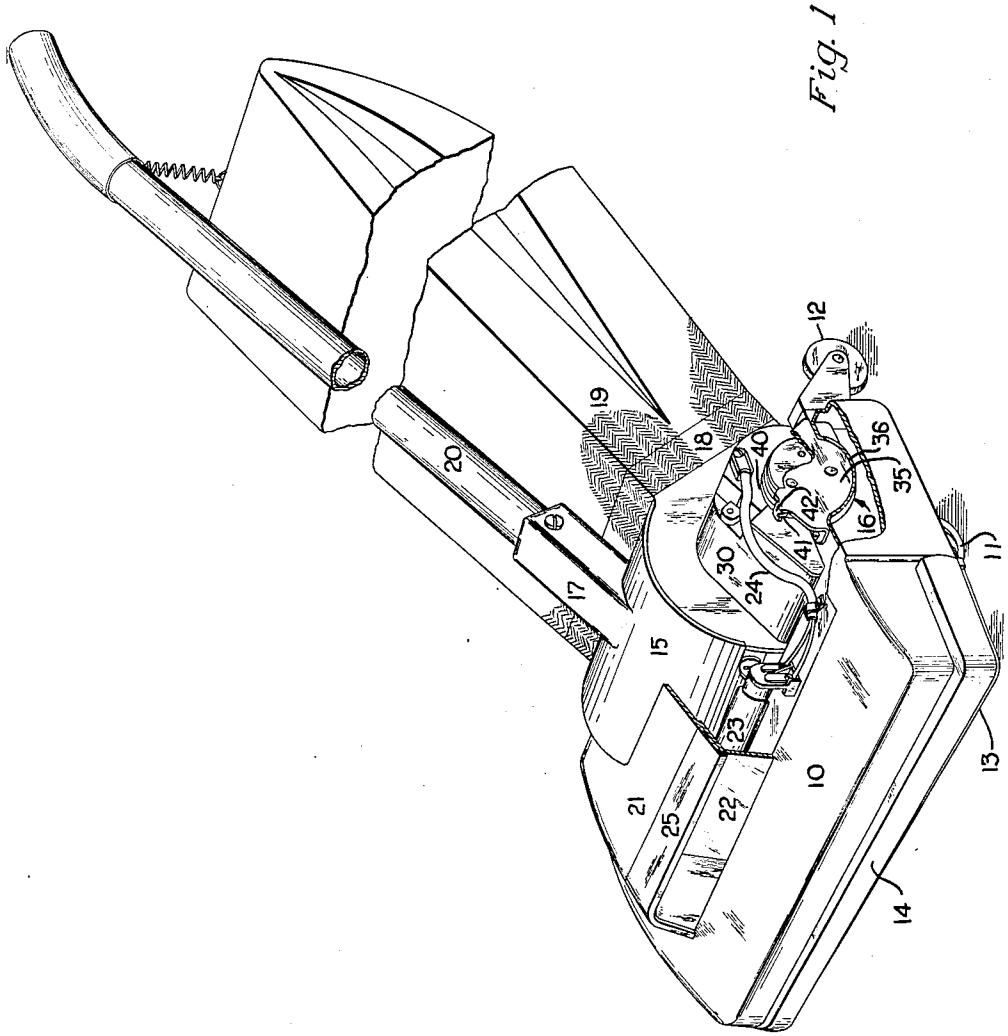
March 16, 1954 L. E. SEGESMAN 2,671,924

COUNTERBALANCING MEANS FOR PIVOTED MOTOR SUCTION CLEANERS

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Fig. 1



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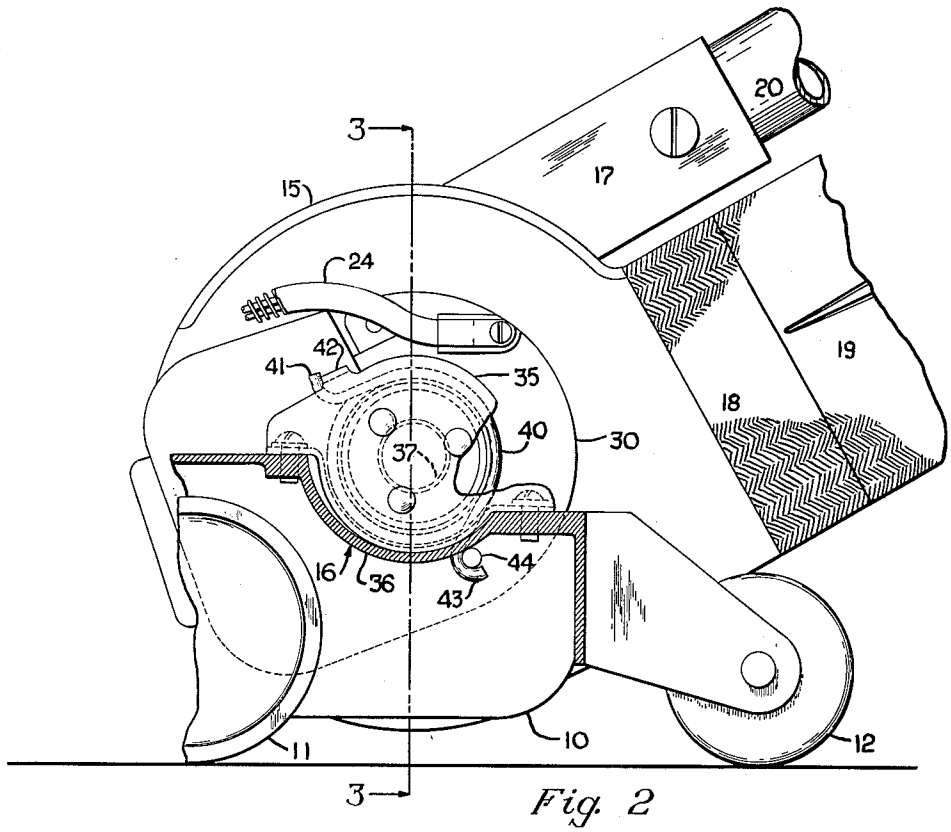


Fig. 2

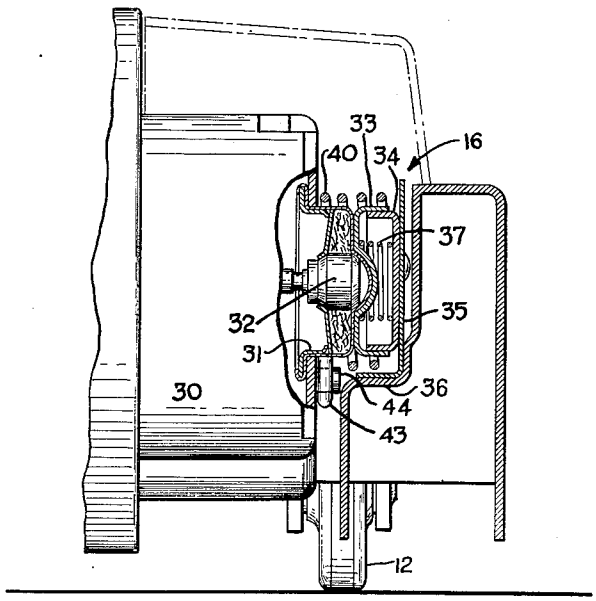


Fig. 3

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UNITED STATES PATENT OFFICE

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COUNTERBALANCING MEANS FOR PIVOTED MOTOR SUCTION CLEANERS

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4 Claims. (Cl. 15—350)

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This invention relates to suction cleaners and more particularly to the type in which the motor-fan unit is rotatably or pivotally mounted on the main body of the cleaner on a transverse horizontal axis such as disclosed and claimed in the United States patent to Burkhardt 2,225,621 dated December 24, 1940.

In machines of the above type the handle is rigid with the motor-fan casing and with the exhaust nozzle and the upper end of the filter bag is carried by the handle. According to the present invention the weight of the handle and filter bag is counterbalanced by a spring which surrounds one of the trunnions by which the motor-fan casing is pivotally supported.

Other objects and advantages of this invention will become apparent when taken in connection with the accompanying drawing in which:

Figure 1 is a perspective view of the suction cleaner of this invention with certain parts broken away to show details;

Figure 2 is an end view of the cleaner of Fig. 1 with certain parts broken away to show one of the supporting trunnions; and

Figure 3 is a sectional view through the trunnion taken on line 3—3 of Fig. 2 and looking in the direction of the arrows.

Referring to the drawings and particularly to Fig. 1 thereof the cleaner of this invention includes a main body 10 mounted for ambulatory movement on front and rear wheels 11 and 12 respectively and having a downwardly facing nozzle 13 with a bumper 14 positioned along its front edge.

A motor-fan casing 15 is pivotally mounted on the body 10 by a pair of trunnions, one of which is generally indicated at 16, and the other of which may be of the same construction as that disclosed in the abovementioned patent to Burkhardt. A handle socket 17 and an exhaust nozzle 18 are rigid with the casing 15. A filter bag 19 has its lower open end detachably connected to the nozzle 18 and its closed upper end supported from the handle 20.

A hood 21 is mounted on top of the body 10 and partially embraces the casing 15. A light transmitting lens 22 is positioned in front of the hood 21 to transmit light rays from a lamp 23 positioned behind the lens 22 and electrically connected to the motor circuit by flexible conductors 24. A furniture bumper or guard 25 extends across the front of the hood 21 above the lens 22.

The motor-fan casing 15 includes a motor

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housing 30 which extends into a space in the body 10, otherwise unoccupied, which lies at the opposite side of the cleaner from the suction passageway (not shown) which extends upwardly and rearwardly from the nozzle 13 to the suction side of the fan.

The trunnion 16 is shown in detail in Figs. 2 and 3 and comprises a cup-shaped member 31 suitably secured to the end of the housing 30 and which encloses the bearing 32 for one end of the motor-fan shaft. Welded or otherwise secured to the closed end of the cup 31 is a cup-shaped member 33 having its open end enclosing the open end of another cup-shaped member 34 carried by a bracket 35 supported in an arcuate flange 36 of the main frame 10. A coiled spring 37 is positioned within the cup-shaped members 33 and 34 and presses against the closed ends thereof to take up any end play in the pivotal supporting means.

A coiled counterbalancing spring 40 surrounds the trunnion 16 formed by the cup-shaped members 31, 33, and 34. At one end the coil spring 40 has its hooked end 41 extending over an inturned lug 42 on bracket 35 and at its other end has a second hooked end 43 engaging about a pin 44 extending outwardly from the end of the motor housing 30.

The spring 40 is so wound about the trunnion 16 and so tensioned that movement of the casing 15 in a clockwise direction by movement of the handle 20 to its inclined operating position of use will additionally stress the spring 40 so as to tend to move the handle back to a vertical position and thus counterbalance the weight of the handle 20 and of the filter bag 19. The tensioning of the spring is such that the spring 40 will just about carry the weight of the handle and bag when the handle is in its inclined position of use as shown in Fig. 1.

A suitable stop may be provided to limit upward movement of the handle to a vertical storage position. Any suitable handle control detent mechanism may be provided to latch the handle in that position.

While I have shown but a single embodiment of my invention it is to be understood that that embodiment is to be taken as illustrative only and not in a limiting sense. I do not wish to be limited to the specific structure shown and described but to include all equivalent variations thereof except as limited by the scope of the claims.

I claim:

1. A suction cleaner comprising, a body mounted for movement over a surface to be cleaned, a motor-fan unit including a casing, means for piv-

otally supporting said casing on said body on a transverse horizontal axis, a propelling handle rigid with said casing and extending upwardly and rearwardly from said body in its position of use, said pivotal supporting means including a trunnion for pivotally supporting one end of said casing on said body and a spiral counterbalancing spring surrounding said trunnion, said spring having one end anchored to said body and its other end anchored to said casing and being so stressed as to tend to move said handle upwardly when said handle is in its position of use.

2. A suction cleaner according to claim 1 including an exhaust nozzle rigid with said casing, a filter bag having a lower open end secured to said exhaust nozzle and a closed upper end supported from said handle, said spring being so stressed as to substantially carry the weight of said handle and filter bag when said handle is in its inclined position of use.

3. A suction cleaner according to claim 1 in which said trunnion includes an outwardly opening cup-shaped member secured to the end of said

casing and surrounding an inwardly opening cup-shaped member supported on said body so as to form a closed recess between the closed ends of said members.

4. A suction cleaner according to claim 3 including a compression spring pressing against the closed ends of said cup-shaped members to take up end play in said pivotal supporting means.

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