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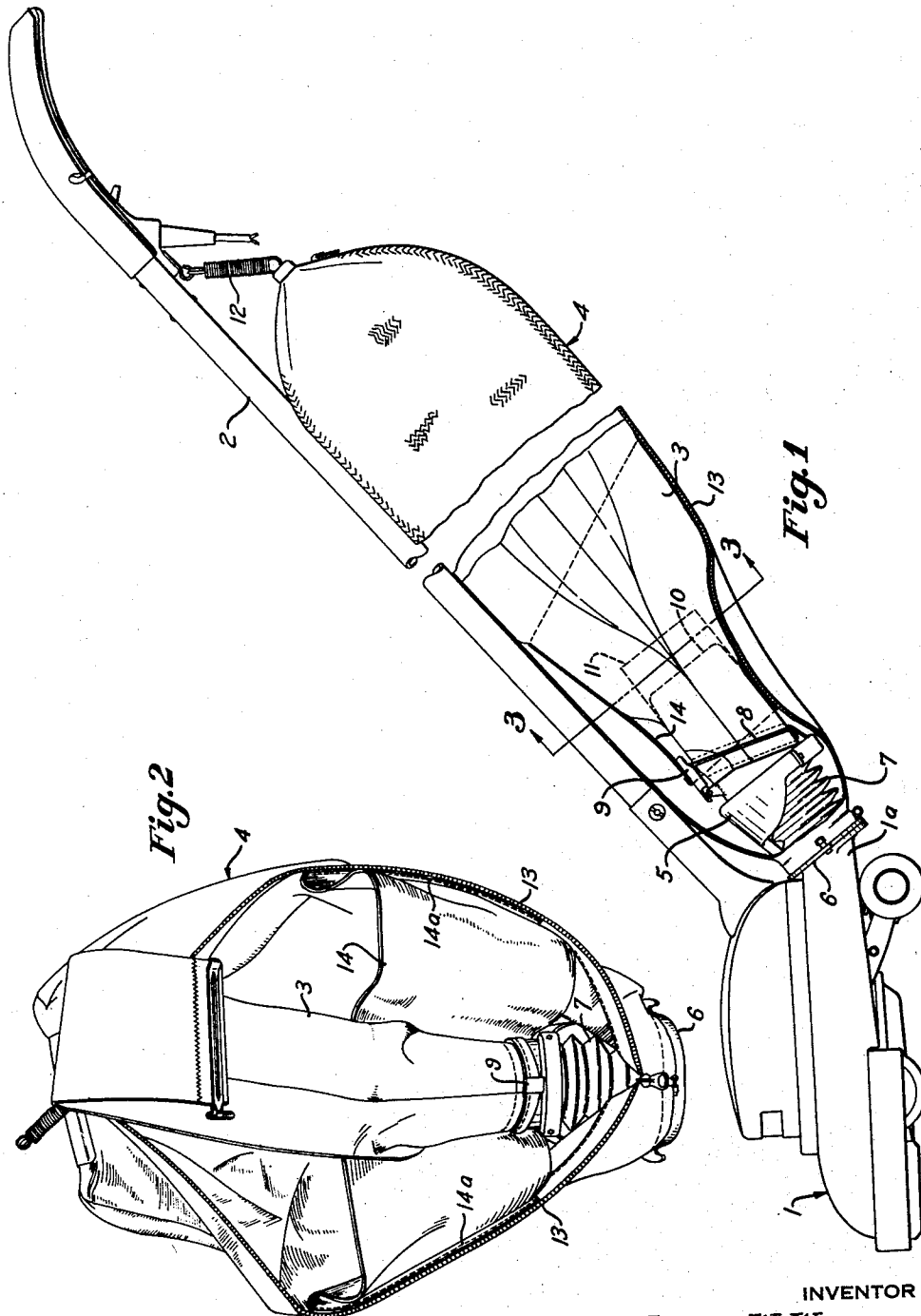
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FILTER BAG SUPPORT FOR SUCTION CLEANERS

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

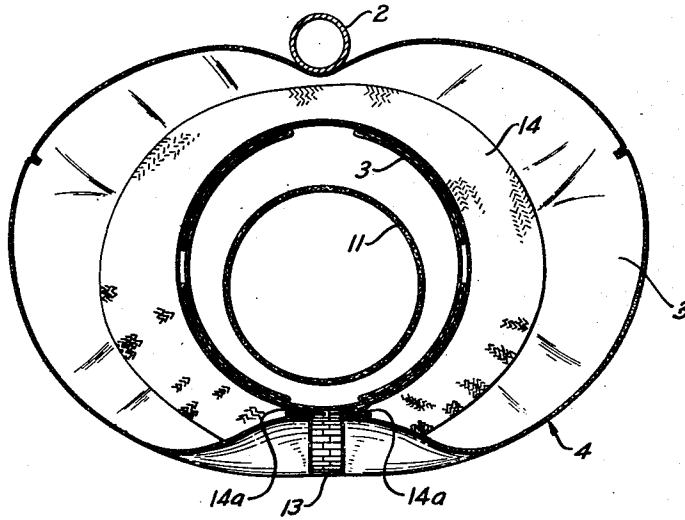


Fig. 3

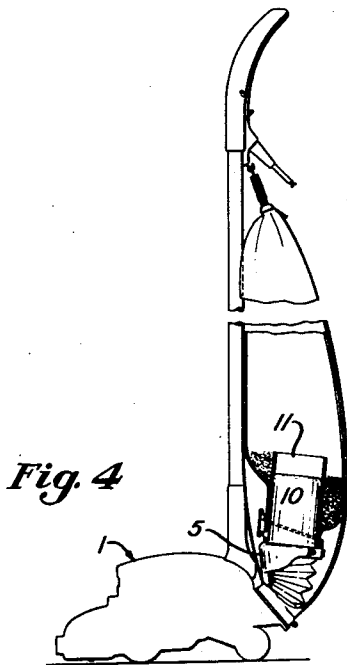


Fig. 4

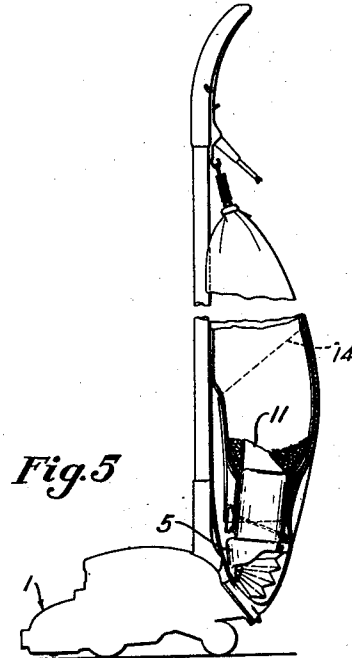


Fig. 5

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FILTER BAG SUPPORT FOR SUCTION
CLEANERS

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4 Claims. (Cl. 183—51)

This invention relates to improvements in sup-
ports for suction cleaner filter bags and more
particularly to improved means for supporting
the paper filter bag within an outer enclosure or
envelope of a woven material and for the pur-
pose of reinforcing the inner bag against failure
and possible rupture under the accumulation of
heavier dirt particles at its lower end.

A preferred embodiment of the invention is
disclosed in the accompanying drawings in which,

Figure 1 is a general view of a suction cleaner
equipped with a so-called double bag arrange-
ment wherein the inner filter bag is constructed
of paper or like fibrous material;

Figure 2 is a perspective view of a double bag
assembly with the outer envelope open to show
the internal arrangement of filter bag and auxil-
iary supporting girdle;

Figure 3 is an enlarged view in cross section
through the bag assembly as taken on line 3—3
of Figure 1; and

Figures 4 and 5 are views illustrating the effect
on the filter bag of dirt accumulation without
and with the auxiliary support for its lower
portion.

The suction cleaner shown in Figure 1 repre-
sents any standard make of the handle maneu-
vered portable type, consisting generally of a
wheeled body or casing 1 housing the suction-
creating means connected with a nozzle at its
forward end and a handle 2 pivotally connected
with the cleaner body. The dirt-filtering as-
sembly consists primarily of a filter bag 3 of a
porous paper-like fibrous material having de-
tachably connected at its lower end with the dis-
charge outlet 1a at the rear end of the cleaner
body and an outer bag-like envelope 4 com-
pletely enclosing the filter bag and connected at
its lower end with the discharge outlet from the
cleaner body and suspended at its upper end
from the cleaner handle.

By reason of the fact that the handle is free
to swing vertically through substantially 90 de-
grees, that is to say, from a vertical position to a
rearwardly extending horizontal position, and
the upper end of the filter bag enclosing envelope
is attached to the handle, it follows that con-
siderable flexing must take place throughout the
lower portion of the filter bag by reason of its
attachment to the relatively stationary cleaner
body. Hence, it is preferred to interpose between
the lower end of the filter bag 3 and the outlet
connection from the cleaner body, a so-called
hinged adapter consisting primarily of a collar 5
having hinged connection with an attaching fit-

ting 6 having detachable mounting at the ex-
haust outlet connection from the cleaner body.
A tubular bellows section 7 forms an extensible
conduit between the discharge outlet from the
cleaner body and the hinged collar 5, the latter
being provided with an annular seat for the
gathered neck portion at the lower end of the
filter bag 3, the same being held in place on its
seat by means of a simple form of contractible
clamping ring 8 operated by means of a lever 9.

If desired, the hinged adapter may also include
a rigid muffler element 10 extending beyond the
bag clamping seat and consisting essentially of a
cylindric extension or sleeve lined with sponge
rubber or other suitable sound-absorbing ma-
terial. A dirt valve 11 is preferably provided at
the end of the muffler, the same having the form
of a short sleeve of cloth or other flexible ma-
terial acting to prevent the dirt from falling
back into the muffler, as will later be explained.

The outer envelope 4 is slightly longer than
the filter bag 3 and is suitably attached at its
lower end to the base fitting 6 of the adapter
and, as previously mentioned, is supported at its
upper end from the cleaner handle by means of
an extensible connecting member 12. To gain
access to the interior of the envelope 4 for the
purpose of detaching and removing the filter
bag 3, the envelope is capable of being opened
throughout its length and along its underside by
means of a fastener 13 of the "zipper" type.

Now, forming an integral part of the outer
envelope 4 is the auxiliary filter bag support or
girdle 14, consisting of a piece of fabric which is
sewn into the lower end of the envelope and so
disposed as to form a sort of confining bond
for the lower portion of the filter bag and more
particularly for that portion immediately beyond
its seat on the adapter. As shown in Figure 4,
it is at this point that the heavier particles of
sand and dirt naturally accumulate and the
weight of this mass exerted constantly on the
folds of the bag material where they are gathered
to form the restricted neck portion will in time
cause the bag to fail.

In a word, therefore, the girdle 14 provides an
additional support for the lower portion of the
filter bag and its effectiveness is due in a large
measure to its initial shape and its mounting
within the outer envelope. In the first place, the
fabric is so fashioned as to conform generally to
the shape of the inflated bag throughout the
portion to be supported thereby. Secondly, its
circumferential dimensions are somewhat less
than the corresponding dimensions of the en-

velope material itself, in order that the girdle may conform more nearly to the contour of the lower end portion of the filter bag and thus confine and support the walls which otherwise would tend to bulge under the accumulation of dirt between the muffler or sleeve 10 and the bag material, as is clearly evident by comparing Figures 4 and 5.

Thus, as shown in Figure 2, the girdle is simply a wide piece of fabric with its ends cut on the bias, so that its upper edge is somewhat longer than its lower edge. The end edges of the strip are stitched at 14a, 14a to the inside of the outer envelope and along the opposite edges of the zipper fastened opening extending the length of its underside, so that when these end edges are brought together by closing the envelope, the strip or band fits snugly around the lower end of the filter bag and supports the same against the strains which otherwise would lead to a premature rupture and a materially shortened life.

Having set forth a preferred embodiment of the invention and its meritorious features, I claim:

1. A filter bag assembly for suction cleaners, comprising a bag of filtering material adapted for detachable connection with the exhaust outlet from the cleaner, and an outer envelope of fabric enclosing said filter bag and including a girdle-like support for the lower portion of said filter bag, the same consisting of a piece of fabric having its end edges stitched to the interior of said outer envelope to form a band conforming substantially to the contour of the portion of the filter bag to be supported thereby.

2. A filter bag assembly for suction cleaners, comprising a bag of filter paper or like porous material adapted for detachable connection to the exhaust outlet from the cleaner body, and means for supporting the filter bag including an envelope

of fabric having a closable opening throughout its length, and a girdle-like auxiliary support for the lower portion of said bag consisting of a separate piece of fabric inserted into the envelope with its opposite edges stitched along opposite sides of the opening therein, the length of said piece from one stitched edge to the other being substantially less than the circumference of said envelope at the point of insertion of said support.

3. A filter bag assembly for suction cleaners, comprising a filter bag of porous paper or like fibrous material adapted for detachable connection at its lower end with the exhaust outlet from the cleaner body, and an outer envelope of fabric enclosing said filter bag and adapted to open and close throughout its length with a zipper-type fastening, and a girdle-like support for the lower portion of said filter bag consisting of a relatively wide band of fabric having its end edges cut on the bias and stitched to the interior of said outer envelope along opposite sides of the opening therein, the length of said band, measured from one stitched edge to the other, being substantially less than the circumference of the envelope at the band.

4. A filter bag assembly for suction cleaners, comprising a bag of filtering material adapted to be connected with the cleaner exhaust outlet for the reception of dirt-laden air, a fabric girdle surrounding the lower end of said bag adjacent its connection to the cleaner exhaust outlet, said girdle having a closable opening for the removable attachment of said bag to the cleaner exhaust outlet, said girdle being of smaller circumferential dimension than said bag when the latter is inflated to thereby constrict and support said bag upon receiving dirt-laden air from the cleaner exhaust outlet.

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