Vacuum Cleaner for Clothing

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The object of this invention is to make a so-called vacuum cleaner device in such form and size and in such a way that it will suck the dust and dirt out of clothes and can be used instead of brushing the clothes with a whisk broom.

Another object of the invention is to make the device of few parts that can be easily assembled and easily taken apart.

Another object of the invention is to make the device of small size and light weight.

These and other objects of the invention will be illustrated in the drawing, described in the specification, and pointed out in the claims at the end thereof.

In the drawing:

Figure 1 is a longitudinal section through the device. Figure 2 is an end elevation of the device viewed from the left as shown in Figure 1. Figure 3 is an end elevation of the device as viewed from the right in Figure 1, with the bag removed. Figure 4 is a section on the line 45—44 of Figure 1. Figure 5 is a detail view of the locking device by which the caps are fastened to either end of the housing. Figure 6 is a sectional view of the right hand end of the device, showing a modification different from that shown in Figure 1. In the drawing reference numerals indicate like parts.

In the drawing reference numeral 4 indicates the housing of the device, which has the shape of a cylindrical tube. This housing is flared out at the left hand end as indicated at 2, and is provided with a cylindrical rim 3 of a considerably larger diameter than the housing itself. This housing is grooved internally as indicated at 4, 5, and 6 with grooves that run lengthwise of the housing parallel to the axis, which grooves are closed at the left end by shoulders. In this housing is provided a small motor that has a shaft 7. This shaft is supported at each end with three-point supports 8 and 9, one of which supports is shown in section in Figure 1 and in end elevation by dotted lines in Figure 2. The three points or tongues of this support engage in the grooves 4, 5, and 6 which hold it positively against turning. Between these supports is provided the field magnet 10, which is supported by a ring 11, which encircles it and is provided with three points or tongues 12, 13 and 14, which engage the grooves in the housing. This ring also serves to hold the field magnet stationary, so that it cannot turn with the shaft 7, and inside of the ring 11 is provided the armature of the motor 15. This armature is fastened to the shaft 7, and as it turns it drives the shaft. On either end of the shaft 7 and outside of the three-point supports 8 and 9, is provided the collars 16 and 17, which are fastened to the shaft by set screws. These collars turn with the shaft.

It will be understood that all of the parts on the shaft, except the collar 16, can be assembled on the shaft, and the assembly is then slid into the housing. The front collar 16 and fan 18a is then placed on the shaft and fastened in place thereon by a set screw 18, for which purpose any form of set screw may be used.

On the forward end of the device I provide a cap 20, which has a flange 21 thereon that engages around the cylindrical rim 3 of the housing. This cap locks on the rim of the housing as follows: On the rim of the housing a tongue 22 is formed by slitting the metal, on the end of which tongue a detent or blister 23 is formed. A round hole is provided in the flange 21, in which this blister engages. The blister being mounted on a tongue can be pressed down when the cap is put into place or when it is removed. A similar tongue and blister is provided on the housing on the opposite side of the rim, and a similar hole is provided in the flange 21 of the cap.

The forward end of the cap flares to form a wide nozzle, the edges of which are indicated at 24 and 26, having a narrow slit or opening 28 between these two edges, as is shown in both Figures 1 and 2.

On the opposite end of the housing is fastened a cap 30, having a flange 31 similar to the flange 21 on the forward cap, which flange and cap is fastened to the housing by tongues and blisters on the housing and a hole in the flange, in the same manner as is described in connection with the forward cap.

The cap 30 is provided with four series of slots, which are indicated by the reference numeral 32, as indicated in Figures 1 and 3. Through these slots is blown out the air that is sucked in through the slot 26 in the nozzle.

A button 35 is mounted on the cap 30 and forms a thrust bearing for the end of the shaft 7, and the shaft is locked against endwise movement by shoulders at the forward end of the slots 4, 5, and 6, and by the button 35 at the other end.

Electrical connections 36 are shown by which the armature is driven.
Surrounding the flange of the rear cap 30 is provided the neck 33 of a bag, into which the exhaust air with the dust is blown, this being a common feature of vacuum cleaners. The neck of the bag is fastened to a metal collar 34, which is provided with two round openings in which engage blisters 23 mounted on tongues 22, which are formed in the flange of the cap 32, these tongues and these blisters being placed at right angles to the tongues and blisters that fasten the cap on the housing.

In Figure 6 I have shown on the shaft 7 a collar provided with a fan 41 thereon. This fan will be of somewhat smaller diameter than the fan 16 shown at the forward end in Figure 1 and will increase the suction draft of air through the device.

As above described, the various parts will be assembled on the shaft 7, and the assembly will then be inserted in the housing, the collar 16 with its fan will then be fastened in place, the two caps will then be fastened in place with or without the bag 33, and the device is then ready to operate.

I claim:

1. In a vacuum cleaner for clothing, the combination of a housing, a motor having a shaft, a three-point support for each bearing, said motor, and said shaft, and support being capable of assembly outside of the housing and insertable in the housing, shoulders at the forward end of the grooves, a cap on the rear end of said housing, a thrust bearing on said cap engaging with the end of the shaft by which the shaft is held against endwise movement.

2. In a vacuum cleaner for clothing, the combination of a housing and bearings, a shaft rotatable in said bearings, three-point supports for said bearings, grooves extending lengthwise in said housing with which said three-point supports positively engage, shoulders at the forward end of said grooves.

3. In a vacuum cleaner for clothing, the combination of a housing and bearings, a shaft rotatable in said housing and bearings, three-point supports for said bearings, grooves extending lengthwise in said housing with which said three-point supports positively engage shoulders at the forward end of said grooves, an armature fastened to said shaft, and a field magnet supported in said housing and surrounding said armature and held against rotation.

4. In a vacuum cleaner for clothing, the combination of a housing, a motor having a shaft, with a bearing at each end of the shaft, a three-point support for each bearing, grooves extending lengthwise in said housing with which the ends of said support positively engage, said motor and shaft and support being capable of assembly outside of the housing and insertable in the housing.

5. In a vacuum cleaner for clothing, the combination of a housing, a motor having a shaft, and bearing therefor, a three-point support for the bearing at each end of said shaft, grooves extending lengthwise in said housing with which the ends of said support positively engage, said motor and shaft and support being capable of assembly outside of the housing and then inserted in the housing, a collar on each end of the shaft, fastened thereto, and a fan supported on one of said collars.

6. In a vacuum cleaner for clothing, the combination of a housing, a shaft rotatable in said housing and bearings therefor, three-point support for the bearing at each end of said shaft, grooves extending lengthwise in said housing with which said three-point suspension positively engages, shoulders at the forward end of said grooves, said housing being flared outwardly at one end and having a cylindrical rim thereon integral therewith, a cap engaging over said rim and having a slot therein through which air can be drawn, the flared end of said housing and said cap forming a fan chamber, a collar mounted on the end of said shaft a fan mounted on the collar adjacent said slot and rotatable in said chamber to produce suction.

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