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LATCH FOR VACUUM CLEANER COVERS

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Fig. 1

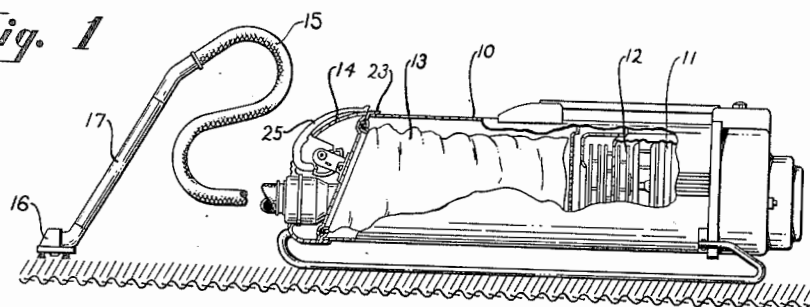


Fig. 2

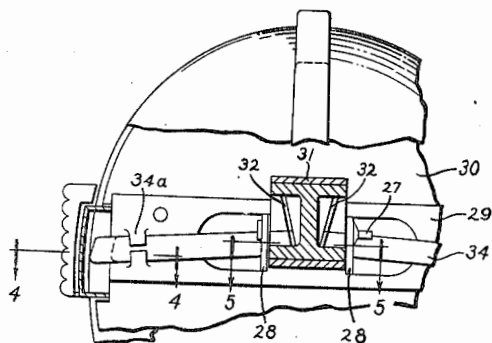


Fig. 3

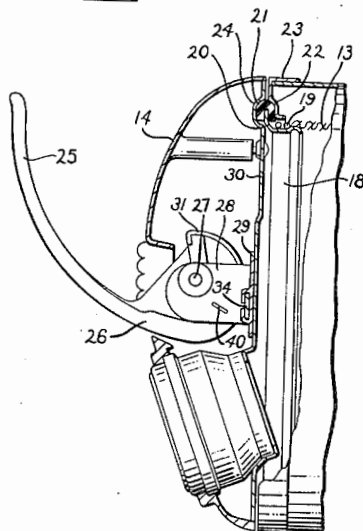


Fig. 5

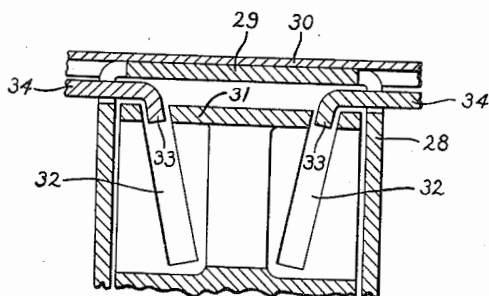
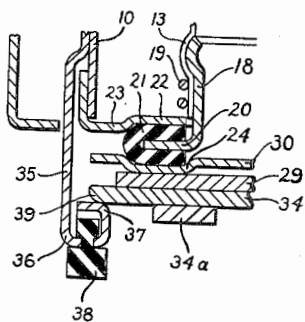


Fig. 4



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LATCH FOR VACUUM CLEANER COVERS

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2 Claims. (Cl. 292—37)

1

This invention relates to vacuum cleaners and is more particularly concerned with the cover and latching means for such cleaners.

It is one of the prime objects of the invention to provide a cover and cover latching means for vacuum cleaners of novel and improved construction which will be simple and efficient in operation and which will lend itself to economic manufacture as well as one which is designed for a long life of utility with minimum liabilities to wear and dislocation of parts.

Another object of the invention is to provide a cover and latching assembly therefor, wherein the cover handle forms the latch actuating mechanism by and in which a single outward movement of such handle will act to both release the latch and remove the cover from its associated casing.

A further object of the invention is to provide a cover and latching assembly whereby a simple camming action will provide for the tight securing of the cover in sealed relation to the vacuum cleaner casing.

Numerous other objects and features of the present invention will be apparent from a consideration of the following specification when taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a side view of a vacuum cleaner embodying one form of the present invention with the casing broken away in part.

Fig. 2 is a fragmentary front elevation of the cover broken away to show the locking means.

Fig. 3 is a vertical transverse section through the cover.

Fig. 4 is a detailed section taken on the line 4—4 of Fig. 2, and

Fig. 5 is a detailed section taken on the line of 5—5 of Fig. 2.

The present invention is shown by way of illustration as a cover and latch assembly for a conventional tank type cleaner in which the cover acts not only as a closure for the dust compartment but also as a retaining and sealing means for an internal dust bag and includes a port for the admission of dust-laden air. It will be understood, however, that the cover and latching means are broadly applicable and may be readily modified for use as a closure and latching means generally.

The present invention is characterized by the provision of a cam member which forms a pivot for the latch actuating handle, which handle constitutes a manipulating handle for the cover as well as the actuating member for the latch.

2

The cam surfaces of the cam constitute the means for projecting and withdrawing the latching elements, the ends of which may also be formed with cam surfaces so as to readily engage their keepers and exert sealing pressure by the cover.

Referring to the drawings, 10 indicates a vacuum cleaner casing in which is mounted a motor 11 driving a multi-stage centrifugal fan 12. Fan 12 is adapted to produce a flow of air in casing 10 from left to right, as viewed in Fig. 1. In the left end of casing 10, a dust bag 13 is located and serves to separate the dust from the air before it enters fan 12. A removable front cover 14 secures dust bag 13 in casing 10, as will be explained below, and permits access to remove dust bag 13 to empty it. A flexible hose 15 is connected in an inlet opening in cover 14 and communicates with the interior of dust bag 13. A cleaning tool 16 is connected to the other end of hose 15 by means of a rigid tubular handle member 17. When the area in the vicinity of the casing 10 has been cleaned, the casing 10 is moved to a new place by a pull on the flexible hose 15. This pull is transmitted from the hose 15 through the front cover 14 to the casing 10.

Dust bag 13 is secured to a ring 18 by means of binding thread 19. Ring 18 has an outwardly extending flange 20 which is covered with a rubber gasket 21. Gasket 21 rests in a seat 22 provided in a ring 23 secured to casing 10. Front cover 14 is provided with a corresponding seat 24 formed in the inner face sheet thereof in which gasket 21 is received when cover 14 is secured to casing 10. When cover 14 is locked to casing 10, gasket 21 is compressed between cover 14 and ring 23 and provides an air-tight seal for cover 14.

Handle 25 is provided with a terminal hub 26 which is mounted on a transversely positioned horizontal pintle 27 which in turn is mounted between forwardly projecting ears 28 struck out from a plate 29 mounted on the inner face sheet 30 of the cover 14 thus providing for pivotal movement of the handle 25 in a vertical longitudinal plane.

The hub 26 of the handle 25 is provided with an arcuately shaped cam plate 31 which is pierced by a pair of spaced converging straight openings 32, the edges of which constitute cam surfaces which engage outwardly turned ends 33 of cover securing latch bars 34 which bars are mounted for limited rectilinear movement on the plate 29 from which the ears 28 are

3

struck. Guiding and securing tabs 34a which are also struck out from the plate 29 secure and guide the bars 34 for rectilinear movement in response to pivotal movement of the cam through manipulation of the handle 25.

The casing 10 of the cleaner is provided on opposite sides with keeper members 35 which extend forwardly in a plane spaced from the sides of the casing and beyond the casing, their terminal ends being bent inwardly at 36 to form a keeper wall 37. A rubber bumper 38 is also provided to contact the cover and prevent marring when the cover is applied. With the cover in position as shown in Fig. 4, the outer ends of the latch bars 34 are engaged under the walls 37 to secure the cover in position, it being noted that the terminal ends of the bars are beveled as at 39 to provide a slight camming action to assist in securely holding the cover in sealing relation with the gasket 21. A detent 40 is preferably provided in one of the ears 28 for frictionally engaging the hub 26 when the handle is moved to its full, opened or closed position.

In the operation of the device when it is desired to remove the cover, the handle 25 is grasped and moved about with the pintle 27 as its axis thus rotating the cam 29 whereby the slots 32 engage the ends 33 of the latch bars 34 to move the bars inwardly thus withdrawing their ends 39 from the engagement with the keepers 35 and permitting the cover to be removed. When the cover is to be replaced, it is positioned on the casing with the latch bars in registration with the keepers. The upward movement of the handle 25 will thereafter move the cam to project the ends of latch bars under the keeper edge to firmly secure the cover in position.

It will be understood, of course, that the present invention is not limited to the particular structural details herein set forth and numerous changes and modifications of the present invention may be resorted to without departure from the spirit or scope of the invention.

What I claim is:

1. A latching structure for a closure member comprising a plate secured to said member and extending transversely thereacross, a pair of spaced ears extending outwardly at right angles

4

from said plate adjacent to the center thereof, a cam member pivotally mounted between said ears and having a cylindrical surface formed with a pair of diverging cam slots, guide tabs on said plate adjacent to opposite ends thereof, a pair of latch bars reciprocally mounted on said plate by said guide tabs, an arm portion angularly formed from the inner end of each bar, each arm portion engaging one of said cam slots, and a handle connected to said cam member for rotating the latter to reciprocate said latch bars outwardly and inwardly into locking and unlocking positions, respectively.

2. A latching structure for a closure member comprising a plate secured to said member and extending transversely thereacross, a pair of spaced ears extending outwardly at right angles from said plate adjacent the center thereof, a hub member pivoted between said ears and adapted to move in a plane perpendicular to said plate and provided with a cylindrical rim portion, an arcuately shaped cam member carried by said rim portion and provided with a pair of diverging cam slots, guide tabs on said plate adjacent the ends thereof, a pair of latch bars reciprocally mounted on said plate by said guide tabs, an arm portion angularly formed from the inner end of each bar, each arm portion engaging one of said cam slots, and a handle connected to said hub member for rotating the arcuate cam member to reciprocate said latch bars outwardly and inwardly into locking and unlocking positions, respectively.

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