

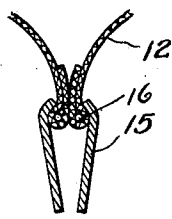
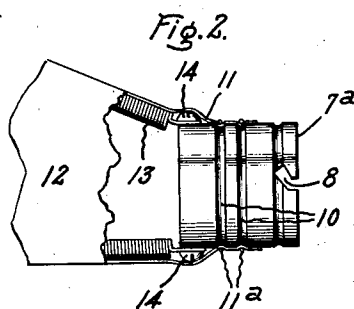
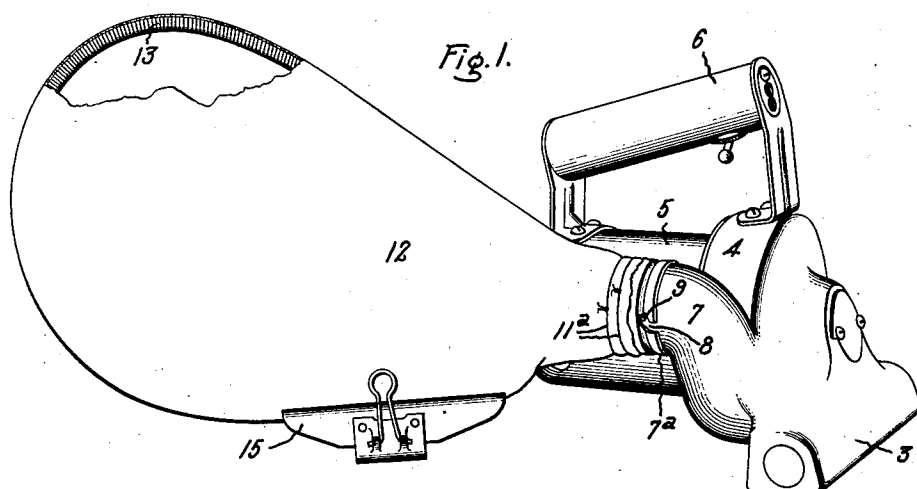
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J. F. CARSON

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BAG SUPPORT FOR VACUUM CLEANERS

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UNITED STATES PATENT OFFICE

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BAG SUPPORT FOR VACUUM CLEANERS

Application filed June 6, 1927. Serial No. 196,744.

The present invention relates to bag supports especially for small vacuum cleaners and has for its object to improve their construction to the end that the bag is held by the discharge conduit of the fan casing in such position that it does not interfere with the user or drag over the surface being cleaned.

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

In the drawings, which are illustrative of my invention, Fig. 1 is a perspective view of a small hand cleaner; Fig. 2 is a detail of the bag-supporting means, and Fig. 3 is a sectional detailed view on an enlarged scale of the lips of the bag and the closing means.

3 indicates the nozzle of a cleaner, 4 the casing of the suction fan, 5 the motor which drives the fan, and 6 the handle for moving the cleaner about. 7 is the discharge conduit of the fan casing and through which dust-laden air passes into the dust bag. The weight of the bag is entirely sustained by this conduit instead of partly so, as is the universal practice with larger cleaners designed to clean floor coverings.

7^a indicates a sheet metal fitting which is adapted to be slipped over or into the outer end of the discharge conduit, and is normally held in place by a bayonet lock comprising a pair of slots 8 and cooperating pins 9. When the fitting is properly mounted in place the lock prevents it from turning and thus the bag support is held in proper and definite position. The fitting is also provided with parallel grooves 10 to assist in fastening the neck 11 of the bag thereto, a binding of wire 11^a being used for the purpose. The bag 12 is made of the same material as is customarily used for the purpose. It may have any suitable shape so long as it can be fully supported by the means hereinafter described. It is impor-

tant not to let the bag drag and also to prevent it from being hit when the cleaner is in use because blows thereon, even light ones, cause a certain amount of dust to be discharged therefrom through the pores in the cloth. To support the bag a closely coiled spring 13 is employed which is bent to form a loop with the large end at the rear. This spring is of such strength and the loop of such size that it holds the bag in its distended condition instead of letting it fall limp as soon as the fan stops. The two ends of the spring are fastened to the fitting by screws 14 located at diametrically opposite points. To prevent the escape of dirt around the fastening means of the spring, the neck of the bag is extended a sufficient distance over them to effectually seal the same. The spring ends are so fastened to the fitting that the spring loop and the bag as a whole occupy a plane which is substantially at a right angle to the plane of the nozzle and at an acute angle to the axis of the cleaner, the purpose being to keep the bag away from the handle and out of contact with the arm of the user. The bag is thus relatively rigid in this plane, but is relatively yieldable in a direction at an angle thereto. Looking down on the bag in the condition shown, it is relatively thin, the thickness being only slightly greater than the diameter of the spring. The spring holds the top and bottom edges of the bag in spaced relation without dilating the bag and is stiff enough so that the rear end cannot appreciably sag, even when containing a substantial amount of dirt. The bag is thus kept above the plane of the nozzle and above the surface to be cleaned. When the cleaner is in operation the sides of the bag are somewhat more widely separated than shown due to internal air pressure, the spring 13 permitting of this. The bottom side of the bag is provided with a dirt removing opening, which is normally held closed by a spring

pressed clamp 15 of any suitable construction. The lips 16 of the bag opening, as shown in Fig. 3, are formed by folding back the edges of the material of which the bag is composed and fastening them in place in any desired manner. This has the effect of forming a thickened portion which prevents the clamp 15 from slipping off the bag. The lips 16 of the bag opening project below the spring and when the clamp is removed, the dirt can be freely discharged past the spring. In other words the lips of the bag and the opening are outside of or beyond the peripheral surface of the spring. With this construction, it is unnecessary to fasten the bag to the spring.

Owing to the character of the bag support the bag is prevented from dragging over the surface being cleaned, it does not interfere with the arm or hand of the operator when in use, and the support being resilient, no harm is done to the bag if by accident it hits another object. A further advantage arises from the fact that the suspension is cheap and is easily made especially in quantity production.

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

1. In a vacuum cleaner having a suction nozzle, a driving motor, a stationary operating handle attached to the cleaner directly above the driving motor, a discharge conduit above the plane of the nozzle, and a relatively long, thin dust bag, a means for supporting the bag and connecting the same with the discharge conduit, said means comprising a fitting secured to the neck of the bag and releasably connecting the latter to the end of the discharge conduit in one definite position with the bag extending rearwardly in the direction of its length, and a spring located within the bag and bent to form a loop which stands in a plane at substantially a right angle to the plane of the nozzle and the ends of which are secured to the fitting, the spring being of such strength and the loop being of such size that the bag is entirely supported thereon from the fitting and held in a distended flat condition away from the handle and wholly above the plane of the nozzle, said spring being secured to and removable with the fitting.

2. A dust separator for vacuum cleaners comprising a filtering bag having a small neck and a dirt removing opening having lips, a cylindrical metal fitting to which the neck is secured and which is adapted to engage the discharge conduit of a cleaner and receive dirt therefrom, a spring located within and distending the bag and which is bent to form a loop and occupies a vertical plane when in use on the cleaner, the ends of the spring being fastened to the fitting, and a means for closing the lips of said

opening which is located outside of the peripheral surface of the spring.

3. A dust separator for vacuum cleaners comprising a filtering bag having a small neck and a dirt removing opening having lips, a cylindrical metal fitting to which the neck is secured and which is adapted to engage the discharge conduit of a cleaner and receive dirt therefrom, a bag support made of wire which is coiled on itself to form a spring, is bent to form a loop, is located within the bag to distend it, and has its ends attached to the fitting, and a means for closing said opening which is located outside of the peripheral surface of the bag support.

4. A dust separator for vacuum cleaners comprising a filtering bag having a small neck and a dirt removing opening, a cylindrical metal fitting to which the neck is secured and which is adapted to engage the discharge conduit of a cleaner and receive dirt therefrom, a spring located within the bag to distend and support it, said spring being fastened at its ends to the fitting in such manner that the bag occupies a vertical plane when in use on the cleaner, the ends of the spring and the fastening being covered by the bag to prevent escape of dirt, and a means for closing said opening which is in the plane of the spring and outside of the peripheral surface thereof.

5. A dust separator for hand vacuum cleaners comprising a collapsible filtering bag having a small neck and a dirt removing opening having lips, a closing means for the lips, a cylindrical fitting to which the neck of the bag is secured and which is adapted to engage a discharge conduit and receive dirt therefrom, a locking means for the fitting by which it is secured on the conduit in a definite position and held thereby against angular movement when in use, and a wire member which is located within the bag and forms the support therefor, said member being fastened to the fitting in such manner that when the fitting is operatively secured to said discharge conduit the bag is held thereby in a substantially vertical plane and at one side of the cleaner.

6. In a vacuum cleaner having a nozzle, a rearwardly extending discharge conduit for the dust laden air, and a handle rigidly fastened to the upper side of the cleaner for moving it about, with a dust separator therefor comprising a collapsible filtering bag which is relatively long and thin and has a small neck, a cylindrical fitting to which the neck of the bag is permanently secured and which is adapted to be attached to the discharge conduit and receive dirt therefrom, a detachably locking means for the fitting by which it is secured on the conduit in a definite position with the bag extending rearwardly of the cleaner and substan-

tially parallel to and at one side of the handle, and a wire member which is located within the bag and forms a support to sustain the bag in its proper position with the lower edge above the level of the nozzle so as not to contact with the surface of the article being cleaned, said member being permanently secured to and removable with the fitting and held by it in fixed relation to said handle.

In witness whereof, I have hereunto set my hand this 24th day of May 1927.

JESSE F. CARSON.

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