April 22, 1930. H. SHIGYO 1,755,969

VACUUM CLEANER

Filed Dec. 17, 1925

Fig. 1

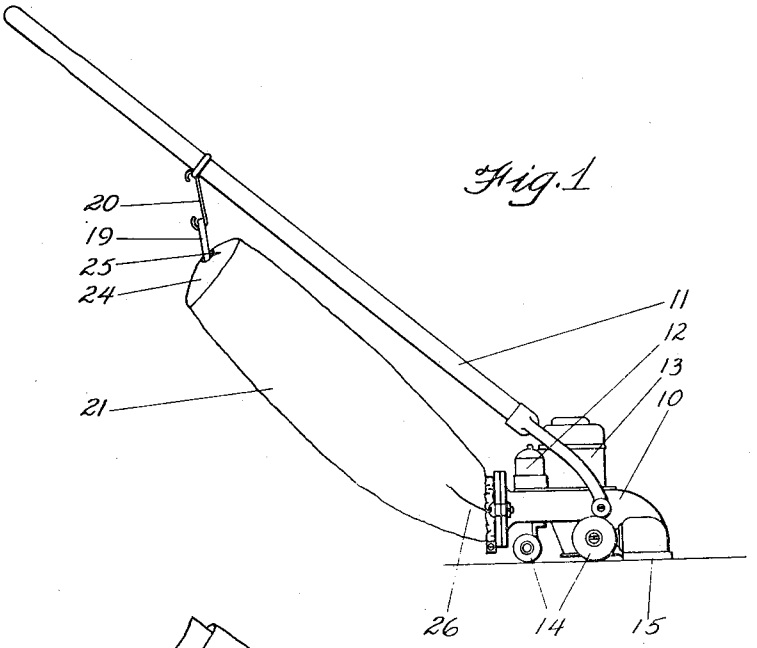
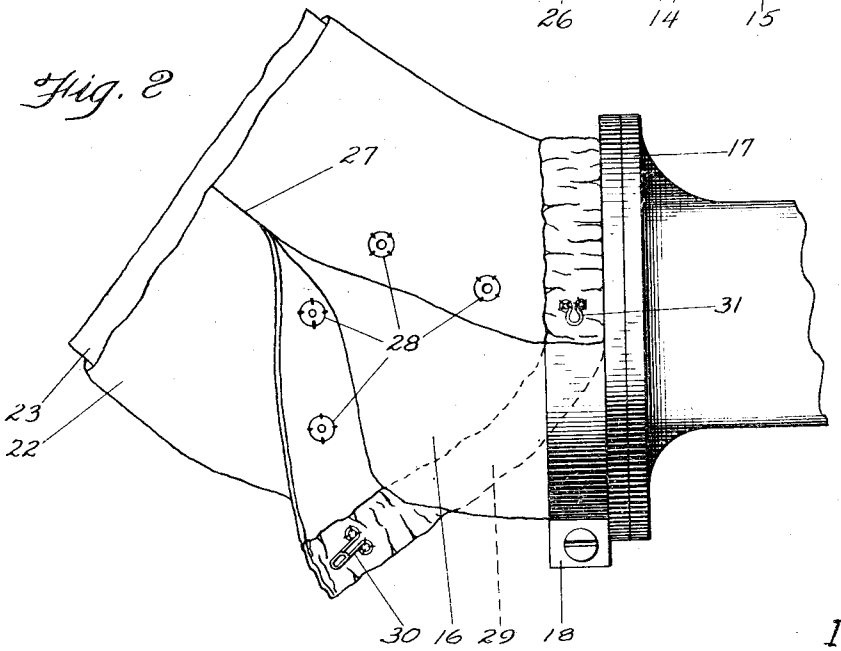


Fig. 2



Inventor

Hachiro Shigyo

Attorneys

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UNITED STATES PATENT OFFICE

HACHIRO SHIGYO, OF SAN FRANCISCO, CALIFORNIA

VACUUM CLEANER

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The present invention relates to vacuum cleaners and is primarily for the prevention of the escape of fine particles of dust from the refuse receptacle of the device.

Among the objects of the invention are included the following:—

The provision of an overcoating for the ordinary vacuum cleaner bag comprising a layer of material to absorb the dust particles which escape from the refuse receptacle;

The enclosing of a vacuum cleaner bag within an overcoating bag disposed a relatively short distance therebetween whereby to provide a dust-catching chamber which will collect the dust which filters through the inner bag;

The addition to a vacuum bag of a receptacle adapted to enclose the refuse-collecting bag of a vacuum cleaner, and to provide a means whereby the projection into the atmosphere of fine dust particles from the porous refuse bag of the cleaner is avoided; and

The provision in a vacuum cleaner of an overcoating member having means for ready attachment and detachment to and about the refuse bag, and providing a barrier of a plurality of layers preventing the escape of fine dust particles into the atmosphere, the texture of the overcoating member being such that dust particles escaping through the inner bag are arrested by the material of the outer bag.

These, and such other objects as may hereinafter appear, are obtained by the novel construction, combination, and arrangement of the various elements which constitute the invention. One form which the invention may take is illustrated in the accompanying drawing, comprising one sheet, and which is hereby made a part of this application.

In said drawing:—

Figure 1 is an elevation showing an overcoating bag forming the subject matter of this application for patent in proper place upon a conventional vacuum cleaner.

Figure 2 is a fragmentary elevation showing the structure of the overcoating bag at its mouth, and the manner in which said bag is attached to a vacuum cleaner.

Like reference characters are used to designate similar parts in the drawing and in the description of the invention hereinafter given.

In Figure 1 is illustrated a vacuum cleaner of a conventional type. The cleaner comprises generally a body 10, a handle 11, a motor casing 12, a pump casing 13, castors and wheels 14, a suction end or mouth 15, a refuse bag or reservoir 16 adapted to be secured to the body 10 at the flanged portion 17, and a locking ring or collar 18 whereby such bag 16 is secured to the flanged portion 17.

The construction shown is that of a conventional type of cleaner now on the market, but such typical form for a cleaner is not essential to the success of the present invention, which may be adjusted by slight change in dimensions, if any changes whatever are necessary, to fit upon other types of vacuum cleaners. In its present general form, the invention is adapted to be used universally so far as the applicant is informed and advised at present.

A loop 19 is attached to the end of the bag 16, and said loop is adapted to be attached to a hook member 20 secured upon the handle 11.

The present form of the invention comprises a bag of the same general configuration as that of bag 16. Said bag is designated 21 and comprises an outer layer of material 22, and an inner layer of material 23. The bag 21 is generally cylindrical in configuration, and it has a circular end portion 24, also of two thicknesses of material. Through the end 24 is an aperture 25 through which the loop portion 19 of bag 16 may be projected, whereby said bag 16 and the overcoating bag 21 are readily secured upon the hook 20.

The texture of the walls of the end 24 about the aperture 25 are closely sewed together or otherwise attached to form an eye worked in a manner similar to a buttonhole. At its other end, the bag 21 has a slit portion 26. Said slit portion 26 may be formed as an incident to the construction of the bag 21 which bag is generally formed from flat pieces of material joined at their ends to provide a longitudinal seam 27.

On the material of the bag 21 at one side of the vent 26 are the female members of a number of snap fasteners 28 and on the other side of said vent 26 are the male members of said fasteners. At the innermost end of the bag 21 is a hem 29 within which is secured an elastic band or other member, (not shown), the ends of which elastic member are anchored at opposite sides of the vent 26. A hook 30 and an eye 31 provide means for securing the innermost end of the bag 21 and the ends of hem 29 about the collar 18, where said bag 21 is securely held to the cleaner by the gripping tension of the elastic member contained within the hem 29 and which is coextensive with the material of bag 21 at said end.

The bag 21 may be attached to the cleaner in the following manner.

The round or top end of the refuse bag 16 is manually released from the hook 20. The overcoating bag 21 is slipped over the bag 16 and the loop 19 is projected through the aperture 25 in bag 21. The loop 19 may then be replaced upon the hook 20.

The lower end of the bag 21 is drawn downwardly over bag 16 as far as it is possible to draw it, and until the hemmed portion 29 may be readily wrapped about the collar 18. When so wrapped, the hook and eye, 30 and 31, and the snap fasteners 28, are in a position to be secured one to another. This final step of attaching the bag 21 will secure it firmly in place. The apparatus is now in condition for operation, and the vacuum cleaner is manipulated in the same manner as if the overcoating was omitted.

The dust particles which pass through the bag 16, and these are quite numerous and annoying as tests will show, are arrested either by the first or inner layer of material, 23, or by the second or outer layer 22 of material in the bag 21. The layers of material 22 and 23 are of a relatively closely woven cloth through which dust will not readily filter, but which cloth permits relatively free passage of the air pumped into the bag 16 and escaping therefrom through its porous texture.

The bag 21 may be removed from the device at any time desired, and the dust gathered therein, the greater amount of which will accumulate within the bag 23, may be shaken therefrom or otherwise removed. The bag may be turned inside out and beaten. The dust particles intermediate the bags 22 and 23 are relatively few in quantity and the bag 21 will ordinarily be worn out completely before it is necessary or desirable to remove the accumulation of dust particles between the layers 22 and 23.

When the bag 21 is to be removed from the device, the hook 30 is separated from eye 31, and the fasteners 28 separated, when the bag 21 may be removed. It is pulled over bag 16 as the final step of separation.

It will be found from an examination of the atmosphere after the device is used with the overcoat thereon that the quantity of dust in the air is much less than the quantity which would be found or which is found when the bag 16 is used without the auxiliary bag 21. In fact, the quantity of dust remaining in the atmosphere when bag 21 is used is negligible.

I claim:

A dust confining chamber for a vacuum cleaner having the usual refuse receiving container, and comprising a generally cylindrical outer bag adapted to removably snugly surround said usual refuse receiving container of said vacuum cleaner and having a slit extending inwardly a short distance from the mouth of said outer bag and a band reinforcing said mouth, there being one character of inter-engaging means on the overlapping portions of the material of said outer bag about said slit to maintain said overlapping portions in overlapping closed relation, and a second fastening means of a different character at the ends of said band, said fastening members enabling the convenient association and disassociation of said encircling bag with said usual refuse receiving container and to prevent lateral disassociation of the portions of the material about said slit, said outer bag at the end removed from its mouth being provided with a centrally disposed aperture to admit the passage therethrough of, and interlocking engagement with, the fastening means intermediate said usual refuse receiving container and said vacuum cleaner.

In testimony whereof I affix my signature.

HACHIRO SHIGYO.