Dec. 21, 1937. C. H. TAYLOR 2,103,101

SUCTION CLEANER

Filed May 18, 1936

Fig. 1

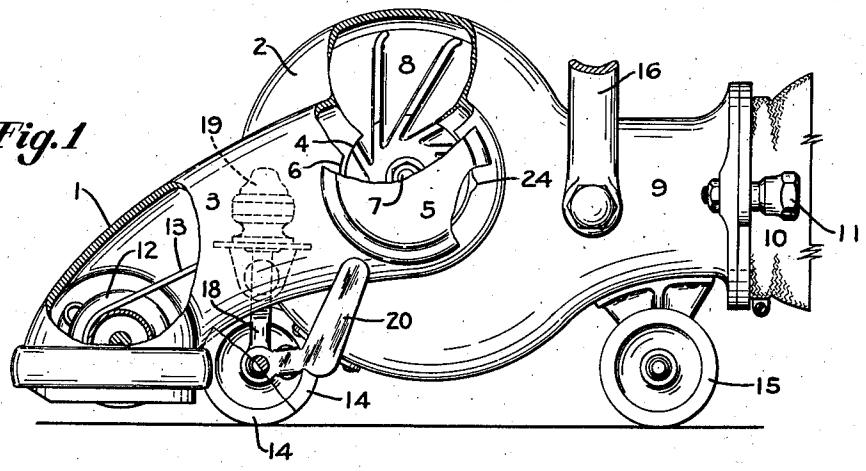


Fig. 2

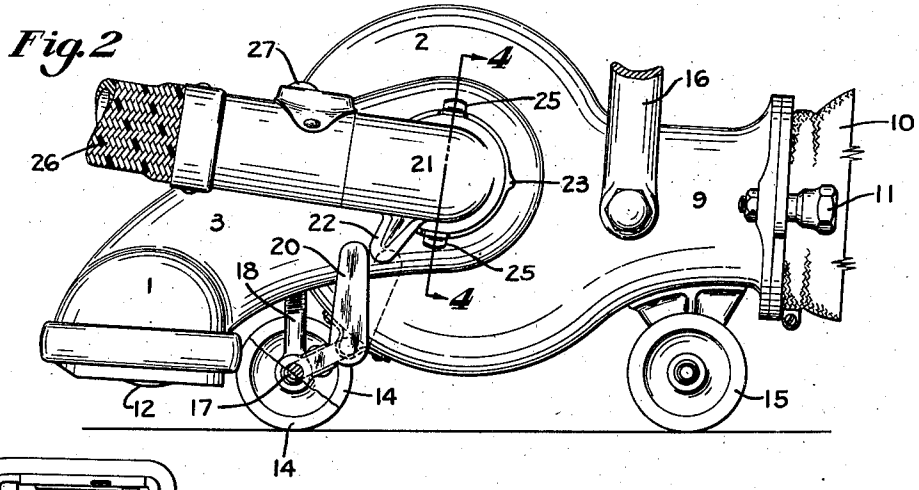


Fig. 3

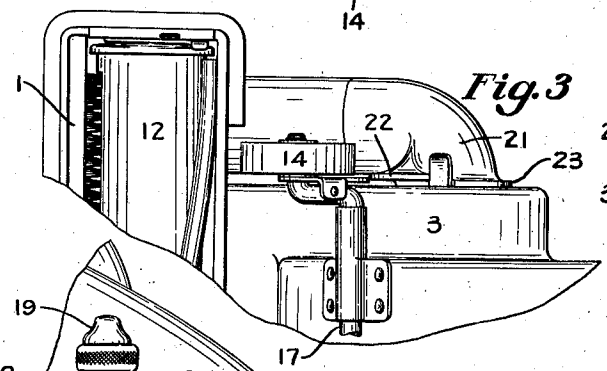
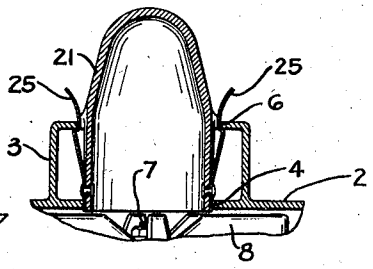


Fig. 4



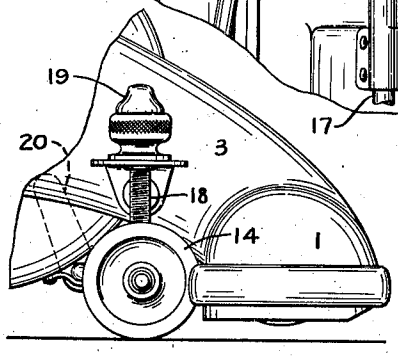


Fig. 5

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SUCTION CLEANER

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8 Claims. (Cl. 15—9)

The present invention relates to suction cleaners in general and particularly to new and novel improvements in suction cleaners designed for use with dusting tools. More specifically the invention comprises an improved suction cleaner in which the surface-contacting agitator is removed from contact with a surface covering undergoing cleaning when dusting tools are used for off-the-floor cleaning.

It is an object of the present invention to provide a new and novel suction cleaner construction. It is a further object of the invention to provide a suction cleaner in which the surface-contacting agitator is raised as a step of the conversion of the unit from an on-the-floor cleaner to an off-the-floor cleaner. A still further object of the invention is the provision of a suction cleaner in which the manual raising of the cleaner nozzle and agitator makes possible the connection of dusting tools to the suction-creating unit. These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawing to which they relate.

In the drawing in which the same reference character is used to refer to the same part throughout:

Figure 1 is a view in side elevation with certain parts broken away of a suction cleaner constructed in accordance with the present invention adapted for on-the-floor cleaning;

Figure 2 is a view similar to Figure 1 but with the cleaner adapted for off-the-floor cleaning;

Figure 3 is a partial bottom view of the cleaner shown in Figure 2;

Figure 4 is a section upon the line 4—4 of Figure 2;

Figure 5 is a partial end view of the nozzle showing the height-adjusting means.

The present disclosure is in part a continuation of application Serial No. 700,386, filed December 1, 1933, now matured into Patent No. 2,076,390.

The modern suction cleaner is adapted to perform on-the-floor and off-the-floor cleaning. The first cleaning duty comprises cleaning surface coverings. The second cleaning duty comprises cleaning objects positioned above the supporting surface. The most efficient modern suction cleaners provide surface-agitating means which cooperate with the cleaning air to dislodge the embedded foreign material from the surface coverings. When the machine is functioning as an off-the-floor cleaning unit it is desirable that means be provided which prevent continued surface contact of the surface agitating means. In the suction cleaner constructed in accordance with the present invention the manual height adjustment of the cleaner insures this last mentioned desirable feature and makes possible the alteration of the on-the-floor unit to an off-the-floor unit.

Referring to the drawing a preferred form of the present invention is disclosed. A suction cleaner is illustrated comprising a nozzle 1 which is connected to the fan chamber 2 at one side of the motor casing by an air passageway 3 which opens directly to the inlet 4 of the fan chamber. A removable cover plate 5 forming a part of the wall of the air passageway 3, immediately opposite the fan chamber inlet 4, covers an opening 6. An unshown motor of any ordinary type is positioned within an unshown motor casing adjacent fan chamber 2 and the motor shaft 7 extends into the fan chamber where it supports the suction-creating fan 8. The fan 8 is effective, in the operation of the cleaner, to draw cleaning air through the nozzle 1, into the passageway 3 and fan chamber 2, and to exhaust it therefrom through the outlet 9 into a detachable dust bag 10 which is removably secured by manually operable means 11.

Within the nozzle 1 is positioned a rotatable surface-contacting agitator 12 provided with rigid beating elements and flexible brushes which are adapted to beat and brush a surface covering undergoing cleaning. A power-transmitting belt 13 encircles a pulley portion of agitator 12 and extends therefrom into power-receiving relationship with the motor shaft 7. This exact relationship is not of the essence of the invention and may be in any common and well known manner, it being old to drive a rotatable agitator in a cleaner nozzle from a rotatable motor shaft.

The cleaner is movably supported upon front and rear wheels 14 and 15 and there is provided a pivoted handle 16 by which the operator can exert a propelling force. In order that the cleaner nozzle 1 and the agitator 12 can be adjusted vertically relative to the surface covering undergoing cleaning the front wheels 14, 14 are mounted upon a crank shaft 17 pivotally secured to the under side of the cleaner and provided with adjusting means comprising a vertical arm 18 screw threaded at its upper end and movable vertically by the manual rotation of a knurled adjusting knob 19. The specific type of adjusting means for the arm 18 is old and well known and is not of the essence of the invention.

Carried by the crank shaft 17 is a lockout arm 20 which, in all normal on-the-floor positions of

the nozzle 1 and agitator 12, extends adjacent the air passageway opening 6 and its cover 5. If the cleaner nozzle be raised by its adjusting means to such a height that the cleaner clearly is inoperative as an on-the-floor unit the lockout arm 20 is also moved from its position closely adjacent the opening 6, indicated in full lines in Figure 1 and in dotted lines in Figure 2, to a new position, indicated in full lines in Figure 2, in which it is spaced a greater distance from the opening 6. The importance of this adjustment will be made apparent immediately.

If the operator desires to use the cleaner as an off-the-floor cleaning unit the cover plate 5 is removed from the opening 6 in the air passageway 3 to permit of the insertion, in a common and well known manner, of a dusting tool converter element 21 through the opening 6 and into contact with the eye 4 of the fan chamber. The converter 21 is provided with an outstanding shoulder or arm 22 which extends, with the converter in place upon the cleaner, into the space or a portion of the space normally occupied by the lockout member 20 with the nozzle adjusted for on-the-floor cleaning. No other angular position for the shoulder 22 is possible for a raised projection 23 upon the periphery of the converter 21 can only seat in the opening 6 at the point at which a groove 24 is provided to receive it. Leaf springs 25, 25 are carried by the converter 21 and extend through the opening 6, being provided with shoulders which seat upon the inner wall of the opening to prevent accidental displacement of the converter. To release and remove the converter it is necessary only to urge the springs 25, 25 inwardly to permit of their disengagement. In the drawing in Figure 2 a dusting tool hose 26 is shown removably secured to the converter 21 by suitable manually operable retaining means 27.

In the suction cleaner constructed in accordance with the present invention in normal on-the-floor cleaning the cleaner is adjusted as illustrated in Figure 1 and the opening 6 of the air passageway is closed by the cover 5. Rotation of the motor shaft 7 causes the suction-creating fan 8 to draw air through the nozzle 1, and exhaust it by the fan chamber 2 and the exhaust outlet 9 into the dust filter bag 10. The surface covering below the nozzle 1 is lifted into contact with the nozzle lips and is beaten and brushed by the rotating agitator 12. The movement of the cleaner over the surface covering by the operator through the handle 16 effects surface cleaning. In the off-the-floor cleaning relationship the cover plate 5 is removed and to permit of the insertion of the converter element 21 the nozzle has been raised to a position such as shown in Figure 2 in order to remove the lockout member 21 from the position to be occupied by the shoulder 22 of the converter. While the shoulder 22 of the converter is shown as being extended at the side of the air passageway through the converter it is to be understood that the invention includes the idea of extending the lockout member 20 to a position across the opening 6 so that no shoulder upon the converter member would be required, the shoulder 22 being considered as merely a part of the converter. The converter member 21 is inserted through the opening 6 of the air passageway 3 and seats in air tight relationship with the eye 4 of the fan chamber being removably retained and locked in place by the springs 25, 25. The full suction of the fan 8 is then effective through the converter 21 to the dusting tool including the hose 26. The raising of the nozzle removes the agitator 12 from all possible contact with the underlying surface covering.

I claim:

1. In a suction cleaner having suction-creating means, a surface contacting agitator, and a body including a dusting tool seat; means to support said agitator above a surface covering undergoing cleaning, means to adjust said supporting means to raise and lower said agitator and a movable member obstructing said dusting tool seat, said movable member being connected to said supporting means and movable by manual adjustment thereof to a non-obstructing position to permit the attachment of a dusting tool unit to said seat.

2. In a suction cleaner having a body adapted to receive a dusting tool unit, and a surface-contacting agitator; agitator-supporting means adjustable to raise said agitator from contact with a surface covering, a rigid lockout member extended into position to prevent attachment of a dusting tool unit to said body and connected to said agitator-supporting means and movable thereby to an inoperative position upon the manual raising of said agitator from contact with a surface covering.

3. In a suction cleaner having a body forming a nozzle and a fan chamber, a surface contacting agitator in said nozzle and a fan in said fan chamber, said body being adapted to seat a dusting tool unit in operative relationship to said chamber, supporting wheels, means connecting said wheels to said body for adjustment to raise and lower said nozzle and agitator, a lockout member preventing the seating of a dusting tool unit upon said body in certain adjustments of said nozzle and agitator, said lockout member being connected to said connecting means, and a manually operable member to position said wheels relative to said body to raise and lower said nozzle and to move said lockout member to an inoperative position.

4. In a suction cleaner, the combination with suction-creating means, of a body having a dusting tool connection, a surface contacting agitator carried by said body, a supporting member for said agitator adapted to be vertically adjusted to raise and lower said agitator with respect to surface contacted thereby, means carried by said adjustable supporting member to prevent the connection of a dusting tool to said body when said agitator is in surface contacting position, and manually operated means for vertically adjusting said agitator and supporting member.

5. In a suction cleaner, the combination with suction-creating means, of a body having a dusting tool hose connection, a surface contacting agitator carried by said body, vertically adjustable supporting means for said body, a manually operative adjusting device connected with said body supporting means, the latter including a barrier member shiftable therewith into and out of position to prevent the connection of a dusting tool hose with said body except in the raised position of said agitator.

6. In a suction cleaner, the combination with suction-creating means, of a body having a dusting tool hose connection, a surface contacting agitator carried by said body, a vertically adjustable supporting member for said body including manually operative adjusting mechanism, a barrier member carried by said body supporting

member and shiftable therewith into and out of position to obstruct the entrance to said dusting tool hose except in a predetermined position of said agitator.

7. In a suction cleaner, the combination of a body member including suction-creating means and a connection for a dusting tool hose communicating with said suction-creating means, a surface contacting agitator supported by said body member, wheels carried by said body member and vertically adjustable to raise said agitator above the surface normally contacted thereby, a manually operated adjusting device connected with said adjustable wheel and a barrier member normally positioned to obstruct the dusting tool hose connection to prevent the attachment of a dusting tool hose thereto when said agitator is in surface contacting position, said adjusting device having operative connection with said barrier member whereby the latter is displaced from said hose connection obstructing position in the raising of said agitator out of surface contacting position.

8. In a suction cleaner, the combination of a body member including suction-creating means and a connection for a dusting tool hose communicating with said suction-creating means, a surface contacting agitator supported by said body member, a wheel supporting member mounted on said body member adjacent said agitator and vertically adjustable to raise said agitator above the surface normally contacted thereby, a manually operated adjusting screw connected with said wheel supporting member and a barrier member carried by said wheel supporting member and normally positioned over said connection to prevent the attachment of a dusting tool hose thereto when said agitator is in surface contacting position but adapted to be displaced therefrom upon the raising of said agitator by the operation of said adjusting screw.

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