Oct. 19, 1943. D. M. DOW 2,332,208

VACUUM CLEANER

Filed June 21, 1940 3 Sheets-Sheet 1

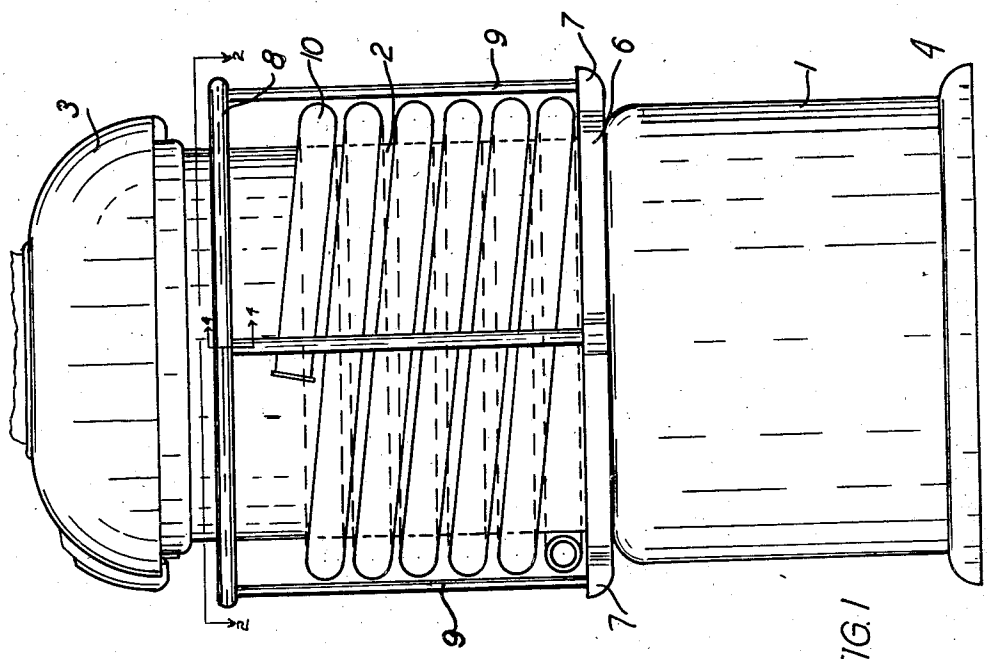

FIG. 1

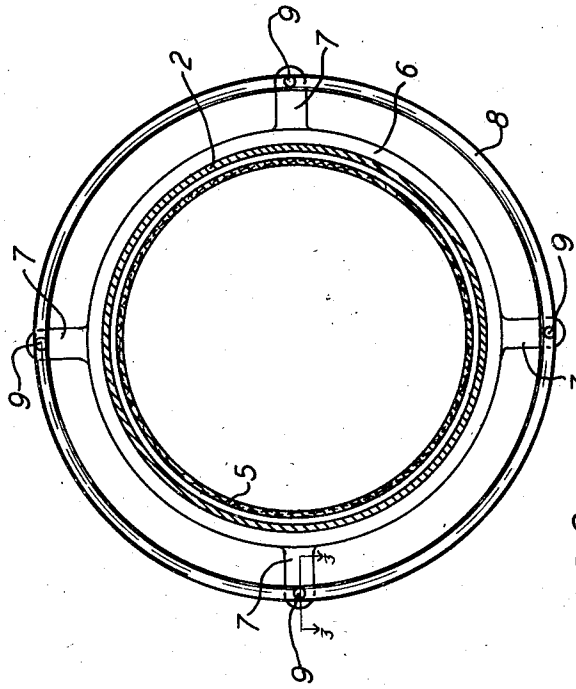

FIG. 2

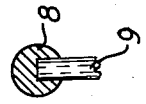

FIG. 4

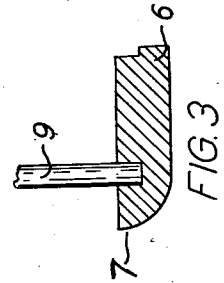

FIG. 3

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VACUUM CLEANER

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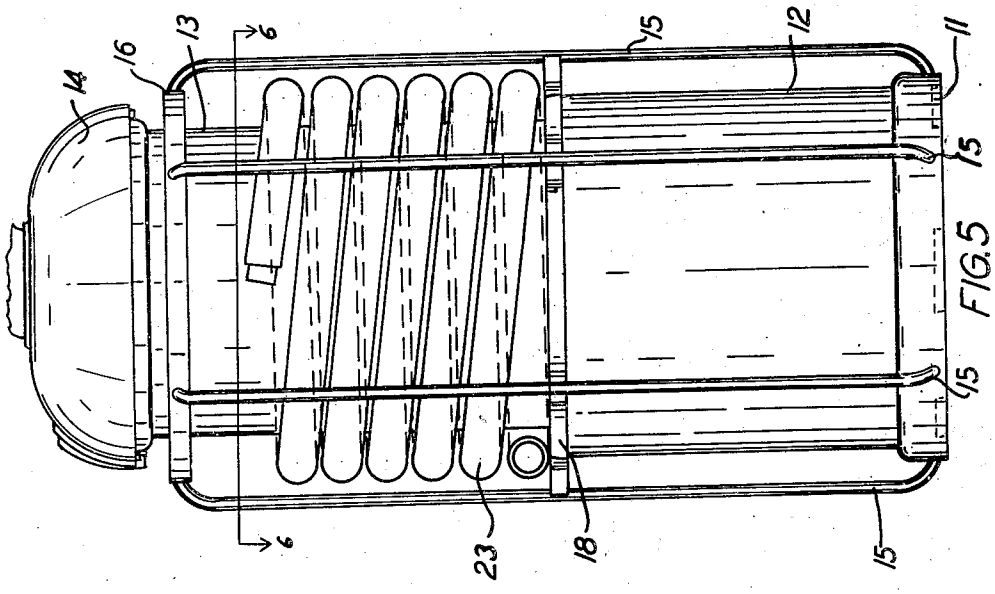

FIG. 5

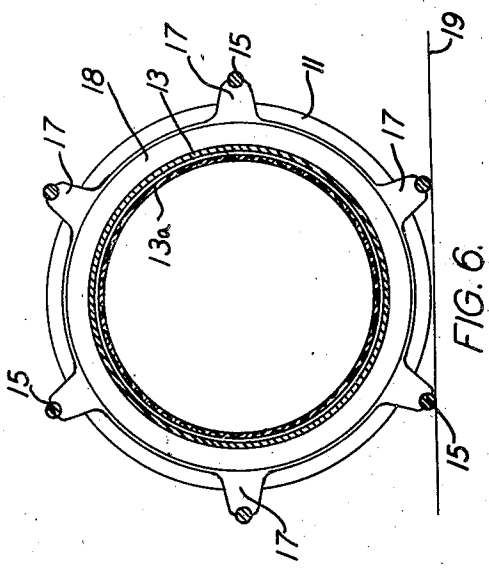

FIG. 6.

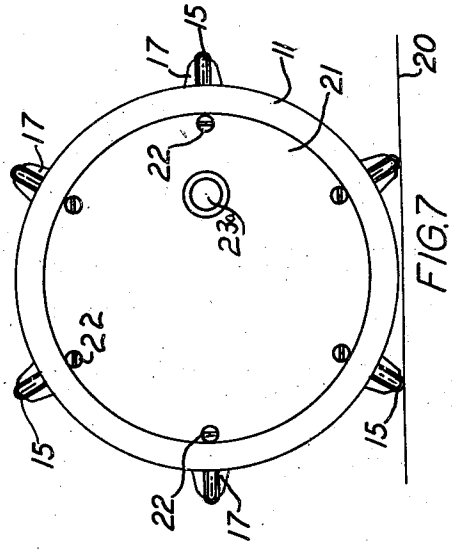

FIG. 7

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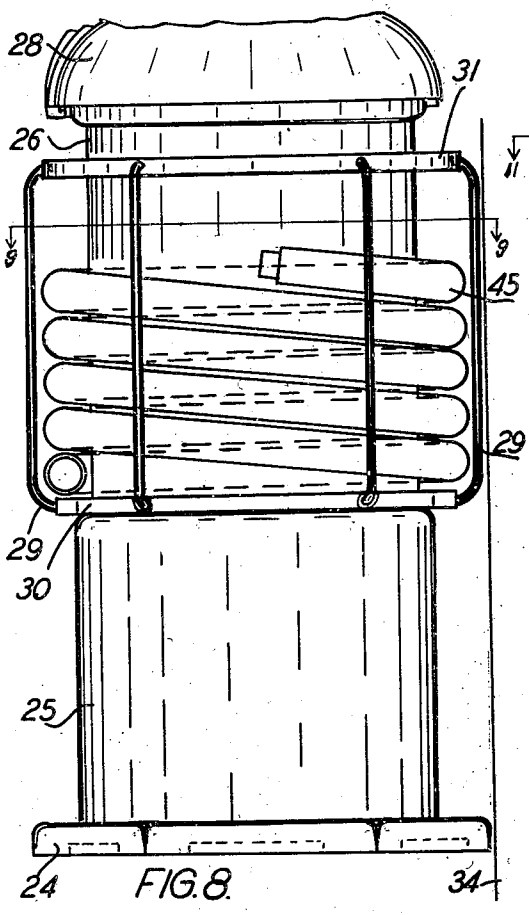

FIG. 8.

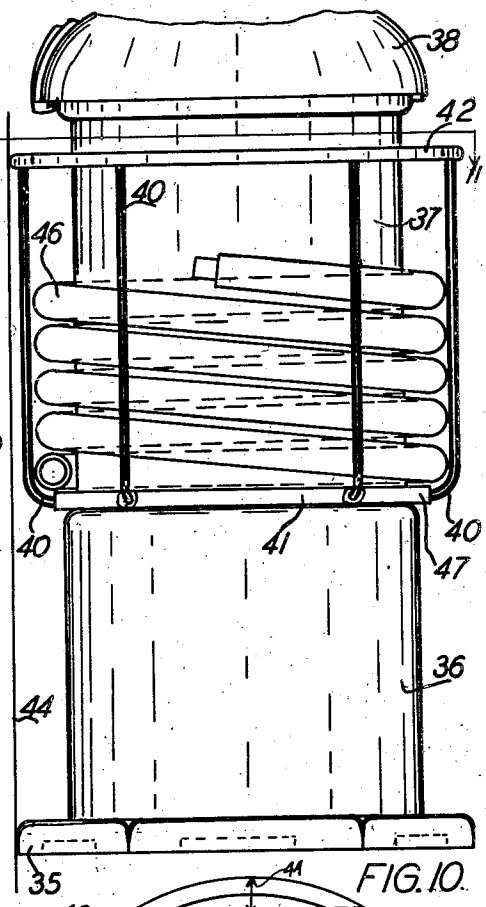

FIG. 10.

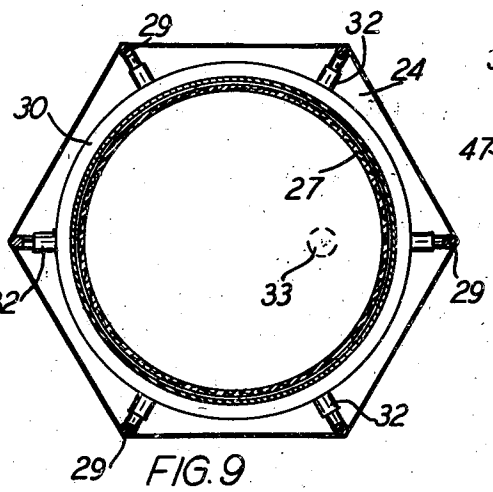

FIG. 9.

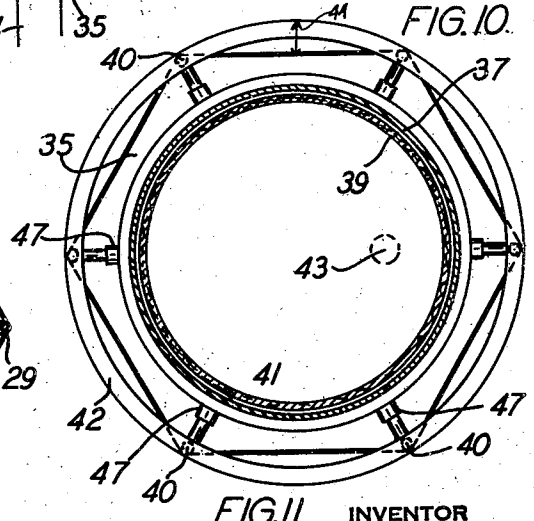

FIG. 11.

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2,332,208

VACUUM CLEANER

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Application June 21, 1940, Serial No. 341,761

11 Claims. (Cl. 15—1)

This invention relates to vacuum cleaners and has as its general object to provide a hose retainer formed as a unitary part of the suction producing, air filtering and dust collecting unit, or cleaner body.

A more specific object of the invention is to provide a vacuum cleaner having a hose retainer encircling and spaced from a portion of the cleaner body so as to retain in position a hose coiled about said body portion.

Another object of the invention is to provide a vacuum cleaner having a hose retainer having the additional function of supporting or assisting in supporting the cleaner body in a horizontal position.

Other and further objects will appear to those skilled in the arts to which this invention appertains as the description proceeds which taken in connection with the accompanying drawings sets forth a preferred embodiment thereof but it is to be distinctly understood that any and all modifications, alterations and variations of structure coming with the spirit and scope thereof are to be included herein. The invention is to be limited only by the definition set forth in the appended claims.

In the drawings.

Fig. 1 is a vertical elevational view of a cleaner incorporating my invention.

Fig. 2 is a horizontal sectional view of the cleaner, without the hose, taken substantially along the line 2—2 of Fig. 1.

Figs. 3 and 4 show details of construction and are taken substantially along the lines 4—4 and 3—3 of Figs. 1 and 2 respectively.

Fig. 5 is a vertical elevational view of a modification of the invention.

Fig. 6 is a section view taken along the line 6—6 of Fig. 5, but with hose removed.

Fig. 7 is a bottom plain view of the cleaner.

Fig. 8 is a vertical elevational view of still another modification of the cleaner.

Fig. 9 is a sectional view of Fig. 8, taken along the line 9—9, but with the suction hose removed.

Fig. 10 is a vertical elevational view of still another modification of the cleaner.

Fig. 11 is a sectional view along the line 11—11, but with the suction hose removed.

Tank or cylinder type vacuum cleaners almost universally employ a wand and a section of hose to connect the floor tool with the cleaner body. In ordinary practice the manipulation of the hose and its storage when not in use constitutes an annoying problem for the user of the machine. It is difficult to hang up the hose in a closet, and it gets in the way when laid on the closet floor as contrasted with the wand which can be set in a corner and leaned against the wall. It frequently happens when the cleaner is carried about the house that the user finds it difficult to carry both hose, wand and cleaner all at the same time. My invention permits the hose to be carried as a unitary part of the cleaner body assembly, thus eliminating these difficulties. The hose is supported about the cleaner body by means of a retainer which is substantial enough to function as a handle with which to carry the cleaner body about.

Cleaners of the above type require a judicious placing of the several parts and one of these is the air outlet when it is intended to use the cleaner as a blower. The air outlet is most conveniently placed in the base, or bottom of the machine and when used, the machine is laid on its side. The hose retainer cooperates with the cleaner body in supporting the latter in a substantially horizontal position thus permitting the use of the blower attachments and preventing the cleaner body from rolling around over the floor as it is being used.

The cleaner body comprises a motor and suction housing 1, mounting a filter housing 2 on which a cover unit 3 is appropriately supported. The entire structure is mounted on a base 4 which rests upon the floor, for supporting the cleaner body in a vertical position. A filter unit 5 is arranged within the filter housing 2. The cover 3 and filter 5 and associated structure is preferably constructed in accordance with the disclosure set forth in application S. N. 337,836 filed May 29, 1940.

The filter and motor housings 2 and 1 are joined by an annular band 6 to which each of the housings 1 and 2 is appropriately secured in any well known manner. The band 6 has a plurality of uniformly spaced lugs 7 integral therewith. I provide a combination hose retainer, handle and supporting means including a ring 8 encircling the filter housing 2 near the upper end thereof, and open work in the form of rods 9 connecting the ring 8 to the band 6 and thereby the housings 2 and 1. Open work is employed in order to reduce weight as much as possible. Preferable, the open work is in the form of rigid rods 9 extending longitudinally of the filter housing 2, one end of each rod being secured in a lug 7 and the ring 8 being securely attached to the other ends of the rods. The ring 8 and rods 9 are spaced from the housing 2 so as to provide a basket-like retainer for the suc-

tion hose 10 which is adapted to be coiled about the filter housing 2. The hose may be easily withdrawn and inserted between the cover 3 and ring 8.

There has thus been provided a convenient means for keeping the hose with the cleaner, that is simple, efficient and compact. The ring 8 and rods 9 are sturdy enough so that the cleaner may be transported about by the user grasping ring 8, which serves as a convenient and readily assemble carrying handle for the entire cleaning assembly.

The cleaner shown in Figs. 5–7 inclusive has the conventional base 11, suction unit housing 12, filter housing 13, filter 13*a* and cover 14, of the same character as the corresponding parts in Figs. 1 and 2.

The cleaner body in this instance is surrounded by a frame work comprising a series of rods 15 preferably six or eight in number but shown in the instant illustration as six in number. These rods extend from the base 11 to a ring 16 near the upper end of the filter housing 11. The ring 16 may be of a comparatively thin section. The rods 15 may be secured to base 11 and ring 16 in any appropriate manner and are very rigidly secured thereto.

The intermediate regions of the rods 15 are supported by rests or supports 17 integral with a ring 18 to which the housings 12 and 13 are secured. Each of the supports or rests 17 has a notch therein in which a rod 15 rests. Each rod therefore is maintained perfectly rigid.

The rods 15 form shoes or runners for supporting the cleaner body in a horizontal position, as shown by ground lines 19 and 20 in Figs. 6 and 7. The object of placing the cleaner in a horizontal position is to enable its use as a blower. In Fig. 7 the base of the machine is shown as incorporating a removable plate 21 secured to the base 11 by means of a plurality of screws 22, or any other appropriate securing means. The plate 21 is provided with an opening 23*a* to which hose 23 may be secured. The cleaner body may, if so desired by the operator, be continually used in a horizontal position, the rods or runners 15 providing adequate support for the cleaner at all times in such horizontal position.

It will be observed that the space between rods 15 and filter housing 13 constitutes the space for storing the cleaner hose 23. The method of inserting and removing the hose is identical to that of Figs. 1 and 2. The rod supports 17 also provide a means for keeping the hose in the space provided. The ring 16 may also be employed as a handle to transport the cleaner about.

The structure shown in Figs. 8 and 9 likewise discloses a base 24, a suction unit housing 25, a filter housing 26, a filter 27 and a cover 28. The base 24 in this disclosure is hexagonal in shape although any other number of sides may be employed. The hose retainer comprises a plurality of rods 29 arranged about the filter housing and extending between a band 30 connecting filter housing 26 and suction unit housing 25, and a ring 31 disposed near the top of housing 26. The rods are preferably curved at their ends as shown and firmly secured to the band 30 and ring 31 by any well known means. Band 30 is preferably provided with a plurality of bosses 32 into which rods 29 are fitted.

When using the cleaner as a blower, it is essential that the cleaner be laid on its side to disclose the outlet 33. To maintain the cleaner in any one of a plurality of horizontal positions rods 29 and only one of the faces of base 24 provide the supporting means. Ground line 34 indicates that the corners of the base 24 and rods 29 lie in exactly the same plane. An examination of Fig. 9 shows that adjacent rods and the faces of base 24 lie in a common plane. It is therefore evident that the cleaner has the full equivalent of a plane surface on which to rest when in a horizontal position.

The rods 29, ring 31, and the band 30 to which said rods are secured at their lower ends form a supporting element for keeping the suction hose 45 wound about the filter housing, in the same manner as described in connection with Fig. 1. Ring 31 is built in such proportions as to enable the operator to use it as a handle.

The modification shown in Figs. 10 and 11 includes a base 35, a suction unit housing 36, a filter housing 37 and a cover 38, the base 35 being hexagonal in shape as illustrated although any other shape may be employed. A filter 39 is disposed within the filter housing 37 as shown.

The hose retainer comprises a plurality of rods 40 rigidly secured to bosses 47 on a band 41 to which housings 36 and 37 are connected, and to a ring 42 encircling the upper end of filter housing 37.

The cleaner body of this form of the invention is supported horizontally, in order to permit access to the outlet 43, by the ring 42 and any one of the hexagonal faces of the base, providing substantially a three point support on the surface 44. The rods 40 do not in reality function as runners as they do in Figs. 5 and 8. The cleaner will lie in a substantially horizontal position and by reason of the disposition of the ring and base will avoid the tendency to roll or tip on its side. The rods act only as a support for the ring 42 and therefore only indirectly support the cleaner.

The rods 40 provide a convenient means for keeping a suction hose 46 wound around the filter housing in the manner set forth in connection with Fig. 1. The ring 42 may be employed as a handle as fully explained in the previous illustrations, to transport or carry the cleaner about.

Various configurations of the bases of the cleaner may be employed to permit the escape of the air from the cleaner when used in a vertical position. For example, portions of said bases may be hollowed as indicated by the dotted lines to provide convenient apertures. This feature however is not material to the instant invention and the exact expedient employed is deemed within the skill of the designer and the apertures shown by the dotted lines is only suggestive.

The rings 8, 16, 31, 42 need not be exactly circular, and the term "ring" as employed herein, is intended to cover not only circular rings but rings of approximately circular or polygonal shape.

The disclosure set forth in Figs. 1 and 2 may also be used in a horizontal position. If this is desired it is preferred that the rods 9 be increased in number similar to that in the other figures and that preferably the base 1, be increased in size or diameter such as set forth in connection with Figs. 10 and 11.

That which is regarded as new, novel and useful and which is sought to be protected by Letters Patent of the United States is as follows:

1. In a vacuum cleaner suction and filter unit adapted to be employed with its axis vertical, a motor housing, a filter housing supported thereon, means connecting said housings, a ring en-

circling and spaced from said filter housing to define a hose receiving annular passage, a plurality of rods spaced from each other and from the housing means, each secured at one end to said housing connecting means and at its other end to said ring, said rods functioning to retain a hose coiled about said filter housing, and said ring being arranged to function as a handle.

2. A vacuum cleaner suction and filter unit adapted to be employed with its axis either vertically or horizontally disposed, said unit including housing means, a ring encircling and spaced from said housing means to define a hose receiving annular passage, and open work means on which said ring is mounted, said open work means extending longitudinally of the unit in spaced relation to said housing means and being secured to the housing means in a region axially removed from the plane of said ring, said ring being arranged so as to function as a handle and said open work means functioning to retain a hose coiled about said housing means and providing, adjacent said ring, open spaces through which an operator's hand may extend so as to encircle and grasp said ring.

3. A vacuum cleaner suction and filter unit adapted to be employed with its axis either horizontal or vertical, said unit including housing means, and a plurality of spaced rods each secured near one end to the housing means, extending longitudinally of the unit in spaced relation thereto, and spaced therefrom at its other end, said rods functioning to retain in position a hose coiled about said housing means and any two adjacent rods being arranged in a plane lying beyond the contours of the cleaner body whereby to have runner contact with the supporting surface.

4. A vacuum cleaner suction and filter unit adapted to be employed with its axis either horizontal or vertical, said unit including housing means, a ring encircling and spaced from the housing means to define a hose receiving annular passage, and a plurality of circumferentially spaced rods each connected at one end to said ring and near its other end to the housing means in a region axially removed from the plane of said ring, said ring being arranged so as to function as a handle, and said rods functioning to retain a hose coiled about said housing means and being arranged so as to constitute at least a portion of means for supporting the unit horizontally.

5. A vacuum cleaner suction and filter unit adapted to be employed with its axis either horizontal or vertical, said unit including housing means, a polygonal base for said housing means, and a plurality of circumferentially spaced rods each connected near one end to said housing means, extending longitudinally thereof in spaced relationship thereto and spaced therefrom at its other end, said rods serving to retain a hose coiled about the housing means and cooperating with said polygonal base for supporting the unit in horizontal position, said rods being substantially aligned with the corners of said polygonal base.

6. A vacuum cleaner suction and filter unit adapted to be employed with its axis either horizontal or vertical, said unit including housing means having a polygonal base, a ring encircling and spaced from said housing means to define a hose receiving annular passage, an open work means on which said ring is mounted, said open work means extending longitudinally of the unit in spaced relationship to said housing means and being secured to the housing means in a region axially removed from the plane of said ring, said open work means functioning to retain a hose coiled about said housing means and said ring cooperating with said polygonal base to support said cleaner in a horizontal position.

7. A vacuum cleaner suction and filter unit adapted to be employed with its axis either horizontal or vertical, said unit including housing means, a plurality of rods each secured at one end to the housing means near one end thereof, extending substantially the full length of the housing means in spaced relationship thereto, and spaced from the housing means at its other end, a ring connected to said other ends of the rods, said ring encircling the housing means and being spaced therefrom to define a hose receiving annular passage, means to support the intermediate regions of said rods from said housing means, any two adjacent rods being adapted to support said cleaner in a horizontal position, said rods further functioning to retain a hose coiled about said housing means.

8. In a vacuum cleaner suction and filter unit adapted to be employed with its axis vertical, housing means, and a basket-like hose retainer surrounding said housing means and spaced therefrom to retain a hose coiled about said housing means, said retainer having one end region attached to the housing means and at its other end having an annular portion spaced from the housing means to define a hose receiving annular passage, said retainer being provided, adjacent said annular portion, with an open space adapted to receive the hand of an operator so as to permit the same to encircle and grasp said annular portion.

9. A vacuum cleaner suction and filter unit as defined in claim 8, wherein the intermediate region of said retainer is of open-work construction.

10. In a vacuum cleaner suction and filter unit adapted to be employed with its axis vertical, housing means, and a basket-like hose retainer surrounding said housing means and spaced therefrom to retain a hose coiled about said housing means, said retainer having one end region attached to the housing means, having an intermediate region comprising a series of circumferentially spaced portions, and having at its other end a ring connecting together the ends of said spaced portions, said ring being arranged to function as a handle and to form at least a portion of means for supporting said unit horizontally.

11. In a vacuum cleaner suction and filter unit adapted to be employed with its axis vertical, housing means, and a combination hose rack and handle comprising a ring encircling and spaced from said housing means to define a hose receiving annular passage, and a plurality of rods spaced from each other and from the housing means, each connected at one end to said ring and at its other end to the housing means in a region axially removed from the plane of the ring, said rods functioning to retain a hose coiled about the housing and said ring functioning as a handle.

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