D. B. REPLOGLE.

DUST COLLECTOR FOR PNEUMATIC CLEANERS.

APPLICATION FILED JULY 5, 1916.

1,416,876.

Patented May 23, 1922.

2 SHEETS—SHEET 1.

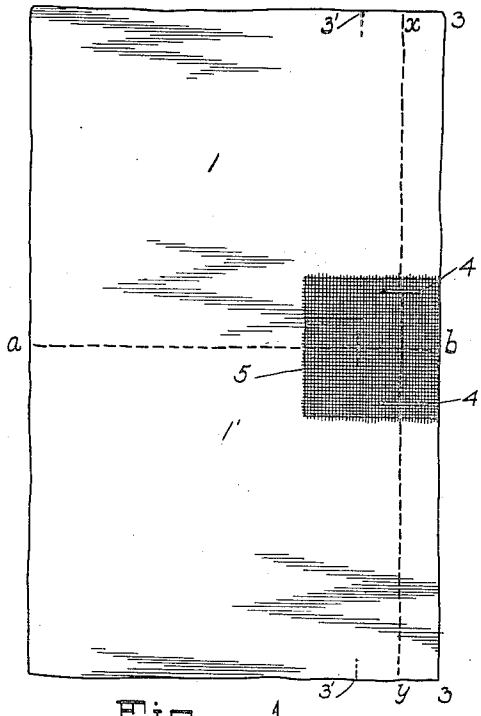


Fig. 1.

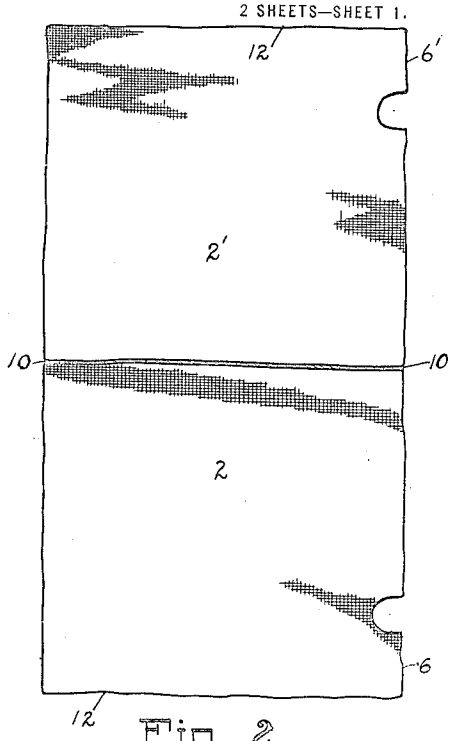


Fig. 2.

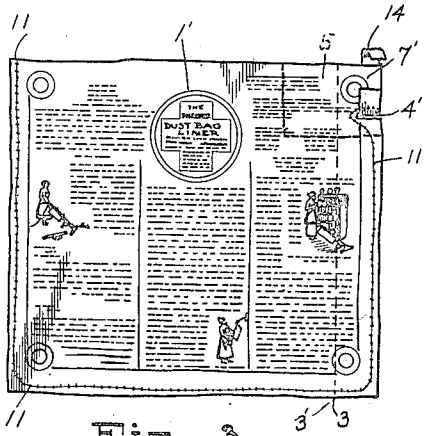


Fig. 3.

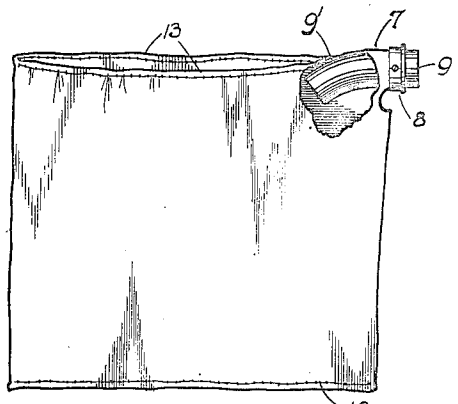


Fig. 4.

INVENTOR.

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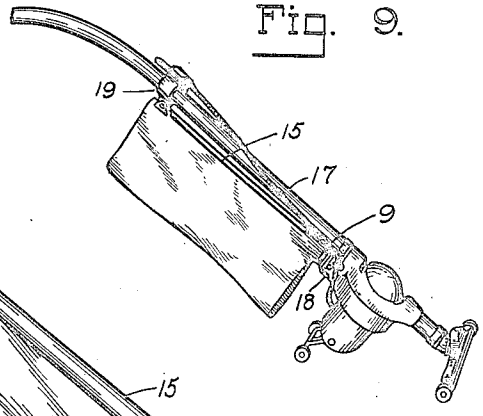
DUST COLLECTOR FOR PNEUMATIC CLEANERS.

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2 SHEETS—SHEET 2.

Fig. 9.



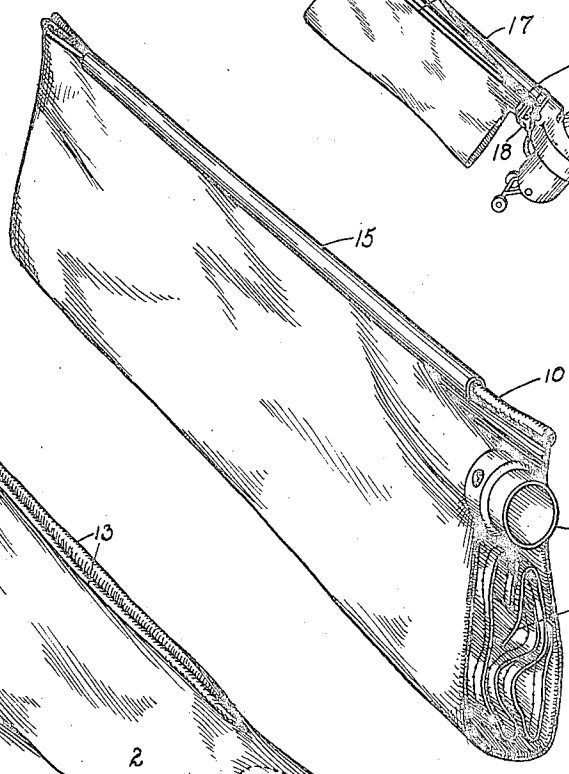


Fig. 5.

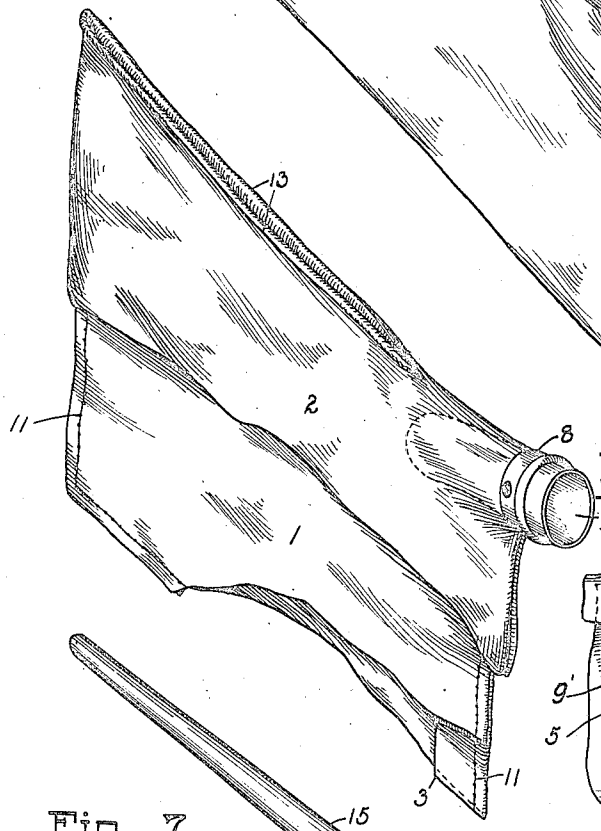


Fig. 6.

Fig. 8.

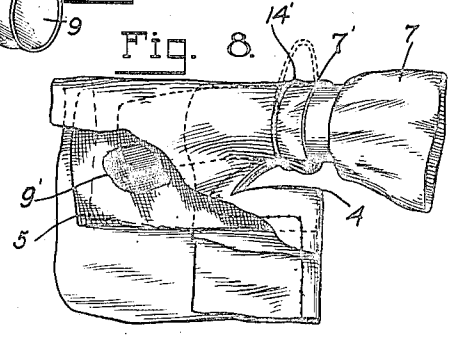


Fig. 7.

INVENTOR

D. B. Replogle

UNITED STATES PATENT OFFICE.

DANIEL B. REPLOGLE, OF BERKELEY, CALIFORNIA.

DUST COLLECTOR FOR PNEUMATIC CLEANERS.

1,416,876. Specification of Letters Patent. Patented May 23, 1922.

Application filed July 5, 1916. Serial No. 107,665.

To all whom it may concern:

Be it known that I, DANIEL B. REPLOGLE, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented a new and useful Dust Collector for Pneumatic Cleaners, of which the following is a specification.

This invention relates to dust collectors of portable vacuum cleaners, and has for its objects, to improve the efficiency in filtering the dust from the air, to improve the means for disposing of the dust after it is collected, to make such disposition convenient and safe, to render the same inexpensive, and other objects as may appear herein.

To these ends, the invention consists of the construction and arrangement of parts as set forth and illustrated in the accompanying drawings in which:

Fig. 1 is a diagrammatic view of a porous paper liner blank, with a reinforcing swatch of fabric arranged in position before folding. Fig. 2 is a similar view of the cloth from which the body of the cover is made. Fig. 3 shows a finished view of the liner. Fig. 4 is a view of the finished cover, a part being torn away to show the mouth tube. Fig. 5 is a view showing the combined parts, folded, ready to be attached to the cleaner. Fig. 6 shows details of the arrangement of the cover and liner. Fig. 7 is a view of the clamp attached to close the cover and secure the parts in position. Fig. 8 is a detailed view showing method of attaching liner, and detail of a reinforcing swatch. Fig. 9 is a view showing a dust collector embodying the invention as it appears in use.

Similar characters of reference refer to like and corresponding parts throughout the views.

Referring to the drawings, the blank of tough porous paper shown in Fig. 1 is to have one of its edges folded in on the line *x*—*y* so that the corners 3, 3 lie in the position 3′—3′. The body of the blank 1 is then folded down on the line *a*—*b* so that the top half of the blank 1 coincides with the lower half 1′ and the slots 4, 4 cutting through the paper and the swatch 5 unite and combine to form the cut 4′ in the neck 7′ of the liner. The seam 11 is run around the three sides of the folded blank so as to form the complete liner as shown in Fig. 3. The containing cloth cover is formed by folding upward the lower half 2 of the cloth blank so as to coincide with the upper half 2′; a cord 10 being stretched across and sewed into the middle of the blank, and the edges 12 being provided with a cord 13 continuously drawn around to properly form and strengthen the vent or opening of the bag when completed. Ears 6 and 6′ of the cover blank unite to form the neck 7 of the cloth cover when sewed together, and the metal ferrule 8 is arranged to secure said neck to the thimble 9 which has an inwardly extending curved end 9′ adapted to receive the neck 7′ of the liner when the liner is inserted within the area of the cover. Any suitable fastening means, as a gummed strip 14, or rubber elastic band 14′ may be used to make a dust proof connection between the neck 7′ of the liner and the curved thimble 9′ of the cover. It is apparent that when the liner is complete, that part of it described as the neck 7′ is composed of two thicknesses of the swatch 5 covered inside and outside of the neck portion by a thickness of the paper of the liner, thus affording a smooth exterior and interior, which facilitate connecting, and furnish a body of material at the point where the greatest strain may occur, thus adding strength and securing the stitching from tearing the paper.

It is necessary for a successful operation of the device that the liner surfaces fit and coincide closely with the inner surface of the cloth cover; for it is found in practice that the entire filtering is performed by the porous paper, and unless it is sustained by the strength of the material of the cloth cover which has, of course, a coarser porosity, the liner will be burst or torn and thus be the cause of the very difficulties which it is designed to overcome. It is filtering capacity, not quantity holding capacity, that is desired.

The arrangement also contemplates increasing the filtering area within restricted limits of space, whereby printed paper which may be impaired in strength and porosity, by the printing upon it, is rendered available. Its impaired porosity is compensated for by the extension of surface which the arrangement permits, and its weakened condition is met by the means I provide to sustain it from tearing. Balloon shaping of the

cover is therefore undesirable and thus prevented.

After the liner is placed in position the bottom cord 10 of the cloth cover with the lower edge of the interior liner enclosed is to be folded upward and into line with the cord 13 seamed around the vent of the cover. A clamp 15 is then exerted in such a manner so as to clamp the corded portions together by drawing them within the slot 16 of said clamp. When the dust collector is thus folded up, its efficiency is improved by having a porous mat 1'' infolded as shown in Fig. 5. In practice I find that extra paper liners which are in the future to be used on the interior are very suitable to be thus enfolded as a mat, they being in contact with the exterior cloth of that side of the cover where otherwise the cloth is brought face to face by the method of folding up as described. When the dust collector is thus assembled it is ready for attachment to the cleaner with which it is to be used, as is shown in Fig. 9, where the clamp 15 parallels the rigid handle 17 of the cleaner and the mouth tube 9 attaches to the exhaust 18 thereof. The further end of the collector is secured by the clamp 19 of the cleaner handle. By this arrangement, it may be noted that no bending or manipulation of the fabrics of the cover and liner takes place as the collector is attachable preferably to that style of pneumatic cleaner in which the handle is rigidly secured to the vacuum producing means, or in which the parts that support the collector do not ordinarily change their relations during operation.

One of the great advantages of my invention is that a full direction for its proper use and operation is printed on the paper liner prior or at the time of its manufacture for liner purposes. It is adapted to be issued as a periodical carrying household hints, advertising and other reading matter. This is one of the advantages attained by the plain flat folded construction, which together with the use set forth is believed to be novel, with or without the fabric cover combination.

Having thus described the invention, what I claim and desire to secure by Letters Patent is:

1. In a dust collector for pneumatic cleaners, a fabric cover having a mouth and a vent, a mouth tube secured in said mouth, a porous bag like liner, adapted to be inserted through said vent and to closely fit into and line the interior of said cover, and means for operably securing said liner to said mouth tube within the cover.

2. In a dust collector for pneumatic cleaners, a fabric cover, a mouth tube secured to said cover, for attaching the whole to a cleaner, a porous paper liner within the cover, operably attached to said mouth tube, and arranged to line the interior surface of the cover; together with means for keeping said paper liner in flat contact with the cover interior.

3. In a dust collector, a cloth cover having a mouth and a vent, a liner made of porous filtering paper having a corresponding shape with said cover, a corresponding mouth but no vent, means for securing the mouths of the cover and liner, operably to a cleaner and means for holding the paper liner in flat contact with the cover interior.

4. In a dust collector, a cloth cover, means on said cover for operably attaching to the exhaust of a cleaner, a porous filtering paper liner arranged to line the interior of said cover and means within said cover for securing said liner, operably, to the exhaust aforesaid; together with means for holding both cover and liner from ballooning.

5. A dust collector comprising a fabric cover having a mouth and a separate vent, a porous paper liner having a corresponding mouth, said liner insertable into said cover through the vent thereof, and both adapted to be operably secured to the exhaust of a pneumatic cleaner.

6. In a dust collector of the kind described, a cloth cover having a mouth tube and a vent, a separable paper liner adapted to operably attach to said mouth tube within said cover, and removable through said vent.

7. A dust collector comprising a bag like dust receiver made of porous filtering paper, or similar material, a separate receptacle of coarser fabrication, adapted to contain said dust receiver as a close fitting lining on its interior, means for attaching the assembled collector operably to a source or exhaust of dust laden air, together with means for preventing ballooning of the assembled parts, when said dust receiver is inflated.

8. In a dust collector of the kind described having a cloth cover and mouth tube attached thereto, a separable porous paper bag operably attached to said mouth tube and adapted to be closely enveloped by said cover.

9. In a dust collector of the kind described having a cloth cover and mouth tube attached, a separable flat paper bag adapted to be operably attached to said tube, enfolded within said cover, and means for securing said enfoldment.

10. In a dust collector of the kind described a flat bag made of porous filtering paper, a cloth cover adapted to enfold said bag, means for attaching the bag and cover operably to a pneumatic cleaner and means for preventing the ballooning of the bag and cover.

11. In a dust collector, a cover and a filtering liner insertable within said cover, both cover and liner operably attached to a mouth tube, and said mouth tube operably attachable to the exhaust of a pneumatic cleaner, means for implicating the united

cover and liner, and a mat of porous material between the implicated cloth of one side of said cover.

12. A dust collector comprising a bag made of suitable porous fabric and having a mouth for operably attaching same to a pneumatic cleaner, opposite edges of said bag folded together implicating one of the sides of the bag, and a clamp arranged to secure said edges.

13. A dust collector comprising a bag made of suitable porous fabric and having a mouth for operably attaching the same to an air cleaning device, opposite edges of said bag folded together implicating one of the sides of the bag, a mat interposed between the folded fabric of the implicated side, and a clamp arranged to secure said edges and retain said mat.

14. An air filtering dust collector comprising a bag made of flexible porous fabric and having a mouth for operably attaching to an air cleaning device, having also a long slit or vent at one edge of said bag, another edge of said bag folded in line with said vent, implicating one of the sides of the bag, and a clamp arranged to simultaneously secure said edges together and close said vent.

15. A dust collector and air filter comprising a bag made of flexible filtering material, said bag having a mouth for operably attaching it to an air cleaning device, corded portions on said bag, and a clamp arranged to secure said corded portions together, implicating the material of the bag between said portions, whereby the filtering area of the bag remains greater than the external outwardly disposed surface thereof when the bag is inflated.

16. A dust collector for vacuum cleaners comprising an inner filtering fabric receptacle, an outer coarser mesh receptacle enclosing the filtering receptacle, said outer receptacle having an opening through which said inner receptacle is removable; and means for attaching the assembled receptacles to a vacuum cleaner, so that dust laden air is, operatively, directed into the inner filtering receptacle.

17. A porous paper bag adapted to be secured to the discharge pipe of a penumatic cleaner, in combination with a mesh bag adapted to loosely envelop the paper bag, and means for securing the bags to the discharge pipe.

18. In a suction cleaner, a bag of porous woven fabric in combination with a paper bag within the same and connected to the discharge neck of the cleaner, said first bag being formed with a closable opening through which said paper bag may be introduced and withdrawn.

19. A porous paper bag adapted to be secured to the discharge pipe of a pneumatic cleaner and having attaching means adapted to bind it to the pipe, and a mesh bag inclosing the said paper bag and adapted to be secured to such discharge pipe.

20. In a dust collector of the kind described, a paper fabric filtering receptacle, a net-like coarser fabric receptacle enclosing the same and adapted to sustain the paper, in combination with means for directing dust carrying fluid through the fabrics.

21. A dust collector for pneumatic cleaners comprising a receptacle made of porous paper, a coarser fabric receptacle arranged to enclose, support and sustain the paper, and means for operative attachment to the cleaner.

22. In combination with a pneumatic cleaner, a dust arresting element comprising a paper receptacle supported and sustained by a cloth-like receptacle.

23. The combination with the discharge pipe of a pneumatic cleaner, of a paper dust bag, a cloth cover adapted to support and sustain the paper bag, and means for operatively connecting with said discharge pipe.

24 in combination with a manually portable dust removing device, having a relatively long and rigidly connected handle, a dust collecting element comprising a finer mesh fabric, a coarser mesh fabric sustaining the finer fabric, and the fabrics arranged in folds parallel to said handle; together with means for directing the fluid to be filtered through both fabrics.

25. The herein described dust-collector for pneumatic cleaners, comprising a flat mesh bag cover envelope, an inside lining filtering envelope of printed paper, means for directing dust laden air into the covered paper envelope and means for securing the united envelopes in common folds, whereby a relatively extensive filtering surface is attained within relatively restricted space limits, and the filtering paper is sustained against inflation strains.

DANIEL B. REPLOGLE.

Witnesses:
S. T. KLOTZ,
LOVINA LOWRIE.