July 8, 1941. W. J. CLEMENTS 2,248,610

METHOD OF MANUFACTURING DEODORIZING ATTACHMENTS FOR VACUUM CLEANERS

Filed Nov. 17, 1939

Fig. 1.

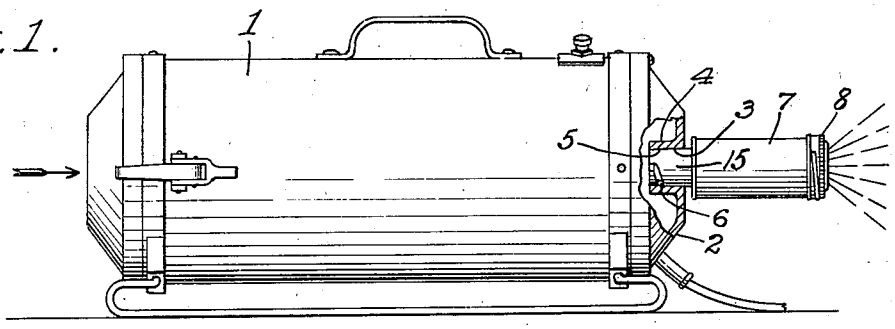


Fig. 4.

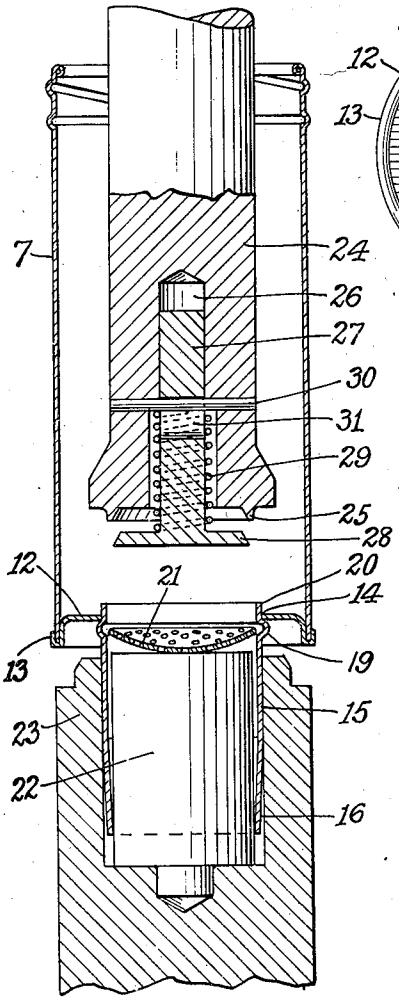


Fig. 3.

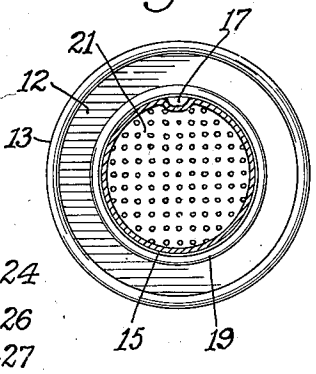
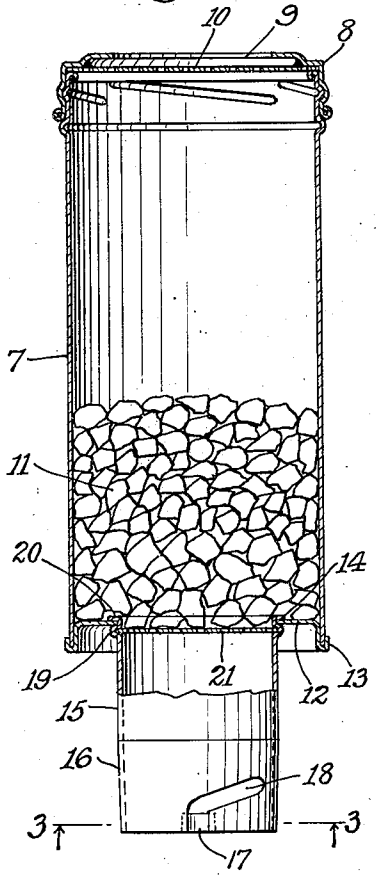


Fig. 2.



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METHOD OF MANUFACTURING DEODORIZING ATTACHMENTS FOR VACUUM CLEANERS

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Application November 17, 1939, Serial No. 304,947

2 Claims. (Cl. 113—120)

My invention relates to an improvement in deodorizing attachments for vacuum cleaners.

One purpose is the provision of an improved deodorizing attachment which shall be efficient in operation and cheap and efficient to manufacture.

Another purpose is the provision of an improved method of assembling such deodorizer.

Other purposes will appear from time to time in the course of the specification and claims.

I illustrate my invention more or less diagrammatically in the accompanying drawing wherein:

Fig. 1 is a side elevation of a vacuum cleaner, with parts in section;

Fig. 2 is a longitudinal axial section through my deodorizing attachment.

Fig. 3 is a section on the line 3—3 of Fig. 2; and

Fig. 4 is a sectional view illustrating the mode of assembling and securing the parts together.

Like parts are indicated by like symbols throughout the specification and drawing.

Referring to the drawing, 1 generally indicates a vacuum cleaner, the details of which form no part of the present invention. It includes, however, an end portion 2 having a central passage 3, defined by a generally tubular member 4, having an inward taper as at 5, and provided with any suitable locking stop or lug 6.

The deodorizing attachment includes a main body portion 7, herein shown as generally cylindrical, and having at its outer end any suitable filter or mesh or foraminous plate 10, secured in the screw cap 8, apertured at 9.

11 indicates any suitable crystals or material to obtain the deodorizing effect. 12 is a bottom member secured to the cylindrical body portion, in any suitable manner, as at 13. It has a central aperture 14. 15 indicates a neck or connecting portion, slightly tapered as at 16, to penetrate and conform to the passage portion 3, 5 of the vacuum cleaner end member 2. The tapered portion 16 is upset to provide a locking slot or depression having an entry 17 and an inclined portion 18. It will be understood that when the neck member 15 is inserted in the passage member 4, as shown in Fig. 1, it is then rotated to obtain a positive locking effect in relation to the vacuum cleaner.

In assembling the device it will be observed that the neck portion 15, in its initial stage, is provided with an outwardly extending circumferential bend 19, and an inner or upper flange 20 of generally cylindrical shape and conforming generally to the diameter of the aperture 14 of the end portion 12. The foraminous plate or filter 21, initially of bulged or cup shape, is positioned within the member 15 and in alignment with the outwardly offset portion 19, the parts being initially in the position in which they are shown in Fig. 4.

Any suitable die may be employed, including the cylindrical portion 22, adapted to support the foraminous member 21, and an outer member 23 of the die supports the neck member 15, as shown in Fig. 4. Any suitable punch 24 may be employed, which preferably has a downwardly extending portion 25 of reduced diameter. The diameter of the portion 25 is sufficient to permit it to penetrate within the portion 25 of the neck. The punch 24 is centrally apertured at 26 to receive the stem 27 of the plunger pad 28, which engages the foraminous cup-shaped member 21 to force its periphery into the groove in the bead 19. The plunger is thrust downwardly by the spring 29 and is retained in the punch 24 by the pin 30 engaging in the slot 31.

When the punch 24 is moved into operative position, it folds the cylindrical portion 20 outwardly over the upper face of the closure portion 12, and also compresses the offset portion 19, and at the same time the pad 28 flattens out the cup-shaped foraminous plate 21. The result of the downward movement of the punch 24 against the die 23 is to move the parts into the position in which they are shown in Fig. 2, with the member 20 firmly locked against the upper face of the portion 12, and the offset 19 firmly locked against the lower face. At the same time the flattening of the bulged foraminous plate 21 causes it to move outwardly into the offset portion 19, where it may be firmly gripped, and in any event cannot escape. The union between the parts is so close that there is no relative rotation between the cylindrical body 7 and the neck portion 20, and the cylindrical body 7 may be used as a handle for applying or removing the unit as a whole from the vacuum cleaner.

It will be realized that whereas I have described and illustrated a practical and operative device, nevertheless many changes may be made in the size, shape, number and disposition of parts without departing from the spirit of my invention. I therefore wish my description and drawing to be taken as in a broad sense illustrative or diagrammatic, rather than as limiting me to my precise showing.

I claim:

1. The method of assembling a sheet metal element which includes providing a body portion

having an apertured wall and a neck portion including a flange adapted initially to penetrate the aperture of said wall, and an outwardly offset channel adapted to engage the wall and to receive a filter member, positioning said neck portion and said body portion with said flange penetrating said aperture, and said channel engaging said wall, positioning a concavo-convex filter member within said neck portion, with its edge in alignment with said channel, the diameter of said filter member being initially less than the diameter of the neck portion, and substantially simultaneously flattening said filter member and thereby extending its edge into said channel, and upsetting said flange and compressing said channel, and thereby at the same time locking said filter member in relation to said neck portion, and locking said neck portion and filter member in relation to said body portion.

2. The method of assembling a sheet metal element which includes providing a body portion having an apertured wall and a neck portion including a flange adapted initially to penetrate the aperture of said wall, and an outwardly offset channel adapted to engage the wall and to receive a disc, positioning said neck portion and said body portion with said flange penetrating said aperture, and said channel engaging said wall, positioning a concavo-convex foraminous disc within said neck portion, with its edge in alignment with said channel, the diameter of said filter member being initially less than the diameter of the neck portion, and substantially simultaneously flattening said disc and thereby extending its edge into said channel, and upsetting said flange and compressing said channel, and thereby at the same time locking said disc in relation to said neck portion, and locking said neck portion and disc in relation to said body portion.

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