expose said filter whereby the latter may be grasped to shake said filter, said means maintaining said filter connected to said casing when in said different positions.

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Certificate of Correction

Patent No. 2,458,309. January 4, 1949.

EUGENE L. SNYDER

It is hereby certified that errors appear in the printed specification of the above numbered patent requiring correction as follows:

Column 3, line 10, for "spring 35" read *spring 25*; column 4, line 67, claim 10, for the word "platform" read *supporting*;

and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of June, A. D. 1949.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.