

July 17, 1951

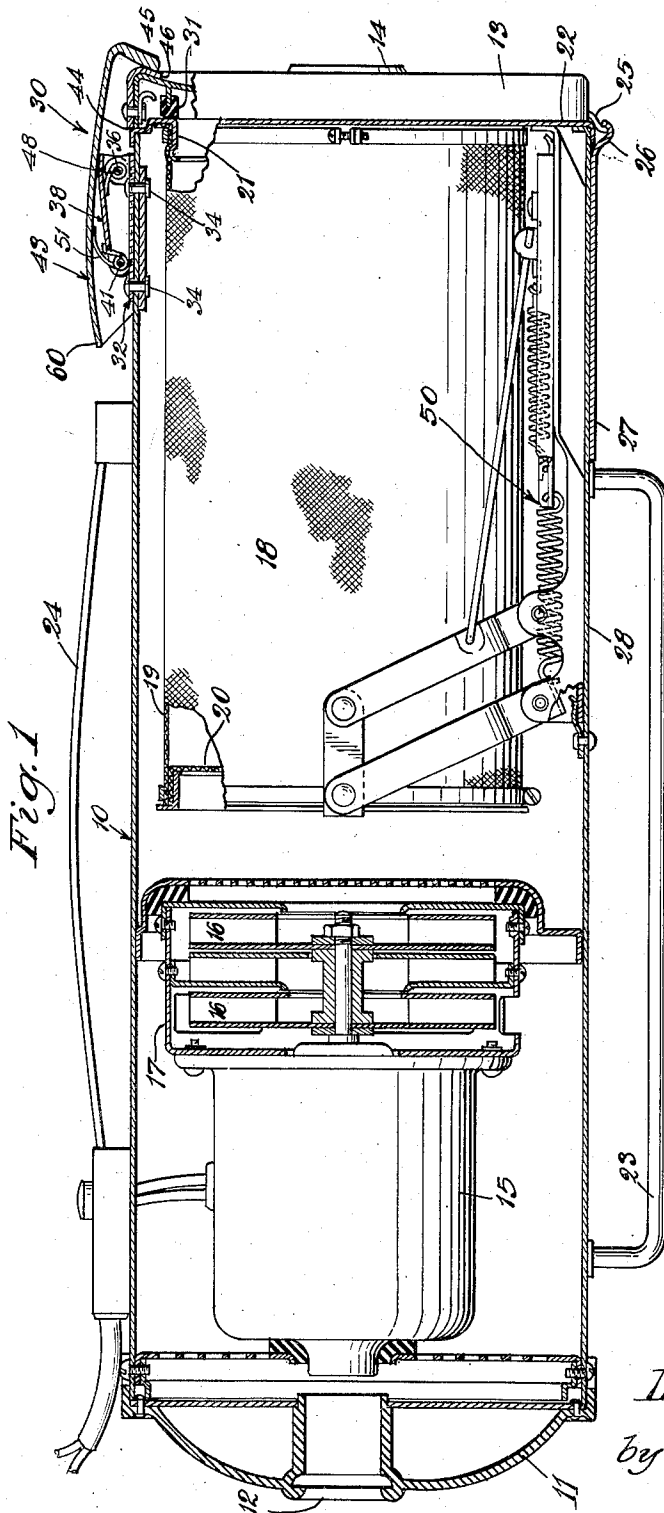
L. E. SEGESMAN

2,560,827

SUCTION CLEANER

Filed Aug. 21, 1946

2 Sheets-Sheet 1



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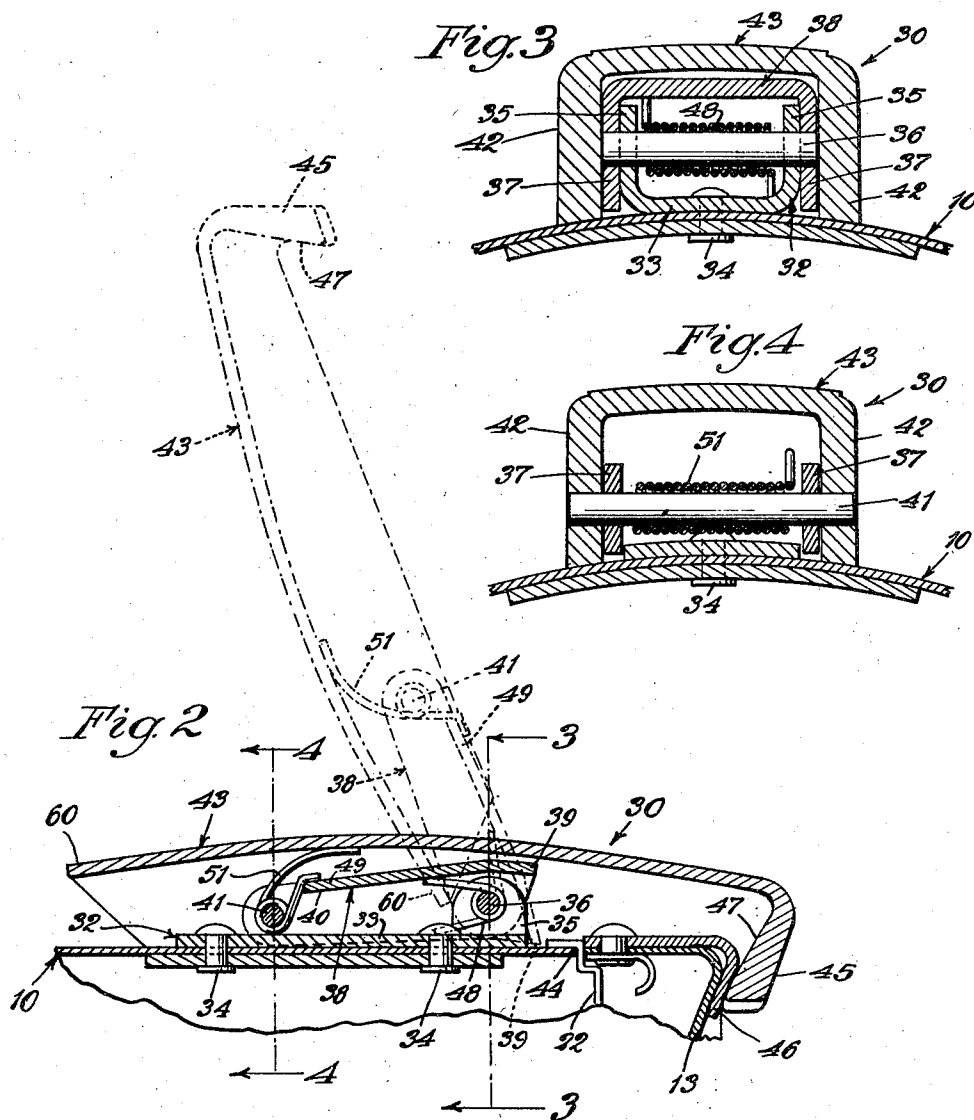
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UNITED STATES PATENT OFFICE

2,560,827
SUCTION CLEANER

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1 Claim. (Cl. 183-37)

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The present invention relates to suction cleaners in general and more particularly to a latch for the front end cap.

An object of the invention is to provide a new and improved suction cleaner. Another object is to provide a latch to removably attach an end cap to the cleaner casing. A further object is to provide a front end cap latch which when released is projected away from the casing and clear of the front end wall so that the latter may be placed on a supporting surface in filter cleaning position. Other objects and advantages of the invention will be apparent from the following specifications and drawings wherein:

Figure 1 is a longitudinal section of the cleaner.

Figure 2 is a sectional view of the latching means and shows the released position of the latch lever in dotted lines.

Figure 3 is a section along the line 3-3 in Figure 2, and

Figure 4 is a section along the line 4-4 in Figure 2.

The embodiment of the invention herein disclosed comprises a casing 10 closed at its exhaust end by cap 11 having an outlet port 12 adapted to receive the cleaner end of an unshown dusting tool hose provided at its opposite end with a surface-cleaning tool in a manner well known in the art. The suction end of the casing is closed by a removable end cap 13 provided with an inlet port 14 adapted to receive the cleaner end of the dusting tool unit in the same manner as the outlet port 12.

Within the casing 10 adjacent the rear end cap 11 is a motor 15 for driving a pair of suction creating fans 16 disposed in a fan chamber 17. Between the fan chamber 17 and the front end cap 13 is a filter bag 18 having an annular side wall 19, a closed end wall 20 and an open end which is secured to a circular flange 21, the latter defining the inlet and outlet to the bag 18 and being secured to the casing by unshown screws. The flange 21 is provided with a flat face 22 which forms the extreme end of the casing 10 and is adapted to lie flat on a supporting surface when the front end cap 14 is removed and the cleaner is upended vertically into bag-cleaning position. The bag 18 is adapted to be vibrated to dislodge foreign material therefrom by a bag-shaking device indicated generally at 50 as described in the application of Louis E. Segesman, Serial No. 599,147, filed June 13, 1945, now Patent No. 2,498,098. Casing 10 is slidably supported in its horizontal position on the supporting surface by a pair of skids 23 attached to the cleaner casing 10, and a carrying handle

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24 is provided at the top of the cleaner casing 10.

The front end cap 13 is removably attached to the casing 10 by being provided at its lower end with a protruding lip 25 which seats within a pocket 26 formed at the end of a bracket 27 mounted on the bottom wall 28 of the casing. A latch 30 is mounted on the top of the casing 10 and cooperates with the front end cap 13 to force it against the flat end wall 22 of the casing 10, and a seal 31 prevents leakage of air therebetween.

The latch 30 comprises a U-shaped bracket 32 having its bottom wall 33 riveted at 34 to the casing 10 and a pair of side walls 35 projecting upwardly from the casing. A pin 36 is rotatably supported in the side walls 35 and extends into the side walls 37-37 of a U-shaped link 38 to form a stationary pivot for the forward end 39 of the link 38. The rear end 40 of the link 38 is provided with a pin 41 extending through its side walls 37 into the side walls 42-42 of a U-shaped latch lever 43, and the pin 41 forms a movable pivot for the latch lever 43. The latch lever 43 extends from the point 44 forwardly of the extreme front end 22 of the casing 10 and terminates in a hook 45 which engages the front face 46 of the end cap 13 to lock the latter to the casing. Interiorly of the hook 45 is an inclined surface 47 which is adapted to slide along the front face 46 of the end cap during movement of the latch lever 43 to its unlocked position. The stationary pivot 36 and movable pivot 41 are off-center with respect to each other, the movable pivot 41 being closer to the casing 10. A torsion spring 48 is arranged about the stationary pivot 36 and when the latch is released tends to pivot the rear end 49 of the link 38 clockwise as viewed in Figure 2, and is limited in such movement by end 39 abutting the casing 10. About the movable pivot 41 is a torsion spring 51 which functions when the latch is released to move the hook 45 of the latch lever 43 counterclockwise as viewed in Figure 2 to the position indicated in dotted lines and the latch lever 43 is resiliently held in this position by the torsion spring 51. In released position the latch lever 43 is disposed away from the front face 22 of the casing 10 so that the latter may be upended to its vertical bag cleaning position and the front face 22 placed upon the supporting surface without the necessity of the operator manually moving the latch lever 43 away from the supporting surface or the lever 43 interfering with placing the front end 22 of the casing directly upon the supporting surface.

In operation, the dirt-laden air is drawn

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through a suitable dusting tool unit connected to the inlet port 14 in the front end cap 13 and passes into the filter bag 18 which removes the suspended foreign material, and the cleaned air passes through the fan chamber and then through the exhaust port 12 in the rear end cap 11 into the surrounding atmosphere.

When it is desired to clean the bag 18 the operator lifts the rear end 60 of the latch lever 43 and thus moves the movable pivot 41 and link 38 about the stationary pivot 36 and causes the inclined face 47 of the hook 45 to move forwardly and toward the center of the front end cap 13. After the movable pivot 41 has passed beyond the center of the stationary pivot 36 the operator removes his hand from the end 60 of the latch lever 43 and the torsion spring 48 then is free to exert its force to pivot the link 38 about the stationary pivot 36 in a clockwise direction as viewed in Figure 2 until the forward end 39 of the link 38 rests upon the casing 10, as indicated in dotted lines in Figure 2. During clockwise movement of the link 38 and after the operator applied lifting force is removed from the rear end 60 of the latch lever 43 the torsion spring 51 pivots the latch lever 43 counterclockwise about the movable pivot 41 as viewed in Figure 2 causing the hook 45 to disengage the front end cap 13 and to move to an angular position with respect to the casing 10 and rearwardly of the front end wall 22, as shown in dotted lines in Figure 2. Thereafter the front upper end of the end cap pivots outwardly to permit the downwardly extending lip 25 on the underside thereof to disengage its socket 26.

The operator then upends the cleaner casing to its bag cleaning position with the endplate 22 lying flush upon a supporting surface which is preferably provided with a paper to receive the dirt passing through the open end 21 of the bag 18. With the cleaner casing so positioned, the bag-shaking mechanism described in the aforesaid Louis E. Segesman Patent No. 2,498,098, is operated to repeatedly vibrate the bag 18 to dislodge the dirt which thereupon falls downwardly through the opening 21 to collect upon the underlying paper or supporting surface.

After the bag has been cleaned, the operator tilts the cleaner back to its horizontal position on the supporting skids 23 and inserts the lip 25 of the end cap 13 into the pocket 26 and then grasps the rear end 60 of the latch lever 43 and moves the latter about the movable pivot 41 whereby the hook 45 engages the front end cap 13, and thereafter the rear end of the lever 43 is depressed to pivot the latter and the link 38 about the stationary pivot 36 to lock the end cap to the casing.

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From the foregoing it will be noted that when the latch is unlocked the lever 43 is automatically shifted to an angular position with respect to the casing 10 and is clear of the front end wall 22 of the casing, and is held in such position so that the casing may be upended to bag cleaning position without the operator manually holding or removing the lever 43 away from the front wall 22 as the latter is placed upon the supporting surface.

I claim:

In a suction cleaner, a casing, means defining an opening at one end of said casing, a removable cap for said opening and projecting beyond said one end, a dirt collecting filter in said casing exposed to said end opening for emptying the collected dirt therethrough, said end opening means when said cap is removed adapted to rest upon a surface to support said casing thereon in upended filter cleaning position, latch mechanism mounted on said casing and including a lever having hook means at one end movable into and out of engagement with a portion of said end cap to removably attach the latter to said casing one end, link means connected respectively to said lever and said casing by a displaceable pivot and a stationary pivot, resilient means biasing said lever for rotation about said displaceable pivot to a position inwardly of said casing from said one end and to maintain said hook means in said position when said casing is upended on said end opening means into said filter cleaning position, said hook means and end cap portion when in said engagement being arranged with respect to said pivots to prevent said operation of said biasing means, and means at the opposite end of said lever for receiving a force to move said hook means about said stationary pivot out of said engagement with said end cap portion for operation of said resilient means to rotate said hook means to said position inwardly of said casing one end.

LOUIS E. SEGESMAN.

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