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2,239,762

SUCTION CLEANING APPARATUS

Filed March 24, 1939

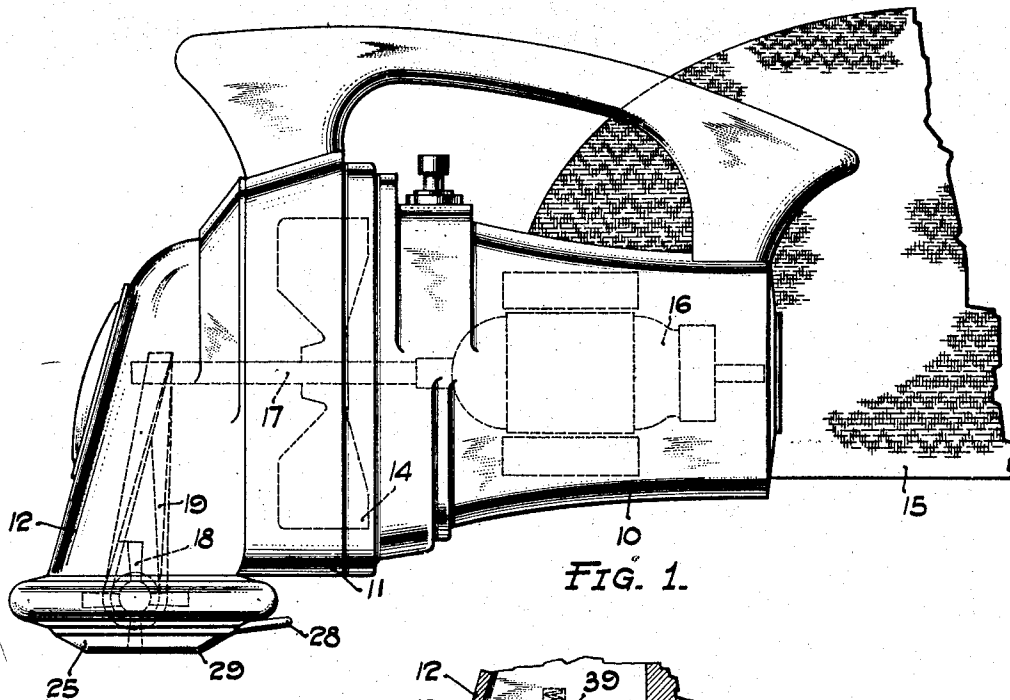


FIG. 1.

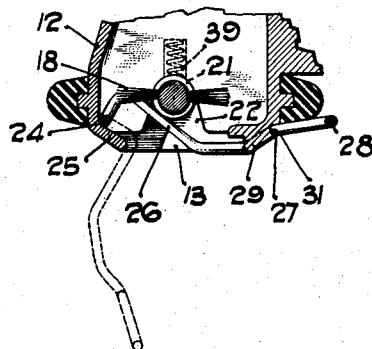


FIG. 3.

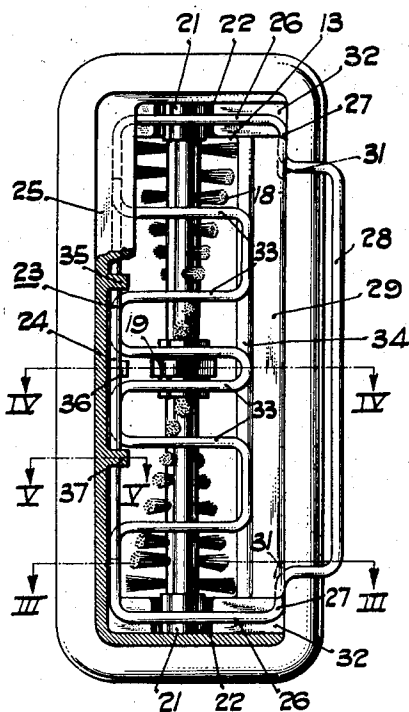


FIG. 2.

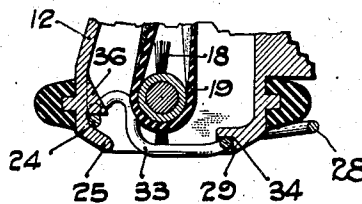


FIG. 4.

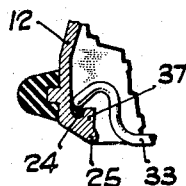


FIG. 5.

WITNESSES:

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SUCTION CLEANING APPARATUS

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4 Claims. (Cl. 15-7)

My invention relates to suction cleaning apparatus and has for an object to provide improved apparatus of this kind.

A further object of the invention is to provide an improved brush guard for a cleaner having a rotatable brush disposed within the nozzle thereof.

A still further object of the invention is to provide improved guard means for the brush roll of a suction cleaner having provisions for positioning the bearing of the brush roll in the nozzle of the cleaner.

A still further object of the invention is to provide a guard for apparatus of the character set forth which may be moved readily to a position wherein the brush roll may be easily removed from the nozzle structure.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawing forming a part of this application, in which:

Fig. 1 is a side view of a suction cleaner constructed and arranged in accordance with the invention;

Fig. 2 is a view of the bottom of the nozzle structure forming a part of the cleaner shown in Fig. 1, portions of the nozzle being broken away for the sake of clearness; and,

Figs. 3, 4, and 5 are sectional views taken, respectively, along the lines III—III, IV—IV and V—V of Fig. 2.

Reference will now be had to the drawing wherein I have shown my invention applied to a cleaner commonly referred to as an "off-the-floor" type and used for cleaning draperies, upholstery and wearing apparel, etc. It will be understood, however, that my invention may be applied equally well to relatively large cleaners for on-the-floor operation. The cleaner includes an electric motor generally indicated at 10, a fan casing 11 secured thereto and a nozzle structure 12 including an air inlet opening 13. As is well understood, during operation, dust-laden air is conveyed through the air inlet opening 13 and is translated by a fan or impeller 14 through a discharge opening (not shown) into a bag 15 wherein the suspended dust is filtered from the air. Rotation of the fan 14 is effected by the rotating element 16 of the motor 10 through a shaft 17.

Brushing of the surface being cleaned is effected by a rotatable brush 18 disposed within the air inlet opening 13 of the nozzle and extending lengthwise thereof. The brush 18 is rotated by a belt 19 which is preferably driven by the

impeller shaft 17. The brush 18 is journaled in suitable bearings 21 arranged at each end of the brush roll 18 and disposed respectively within sockets 22 formed in opposite ends of the nozzle 12 as best shown in Figs. 2 and 3.

In accordance with my invention, improved guard means is provided for preventing the fabric or apparel being cleaned from entering the nozzle 12 and becoming wrapped about the brush 18. The guard is disposed in the inlet opening 13 and includes a frame 23 generally of rectangular configuration, and having one side 24 thereof extending lengthwise within a lip 25 formed on the nozzle and defining a margin of the inlet opening 13. The frame 23 includes end members 26 extending transversely of the opening 13 and latching portions 27. A handle 28 is defined by the frame intermediate the latching portions 27 and is disposed exteriorly of the nozzle adjacent a lip 29 thereof. A plurality of recesses 31 are formed in the lip 29 in which the latching portions 27 of the guard frame are disposed when the guard is in its operating position. The lip 29 is slotted as shown at 32 for receiving the portions of the end members 26 which extend exteriorly of the opening 13 and to which the latching portions 27 of the frame are joined.

The guard structure includes a plurality of fingers 33 that are disposed transversely of the air inlet opening 13 and aligned substantially in the plane of the surface to be cleaned. The fingers 33 operate to limit the movement of the fabric or apparel being cleaned inwardly of the nozzle so that the fabric is maintained in its proper position relative to the brush 18 for efficient cleaning. Furthermore, wrapping of the fabric around the brush 18 is prevented by the guard fingers 33. Preferably, the fingers 33 are defined by a single length of wire bent, as shown, and having the portions thereof engaging the frame side 24 welded or otherwise secured thereto. The free ends of the fingers 33 are adapted to rest on a ledge 34 formed on the interior of the lip 29 in the operating position of the guard.

The guard structure is supported by the nozzle 12 adjacent the lip 25 in accordance with my invention and is preferably pivoted adjacent the lip. As shown, the interior of the lip 25 is provided with spaced projections or lugs 35, 36 and 37, the lugs 35 and 37 being provided with seats for the frame side 24 which are faced upwardly and the lug 36 having a similar seat which faces in a different direction, preferably horizontally as shown in Fig. 4. In assembling the guard to the nozzle, the side 24 thereof may be inserted

in the upwardly faced seats of the lugs 35 and 37 and then bent slightly until the side 24 is snapped or sprung in the seat of the lug 36. As is apparent, the side 24 of the guard defines a pivot, carried in the lugs 35, 36 and 37 about which pivot the guard may be swung to the position shown in broken lines (Fig. 3) after the latching portions 27 of the guard are sprung from the recesses 31 by the handle 28. In the position of the guard shown in broken lines, access is had to the brush for cleaning the same or for removal thereof from the nozzle. While pivoting of the guard by means of the spaced lugs 35, 36 and 37 is desirable, it will be understood that the lugs 35, 36 and 37 and the recesses 31 may be so formed that the guard is bodily removed from the nozzle when the latches 27 are snapped from their recesses 31.

In accordance with this invention, the end members 26 of the guard engage the bearings 21 for the brush and, are preferably resilient so that they bias the bearings 21 inwardly of the nozzle and position the bearings 21 in the sockets 22. If desired, a spring 38 may be seated in the nozzle end wall as shown in Fig. 3 for biasing the bearing 21 outwardly, whereby removal of the bearing 21 from its socket 22 is facilitated when the brush roll 18 is to be taken from the nozzle 12.

From the foregoing description, it will be apparent that I have provided a guard member of novel construction that may be readily positioned within the nozzle and having improved latching facilities for maintaining the guard in its operating position. Furthermore, the guard functions to maintain the brush roll and its bearing in proper position relative to the nozzle. The construction is such that the guard may be readily displaced from its operative position so that the brush is accessible for cleaning or removal. It will be apparent to those skilled in the art, that my improved guard construction may be economically manufactured and assembled to the nozzle.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. In a suction cleaner, the combination of a nozzle structure having opposed lips for defining an inlet opening for dust-laden air, one of said lips being formed with a pair of recesses adja-

cent the ends thereof, a pair of sockets in the inlet opening at the opposite ends thereof, bearings carried in said sockets, a rotatable brush journaled in said bearings, and a wire frame guard comprising a side member pivoted to the nozzle structure along one of said lips, end members extending from the ends of the side member to the opposite lip and engageable with said bearings to retain the same within said sockets, latch portions connected to the respective end portions and adapted to be sprung into and out of said recesses, a handle portion connected to one of said latch portions and extending exteriorly of the nozzle so that it may be engaged to remove the latch portion from the recess, and guard fingers attached to said side member and extending across said inlet opening.

2. A suction cleaner as set forth in claim 1, wherein the nozzle lip formed with the recesses is also formed with a ledge on the inner side thereof, said guard fingers being adapted to rest on said ledge.

3. In a suction cleaner, the combination of a nozzle having first and second lips and an elongated inlet opening therebetween, a wire frame guard for said inlet opening, said nozzle being provided with means for retaining one side of said guard within the nozzle adjacent said first lip and said second lip being formed at its ends with recesses extending longitudinally of the second lip and opening away from said first lip, said guard comprising end members extending between the opposed lips, latch portions extending from the end members longitudinally of the second lip and adapted to be engaged in said recesses, and a handle portion extending longitudinally of the second lip on the exterior of the nozzle and connected at its opposite ends to the respective latch portions.

4. In a suction cleaner, the combination of a nozzle having an inlet opening and first and second opposed lips defining opposite sides of said opening, a rotatable brush disposed in said inlet opening, bearings in which said brush is journaled, the nozzle being provided with sockets or recesses to receive said bearings, a nozzle guard disposed across said inlet opening, said nozzle being provided with means for retaining one side of said guard within the nozzle adjacent said first lip and with means for detachably securing the opposite side of said guard to the nozzle adjacent said second lip, said guard comprising transverse end members engageable with said bearings to retain the same within said sockets or recesses and guard fingers disposed at spaced intervals between said end members and extending across the inlet opening.

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