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HANDLE CONTROL FOR SUCTION CLEANERS

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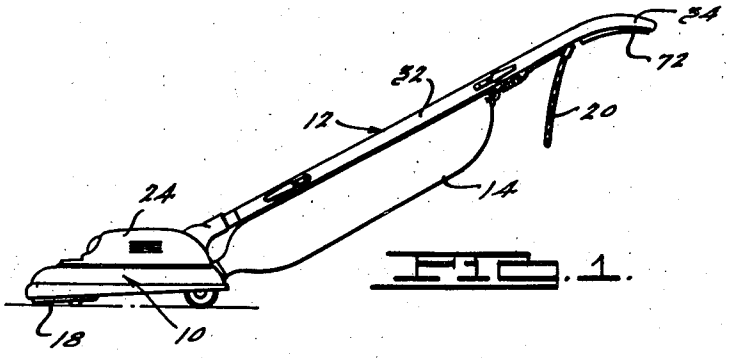


FIG. 1.

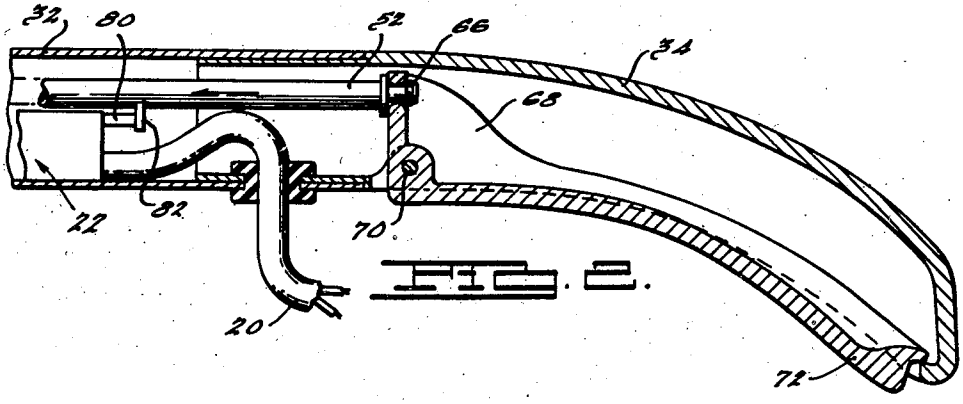


FIG. 2.

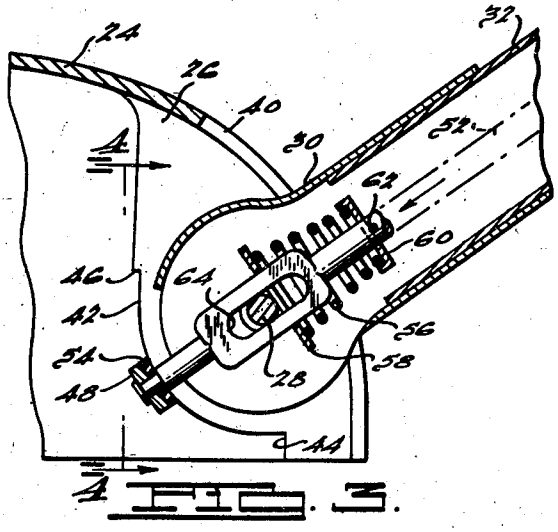


FIG. 3.

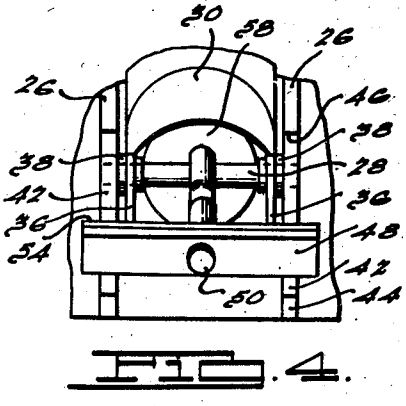


FIG. 4.

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HANDLE CONTROL FOR SUCTION CLEANERS

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7 Claims. (Cl. 306—10)

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This invention relates to handle controls for suction cleaners and has particular reference to a new and simple arrangement whereby the positioning of the handle with respect to the cleaner chassis may be readily controlled.

Heretofore it has been the practice to provide in connection with the handle of a suction cleaner a handle lock and a handle control. According to the present invention, a normally operative handle lock is constructed and arranged to function both as a handle lock and as a handle position control and a trigger release is associated with the hand grip on the handle whereby the lock may be released to permit free pivoting movement of the handle during maneuvering of the cleaner. I also contemplate that such trigger may be associated with the switch which controls the circuit for the electric motor of the cleaner so as to provide what might be termed a "dead man" control.

Principal objects of the invention, therefore, are to provide:

A new and improved handle lock and control for suction cleaners;

A "dead man" control for suction cleaners.

Other and further objects of the invention will be apparent from the following description and claims and will be understood by reference to the accompanying drawings, of which there is one sheet, which, by way of illustration, show a preferred embodiment and the principles thereof and what I now consider to be the best mode in which I have contemplated applying those principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims. I also contemplate that of the several different features of my invention, certain ones thereof may be advantageously employed in some applications separate and apart from the remainder of the features.

In the drawings

Fig. 1 is a side elevational view of a cleaner embodying the invention;

Fig. 2 is an enlarged fragmentary sectional view of the free end of the handle;

Fig. 3 is an enlarged fragmentary sectional view of the pivoted end of the handle and of the cleaner hood to which the handle is pivotally connected; and

Fig. 4 is a fragmentary elevational view of the pivotal connection between the handle and the hood and taken generally along the line 4—4 of Fig. 3.

As shown in Fig. 1, a suction cleaner embodying the invention comprises a wheeled chassis 10, a handle 12 pivoted to the chassis or casing 10, and a dirt collecting and filtering bag 14. The chassis

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10 includes an electric motor driven suction creating fan (not shown) which is operatively connected to the nozzle 18 of the cleaner for inducing a flow of dirt laden air into the dirt collecting and filtering bag 14, all of which is well known to the art.

A current conducting cord 20 is connected to the free end of the handle and through the handle to the electric motor of the cleaner for supplying current under the control of a switch indicated at 22 (Fig. 2).

The chassis includes a hood 24 provided by a die casting or a moulded plastic part, such hood being suitably connected to and forming a part of the wheeled chassis 10. The hood 24 is provided with a pair of spaced parallel ribs 26 which provide a support for a pivot pin or shaft 28 for the handle, the ends of the pin being suitably secured in openings in the ribs 26.

The handle 12 includes a socket 30, a tubular part or stem 32 and a hand grip 34, all the parts being suitably secured together. The socket 30 includes parallel spaced walls 36 provided with bushings 38 which are journaled on the pin or shaft 28 so as to provide a pivotal mounting for the handle 12 about the axis of the pin 28. The socket 30 projects through a slot 40 in the hood which permits the handle to be pivoted between a horizontal position and a vertical or parked position. The position in which the handle is illustrated in Fig. 1 is in what might be termed an operating position which is between the vertical and horizontal positions just referred to.

The ribs 26 are each provided with curved surfaces 42 having shoulders 44 and 46 at the end thereof. The shoulders 44 and 46 determine the limits of the pivoting movement of the handle about its pivotal axis. The center of curvature of the surfaces 42 is the axis of the pin or shaft 28. The surfaces 42 form a part of the frictional locking mechanism which further includes a locking bar 48 mounted on the end 50 of a rod or bar 52.

The bar 48 is provided with a facing 54 of rubber or other frictional gripping material which bears against the surfaces 42 to lock the handle against pivoting movement about the pin or shaft 28. A spring 56 confined between washers 58 and 60 reacts on the rod 52 to bias the locking bar 48 into frictional locking engagement with the surfaces 42. The washer 58 is seated against the shaft 28, while the washer 60 seats against a pin 62 which projects from both sides of the rod 52. A portion of the rod 52 is enlarged and provided with a slot 64 through which the shaft 28 extends so as to properly locate the locking bar 48 relative to the surfaces 42. The other end of the rod 52 is suitably connected at 66 to one arm of a bell crank 68 pivoted at 70 within the hand grip 34 of the handle.

The other arm 72 of the bell crank 68 projects through a slot in the hand grip 34 and comprises a trigger or actuating member by means of which the fingers of an operator's hand holding the hand grip 34 may, by pressing on the trigger 72, pivot the bell crank 68 in a counterclockwise direction about the pivot 70 and move the rod 52 in the direction of the arrow indicated in Fig. 2 against the force of the spring 56, so as to release the locking bar 48 from engagement with the locking surfaces 42, thereby to permit free pivotal movement of the handle 12.

In the position in which the parts are shown in the drawings, the locking bar 48 is frictionally engaged with the locking surfaces 42. Such frictional locking engagement will be released, however, whenever the trigger 72 is actuated, as previously described.

The switch 22 may be of the type which is normally open and is provided with an actuating member 80 positioned in the path of a pin 82 on the rod 52 so that whenever the trigger 72 is actuated, the pin 82 will through the actuating member 80 close the switch contacts so as to cause the suction cleaner to operate. Thus, whenever the trigger 72 is released, the motor circuit will be open and the handle 12 will be locked in the position in which it was at the time that the trigger 72 is released. The "dead man" control thus provided may be employed if desired, although I contemplate that it may be used independently of the handle lock and control arrangement herein disclosed and vice versa.

The switch 22 is suitably mounted in the handle tube 32. From the foregoing, it will be evident that when the trigger 72 is released that the handle lock will be engaged as the spring 56 normally actuates the locking mechanism to its operative or engaged position.

While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. In a suction cleaner, a wheeled chassis having a handle pivoted thereto, said chassis having a curved surface whose center of curvature is the pivotal axis of said handle on the cleaner, a locking bar arranged parallel to said pivotal axis and movable with the handle in its pivoting movement about said axis and frictionally engageable with said surface to lock said handle against pivoting movement, spring means operable for biasing said locking bar into frictional locking engagement with any part of said surface to lock said handle in a selected position relative to said chassis, said handle having a hand grip, a manually operable trigger associated with said hand grip and a connection between said trigger and bar for releasing the frictional locking engagement between said bar and surface to permit pivoting movement of said handle only when said trigger is actuated.

2. In a suction cleaner, a wheeled chassis having a hood with a pair of ribs, a shaft carried by said ribs, a handle pivoted to said shaft, said pair of ribs providing curved surfaces, a locking member movable with the handle in its pivoting movement about said axis and engageable with said surfaces to lock said handle against pivoting movement, spring means operable for biasing said member into locking engagement with any part of said surfaces to lock said handle in a selected position relative to said chassis, said handle having a hand grip, a manually operable trigger associated with said hand grip and a connection between said trigger and member for releasing the locking engagement between said member and surface to permit pivoting movement of said handle only when said trigger is actuated.

3. In a suction cleaner, a wheeled chassis having a handle pivoted thereto, said chassis having spaced walls defining curved locking surfaces, a locking bar movable with the handle in its pivoting movement about said axis and arranged parallel to said axis and having a friction facing frictionally engageable with said surfaces to lock said handle against pivoting movement, spring means operable for biasing said bar into frictional locking engagement with any part of said surfaces to lock said handle in a selected position relative to said chassis, said handle having a hand grip, a manually operable trigger associated with said hand grip and a connection between said trigger and bar for releasing the frictional locking engagement between said bar and surfaces to permit pivoting movement of said handle only when said trigger is actuated.

4. A device according to claim 1 wherein said curved surface is provided with shoulders at the ends thereof which are positioned to be engaged by said locking bar upon pivotal movement of said handle to limit the range of pivotal movement thereof.

5. In a suction cleaner a wheeled chassis having a shaft, a handle pivotally mounted on said shaft, the free end of said handle being arranged for swinging movement rearwardly and downwardly from a vertical position to an operating position, members arranged at the side of the handle pivot having curved surfaces whose center curvature is the axis of said shaft, a locking bar arranged parallel to said shaft and mounted on said handle so as to be movable therewith in its pivoting movement about said shaft and arranged for locking engagement with said curved surfaces, spring means biasing said locking bar into engagement with said curved surfaces so as to lock said handle relative to said chassis, said handle having a hand grip, a manually operable lever associated with said hand grip, and a connection between said grip and locking bar for releasing the same from engagement with said surfaces so as to permit pivoting movement of the handle on said shaft.

6. A device according to claim 5 wherein said connection extends through said handle and is provided with a shoulder and said spring is confined between said shaft and shoulder.

7. In a suction cleaner a wheeled chassis having a shaft, a handle pivotally mounted on said shaft, the free end of said handle being arranged for swinging movement rearwardly and downwardly from a vertical position to an operating position, members arranged at the side of the handle pivot having curved surfaces whose center of curvature is the axis of said shaft, a locking bar arranged parallel to said shaft and mounted on said handle so as to be movable therewith in its pivoting movement about said shaft and arranged for locking engagement with said curved surfaces, spring means biasing said locking bar into engagement with said curved surfaces so as to lock said handle relative to said chassis, said handle having a hand grip, and a lever connected with said locking bar and

operable for releasing the same from engagement with said surfaces so as to permit pivoting movement of the handle on said shaft.

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