

April 18, 1933.

L. W. RICHARDSON ET AL

1,903,793

VACUUM CLEANER BRUSH GUARD AND ADJUSTING ROLL ASSEMBLY

Filed June 8, 1931.

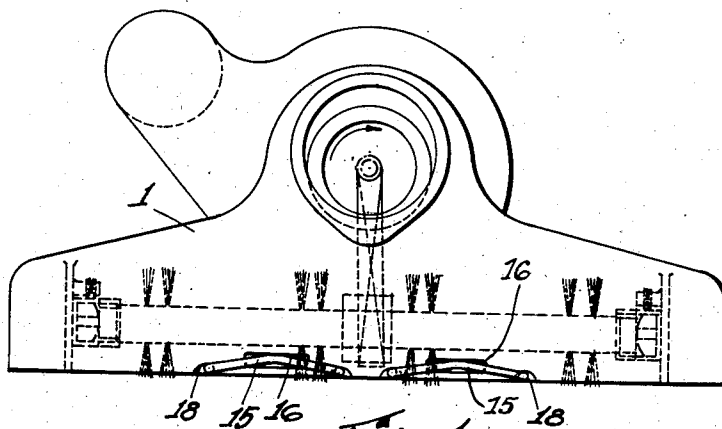


Fig. 1.

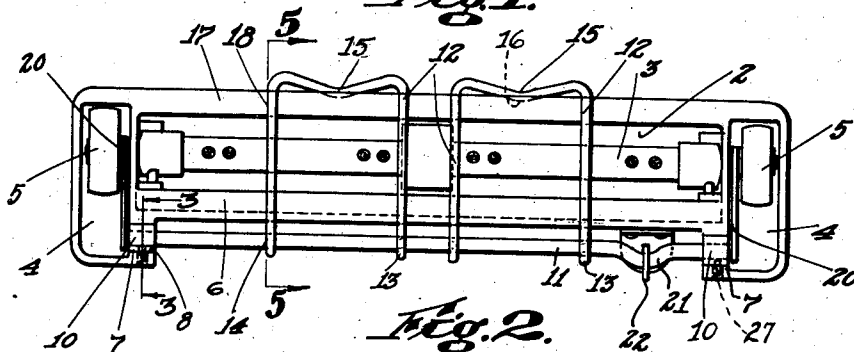


Fig. 2.

Fig. 3.

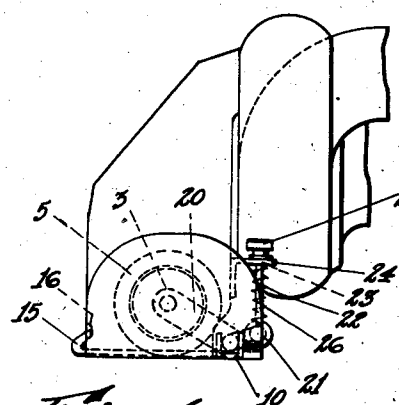
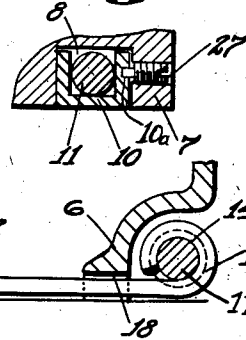
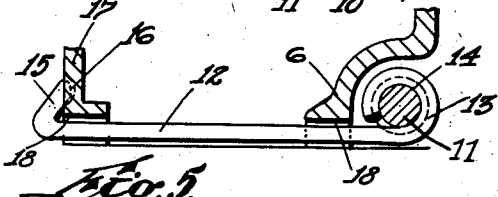


Fig. 4.

Fig. 5.



Inventors:
Leont W. Richardson
Allen D. Wassall
By Owen W. Kennedy
Attorney

UNITED STATES PATENT OFFICE

LEON W. RICHARDSON AND ALLEN D. WASSALL, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO SWEEPER-VAC COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

VACUUM CLEANER BRUSH GUARD AND ADJUSTING ROLL ASSEMBLY

Application filed June 8, 1931. Serial No. 542,870.

The present invention relates to vacuum cleaners and particularly to a combined brush guard and adjusting roll assembly for the suction nozzle thereof. The principal objects of the invention are to provide an improved adjusting roll assembly for varying the position of the nozzle with relation to the surface being cleaned, and to provide a brush guard which is permanently attached to the cleaner, although readily movable from its position with relation to the nozzle opening.

Heretofore brush guards have been separately removable from the cleaner, to give access to the inside of the suction nozzle and brush, with the resultant possibility of becoming misplaced or lost. The present invention provides a brush guard which is pivotally mounted adjacent the nozzle, with the portion remote from its pivotal support releasably engaging a portion of said nozzle, so as to be readily removable from operative position across the nozzle opening, without necessitating complete removal of said guard from the cleaner. The invention further provides a novel adjusting roll assembly which is arranged to be attached to the cleaner as a single unit, of which the brush guard desirably forms a part.

Further objects and advantages of the invention will be apparent from the following detailed description, taken in connection with the accompanying drawing, in which:—

Fig. 1 is a front elevational view of a vacuum cleaner nozzle.

Fig. 2 is a bottom plan view of the nozzle of Fig. 1.

Fig. 3 is a vertical sectional view on an enlarged scale along the line 3—3 of Fig. 2, looking in the direction of the arrows.

Fig. 4 is an end elevational view of the nozzle of Fig. 1.

Fig. 5 is a fragmentary sectional view along the line 5—5 of Fig. 2, looking in the direction of the arrows.

Like reference characters refer to like parts in the different figures.

Referring to the drawing, the nozzle structure 1 of the vacuum cleaner provides a substantially rectangular suction opening 2, within which a rotating brush 3 is mounted,

and rectangular end openings 4 for the reception of adjusting wheels or rolls 5 by which the position of the suction opening 2 relative to the floor may be varied. The end openings 4 extend rearwardly beyond the back wall 6 of the suction opening 2 and the inner side wall 7 of each end opening 4 beyond the wall 6 is recessed at 8, Fig. 3, to receive bearing members 10 in which a rod or shaft 11 is rotatably mounted. The shaft 11 extends substantially parallel to and adjacent the wall 6 with the ends thereof extending through the bearings 10 into the end openings 4, as will hereinafter more fully appear.

Brush guards 12 are pivotally mounted on said shaft 11 to prevent objects being cleaned from being drawn into the nozzle, and as shown in Figs. 2 and 5, each brush guard 12 comprises a substantially U-shaped member having the free ends 13 of its arms bent about the shaft 11 and seated in grooves 14 provided on the shaft, whereby sliding movement of the guards along the shaft is prevented. In the normal position of the guards 12, the arms are adapted to extend transversely of the opening 2, with offset portions 15 of their bases received in recesses 16 provided in the forward wall 17 of the nozzle opening 2, in order to yieldably clamp said guards in place. Transverse slots 18 are preferably formed in both walls 6 and 17 of the suction opening for reception of the arms of the brush guards 12, so that the guards 12 will be flush with the plane of the suction opening, to permit the nozzle to approach more closely to the surface being cleaned. When access to the interior of the nozzle is desired, the portions 15 of the brush guards 12 may be readily sprung out of engagement with the recesses 16 and then swung about the shaft 11 to completely expose the opening 2, without necessitating the complete removal of the guards from said nozzle.

The ends of the shaft 11, which extend into the rectangular end openings 4, are provided with arms 20, turnable with the shaft, and each arm 20 carries at its free end one of the rotatably mounted wheels 5 which en-

gage the floor surface over which the nozzle is moved, and hold said nozzle in desired relation thereto. In order to adjust the position of the wheels 5, the shaft 11 is provided intermediate its ends with an offset portion 21, Figs. 2 and 4. A threaded rod 22 has one end bent about said offset portion 21, and the other end extends upwardly through an opening 23 in a lug 24 mounted above the shaft offset on the rear wall of the nozzle 1. An adjusting nut 25 is provided on the end of the threaded rod 22, and a spring 26 surrounding the rod 22 between the under surface of the lug 24 and the offset 21 holds the nut 25 in engagement with the upper surface of lug 24. It will be seen that adjustment of the nut 25 on the rod 22 procures a turning movement of the shaft 11 and accordingly swings the arms 20 with the wheels 5 mounted thereon for raising or lowering the nozzle. Engagement of the nut 25 with the upper surface of the lug 24 holds the wheels positively in position against movement inwardly of the opening, although permitting said wheels to be swung outwardly, as for cleaning their axles, without disturbing the adjustment of the nut 25.

The bearing construction previously referred to permits the shaft with the arms and wheels attached thereto, as well as the brush guards 12, to be attached to the cleaner, as a unit. As shown in Fig. 3, the recesses 8 are wide enough to freely receive the shaft 11, and the U-shaped bearing members 10 are inserted in the recesses around the shaft 11 to maintain said shaft 11 in position. Each bearing member 10 is held by a set screw 27 passing through the lateral wall 7 and seating in a depression 10a in one of the legs of the member 10. This construction permits the brush guard and roll shaft assembly to be formed as a unit, separate from the cleaner, and subsequently attached thereto by a simple operation.

We claim,

1. The combination of a suction nozzle providing a suction opening with end openings wider than said suction opening, walls between the suction opening and the end openings, recesses provided in said walls outside the area of said suction opening for the reception of bearings, a rod rotatably mounted in said bearings adjacent one longitudinal edge of said suction opening and externally thereof, arms rigidly mounted on said rod adjacent opposite ends thereof, wheels rotatably mounted on the ends of said arms within said end openings, said rod having an offset formed thereon, a screw pivotally connected to said offset, a nut engaging said screw, and a lug formed on said nozzle and engageable by said nut to hold said rod against rotation and limit movement of said wheels in said end openings.

2. The combination of a suction nozzle

providing a suction opening with end openings wider than said suction opening, walls between the suction opening and the end openings, recesses provided in said walls outside the area of said suction opening for the reception of bearings, a rod rotatably mounted in said bearings adjacent one longitudinal edge of said suction opening and externally thereof, arms rigidly mounted on said rod adjacent opposite ends thereof, wheels rotatably mounted on the ends of said arms within said end openings, said rod having an offset formed thereon, a screw pivotally connected to said offset, a nut engaging said screw, a lug formed on said nozzle and engageable on one side by said nut, and spring means resiliently maintaining said nut against said lug to positively hold said rod against rotation in one direction and to resiliently maintain said rod against rotation in the opposite direction.

3. An adjusting roll assembly for attachment to a vacuum cleaner nozzle, comprising a rod having an offset formed thereon, a plurality of circular grooves on said rod, substantially U-shaped wire members having the ends of their arms encircling said rod and engaging in said grooves for pivotal movement about said rod, arms permanently attached to opposite ends of said rod and substantially at right angles thereto, wheels pivotally mounted on the ends of said arms, a threaded rod pivotally mounted on the offset on said rod, and a nut on said threaded rod and engageable with a lug on the nozzle, said nut being turnable on said threaded rod to provide for angular adjustment of the rod to which the above-mentioned arms are permanently attached.

4. In a vacuum cleaner construction, the combination with a suction nozzle providing an elongated suction opening with end openings wider than said suction opening, walls between the suction opening and the end openings and recesses in said walls outside the area of said suction opening, of a rod rotatably mounted in said recesses and extending externally of said suction opening along one longitudinal edge thereof, guard members pivotally mounted on said rod and extending across said suction opening with their ends in clamping engagement with the opposite edge thereof, arms mounted on the ends of said rod and carrying wheels located in said end openings, and means cooperating with said rod to hold it against rotation and maintain said wheels in adjusted position within said end openings, adjustment of said rod and wheels being accomplished without moving said guard members.

LEON W. RICHARDSON.
ALLEN D. WASSALL.