R. D. LAIDLAW.

CARPET SWEEPER.

APPLICATION FILED NOV. 15, 1919.

1,433,957. Patented Oct. 31, 1922.

Fig. 1.

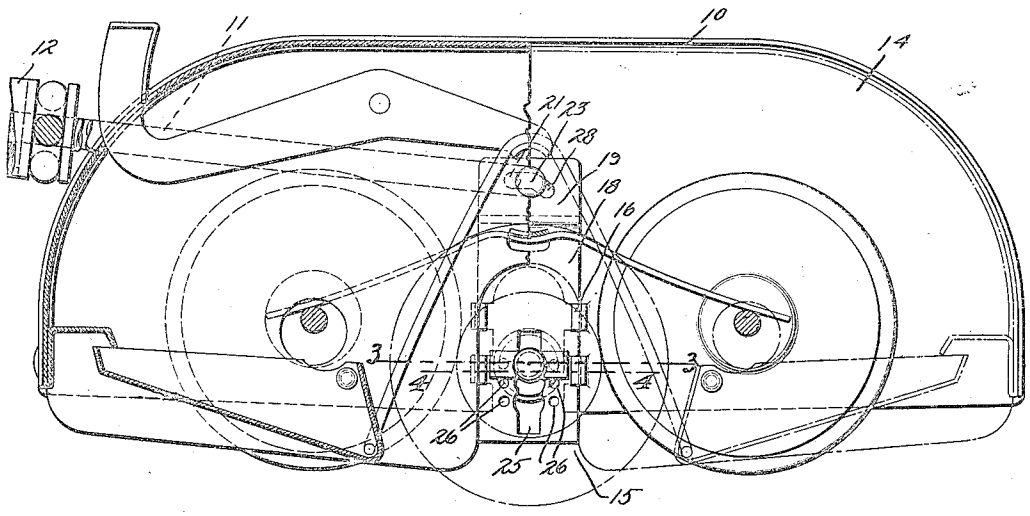


Fig. 2.

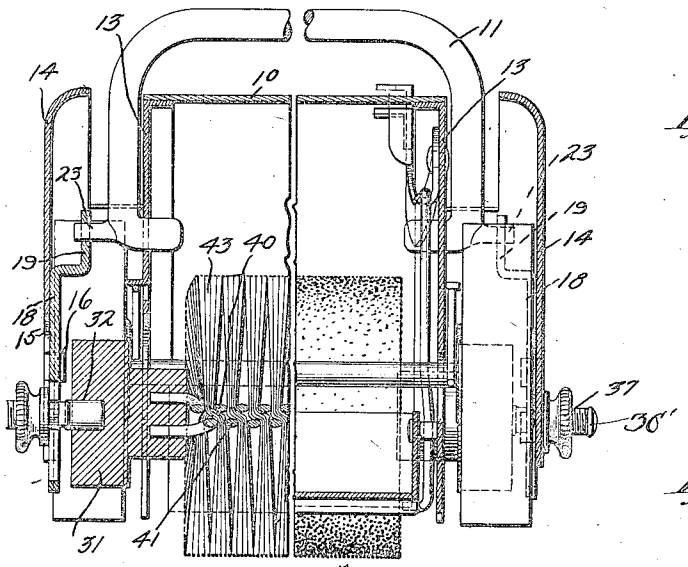


Fig. 3.

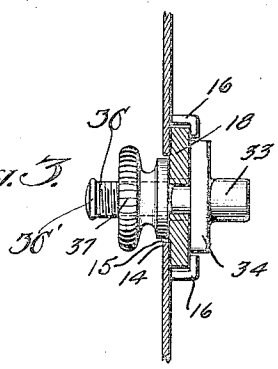


Fig. 4.

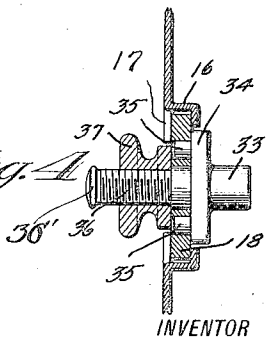


Fig. 5.

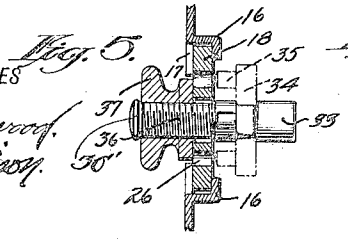
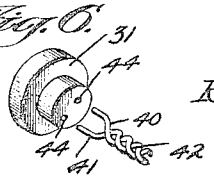


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

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CARPET SWEEPER.

Application filed November 15, 1919. Serial No. 338,206.

To all whom it may concern:

Be it known that I, ROYAL D. LAIDLAW, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Carpet Sweeper, of which the following is a full, clear, and exact description.

This invention relates to new and useful improvements in carpet sweepers, and it pertains more particularly to means for mounting the rotary brush or brushes generally employed in devices of this character.

It is the primary object of the present invention to provide a new and novel means whereby a rotary brush may be vertically adjusted with relation to the surface being cleaned, and permanently secured in said adjusted position.

It is a further object of the invention to provide a new and novel means for adjusting the brush toward and away from the surface being cleaned by means of the bail to which the handle of the sweeper is connected.

In carpet sweepers, it is desirable in order that a thorough sweeping operation may be had, to form the brushes with bristles capable of a considerable amount of "fling", and it is a further object of the present invention to so construct the brush as to provide a maximum amount of "fling" to the bristles at all times.

The brushes of carpet sweepers as generally constructed are formed with a wooden core in which the bristles are secured by stapling in tufts. By such a construction, as the tufts of bristles wear shorter, they become stiffer owing to the compact form of the body of the tuft, and, therefore, do not have the necessary "fling" to properly function. It is, therefore, a further object of the present invention to so construct a brush for carpet sweepers that the "fling" of the bristles will be preserved even after the brush has become partially worn.

Furthermore, the wooden core of brushes of carpet sweepers as generally constructed is incapable of withstanding a thorough cleaning, such as obtained by boiling or the like, owing to the tendency to check and split, and a further object of the present invention is to provide a brush with a metallic core (preferably two or more strands of galvanized wire twisted together), thus providing a brush which may be bodily removed and subjected to a cleaning operation without in any manner affecting the same.

A still further advantage obtained by forming the brush of a plurality of strands of wire twisted together to retain the bristles in cylindrical form, is that the brush at all times presents a continuous or full-faced sweeping surface, which is not true of a brush in which the bristles are arranged in tufts positioned about the hub portion.

In the drawings—

Figure 1 is a longitudinal sectional view of a carpet sweeper constructed in accordance with the present invention;

Fig. 2 is a detail sectional view partly broken away, the section being taken transversely of the carpet sweeper brush and its associated parts;

Fig. 3 is a detail sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a detail sectional view on the line 4—4 of Fig. 1;

Fig. 5 is a detail sectional view showing the adjustable mounting of the brush in its detached position, and

Fig. 6 is a detail perspective view of the end construction of a brush before the bristles have been applied.

Referring more particularly to the drawings, the reference character 10 designates the case of the carpet sweeper, and 11 represents the bail, said bail having a handle 12 secured thereto, which handle is shown broken away in Fig. 1. The reference character 13 designates the end walls of the case, and mounted in spaced relation to the end walls 13, are plates 14, each of which is provided with a cut-out portion 15, which extends approximately half way to the top of the case.

The side edges of the cut-out portion 15 are cut to form lugs 16, which are bent as more clearly shown in Figs. 3, 4 and 5. These lugs 16 form, together with the edges 17 of the cut-out portion 15, means for guiding the vertically sliding plate 18. The upper end of this plate 18 is offset, as at 19, and said offset portion 19 is provided with a slot, which extends substantially transversely thereof. As shown in Fig. 1, this slot consists of an angular portion 28 and a straight portion 21.

The foregoing described mechanism is duplicated on each end of the casing, and

as best seen in Fig. 2, the bail 11 is provided with projecting lugs 23, which engage in the slots in the sliding plates 18. By this construction, it will be seen that as the bail 11 is rocked about its pivotal points in the end walls of the case 10, the sliding plates 18 will be raised and lowered by reason of the lugs 23 moving through the slots 28 and 21 in the offset end 19 of the vertical sliding plates 18, it being understood that each of the lugs 23 is eccentrically disposed with respect to its respective pivotal point of the bail. As best shown in Fig. 1, each of these plates 18 is provided, near its lower end, with a slot 25, and positioned on opposite sides of the slot in each plate, are spaced openings 26.

The brush 30 is provided with end members 31, and said end members 31 are provided with a suitable opening 32 adapted to receive the trunnions 33 of the fittings 34. On the opposite side of each of the fittings 34 to the trunnions 33, are two spaced lugs 35, and said spaced lugs 35 are adapted to be received within the openings 26 heretofore mentioned. Between the spaced lugs 35 of the fitting 34, is a screw-threaded extension 36, and adapted to engage with said screw-threaded extension 36, is a thumb nut 37. By this construction, it will be apparent that if the spaced lugs 35 are engaged with the lowermost openings 26 of the sliding plate 18 and the thumb nut 37 tightened, the fitting 34 will be immovably held relatively to the sliding plate 18. If, now, the end members 31 be engaged with the trunnions 33, the brush will be supported in its lowermost position. The screw-threaded extension 36 is provided with an annular flange 36′ which prevents the nut 37 from becoming detached therefrom, thus insuring the nut against accidental displacement.

From the foregoing, it will be seen that the present invention provides means by which the brush of a carpet sweeper may be vertically adjusted with relation to the sweeper and the surface on which it operates, and that said brush may be permanently secured in said adjusted position. Furthermore, the invention provides means by which when desired, the brush may be so positioned as to exert greater pressure on the surface being cleaned merely by a rocking of the bail to which the handle is attached.

When it is desired to remove the brush, the spaced plates 14 are grasped by each hand at their lower edge and pulled in opposite directions. This action spreads the side plates and withdraws the trunnions from the end members 31 of the brush.

In order that the brush may have greater wearing quality, and, at the same time, the extra length of bristles permit of them having a greater "fling," the hub portion of the brush is constructed of two strands of wire 40 and 41, which are twisted together as indicated by the reference character 42, the bristles 43 of said brush being retained between the convolutions of the twist as indicated in Fig. 2. The end members 31 of the brush may be of any suitable material, such as wood, metal, fibre, or the like, and said end members are provided with two spaced openings 44 in which the ends of the strands of wire 40 and 41 are adapted to be received, as best indicated in Figs. 2 and 6.

By this construction, it will be apparent that a rotary brush with a comparatively short hub portion is provided, therefore greatly increasing the length of the bristles in order that a greater "fling," as well as a greater wearing body portion, is provided.

Furthermore, by constructing a brush in this manner, it will be readily apparent that the bristles will be arranged around the hub in a spiral manner. This feature also has its advantages in that it tends to loosen the nap of the surface over which the carpet sweper is passed and to more thoroughly remove the dirt and dust from beneath the same in addition to causing the nap to stand up after the dirt has been removed when the device is moved in the opposite direction.

Another important feature in construction of a brush in the heretofore described manner, is the fact that owing to the parts being made of metal or the like, the brush may be subjected to a thorough cleaning operation, such as a bath in boiling water, which is not possible with brushes as ordinarily employed in carpet sweepers, since in the ordinary sweeper a wooden core is provided which will not stand the treatment heretofore mentioned.

From the foregoing description it will be readily apparent that the present invention provides a carpet sweeper which in addition to the adjustability of its brush, has a new and improved brush especially constructed to produce advantageous results in devices of this character.

I claim—

1. In a carpet sweeper, a sweeper box, a plate spaced with respect to each end wall of the sweeper box and formed with a cut-out portion, a slotted plate slidably mounted over each of said cut-out portions and provided with a slot, said plate having spaced openings arranged on opposite sides of said slot, and a roller-supporting means provided with lugs adapted for engagement with the spaced openings on the opposite sides of said slot for adjustably mounting a brush in said sliding plates.

2. In a carpet sweeper, a sweeper box, a plate spaced with respect to each end wall of the sweeper box, said plates each being

formed with a cut-out portion, a slotted plate slidably mounted over each of said cut-out portions and provided with spaced perforations on opposite sides of said slot, and means for supporting a sweeping brush, said means being adapted for engagement with the spaced perforations to adjustably support said brush relatively to the carpet sweeper box.

3. In combination with a carpet sweeper box and bail pivotally mounted on said box, a brush support comprising a plate slidably mounted upon each end of the box, said plate being provided with a longitudinal slot and a transverse slot, a brush adjustably mounted in said longitudinal slot, and means carried by the bail and adapted for engagement in the transverse slot for moving said plate vertically upon pivotal movement of the bail, substantially as described.

ROYAL D. LAIDLAW.