Dec. 10, 1935. T. C. BIÉTH 2,023,867

VACUUM CLEANER

Filed May 2, 1932

Fig. 1.

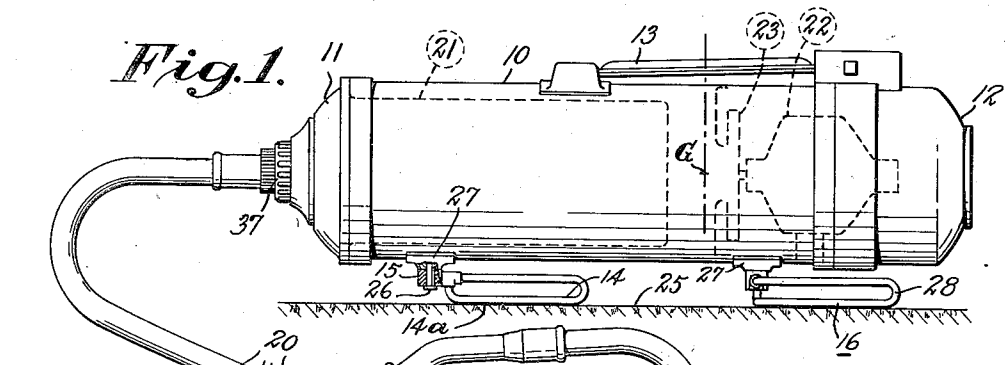


Fig. 4.

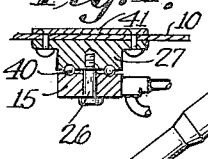


Fig. 2.

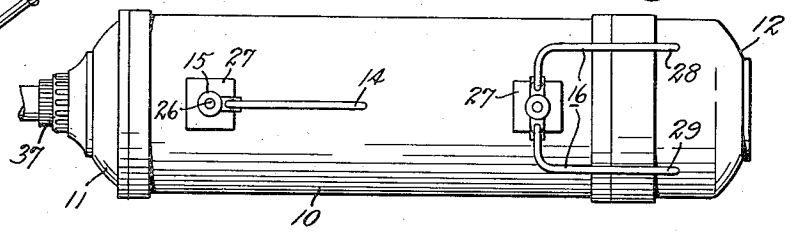
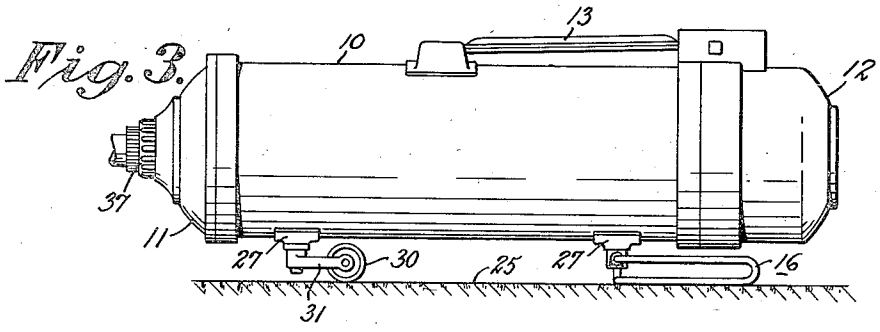


Fig. 3.



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VACUUM CLEANER

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Application May 2, 1932, Serial No. 608,603
In Germany May 4, 1931

8 Claims. (Cl. 280—12)

My invention relates to vacuum cleaners of the type shown in U. S. Patent No. 1,792,007 granted February 10, 1931 to Engberg et al., wherein the vacuum cleaner includes a cleaner unit mounted on runners, which cleaner unit has attached thereto a hose in turn attached to a hollow wand having a suction nozzle at the end thereof. In this type of vacuum cleaner the cleaner unit rests on the floor and the wand is held in the hand of the operator. In the operation of cleaning, the hose may be pulled and the cleaner unit slides on the runners on the carpet or other surface.

The object of the invention is to provide an improved mounting for the cleaner unit of this type of cleaner.

The invention will be described in connection with the accompanying drawing showing several embodiments thereof, which drawing constitutes a part of this specification.

In the drawing:

Fig. 1 is a side elevational view of a cleaner unit in accordance with the invention;

Fig. 2 is a bottom plan view of the cleaner unit shown in Fig. 1;

Fig. 3 is a side elevational view of a cleaner unit embodying the invention in another form; and

Fig. 4 shows a detail of construction.

Referring more particularly to the embodiment of the invention illustrated by Figs. 1 and 2, the cleaner unit is of generally cylindrical form and includes a barrel 10 to which are attached end covers or portions 11 and 12. A handle 13 is provided on top of the cylindrical barrel for carrying the cleaner. To the cover 11 is removably attached a suction hose 20 by means of a coupling 37. The hose is in turn connected to a suction nozzle, possibly with a section of rigid hose or wand. The barrel 10 encloses a dust bag 21, a motor 22 and a fan 23 diagrammatically shown in dotted lines. In general the cleaner unit may be of the general construction shown in U. S. Patent No. 1,757,239 granted May 6, 1930. The air passes through the suction nozzle and thence through the hose 20 and is carried through the dust bag 21, wherefrom it passes through the fan and out at the end 12 of the cleaner unit.

The cleaner can be converted to blowing operation by transferring the coupling 37 to the outlet end 12.

The cleaner unit is mounted horizontally above a horizontal surface 25, which may be a carpet. The means for supporting the cleaner unit consists, in the present case, of forward and rear runner members 14 and 16, respectively. The forward runner member 14 consists of a wire loop connected rigidly to a fitting 15 which is rotatably mounted on a vertical pin 26 secured in a base plate 27 rigidly secured to the cylindrical barrel 10. The mounting for the loop type runner 14 may be of various constructions such as generally used in casters for furniture and may be of ball bearing or other type. As shown in Fig. 4, bearing balls 40 may be placed in suitable grooves or races between members 15 and 27 and the barrel 10 may be reinforced at 41 opposite member 27. The base plate 27 is centrally mounted with respect to the cylindrical casing, that is, it is in the central vertical longitudinal plane of the cleaner unit. The runner 14 may be of round or oval cross-section. If oval cross-section is used, the major axis of the oval is parallel to the supporting surface.

The loop is formed with an elongated supporting surface 14a which rests on the floor or carpet. Substantially the entire supporting surface is located in back of the pivot point so that the runner may be freely turned through 360° as the unit is pulled along the floor as by hose 20. The runner is preferably made of steel wire but it is obvious that any equivalent construction may be used.

The rear runner 16 is a double runner comprising lateral branches 28 and 29. The runner 16 may be pivoted to a base plate 27 in the same manner as runner 14. The two side portions 28 and 29 are formed as loops which extend laterally outwardly from the base plate 27 and then rearwardly equidistant to the sides of the central vertical longitudinal plane of the cleaner unit. The supporting surfaces of runner 16 are elongated and preferably are located at the rear of the pivot point similarly to runner 14.

The mounting is preferably such that the center of gravity G of the cleaner unit as a whole is between the two base plates 27 but nearer the rear base plate carrying the double runner. By having the rear runner pivoted near but slightly in back of the center of gravity, an easy movement on the carpet takes place inasmuch as the forward runner is required to support relatively a small portion of the total weight of the unit. The forward end of the unit is accordingly comparatively free to follow the movement of hose 20.

In operation, it will be appreciated that on pulling the hose 20 the cleaner unit can be readily turned on the carpet. The single runner in front, coupled with the light weight supported thereby,

permits the unit to be readily turned about the rear pivot, while the double runner at the rear gives a separate and firm support and at the same time contributes to easy turning of the unit. It will be noted that a three-point or three-line support is provided which is capable of freely sliding over a surface such as a carpet.

If the suction hose **20** is connected to the blowing end the device can still be readily pulled around on the carpet, the runners swinging around to the opposite direction.

Referring to Fig. 3, the construction in this figure differs from that above described in that the front runner is replaced by a wheel **30** which is supported on an arm **31** pivoted on a base plate **27** in the same manner as previously described, which arm normally extends rearwardly from the base plate **27**.

Although certain embodiments of the invention have been disclosed for purposes of illustration, it is obvious that various changes and modifications may be made therein by a person skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A vacuum cleaner comprising a cylindrical casing and means for mounting said casing horizontally above a horizontal surface comprising a base member, a member pivotally mounted in the base member so as to be swingable freely in a horizontal plane, and a plurality of extended loops of wire having curved ends constituting a runner secured at one end to said pivoted member and normally extending longitudinally of said casing.

2. A vacuum cleaner comprising a cylindrical casing and means for mounting said casing horizontally above a horizontal surface comprising a base member, a member pivotally mounted in the base member so as to be swingable freely in a horizontal plane, and an extended loop of wire having curved ends constituting a runner secured at one end to said pivoted member, said wire extending laterally on each side from said pivoted member and thence rearwardly to form a pair of elongated supporting surfaces.

3. A vacuum cleaner comprising a cylindrical casing and means for mounting said casing horizontally above a horizontal surface comprising a pair of base members, a member pivotally mounted in each base member so as to be swingable freely in a horizontal plane, and a curved loop of wire constituting a runner secured at one end to each of said pivoted members.

4. A vacuum cleaner comprising a cylindrical casing and means for mounting said casing horizontally above a horizontal surface comprising a wheel secured to said casing and pivotally movable about a vertical axis and a pair of runners pivotally mounted at the rear of said wheel and spaced therefrom.

5. A vacuum cleaner as claimed in claim 2 having a pivotally mounted wire runner in addition to the runner therein set forth.

6. A vacuum cleaner as claimed in claim 2 having a pivotally mounted wheel in addition to the runner therein set forth.

7. A vacuum cleaner including a casing elongated in a given direction, a plurality of pivot members in alignment on said casing in said given direction, means for pulling said casing in said given direction whereby one of said pivot members is a forward pivot member and another a rear pivot member, and a runner structure mounted on said rear pivot member having parts extending transversely of said given direction and surface contact parts extending substantially parallel to the casing when the casing is pulled.

8. A vacuum cleaner including a casing elongated in a given direction, a plurality of pivot members in alignment on said casing in said given direction, means for pulling said casing in said given direction whereby one of said pivot members is a forward pivot member and another a rear pivot member, a runner structure mounted on said rear pivot member having parts extending transversely of said given direction and surface contact parts extending substantially parallel to the casing when the casing is pulled, and a runner member mounted on the forward pivot member.

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