Nov. 13, 1956 J. P. HUNTER 2,769,998

MOBILE VACUUM CLEANER HAVING A HOSE ADAPTED TO BE USED AS A PUSHING OR PULLING MEANS THEREFOR

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Fig. 6

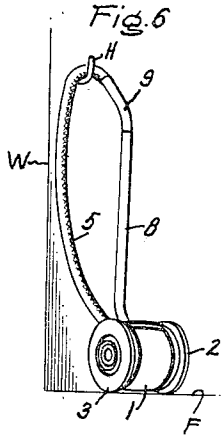


Fig. 7.

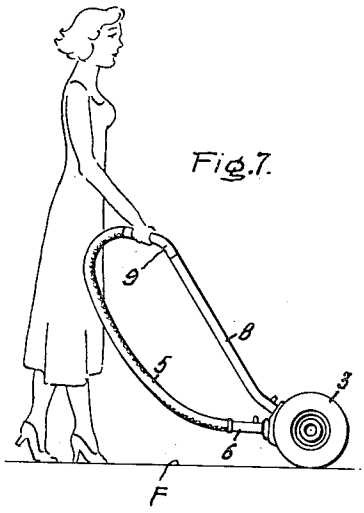


Fig. 8.

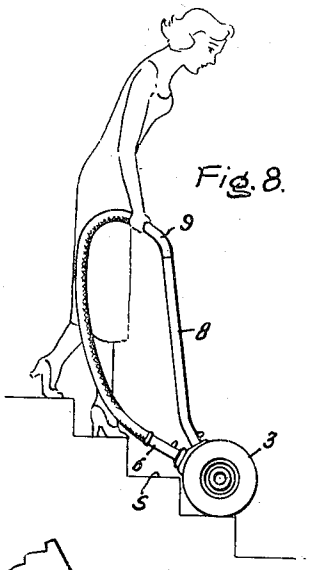


Fig. 1.

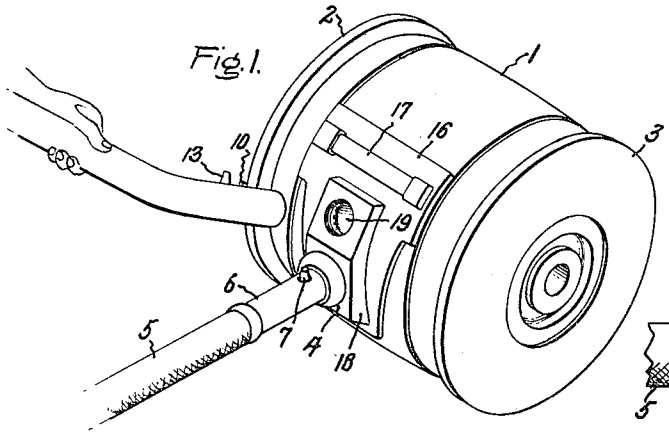


Fig. 2.

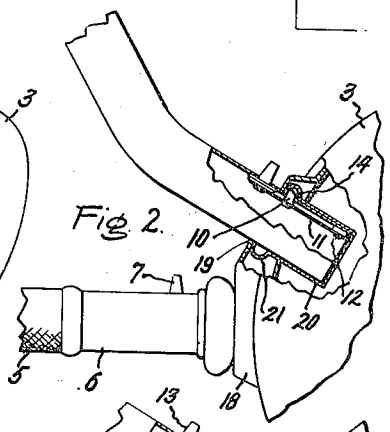


Fig. 4.

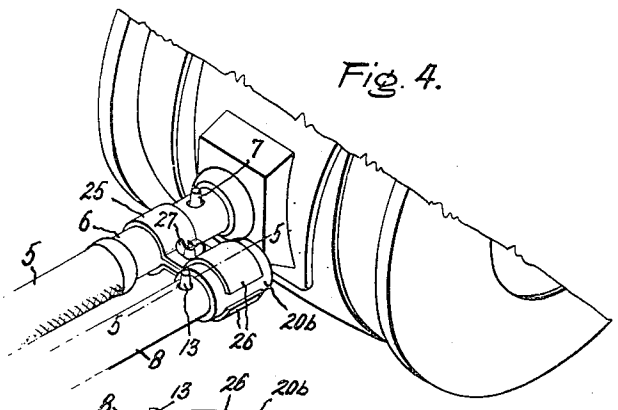


Fig. 3.

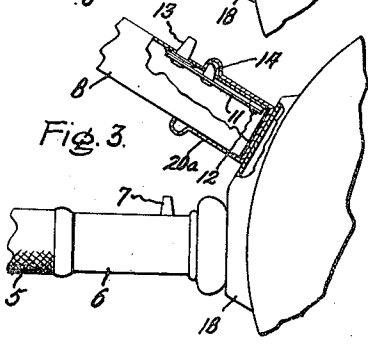
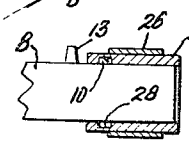


Fig. 5.



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MOBILE VACUUM CLEANER HAVING A HOSE ADAPTED TO BE USED AS A PUSHING OR PULLING MEANS THEREFOR

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Application December 21, 1953, Serial No. 399,270

7 Claims. (Cl. 15—327)

The present invention relates to vacuum cleaners of the type comprising a casing in the form of a drum or cylinder supported at opposite ends on wheels, the drum or cylinder, in its side wall, being provided with walls which define a suction inlet for the vacuum cleaner hose. In such cleaners the hose comprises a flexible section formed of a length of flexible tube having at one end a connector which fits in the suction inlet to connect the hose to the cleaner, and a rigid section, termed usually a wand, suitably connected to the outer end of the flexible section. The free or outer end of the wand is arranged to have different cleaning tools attached thereto, the wand forming a handle for a cleaning tool for moving it over the surface to be cleaned.

A vacuum cleaner of this type has the advantage of being mobile, it being easily moved across a floor by the hose when being used. However, since the hose section which is connected to the cleaner casing is flexible, it becomes awkward and inconvenient to move the cleaner from one room to another for example, or up and down stairs by the suction hose. Also, it is awkward because of the length of the hose.

The object of the present invention is to provide an improved construction and arrangement whereby the free or tool end of the wand of a suction hose can be connected to the vacuum cleaner casing whereby it forms a handle for use in moving the cleaner on its wheels from one place to another, for example, from one room to another, or up and down stairs, and for supporting the cleaner against a wall for storing, which is simple in structure, easy to use and capable of being embodied in a vacuum cleaner at little additional cost.

According to my invention, I provide in connection with a vacuum cleaner of the above-referred to type, means which provides a pocket near the connection of the hose to the vacuum cleaner casing in which the end of the wand, to which the cleaning tools are normally attached, may be positioned whereby the wand may be used as a rigid handle for moving the cleaner, the other end of the hose being at the same time attached to the cleaner so that the hose as a whole is carried along. In other words, both ends of the hose are attached to the cleaner, thus forming the hose into a loop, and the wand is used as a handle. The pocket may be formed as a part of the vacuum cleaner casing or it may be formed as a part of the connector which connects the hose to the suction inlet, either arrangement serving to provide a pocket near the suction inlet for the reception of the wand end. The wand end may be fastened in the pocket by the same means used to attach cleaning tools to it.

For a consideration of what I believe to be novel and my invention, attention is directed to the following specification and to the claims appended thereto.

In the drawing,

Fig. 1 is a perspective view of a vacuum cleaner embodying the invention.

Fig. 2 is a detail end view of the structure shown in Fig. 1, the casing being partly broken away to illustrate the wand connecting means.

Fig. 3 is a view similar to Fig. 1 of a modification.

Fig. 4 is a perspective view of a further modification.

Fig. 5 is a detail sectional view taken on line 5—5, Figure 4.

Figs. 6, 7, and 8 are views illustrating the use of the invention.

Referring to the drawing, 1 indicates the casing of a vacuum cleaner which is in the form of a drum or cylinder which is oriented on a horizontal axis. At its two axial ends the casing is supported on wheels 2 and 3 suitably attached to it, the cleaner being adapted to be moved around on the wheels. In the side of casing 1 are walls which define the suction inlet 4 of the cleaner, it embodying means whereby the one end of a suction hose may be fastened therein. In the casing are the usual motor driven suction fan and dust bag, and at a suitable point is the air discharge opening. Such parts form no part of the present invention and for this reason they have not been illustrated.

The suction hose comprises a flexible tube section 5 having swivelly secured at one end a connector 6 for connecting the suction hose to the suction inlet. Connector 6 may be made of metal or other suitable rigid material. It is of a diameter to fit into the suction inlet and is provided with means for detachably locking it in the inlet. When locked in the suction inlet, the connector is substantially rigidly connected to the casing, however, the flexible tube section is swivellable relative to the connector. The locking means may be of any suitable structure and since its specific structure forms no part of my invention and such locking means are known, it has not been illustrated beyond showing the button 7 which when pressed inwardly serves to release the locking means to permit removal of the connection from the suction inlet. Attached to the other end of flexible hose section 5 by suitable means is a rigid tube section 8, termed usually a wand, formed from metal tubing for example. Preferably the connection between the flexible hose section, and wand is formed by curved, rigid, coupling tube 9, which is permanently swiveled to the free end of the hose section and adapted to be releasably coupled to wand 8 in a conventional manner. If desired, cleaning tools may be attached directly to the tube 9 for certain cleaning operations. When connected to the flexible hose, wand 8 is normally used as a handle for the several cleaning tools, its free end being provided with latch means for detachable connecting tools to it, and it may be provided with a curved lower end, as best shown in Figure 7, so that when a cleaning tool is attached to said end, its other end is at a convenient height and the wand is at a convenient angle for moving the cleaning tool over the surface to be cleaned. In the present instance the latch means is shown as comprising a latch nose 10 attached to a spring strip 11 intermediate between the ends of the strip. Strip 11 is located inside wand 8 adjacent to the end of the wand and at one end is attached to the wand by suitable means, such as rivets, as is indicated at 12. The other end of strip 11 is provided with a latch releasing button 13 which projects out through an opening in the wand and is biased to such position by the inherent resiliency of spring strip 11. Latch nose 10 also projects out through an opening in the wand and is biased to such position by the spring strip. With such a latch structure each cleaning tool is provided with a sleeve into which the wand end may be inserted, the sleeve having walls which form an annular groove in which latch nose 10 engages when the wand end is inserted into the sleeve, to lock the cleaning tool on the wand end. As shown in Figs. 2 and 3, the one

side of nose **10** is rounded as is indicated at **14** whereby when the wand end is inserted into the tool sleeve it will be forced inward by being pressed against the end of the sleeve; and when in line with the annular groove in the sleeve will spring out into it thus fastening the cleaning tool to the wand. The locking means may be released to permit removal of a cleaning tool by pressing inward on button **13**.

The vacuum cleaner structure so far described is a known one and is to be taken as typical of such structures. My invention has to do with providing means whereby the end of the wand may be substantially rigidly attached to the vacuum cleaner casing whereby the wand may be used as a handle for moving the cleaner over a floor, from room to room, or up and down stairs, and also providing means whereby the cleaner may be stored against a wall. It should be understood that in accomplishing this, it is contemplated that the wand and flexible section may be simultaneously connected to the cleaner when using the wand as a handle, or that the wand may be disconnected from the flexible section, connected to the cleaner, and used alone to push the cleaner around.

Referring to Figs. 1 and 2, **16** indicates an escutcheon plate which is attached to casing **1** by suitable means and which at one edge has attached to it a handle **17** for use in carrying the cleaner. Adjacent to handle **17** is an embossed portion **18** in which suction inlet **4** is formed, and adjacent to suction inlet **4** are walls which form a pocket **19** in which the end of the wand tube may be fastened. The pocket is formed by means of a short sleeve **20** closed at its inner end and attached to embossed portion **18** at its outer end in line with an opening in portion **18**. Just inside the opening, sleeve **20** is provided with an annular groove **21** in which a latch nose **10** is adapted to engage as shown clearly in Fig. 2. To attach the wand to the cleaner casing it is necessary merely to push the end of the wand into the pocket as shown in Fig. 2. As the wand end is pushed into the pocket, latch nose **10** will be forced inward by reason of rounded surface **14** and will ride along the inner surface of the pocket until it comes in line with groove **21** whereupon it will snap out into the groove thus locking the wand end in the pocket. When locked in the pocket, the wand end is substantially rigidly connected to the cleaner casing. The wand end may be removed from the pocket by pressing in on button **13** to move the latch nose out of groove **21** and pulling the wand end out. In Figures 1, 2, and 3, I have shown pocket **19** as being positioned vertically above suction inlet **4**, however, it should be understood that these parts may be positioned along side of each other in a horizontal plane, if so desired.

In Fig. 3 is shown a modification of the invention wherein the sleeve **20***a*, corresponding to sleeve **20** of Fig. 2, instead of being located within the confines of casing **1** is located outside the casing, its bottom wall being suitably attached to the embossed portion of the escutcheon plate directly adjacent to the suction inlet by suitable means such as solder, a weld, or the like. Otherwise the structure of Fig. 3 is similar to that of Figs. 1 and 2.

In Figs. 4 and 5 is shown a modification wherein the pocket, instead of being attached to and forming a part of the cleaner casing is attached to and carried by hose connector **6**. In this modification, sleeve **20***b* which forms the pocket is attached to connector **6** by a clamp comprising a part **25** which surrounds connector **6** and two clamping arms **26** between which sleeve **20***b* is held, the clamp being tightened by a bolt and wing nut **27**. In the inner surface of the sleeve **20***b* is an annular groove **28** in which latch nose **10** engages. The operation of this modification is similar to that of the others and will be obvious from the explanation already given.

In one application of my invention an important feature resides in locating the pocket for the wand end adjacent to the suction inlet, i. e., the suction hose connection. By this arrangement the hose, when the wand is connected to the casing, forms a loop as shown in Figs. 6, 7 and 8, the flexible section hanging draped under the wand section. Thus the flexible section is fairly out of the way and does not interfere with moving the cleaner casing about on its wheels as illustrated by Figs. 7 and 8. This is especially important when moving the cleaner up or down stairs S, as shown particularly in Fig. 8, since by having the wand connection adjacent to the hose connection, the flexible section does not contact with the steps. Also the loop may be used to great advantage in storing the cleaner, the loop being positioned over a hook H located at a suitable height in a wall W as shown in Figure 5. In Figures 5 and 6, F indicates a floor. In the preferred embodiment illustrated, the pocket and inlet have been shown juxtaposed; this has practical advantages, such as manufacturing ease. However, it should be realized that the distance between the pocket and the inlet, primarily in the modifications shown in Figures 1, 2 and 3, may be increased from that shown in the drawings.

Another feature of the invention is that of utilizing the latch means already provided on the wand for connecting cleaning tools to it, as the latch means for connecting the wand to the cleaner casing for by this arrangement it is necessary merely to provide the pocket for the wand end, a thing which can be done at low cost. In other words, the invention can be embodied in a vacuum cleaner of the type to which the invention relates by merely providing the pocket directly adjacent to the suction inlet.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A vacuum cleaner comprising a casing having a suction inlet, wheels on the casing for supporting it and on which it may be moved, a suction hose comprising a flexible section and a rigid wand section, the end of the wand section being provided with latch means for connection of cleaning tools thereto, means connecting the end of said flexible section to the suction inlet, and said cleaner having means forming a pocket adjacent to said suction inlet into which the end of said wand section may be positioned, said pocket forming means comprising latching means for engagement by the tool latching means at the end of the wand section for substantially rigidly fastening the wand section in said pocket whereby when the wand section is fastened in the pocket it forms a handle for moving the cleaner on its wheels with the flexible section hanging in a loop beneath the wand section.

2. The combination defined by claim 1 wherein the pocket forming means comprises a sleeve positioned within the confines of the vacuum cleaner casing.

3. The combination defined by claim 1 wherein the pocket forming means comprises a sleeve attached to the outer surface of the vacuum cleaner casing.

4. The combination defined by claim 1 wherein the pocket forming means comprises a sleeve attached to the flexible hose section adjacent to its end.

5. A vacuum cleaner as defined in claim 1, wherein said pocket forming means comprises walls on said casing.

6. A vacuum cleaner comprising a casing, wheels on the casing for supporting it and on which it may be moved, a suction hose comprising a flexible section and a rigid wand section, the wand section being provided with a tool end, an escutcheon plate fastened to a side wall of the casing, and walls carried by the escutcheon plate which define a suction inlet to which the discharge end of said vacuum cleaner hose may be connected, said walls also defining a pocket adjacent to said suction inlet to which the tool end of the wand section may be connected, said tool end having latch means for connection of cleaning tools thereto, and said pocket having latching means for engagement by the tool latching means, whereby when the tool end of the wand section is fastened in the pocket, the wand section forms a handle for moving the cleaner on its wheels.

7. A vacuum cleaner as defined in claim 1, wherein

said casing is substantially cylindrical and oriented on a horizontal axis and said wheels are located on opposite axial ends of said casing.

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