Jan. 22, 1963 L. L. LECHENE 3,074,094

DISPOSABLE GUTTER BROOM ASSEMBLY

Filed Oct. 17, 1961 2 Sheets-Sheet 1

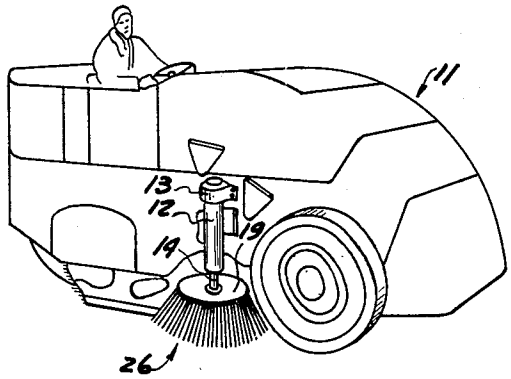


Fig. 1

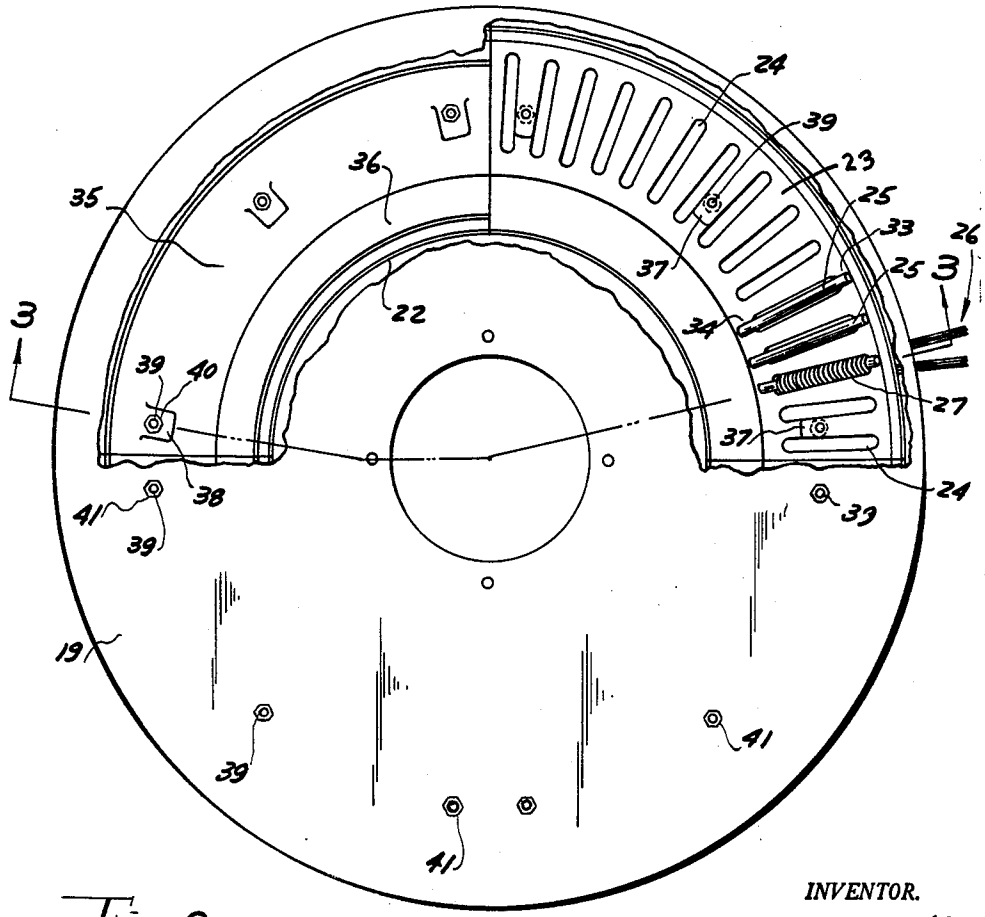


Fig. 2

INVENTOR.
LEO L. LECHENE
BY
Robert A Sloman.
ATTORNEY

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DISPOSABLE GUTTER BROOM ASSEMBLY

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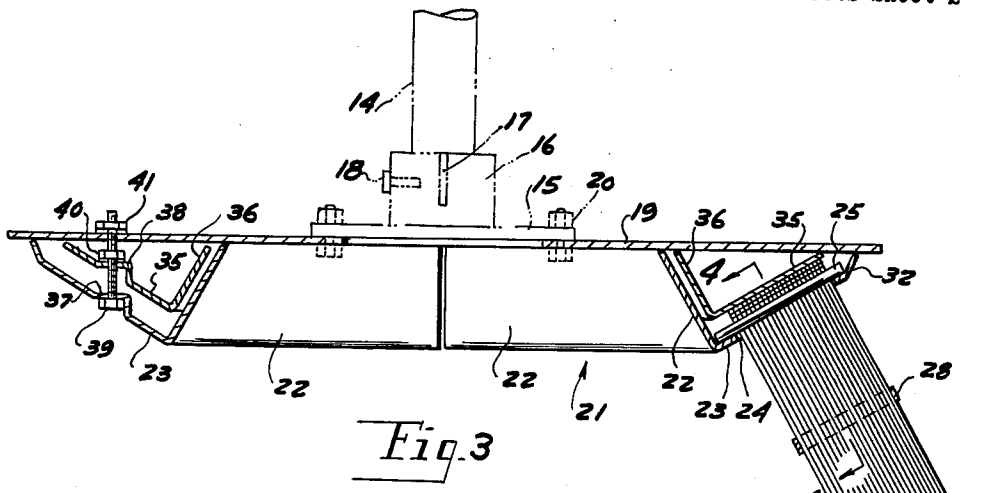


Fig. 3

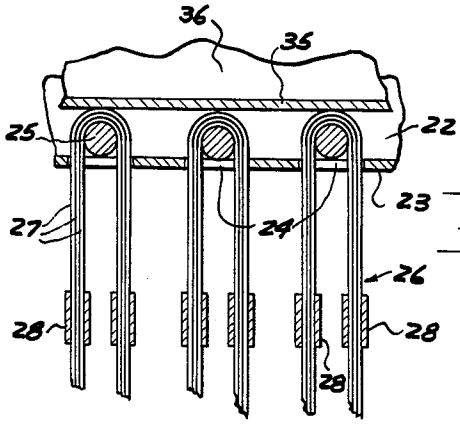


Fig. 4

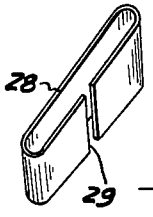


Fig. 6

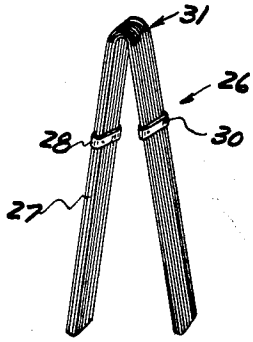


Fig. 5

INVENTOR.
LEO L. LECHENE
BY
Robert A. Sloman
ATTORNEY

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DISPOSABLE GUTTER BROOM ASSEMBLY

Leo L. Lechene, R.D. 1, Box 364, Patton, Pa.

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This invention relates to a gutter broom assembly and more particularly to a disposable gutter broom assembly and a unit which when worn out may be discarded.

Heretofore, in the manufacture of gutter brooms adapted for street sweeping trucks and the like, various means have been employed for mounting metal wire bristle tufts with respect to a power driven spindle on the truck, and wherein there always exists the difficulty of making replacements of the brush assembly when it becomes worn.

It is therefore a primary object of the present invention to provide a novel form of disposable gutter broom assembly incorporating a bristle support plate, a simple means for individually mounting a set of bristle tufts in a series around the periphery of the said mounting plate together with a holddown plate mounted thereover for maintaining the bristle tufts in assembled relation and incorporating a means by which this assembly may be removably mounted upon power driven shaft of a street sweeping truck.

It is the object of the present invention to provide a novel form of disposable gutter broom assembly wherein the mounting means for the assembled tufts are arranged in angular sectors which when assembled into the form of a circle may be individually secured upon a power driven horizontally disposed power driven mounting plate merely by the application of a few bolts and nuts.

It is a further object of the present invention to provide a gutter broom assembly of such type that when used and worn out the same may be easily removed from the drive assembly by the loosening of a few bolts and a replacement instantly made.

It is a further object of the present invention to provide a novel form of gutter broom assembly and incorporating an annular support plate and mounting flange therefor, and means by which a plurality of circularly spaced tufts of metallic bristles may be mounted and secured thereon so when assembled as to flare outwardly in the form of a circle to provide a complete gutter broom.

These and other objects will be seen from the following specification and claims in conjunction with the appended drawings in which:

FIG. 1 is a fragmentary prospective view of a street cleaning truck incorporating the present gutter broom assembly.

FIG. 2 is a fragmentary, partially broken away plan view of the present gutter broom assembly.

FIG. 3 is a fragmentary section taken on line 3—3 of FIG. 2.

FIG. 4 is a fragmentary section on an increased scale taken on line 4—4 of FIG. 3.

FIG. 5 is a prospective view of an assembled bristle tuft.

FIG. 6 is a prospective view of one of the securing clips employed for said tuft.

It will be understood that the above drawings illustrate merely a preferred embodiment of the invention and that other embodiments are contemplated within the scope of the claims hereinafter set forth.

Referring to the drawings, in FIG. 1 there is shown a conventional type of street sweeping truck indicated generally at 11, and which incorporates a spindle type of support 12, secured to the truck as by the bracket element 13 journaling and supporting therethrough the power rotated driveshaft 14, which is connected in a conventional manner to a power takeoff from the truck engine.

Hub plate 15 of circular form carries a central upright hub 16 which extends over and around the lower end of the driveshaft 14 and is suitably keyed thereto as at 17, and otherwise secured as by the assembly or set screws 18, shown in FIG. 3.

Arranged under the hub plate 15, there is provided the present power rotated drive and mounting plate 19, which is centrally secured upon the undersurface of the hub plate 15 by a series of fasteners or bolts 20.

This part of the gutter broom assembly forming a part of the present invention, and in normal operation once assembled, as above described, remains assembled with the disposable elements of the gutter broom assembly removably secured thereto in a manner now described.

In the present invention, and in connection with an illustrative embodiment thereof, the gutter broom assembly includes a series of assembled sectors generally indicated at 21 and arranged into a circle and suitably secured to the said mounting plate 19 to provide the completed gutter broom shown in FIG. 1.

Each of the respective sectors 21, which make up the disposable gutter broom assembly includes an angularly shaped bristle support plate 22, which is inclined upwardly and inwardly as shown in FIG. 3. Said plate includes also the upwardly and outwardly inclined support flange 23, which terminates at its outer peripheral edge in the angular securing flange 32 hereinafter described in detail.

A series of spaced elongated radial slots 24 are formed through support flange 23 and arranged in a circle as best shown in FIG. 2. A corresponding series of radially extending bristle support rods 25 are mounted and secured upon the said support flange 23 and extend lengthwise of and over each of the said slots 24 respectively, as best illustrated in FIGS. 2, 3, and 4.

Each of the bristle support rods 25 at its lower end engages the lower edge portion of the angular bristle support plate 22 where it extends upwardly from the adjacent support flange 23. A bristle tuft, generally indicated at 26, and generally U-shape at its bight portion 31 is loosely mounted over the respective support rod 25 with the free end portions or bristle ends 27 extending upon opposite sides of the rod 25 and downwardly through the adjacent or corresponding radial slot 24.

The individual bristles which make up the bristle tuft, are in the nature of elongated U-shaped wires 27, which are of steel, or similar metal, and which are rectangular in cross section, and which are arranged in edge to edge relation to define a row of said bristles 27. The tuft is completed by a series of successive rows of said bristles, three of which rows are shown in the preferred illustrative embodiment of the invention, as best shown in FIGS. 3 and 5.

The respective legs of the bristle tufts 26 are maintained in angularly related planes by the pairs of retaining clips 28 which extend therearound and which are crimped inwardly as at 30, FIG. 5 to maintain the assembled relation of the bristles arranged in rows and stacks, as shown in FIG. 5.

Accordingly, in simplifying the assembly of the present gutter broom structure, a set of bristles as a complete unit tuft 26 is mounted longitudinally over the corresponding support rod 25, as shown in FIG. 3.

In this connection, the respective bristle support rods 25 are immovably secured in position relative to the adjacent slot 24 over which they extend by angular bending of the bristle support flange 23 as at 32 so as to operatively engage the outer end portion of the respective rod 25, immovably securing the same in place.

The securing clips 28 are of a simplified construction with free ends 29 lending a degree of flexibility thereto whereby the same are easily mounted over and secured to the respective bristle elements 27, as above described.

Their primary purpose, however, is to maintain the bristles in the assembled relation, particularly in the assembly of the bristle tuft, shown in FIG. 5 over the support rod 25.

The construction is then completed by the assembly of the individual sector shaped holddown plate 36, which is axially positioned over the support plate 22, and which includes the annular upwardly and outwardly inclined holddown flange 35, which operatively bears down against the bristle tufts 26 in assembled relationship, as best shown in FIG. 3.

It is noted from FIG. 3, for example, that the support plate 22, and the holddown plate 36, are arranged in parallel relation, as are also the respective support flanges 23, and the holddown flanges 35. These plates are secured together by the series of upwardly extending bolts 39, secured thereto by nuts 40.

A series of pairs of upset bosses 37 and 38 are formed in the support and holddown plates within the flange portions thereof at 23 and 35, which bosses are parallel to the power rotated drive and mounting plate 19 to facilitate securing of the same bolts 39 to the said mounting plate and for anchoring thereto by the series of additional fastening nuts 41 and associated lock washers.

Accordingly, the respective sectors 21 which form the disposable gutter broom assembly are arranged in units, when assembled, form a circular member, and assembled units are secured together by the bolts 39 and nuts 40. These individually assembled units may then be projected upon the undersurface of mounting plate 19 and further secured thereto by the said bolts 39 extending up through the mounting plate and anchored thereto, completing the assembly of the gutter broom construction.

Referring back to the construction shown in FIGS. 2 and 3, the said radial slots 24, which are formed through the bristle support plate 23, do not extend throughout the full width of the flange 23, but sufficient metal is left, as indicated at points 33 and 34, FIG. 2 to support the respective ends of the rods 25 which are fixedly secured in position by the crimped up mounting flange 32.

In this connection, it is noted that the angular plates 22 and 36, as well as the corresponding flanges 23 and 35, are so arranged that their annular edge portions lie in a single plane so as to cooperatively bear against the undersurface of mounting plate 19, as best shown in FIG. 3. Accordingly, when the nuts 41 are drawn up and tightened relative to the bolts 39, each of the individual sectors 21, which form the complete gutter broom assembly, tightly bear up against the undersurface of mounting plate 19. Due to the angularity of the bristle support flanges 23 and holddown flanges 35, it is seen that the respective bristle tufts flare outwardly and downwardly, as best shown in FIGS. 1 and 3, to complete the gutter broom assembly.

It is contemplated as a part of the present invention that the respective bristle support plate 22, and associated support flange 23 could be made as an integral part and extend throughout 360 degrees in a horizontal plane. In a similar fashion, the corresponding bristle holddown plate 36 and associated holddown flange 37 could be formed as an annular unit extending throughout 360 degrees in a horizontal plane.

In the illustrative embodiment of the invention, however, the respective bristle support plate and bristle holddown plate formed as angular sectors forming a part of a circle such as extending throughout an arc of 90 degrees. These sectors are prefabricated and bolted together as by the bolts 39 and nuts 40. Then the individual units themselves are further secured to the undersurface of the mounting plate by adding the additional nuts 41, completing the assembled construction, shown in FIG. 1.

While bolts have been shown as the preferred method of securing the plates together, it is contemplated that any other equivalent type of fastening may be employed for this purpose.

Furthermore, it is contemplated that the sectors 21 which form the brush assembly may extend over an arc greater than 90 degrees, if desired, so that perhaps less sectors would be employed in forming a complete brush assembly.

Having described my invention, reference should now be had to the following claims.

I claim:

1. In a gutter broom assembly having a mounting plate for mounting upon a power operated drive, and bristles secured to one face of such plate, the improvement comprising means for removably securing the bristles to the plate, said means including an annular support flange abutting and removably fastened to said plate but with portions spaced from said one face of the plate and having a plurality of spaced apart, radial, elongated slots formed therethrough, with the slots together forming a substantially circular pattern, each slot having a tuft of bristles inserted through it, the tufts each being formed of a number of elongated bristles bent at their centers to form a U-shape, with the bight of the tuft located between the flange and the plate and the two legs of the U-shaped tuft extending through the same slot outwardly from the flange a considerable distance, an elongated rod inserted through each of the bights, with each of the rods overlying its respective slot and extending beyond the opposite ends of its slot to contact the flange at each end of its respective slot; a hold-down plate arranged in the space between the flange and mounting plate and parallel to the flange, and means removably clamping the hold-down plate towards the flange, the hold-down plate thus pressing against the tuft bights and thereby clamping the rods against the flange.

2. In a gutter broom assembly having a mounting plate for mounting upon a power operated drive, and bristles secured to one face of such plate, the improvement comprising means for securing the bristles to the plate, said means including an annular support flange, substantially V-shaped in cross-section, removably fastened to the mounting plate with the ends of its legs contacting said plate face and its apex remote therefrom, one of the flange legs being an outer leg and having a plurality of spaced apart, radially elongated, narrow slots formed therethrough, with the slots together forming a substantially circular pattern; the bristles being arranged in U-shaped tufts, with each tuft being inserted through one slot and with its bight located between the flange and mounting plate and the legs of the U-shaped tufts extending through the respective slot and outwardly of the flange outer leg a considerable distance; each bight having an elongated, round rod extending through it, the rods being radially arranged and overlying their respective slots and extending beyond the opposite ends of their respective slots to contact the flange; an annular holddown plate overlying and arranged parallel to the flange outer leg and located between the flange outer leg and the mounting plate, means removably clamping the holddown plate towards the flange outer leg, the hold-down plate pressing against the bights of the tufts and thus clamping the bights and rods against the flange outer leg.

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