

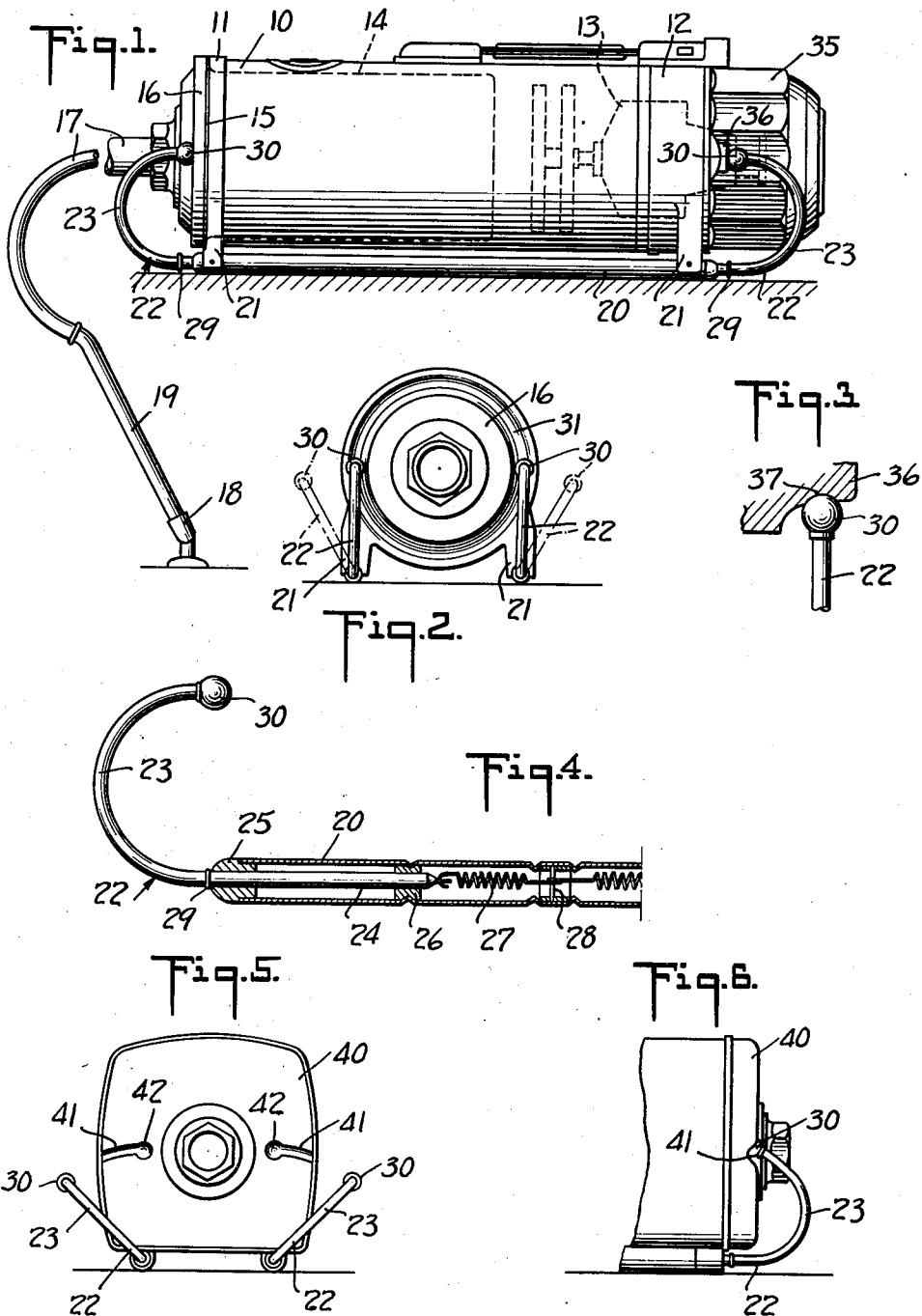
May 9, 1939.

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2,157,693

VACUUM CLEANER

Filed June 8, 1937



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UNITED STATES PATENT OFFICE

2,157,693

VACUUM CLEANER

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Application June 8, 1937, Serial No. 146,987
In Germany June 10, 1936

3 Claims. (Cl. 15—1)

My invention relates to vacuum cleaners and more particularly to vacuum cleaners of the type in which the dust bag or other dust separating member, as well as the motor fan unit, is enclosed within a casing which is adapted to be connected to a cleaning nozzle by means of a flexible hose or the like.

In a cleaner of this type, it is desirable to provide removable cover members in order that the dust bag may be readily removed for purposes of cleaning and that access may be had to the motor and other interior parts of the device. One of the objects of my invention is to provide an improved arrangement for removably securing such cover members in place.

Further objects and advantages will be apparent from the following description considered in connection with the accompanying drawing, which forms a part of this specification and of which:

Fig. 1 is a side view of one embodiment of my invention;

Fig. 2 is an end view of the device shown in Fig. 1;

Fig. 3 is a view partially in cross-section, on an enlarged scale showing a detail of the device shown in Fig. 1;

Fig. 4 is a cross-sectional view on an enlarged scale of a portion of the device shown in Fig. 1;

Fig. 5 is an end view of another embodiment of my invention; and

Fig. 6 is a side view of a portion of the device shown in Fig. 5.

Referring more particularly to Fig. 1, reference character 10 designates a hollow casing provided with end rings 11 and 12. A motor fan unit 13 is suitably mounted within the casing and is preferably supported from ring 12. A dust bag 14 is formed with a dust bag ring 15 which is secured in place against a seat formed in ring 11 by means of a closure member 16. Closure member 16 is formed with a central opening to which may be secured one end of a flexible hose or the like 17. The other end of the hose 17 is connected to a suction nozzle 18, a rigid handle member 19 being interposed between the hose and the nozzle, if desired.

The casing 10 and associated parts are supported on a surface by means of a pair of runners 20 secured to lugs 21 projecting downwardly from rings 11 and 12. Runners 20 are thus disposed below and substantially parallel with casing 10.

As will be seen from Fig. 4, runners 20 consist of hollow tubular members extending into each

end of which is a hook-shaped member 22, having a curved portion 23 and a straight portion 24. The straight portion is rotatably and slidably mounted in bearings 25 and 26 within the tubular runner. A spring 27 is connected between the inner end of straight portion 24 and a stationary pin or the like 28 which is secured within the tubular member. The spring 27 thus tends to urge member 22 inwardly with respect to the runner. Movement in this direction is limited by means of a collar 29 secured to member 22 at about the juncture of the curved portion 23 with the straight portion 24. The other end of the curved portion is preferably formed with a ball or the like 30.

Closure member 16 is provided with an annular groove 31 in its outer face which may be engaged by the balls 30 on the ends of member 22. Preferably, groove 31 is curved in cross-section about a radius substantially the same as that of balls 30. The spring 27 urges the balls 30 into the groove 31 and thus holds the closure member in place. The dust bag ring 15 is preferably provided with a gasket which serves to form an air-tight connection between the member 16 and the ring 11.

Inasmuch as the unit is adapted to be moved around on a supporting surface by pulling on the hose 17, this pull tends to move the cover 16 away from the ring 11. This force must be resisted by the members 22 and thus by the springs 27.

When it is desired to remove the cover 16, the curved portions 23 of the members 22 are grasped and turned outwardly. Due to the curvature of groove 31 and/or balls 30, this turning causes sufficient axial displacement of member 22 to release the balls 30 from the groove 31. Thereafter, members 22 are pivoted to the positions shown in dot and dash lines in Figs. 2 and released. The shoulders 29 limit the inward movement of the members 22 and the cover 16 is now free to be removed. If desired, members 22 may first be pulled by hand a sufficient distance in axial direction to release balls 30 from groove 31.

The opposite end of casing 10 is closed by means of a cap member 35, which may be secured in place in the same manner. As shown, the cap member is formed with lugs 36 each of which is provided with a recess 37 in which may engage the ball 30 formed on each of the members 22 at this end of the casing. The cap 35 may be removed in the same manner as above described in connection with closure member 16, that is, the members 22 are grasped and

turned or first pulled outwardly a distance sufficient to release balls 30 from recesses 37 and then rotated so that, when the members 22 are released, the balls 30 will not engage the lugs 36.

In the embodiment shown in Figs. 5 and 6, the closure member 40, which corresponds to the member 16 in Fig. 1, is formed with arcuate grooves 41 which have the same radius as the arc described by rotating the members 22. Grooves 41 lead from the outer edge of the member 40 to a recess 42 which is deeper than the grooves.

In order to remove the closure member 40, the members 22 are pulled outwardly far enough to release the balls 30 from the recesses 42 and are then pivoted, the balls 30 travelling in the grooves 41 to the position shown in Fig. 5.

If desired, the curved portions 22 of the members 23 may be made resilient and the straight portions 24 may be fixed against axial movement in the runners 20, thereby doing away with the necessity of separate springs 27, the resiliency of the portions 23 being relied upon for securing the closure members in place.

While I have shown two more or less specific embodiments of my invention, it is to be understood that this has been done for purposes of illustration only and that the scope of my invention is not to be limited thereby, but is to be determined by the appended claims.

What I claim is:

1. In a vacuum cleaner, a casing formed with an opening, a closure member for said opening, hollow tubular runners for supporting said casing on a surface, hook-shaped members axially movably and rotatably mounted in said hollow

runners, said closure member having recesses engageable by said hook-shaped members, and springs disposed in said tubular runners and completely enclosed thereby for urging said hook-shaped members axially toward said closure member.

2. In a vacuum cleaner, a casing formed with an opening, a closure member for said opening, a pair of hook-shaped members rotatably and axially movably carried by said casing, said closure member being formed with arcuate grooves struck about the centers of rotation of the respective hook-shaped members and extending inwardly from opposite edges of said closure member to terminate in deeper recesses engageable by said hook-shaped members, and resilient means for urging said hook-shaped members axially toward said closure member.

3. In a vacuum cleaner, an elongated casing formed with an opening at one end, a removable closure member for said opening, a pair of hollow tubular runners both disposed entirely below said casing for supporting the latter horizontally above a substantially horizontal surface, retaining members having straight portions axially movable and rotatably mounted in said hollow runners, said closure member having a pair of recesses disposed at substantially the horizontal center line of said closure member, said retaining members having hook-shaped portions extending from the straight portions so as to be engageable with said recesses, and springs disposed in said hollow runners for urging the hook-shaped portions of said retaining members into engagement with said recesses.

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