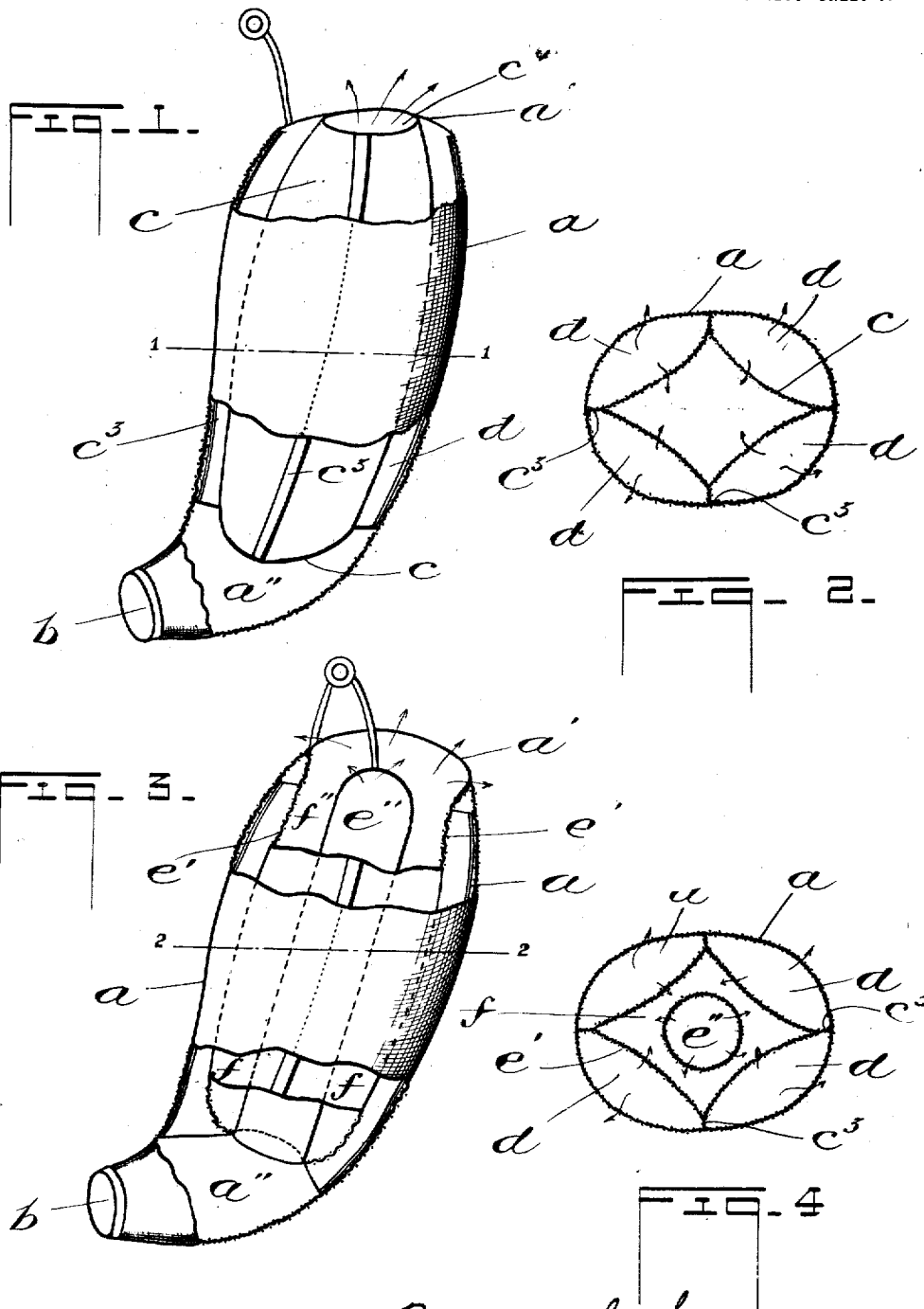


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DUST COLLECTING RECEPTACLE FOR VACUUM CLEANERS.
APPLICATION FILED FEB. 28, 1920.

1,363,753.

Patented Dec. 28, 1920.
2 SHEETS—SHEET 1.



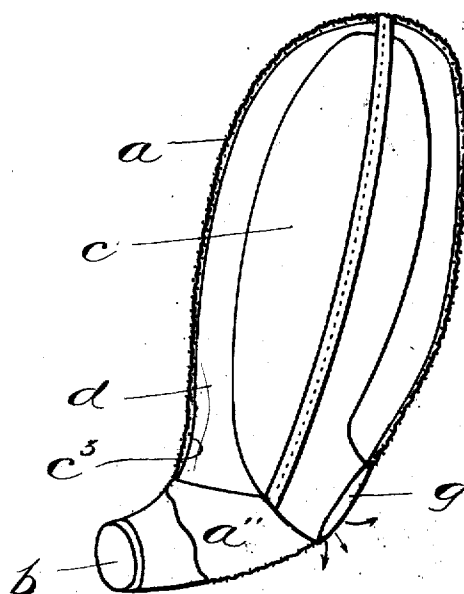
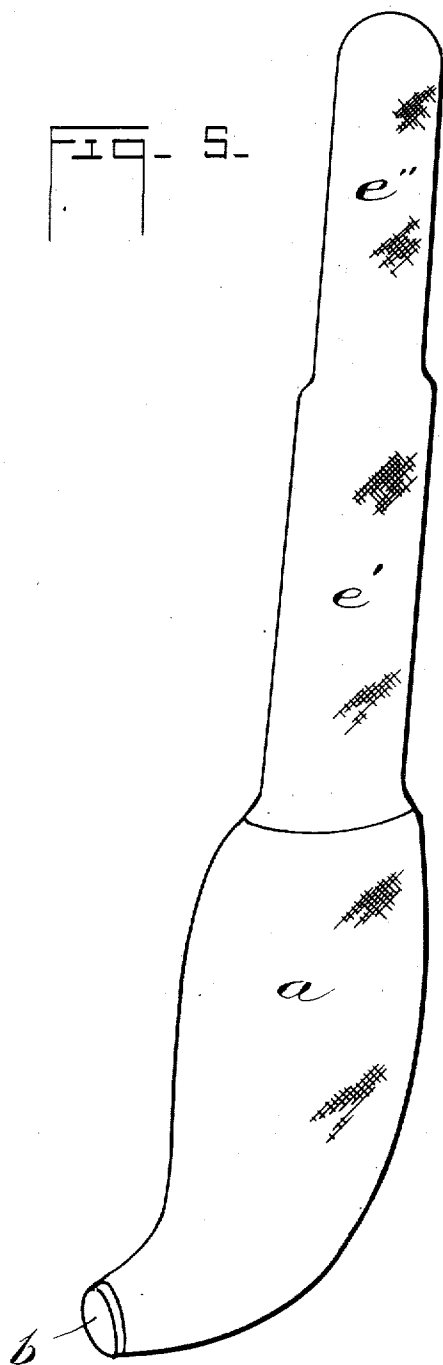
Martin J. Quinn
per Charles W. Miller
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*Martin J. Quinn
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UNITED STATES PATENT OFFICE.

MARTIN JOSEPH QUINN, OF TORONTO, ONTARIO, CANADA.

DUST-COLLECTING RECEPTACLE FOR VACUUM-CLEANERS.

1,363,753.

Specification of Letters Patent. Patented Dec. 28, 1920.

Application filed February 28, 1920. Serial No. 362,091.

To all whom it may concern:

Be it known that I, MARTIN JOSEPH QUINN, of the city of Toronto, in the county of York and Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Dust-Collecting Receptacles for Vacuum-Cleaners; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to a dust-collecting receptacle for a vacuum cleaner which will not appreciably restrict the formation of the vacuum.

In the operation of a vacuum cleaner the resistance or back pressure resulting from the limited outlet area for the air prevents or at least checks the formation of a complete vacuum at the mouth of the tool and thus restricts the efficiency of its operation to a marked degree.

To obviate this is the object of the present invention, which is attained by constructing the dust-collecting receptacle with an outlet-area for the escape of the air approximately equal to the vacuum-area at the mouth of the tool, and to so arrange the structural details of this receptacle that while the outlet-area for the escape of the air is so increased there will be no increase in the external cubic dimensions.

For an understanding of the invention reference is to be had to the following description and to the accompanying drawings in which:

Figure 1, is a vertical sectional elevation of a dust collecting receptacle made in accordance with this invention,

Fig. 2, is a cross section on the line 1—1 Fig. 1,

Fig. 3, is a similar view to Fig. 1, of a modification of the construction shown in the latter figure,

Fig. 4, is a cross section on the line 2—2 Fig. 3,

Fig. 5, is a detail view showing the method of making the inner tube of the dust collecting receptacle shown in Fig. 3, and

Fig. 6, is a sectional elevational view of a further modification of the receptacle.

Like characters of reference refer to like parts throughout the specification and drawings.

In Figs. 1, 3 and 6, the dust collecting receptacle is shown to consist of an external wall *a*, of a substantially tubular or cylindrical shape, and at the lower end of the

external wall *a* is an inlet opening *b* for attachment to a vacuum cleaner. This wall is preferably made of a textile fabric material such as cotton or the like, woven so as to retain the dust particles and to permit of the escape of the air through its interstices or foraminations, but it may be made of wire gauze or other suitable foraminated material.

In Figs. 1 and 2, an internal wall in the form of a tube *c* is shown to be contained within the external wall *a*, this tube having an axial bore *c'*, and a closed bottom *c''* in the vicinity of and opposed to the inlet opening *b*.

The tube *c* extends through the top *a'* of the external wall *a*, the top of the bore being open for the unimpeded escape of the air passing through the internal wall into the bore.

Preferably at diametrically opposite points of its circumference the tube *c* is stitched to the inner surface of the external wall *a* as shown at *c''* in Fig. 2. This construction forms four dust collecting chambers *d*, between the internal wall *c*, and the external wall *a*, these chambers being open at the bottom and closed at the top. The dust laden air passes from the vacuum cleaner through the inlet opening *b* into the chamber *a''* at the lower part of the dust collecting receptacle, from which it is distributed to the four dust collecting chambers *d*, where the dust laden air is filtered, the dust being retained within these chambers and the air passing out through the foraminations in the external wall *a*, and through the foraminations of the tubular internal wall *c*, as indicated by arrows in Fig. 2.

The air passing through the foraminations of the internal wall to the bore *c'* escapes from it through the outlet opening at the top of the bore *c'*.

By this means the outlet area for the escape of the air from the dust collecting receptacle is approximately twice the outlet area where a single wall is used and it has been demonstrated with the use of a dust collecting receptacle made in accordance with the subject matter of this application that a vacuum of maximum value can be maintained at the mouth of the vacuum tool, whereas a vacuum greatly less than maximum value can be maintained where a dust collecting receptacle with a single wall is

employed, when the external cubic dimensions of the external wall are the same in both cases, the effect of this construction being to increase the operation of the vacuum cleaner to approximately one hundred per cent. efficiency.

In Fig. 3, I use the same construction for the external wall *a*, inlet opening *b*, and outlet through the top *a'*, but in this figure I have changed the formation of the internal wall. This internal wall consists of a tubular section *e'* stitched to the outer wall *a*, as in the case of Figs. 1 and 2 to form four dust collecting chambers *d*, and a central tubular section *e''* within the tubular section *e'* forming a fifth dust collecting chamber. As shown in Fig. 3, the lower end of the central tubular section *e''* is united with the lower end of the tubular section *e'*, but from its junction at that point is entirely free therefrom.

This arrangement forms an air duct *f* between the tubular sections *e'*, *e''*, the upper end *f''* of which has an outlet to the atmosphere through the outlet opening *a'*.

As shown in Fig. 3, the lower end of the tubular section *e''* is open and the upper end is closed, and in the same figure the lower end of the air duct *f*, which is opposed to the inlet opening *b* is closed and the upper end is opened. In this construction the dust laden air entering the dust collecting receptacle passes into the five dust collecting chambers, where the dust is retained, the air then passing through the external wall to the atmosphere and through the walls of the tubular sections to the air duct *f* from which it escapes through the opening at the top of the duct.

In Fig. 6, I have shown a similar construction to Fig. 1, but instead of having the outlet opening at the top of the external wall *a*, I arrange this outlet opening *g* near the bottom of the external wall and preferably in the vicinity of the inlet opening.

The purpose of stitching the internal wall to the external wall is to prevent the air

pressure in the dust collecting receptacle causing the internal wall to collapse and thereby impede the escape of the air through the bore, but other means within the scope of the claims may be provided for maintaining the internal wall in a distended condition.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A dust collecting receptacle comprising a tubular external wall of fabric material, having at its lower end an inlet for attachment to a vacuum cleaner, a tubular internal wall of fabric material, having an internal air duct and attached to the external wall throughout its length at circumferential places, to form with it a plurality of separate dust collecting chambers from which the air has egress through the foraminations of the internal wall to said duct and through the foraminations of the external wall, the internal wall having a closed bottom opposed to the inlet and an opening through the external wall for the escape of the air from said duct.

2. A dust collecting receptacle comprising a tubular external wall of fabric material, having at its lower end an inlet for attachment to a vacuum cleaner, a tubular internal wall of fabric material, having an internal air duct and attached at circumferential places to the external wall, and forming therewith a plurality of separate dust collecting chambers, each in communication with the inlet, said internal wall having a closed bottom opposed to the inlet and an unimpeded outlet for the duct, extending through the external wall for the escape of the air therefrom.

Toronto, Ontario, Canada, February 10th, 1920.

MARTIN JOSEPH QUINN.

Signed in the presence of—

CHAS. H. RICHES,
W. J. GILCHRIST.