

April 30, 1940.

H. B. WHITE

2,198,897

SUCTION CLEANER

Filed Feb. 19, 1937

3 Sheets-Sheet 1

Fig. 1

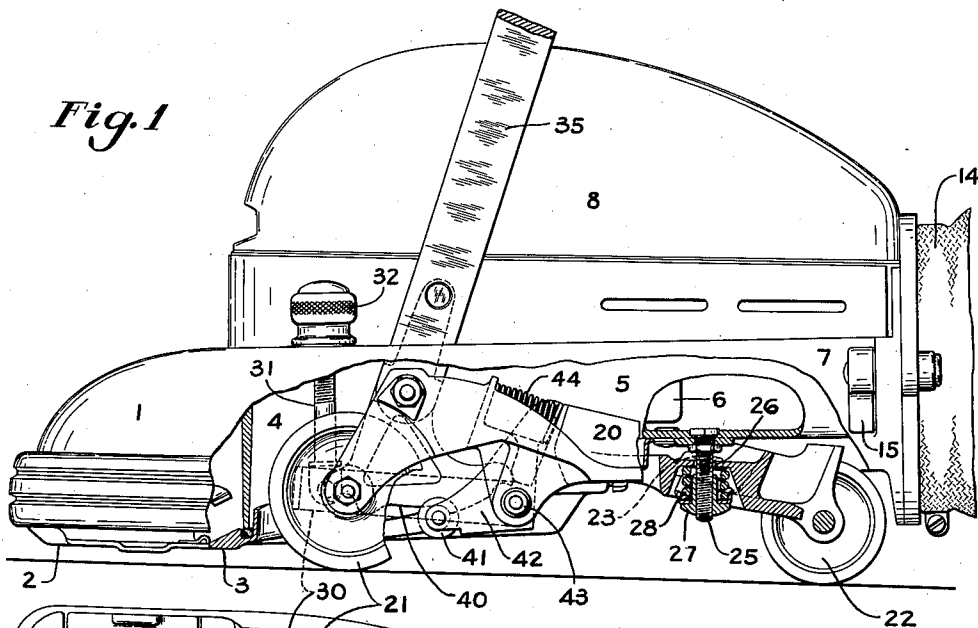
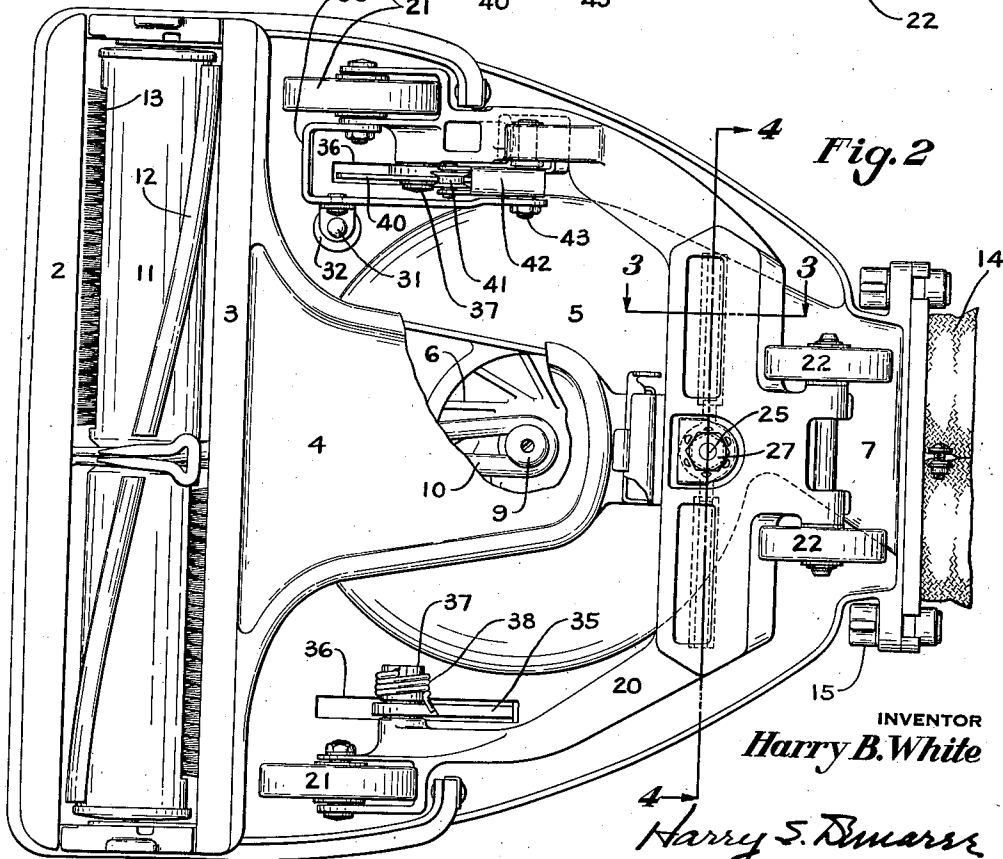


Fig. 2



INVENTOR

Harry B. White

Harry S. Demaree

ATTORNEY

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H. B. WHITE

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Fig. 3

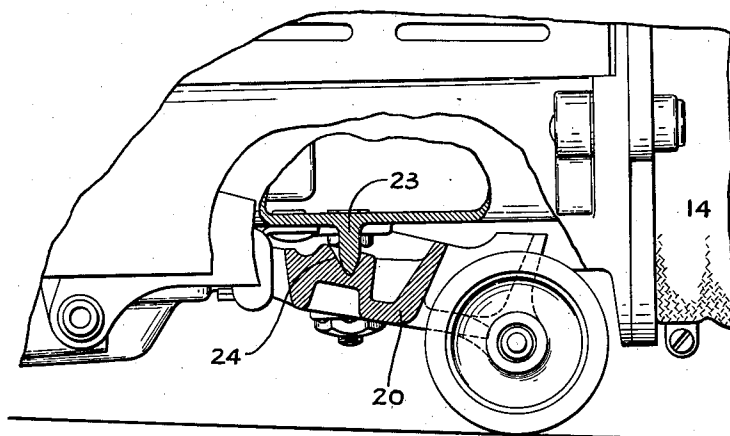


Fig. 4

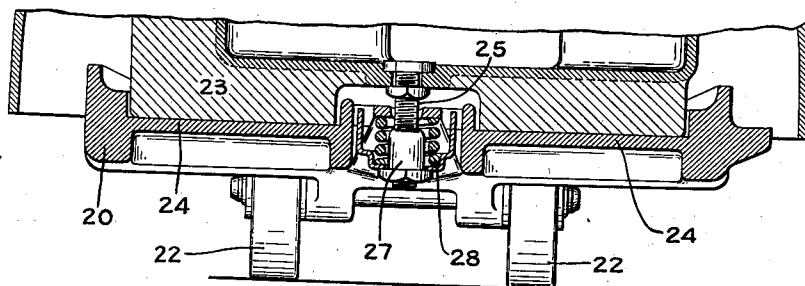
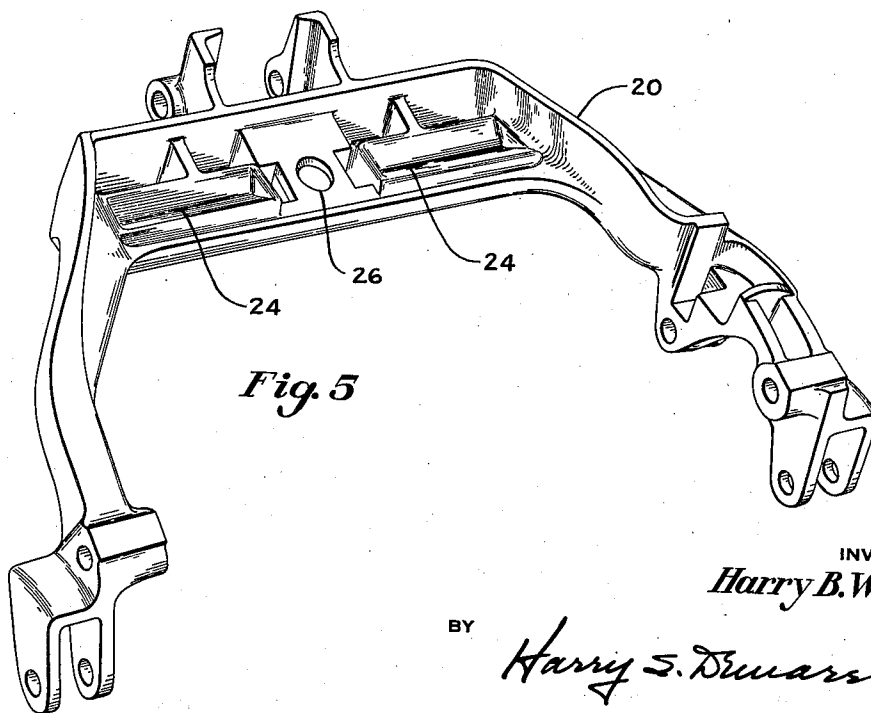


Fig. 5

INVENTOR

Harry B. White

BY

Harry S. Drumm

ATTORNEY

April 30, 1940.

H. B. WHITE

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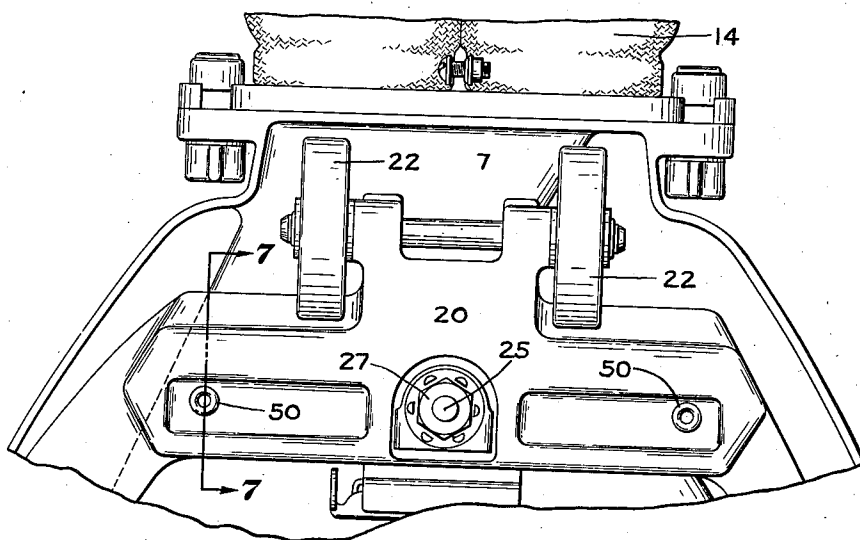


Fig. 6

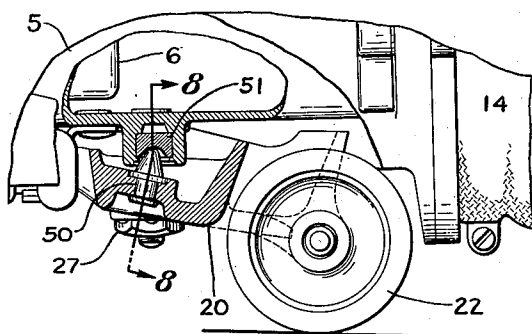


Fig. 7

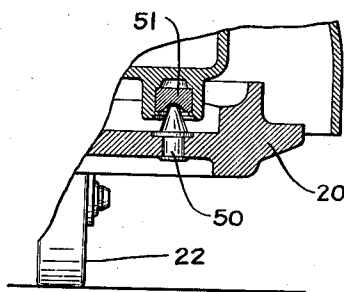


Fig. 8

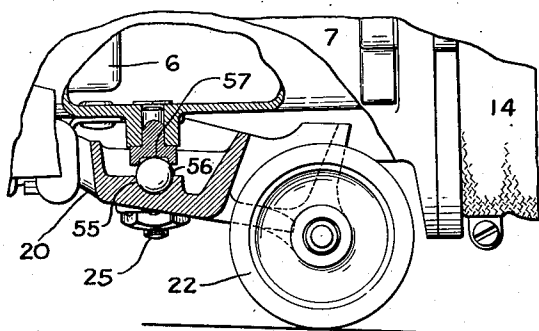


Fig. 9

BY

Harry S. Demaree

INVENTOR
Harry B. White

ATTORNEY

UNITED STATES PATENT OFFICE

2,198,897

SUCTION CLEANER

Harry B. White, Canton, Ohio, assignor to The Hoover Company, North Canton, Ohio, a corporation of Ohio

Application February 19, 1937, Serial No. 126,651

5 Claims. (Cl. 15—16)

The present invention relates to suction cleaners in general and more particularly to new and novel suction cleaner body-supporting means. More specifically the invention comprises a suction cleaner in which the cleaner body is supported upon an ambulatory chassis in a new and novel manner.

It is an object of the present invention to provide a new and improved suction cleaner. It is another object of the invention to provide a suction cleaner embodying new and novel supporting means. Still another object of the invention is the provision of a suction cleaner in which the cleaner body is adjustably mounted upon a wheeled chassis. A still further object of the invention is to provide a suction cleaner in which the cleaner body is pivotally mounted upon a supporting chassis in a manner to reduce to a minimum all friction resulting from the pivoting and in which a spring acts to hold the body and chassis together. A still further object of the invention is to provide a suction cleaner in which the cleaner body is freely pivoted upon and is spring-held to a supporting chassis which chassis also carries the actuating handle.

These and other more specific objects will appear upon reading the following specification and claims, and upon considering in connection therewith the attached drawings to which they relate.

Referring now to the drawings in which preferred embodiments of the present invention are disclosed:

Figure 1 is a side elevation of a suction cleaner embodying the present invention with certain parts broken away and shown in section;

Figure 2 is the bottom view of the cleaner shown in Figure 1;

Figure 3 is a partial section upon line 3—3 of Figure 2 and shows the pivotal mounting between the cleaner body and its supporting chassis;

Figure 4 is a transverse vertical section through the pivotal connection upon the line 4—4 of Figure 2;

Figure 5 is a view in perspective of the cleaner chassis;

Figure 6 is a partial bottom view of a cleaner embodying a preferred modification of the present invention;

Figure 7 is a section upon the line 7—7 of Figure 6;

Figure 8 is a section upon the line 8—8 of Figure 7;

Figure 9 is a partial section similar to Figure 7 and shows a second preferred modification of the present invention.

Referring now to Figures 1 to 5 inclusive in particular, the first embodiment of the invention is disclosed. A suction cleaner body including a nozzle 1 having front and rear surface-contacting lips 2 and 3, is interiorly connected by an air passageway 4 to a fan chamber 5, within which is positioned a suction-creating fan 6, and which includes an exhaust outlet 7. A motor housing 8 is positioned above the fan chamber 5 and encloses an unshown driving motor, the shaft 9 of which extends downwardly through the fan chamber 5 where it carries the fan 6 and into the air passageway 4 where it is formed as a pulley. A power-transmitting belt 10 transmits the rotational force of the driving motor shaft to the nozzle 1 and functions to rotate an agitator 11 which is adapted to contact a surface covering undergoing cleaning between the nozzle lips 2 and 3 with its rigid beater elements 12 and brush elements 13. A dust bag 14 is removably secured to the rear of the cleaner, and particularly to the exhaust outlet 7, by manually operable securing means indicated generally at 15, and is adapted to receive the dirt-laden air exhausted from the machine by the suction-creating fan.

The entire cleaner body, including all the parts heretofore described, is supported upon a Y-shaped chassis positioned below it and substantially hidden by the depending side walls or skirt of the body. This chassis is indicated generally by the reference character 20, and the side arms of the Y are bifurcated at their forward ends where supporting wheels 21, 21 are mounted. Rear supporting wheels 22, 22 are positioned at the bottom of the Y.

The cleaner body immediately above the central portion or crotch of the Y-shaped chassis is provided with a downwardly extending knife edged shoulder at 23, while the chassis is formed with a V-shaped seat 24 immediately thereunder which is adapted to seat the shoulder 23 and to permit the latter to rock. Both shoulder 23 and seat 24 are formed in two halves which are centrally separated and at this separation a pin 25 extends downwardly from the body and through an opening 26 formed in the chassis. Opening 26 is larger in diameter than pin 25 and the relationship therebetween does not interfere with the rocking of the body upon the chassis, or more specifically, the pivotal rocking movement of shoulder 23 in its seat 24. As is clearly seen

in Figure 1 the pin 25 extends in the plane of the shoulder 23.

A threaded nut 27 is carried by the lower end of pin 25 on the underside of chassis 20, and between the nut and the chassis is positioned a coil spring 28, which is under compression and which draws the pin downwardly thereby securing the body to the chassis.

At the forward extremity of one of the arms of the chassis a bracket 30 is rigidly secured and to this bracket is pivoted a bolt 31 which extends up through the overlying casing wall to be enclosed at its upper end by a casing-carried manually operable nut 32. The manual rotation of nut 32 in one direction causes the forward end of the machine to move downwardly about the supporting shoulder 23 as an axis, while rotation of the nut in the opposite direction causes the front or nozzle end of the machine to be raised.

As in the usual suction cleaner an operating handle is provided, being indicated by the reference character 35. Handle 35 is bifurcated at its lower end and extends downwardly through slots 36, 36 in the cleaner body to be pivoted upon pins 37, 37 carried by the chassis. At one of the pins 37 is provided a coil spring 38 which tends to urge the handle forwardly at all times.

Handle position is maintained through the cooperation of a rigidly carried arcuate sector 40, formed with spaced detent seats, and a roller detent 41 mounted upon a frame 42. Frame 42 is pivoted to chassis 20 by the pin 43 and is pivoted by a coil spring 44 in such direction as to maintain roller 41 in constant engagement with the face of arcuate sector 40. The handle-positioning means is common and well known and permits the handle to be pivoted to definite positions and within definite ranges of movement. The handle weight, it is to be noted, is carried entirely by the chassis, and not by the cleaner body.

Referring now to Figures 6 to 8 inclusive, a second preferred embodiment of the invention is disclosed in which the shoulders 23, 23 on the cleaner body and their seats 24, 24 on the chassis, of the first embodiment, have been replaced by a pair of conical pins 50, 50 carried by the chassis which contact conical seat members 51, 51 carried by the body immediately thereabove. The relationship between the cleaner body and its chassis is otherwise the same as in the first embodiment, the body pivoting about a pivotal axis defined by the top ends of the conical pins 50, 50.

Referring now to Figure 9 in particular, the third embodiment of the invention is disclosed, in which the knife edged shoulders 23, 23 of Figure 1 and their seats 24, 24 have been replaced by ball and socket mountings which are spaced in the manner of the second embodiment of the invention illustrated in Figures 6 to 8 inclusive. A ball seat 55 positioned equi-distant from a longitudinal center line through the cleaner, in the manner of pins 50, 50, seats a rotatable ball bearing 56 and the body of the cleaner is formed with a downwardly facing seat member 57 which is supported by the ball in each case. The pivotal movement of the body of the cleaner is the same as in the previously described modifications.

In all the modifications the body is secured to its supporting chassis about the pivotal axis under the force exerted by the coil spring at 28.

I claim:

1. In a suction cleaner, the combination of a body and a wheeled frame supporting said body through the medium of a knife-edge bearing extending transversely of said body, a pin depending from said body and passing through said frame in the line of said knife-edge bearing and provided with a head at its lower end, and a spring mounted on said pin between its head and the underside of said frame and acting to hold the same against said body and permitting a limited tilting movement thereof.

2. In a suction cleaner, the combination of a body and a wheeled frame supporting said body through the medium of a transverse bearing consisting of a complementary groove and knife edge, a pin passing through said frame substantially in line with said knife-edge bearing and anchored in said body, and a coil spring carried at the lower end of said pin and bearing against the underside of said frame and acting to hold the same against said body and permitting a limited tilting movement thereof.

3. In a suction cleaner, the combination of a body, a wheeled frame of U-shape arranged symmetrically beneath said body and having pivotal support thereon through the medium of a transverse knife-edge bearing between said frame and the underside of said body, a pin extending through said frame centrally of said knife-edge bearing and anchored in the underside of said body, a nut mounted on the threaded lower end of said pin, and a spring mounted on said pin between said nut and the underside of said frame and adapted to hold said frame against said body and permit a limited tilting movement of said body on its knife-edge support.

4. In a suction cleaner, the combination of a body, a wheeled carriage beneath said body and supporting the same for limited rocking movement thereon through the medium of a transverse knife-edge bearing located rearwardly of the center of mass of said body, a pin depending from said body and passing through said frame substantially in the line of said knife-edge bearing, and a spring mounted on said pin below said frame and acting to hold the same against said body and allowing the limited rocking movement thereof.

5. In a suction cleaner, the combination of a body, a carriage having wheels at its front and rear ends and supporting said body for limited rocking movement about a transverse axis defined by a knife-edge bearing between the underside of said body and said frame and located intermediate the front and rear wheels, a pin depending vertically from the underside of said body and passing through said frame centrally and in the line of said knife-edge bearing, and a spring mounted on said pin between a head at its lower end and a socket-like recess in the underside of said frame and acting to hold the latter yieldingly against said body.

HARRY B. WHITE.