Feb. 14, 1950 C. K. BROWN, JR 2,497,581

VACUUM CLEANER DUST BAG UNLOADER

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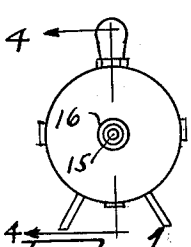


FIG. 1.

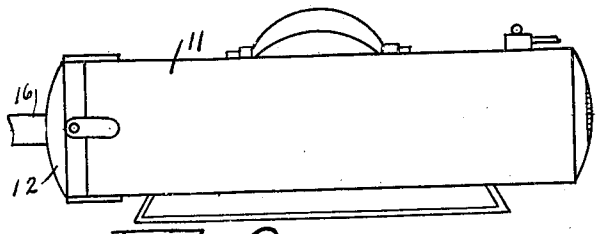


FIG. 2.

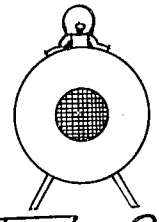
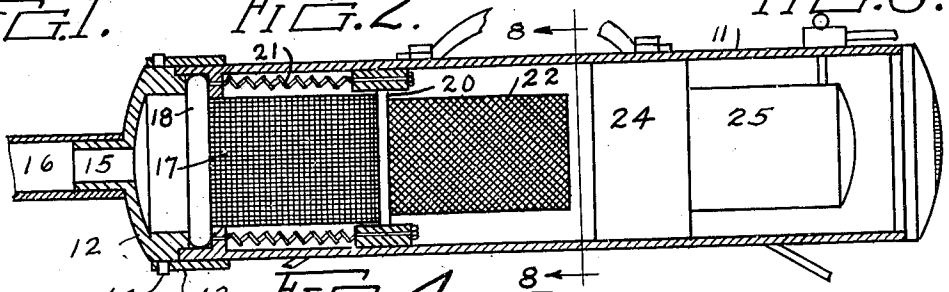


FIG. 3.



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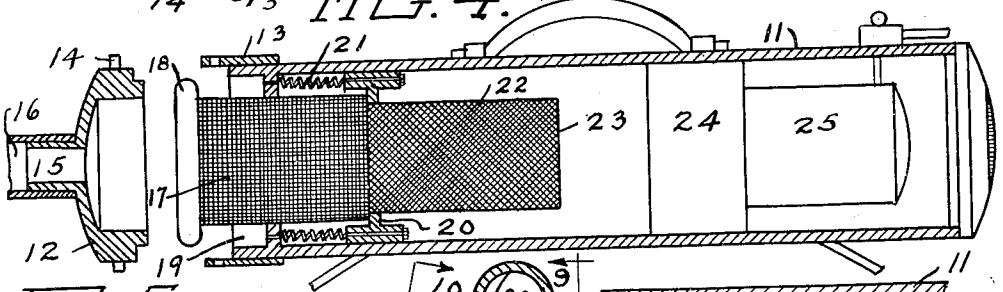

FIG. 5.

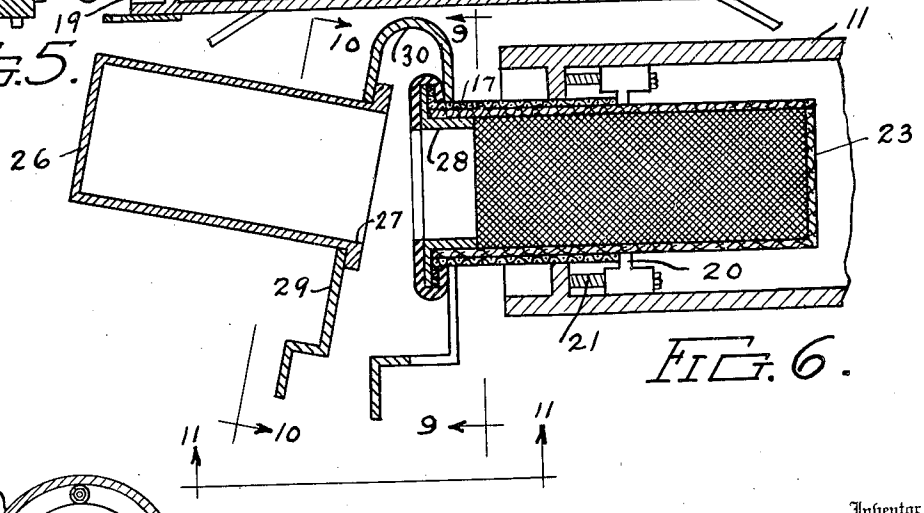

FIG. 6.

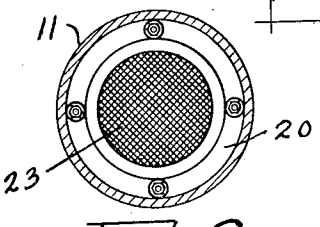

FIG. 8.

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VACUUM CLEANER DUST BAG UNLOADER

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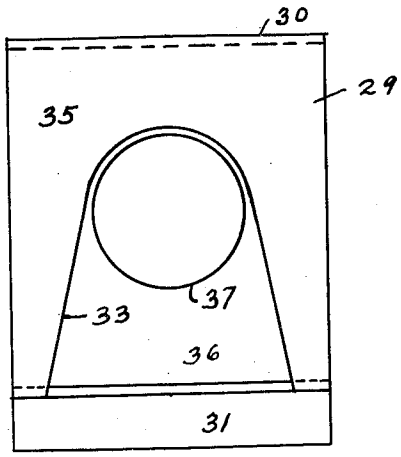

FIG. 9.

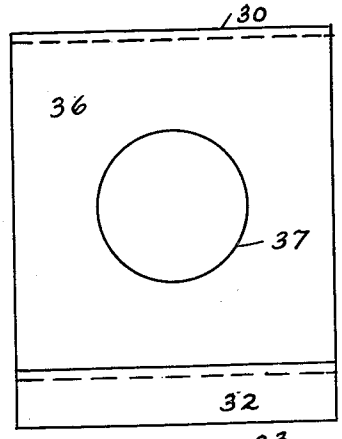

FIG. 10.

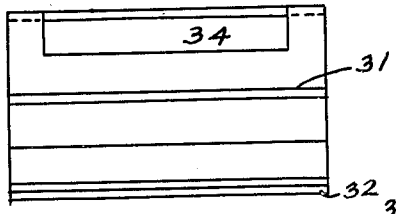

FIG. 11.

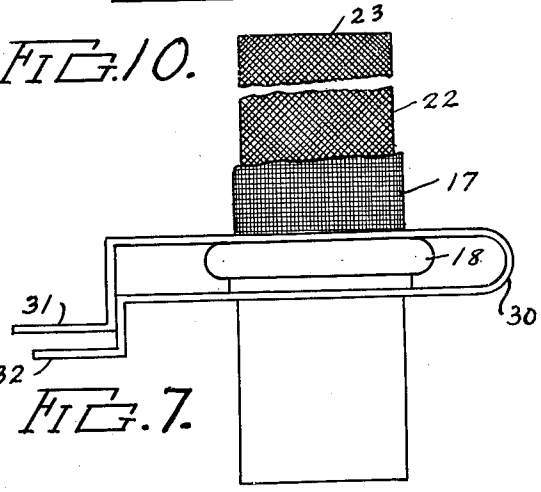

FIG. 7.

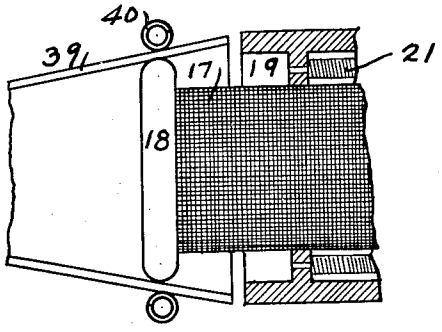

FIG. 12.

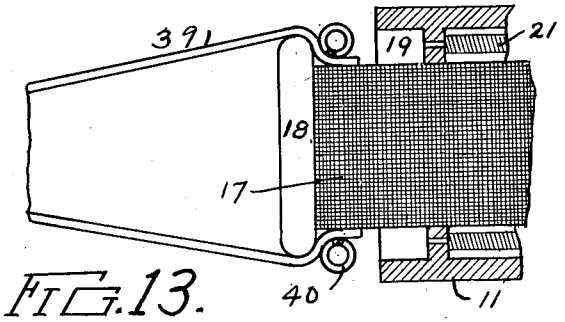

FIG. 13.

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Patented Feb. 14, 1950

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UNITED STATES PATENT OFFICE

2,497,581

VACUUM CLEANER DUST BAG UNLOADER

Charles Kepler Brown, Jr., Fairmont, W. Va.

Application October 17, 1945, Serial No. 622,829

1 Claim. (Cl. 183—51)

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This invention relates to vacuum cleaners of the domestic type and more particularly to a dust removing device for the same.

In a particular form frequently used for domestic purposes, the dust bag of cloth connected with a vacuum cleaner is emptied by dumping with its mouth open into an open space or loose container or dust pan. It is so situated when this is done, that a great amount of its dust and debris escapes into the surrounding atmosphere and distributes itself undesirably on the surrounding structures, as well as on the user performing the task. This is such a serious disadvantage that it mitigates against the equipment and reduces the attraction to employ it.

In the present invention, it is an object to provide a new and improved dust collecting arrangement in a vacuum cleaner, that will avoid one or more of the disadvantages and limitations of the prior art.

Another object of the invention is to provide a new and improved dust collecting arrangement in a vacuum cleaner that will operate expeditiously and reduce the possibilities of emptying the dust and debris therefrom without adequate control over the dust escaping.

An additional object of the present invention is to provide a new and improved dust collecting arrangement in a vaccum cleaner that will greatly facilitate the removal of the dust obtained in connection therewith and enable such removal to be done conveniently and safely.

Other objects will become apparent as the invention is more fully set forth.

In order that the invention may be more clearly understood attention is hereby directed to the appended drawings, forming part of this application and illustrating two embodiments of the invention.

Referring to the drawings:

Figure 1 is an end elevation of a vacuum cleaner device embodying the invention;

Figure 2 is a side view showing the suction portion of the device shown in Figure 1;

Figure 3 is an end view showing the air discharge end of the device shown in Figure 1;

Figure 4 is an enlarged section view taken along lines 4—4 of Figure 1 showing the dust bag in position;

Figure 5 is a similar view to that shown in Figure 4, but with the cap removed to allow the end of dust bag to project beyond the end of the cylinder face;

Figure 6 is an enlarged section view, showing the dust bag end projecting beyond the end of

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the cylinder, and with the clamp and its throw-away bag attached in open position;

Figure 7 shows the position of the dust bag when the dust is being emptied from the dust bag in to the throw-away bag and with the clamp tightened;

Figure 8 is a section taken along line 8—8 of Figure 4 showing an end view of the dust bag, cradles and casing;

Figure 9 is a view of the clamp looking along line 9—9 of Figure 6, without dust bag;

Figure 10 is a view of the clamp looking along line 10—10 of Figure 6, without throw-away receptacle;

Figure 11 is a front view of the clamp looking along line 11—11 of Figure 6, without dust bag and throw-away receptacle;

Figure 12 is an enlarged sectional view showing the dust bag end projecting beyond the end of the cylinder and with a modified throw-away bag and clamp; and

Figure 13 is a similar view to that shown in Figure 12, but with the clamp in place and ready to remove the dust bag and empty same.

Similar reference characters refer to similar part throughout the drawings.

In the structure indicated in the drawings, a conventional vacuum cleaner housing 11 has a removable cap 12 secured on with clips 13 and pins 14 so it may be readily disconnected therefrom. The cap has a spout 15 to which the cleaner hose 16 is attached. When the cap 12 is removed as indicated in Figure 5, it allows a holder consisting of a perforated screen cylinder 17 with its collar 18 to unseat itself from an internal annular shoulder 19 in the end portion of the housing 11. In unseating the collar is projected out of the housing a substantial part of its length by a circular supporting cradle 20 surrounding it. This is done under the tension of several coiled springs 21 spaced around the screen like cylinder 17 and in between the cradle 20 and shoulder 19 to which they are attached suitably and adjustably. A conventional cloth dust bag 22 of circular cross-section is secured tightly to the collar 18 by the walls of the screen cylinder 17. The bag is closed at its bottom 23 and opens at the top. It collects the dust carried into the housing 11 under the suction of an air turbine mechanism 24 actuated by a motor 25 in the usual manner. The dust is segregated in the bag 22 and the air released therefrom through the housing while the vacuum cleaner is being used. The cylinder 17 and bag 22 cannot come out of the housing beyond a prede-

termined line, due to the obstruction by the cap 12.

On the detachment of the cap 12 and automatic projection of the cylinder 17 from the housing, the accumulated dust in the bag 22 is readly for dumping. This is performed preferably by clamping on a cylindrical paper or composition receptacle 26 having a relatively stiff mouth ring 27, to bear against the collar 18. The receptacle is termed an auxiliary receptacle or trow-away bag. The collar is made dust tight in a particular manner by having it formed over into a ring, as indicated in Figure 6, and swaged over to hold the screen cylinder 17 and an internal circular shell 28, with the end of the bag 22 in between, in tight relation. The clamping on of the receptacle 26 is performed readily and conveniently by slipping a resiliently tensioned clamp 29 over both the collar 18 and the mouth ring 27 to bring them together properly. The clamp 29 is preferably constructed as shown in Figures 9, 10 and 11 of thin flat semi-rigid material formed in U-form having a relatively large bend 30 about its middle portion of a resilient nature. It also has stepped bent portions 31 and 32 respectively at its ends adapted to fit into one another when closed as indicated in Figure 7. A hole 33 of tapered form and slot 34 are provided in the upper leg 35 and arranged to slip around the cylinder screen 17, below the collar 18 without removing the cylinder 17 from the housing and hold on to same.

The lower leg portion 36, is formed with a circular hole 37 adapted to receive and hold the throw-away bag 26 thereto at the mouth ring 27, as shown in Figure 6.

When the throw-away bag is clamped to the dust bag 22 in its projected position, it is ready to receive the accumulated dust and debris from the cloth dust bag 22. This is done by inverting the bag 22, as shown in Figure 7 until the dust has been deposited in the throw-away bag 26. After this is accomplished, the clamp 29 is detached and the throw-away bag removed and disposed of. The cylinder 17 and dust bag 22 are then forced resiliently back into the housing, against the tension of the cradle 20 and the springs 21, and the cap 12 replaced so the vacuum cleaner will be available for further dust collecting. The reciprocation or telescoping of the cylinder 17 with the bag attached in a resilient manner can be used to facilitate the removal of dust sticking after dumping.

In the modified forms, shown in Figures 12 and 13, the throw-away bag 39 is of conventional form and material. Its open end is slipped over the collar 18 and held in place by a clamp in the form of a coiled spring 40 made in the form of a resilient bracelet.

The device in general is simple in structure, but results in a very efficient method of removing dust from a vacuum cleaner. It is relatively economical to provide for and it overcomes the inconvenience and damage inherent to forms not having provision of this nature. It removes a conspicuous objection to the use of domestic vacuum cleaners, and enables the dust to be dumped and shaken out without striking and damaging the housing. The telescoping holder makes the dust arrangement accessible for many purposes, keeps the dust bag from collapsing, and allows the holder and bags to be given a resilient shaking.

While but two general forms of the invention are shown in the drawings and described in the specifications it is not desired to limit this application for patent to this particular form or in any other way otherwise than limited by the scope thereof, as it is appreciated that other forms could be made that would use the same principles and come within the scope of the appended claim.

Having thus described the invention what is claimed is:

A vacuum cleaner dust bag ejecting and unloading device comprising, in combination, a housing provided at one end with an annular shoulder, a cap for closing the end of said housing adjacent said shoulder, a cradle slidably positioned within said housing, tensioning means secured to said cradle and to said shoulder, a dust bag in said housing, a collar at its open end normally resting against said cap when the latter is in closed position, said cradle comprising a circular ring surrounding said dust bag and said tensioning means consisting of a plurality of helical springs anchored in said circular ring and in said shoulder, a foraminated cylinder surrounding said bag and having one end secured to said collar and having its opposite end resting on said cradle, whereby, upon opening of said cap, said bag and cylinder will be ejected from the housing.

CHARLES KEPLER BROWN, JR.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,855,672	Gudka	Apr. 26, 1932
2,022,249	Lofgren	Nov. 26, 1935
2,041,401	Eldred	May 19, 1936
2,084,492	Houser	June 22, 1937
2,222,077	Kahn	Nov. 19, 1940
2,272,394	Armstrong	Feb. 10, 1942
2,286,421	Kahn	June 16, 1942

FOREIGN PATENTS

Number	Country	Date
270,493	Great Britain	May 12, 1927