

[54] **STREET SWEEPER GUTTER BROOM**  
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 [51] Int. Cl. .... **A46b 13/02**  
 [58] Field of Search ..... **15/179, 180, 181,**  
**15/197, 198, 199, 200, 49 R, 50 R, 87**

[56] **References Cited**

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[57] **ABSTRACT**  
 The invention provides an improved street sweeper gutter broom construction employing upper and lower disc plates respectively of greater and lesser outside diameters and spaced apart to receive between them the bodies of replaceable broom segments. Radial inverted T-shaped members between the plates and attached to the upper disc receive and support the brush segments during their insertion between the plates, the segments in assembled condition being held against radial displacement by bolts passing through the plates and serving also to interconnect them. The segments in assembled position are driven by the T-shaped members attached to the upper plate.

**10 Claims, 4 Drawing Figures**

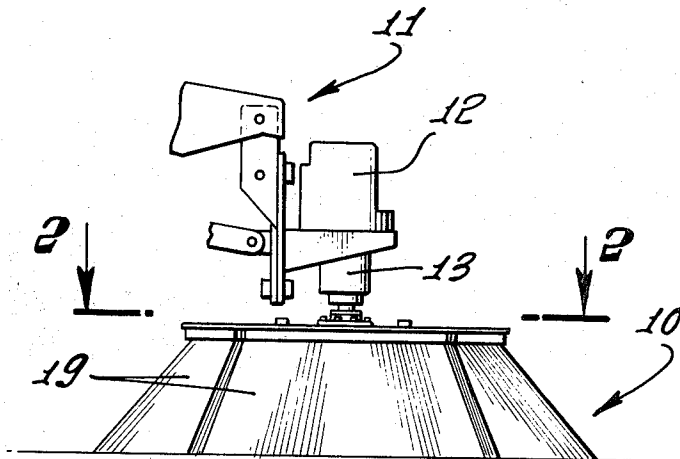


FIG. 1.

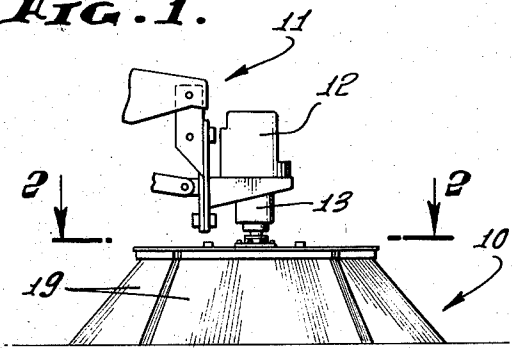


FIG. 4.

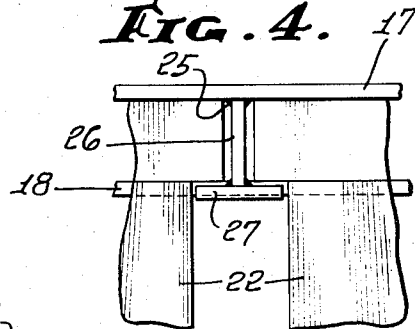
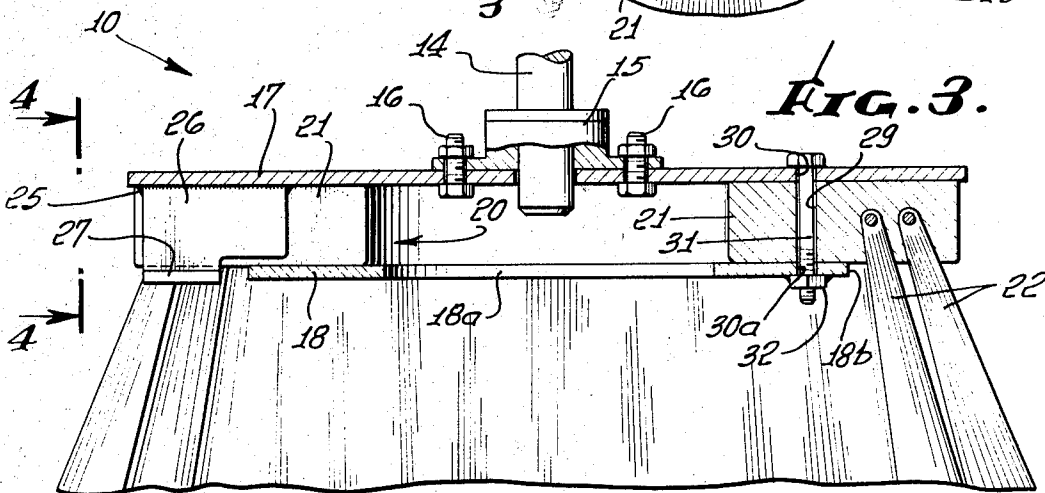
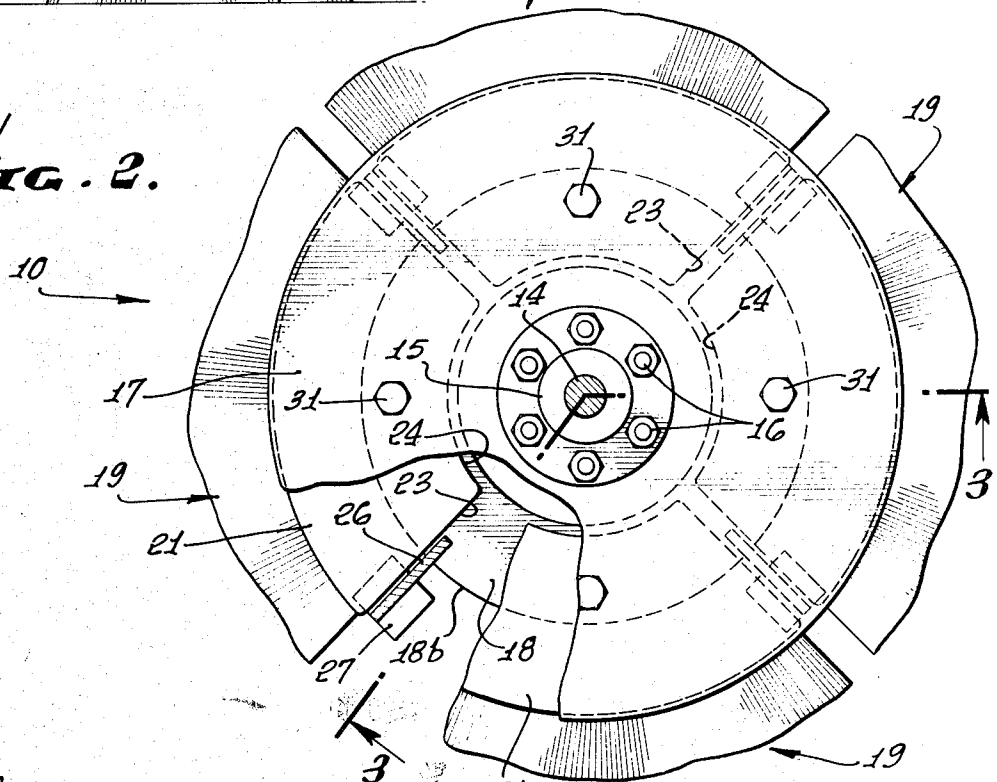


FIG. 2.



## STREET SWEEPER GUTTER BROOM

## BACKGROUND OF THE INVENTION

Street sweepers commonly carry gutter brooms mounted for outward and downward movement from the sweeper frame to sweeping position and being retractable by elevation and inward movement to vehicle traveling position. Various mechanisms operable in this manner are well known in the art and need not be characterized further in that the invention is concerned primarily with the gutter broom construction. Heretofore such brooms have been relatively complicated and of expensive construction, notably lacking in provisions for structural simplicity and ease of accommodating replacement of brush components prefabricated in segmented form. In distinction to a common practice of transmitting drive torque to segmental brooms through their mounting bolts with consequent damage to the segments and weakness to their drive transmission, the invention provides for positive and wear-free drive by the segment engagement with the later described dividers between the segments.

## SUMMARY OF THE INVENTION

The invention has for its general object structurally to reduce the broom assembly to a simple combination of an upper rotationally driven upper disc plate detachably carrying a lower disc plate of smaller diameter, the plates being spaced apart to receive the bodies of arcuate brush segments the bristles of which depend about the lower plate as permitted by its lesser diameter. Additionally contemplated are unique means for guiding and vertically supporting the segments during their insertion between the plates and for retaining them in working positions by means which also serve to interconnect the plates and bring them relatively into or close to engagement with the inserted segments.

An important feature of the invention is the additional utilization of dividers between adjacent segments for transmission of the rotary drive and assumption of the drive torque directly by the dividers. Specifically and in a typical embodiment, the plate-interconnecting bolts are given sufficient clearance within openings extending through the segments as to permit shifting of the latter into flat side engagement with straight surfaces of the dividers.

In its more specific aspects the invention contemplates preferably the use of multiple replaceable brush segments received within vectoral spaces between the plates, and interpositioning between adjacent segments divider guide supports for the segment bodies during their insertion while the plates are more loosely interconnected. By the simple provision of bolts extending through the plates in registry with corresponding openings in the segment bodies, or other keying means, tightening of the bolts presses the plates against the segments to bring the entire assembly into working condition.

These as well as additional features and objects of the invention will be more fully understood from the following detailed description of an illustrative embodiment of the invention and by reference to the accompanying drawing.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view showing in elevation the segmented

broom and a portion of its drive mounting for attachment to a street sweeper frame;

FIG. 2 is an enlarged partially broken plan showing the broom construction as viewed from line 2—2 of FIG. 1;

FIG. 3 is a further enlarged cross section taken on line 3—3 of FIG. 2; and

FIG. 4 is a fragmentary side elevation as viewed from line 4—4 of FIG. 3.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

First in reference to FIG. 1 the segmental broom assembly generally indicated at 10 and shown in sweeping position, may be mounted by any suitable mechanism generally indicated at 11 for upward and inward retractive movements toward the sweeper vehicle (not shown) and reciprocally for outward and downward movements to the illustrated sweeping positions. Typical of such gutter broom supporting and control mechanisms is the disclosure in the Gregory J. Larsen copending application Ser. No. 183,826, filed Sept. 27, 1971, assigned to the same assignee of the present application. The brush 10 is shown to be driven by motor 12 carried by support 13, the motor shaft 14 being keyed within drive bearing 15 attached by bolts 16 to the upper plate 17 spaced above the lower annular smaller diameter plate 18 having access opening 18a.

While the brush 10 may be made in any suitable number of segments generally indicated at 19, it is preferred to use four segments received within correspondingly shaped quadrants of the inter-plate space 20. As best illustrated in FIGS. 2 and 3, each segment 19 comprises a body 21 carrying bristles 22 in any suitable manner and which depend to the road surface about the periphery 18b of the lower plate. The inner edges 23 of the segment bodies extend generally radially of the plate assembly and have inner edges 24 extending arcuately about the broom axis as shown in FIG. 2.

To facilitate accurate positioning and vertical support of the segment bodies during their initial or replacement insertion between the plates 17 and 18, I provide for attachment as by welding at 25 of brackets preferably having inverted T-shaped form and which include central web extents 26 and bottom flanges 27, the web portions 26 being extended inwardly somewhat beyond the flanges 27 as shown in FIG. 2. Initially or during insertion of the segments, the spacing or clearance between the T flanges 27 and plate 17 may be at least slightly greater than the vertical dimension of space 20 in the FIG. 3 assembled condition of the broom, thus to provide ample clearance for easy insertion of the segment bodies.

The divider T-brackets 26, 27 serve also to guide the segment bodies into alignment with bolt openings 29 extending through the bodies 21 and with openings at 30 and 30a respectively in the plates 17 and 18. After such alignment of the segments, bolts 31 are inserted through the upper plate and openings 29 into nuts 32 welded to the underside of plate 18. By tightening the bolts the segment bodies 21 may be clamped between the plates to securely retain the segments against outward displacement under working conditions. The segment retention is not dependent upon tightly fitted relation about the bolts 31 because looseness about the bolts in openings 29 will allow the segments to shift into interengagement between the segment edges 23 and

the T-web extensions 26 so that the latter may then assume the rotational drive and load imposed upon the segments independently of the bolts.

As will be understood from the foregoing, initial or broom segment replacement assembly of the broom is simple and direct in that it is necessary merely to slide the segments into working position on the T-flanges 27 and to then insert and tighten the bolts 31 (one only being required for each segment) into nuts 32 to bring the segment bodies shiftable into retention between the plates 17 and 18.

I claim:

1. Rotary street sweeper gutter broom comprising upper and lower spaced disc plates respectively of greater and lesser diameters, replaceable brush segments each including a bristle-retaining body removably held between said plates and carrying bristles depending arcuately about the lower plate, means releasably retaining said segments against outward displacement from between the plates, dividers between the bodies of adjacent segments, the segments being shiftable to be rotationally driven by the dividers, and there being sufficient looseness between said means and the segments to accommodate said segment shifting.

2. A broom according to claim 1 which said dividers include means for vertically supporting the segments during their insertion between the plates.

3. A broom according to claim 2 in which said dividers have inverted T-shapes with their central webs fixed to said upper plate.

4. A broom according to claim 1 in which said segments are four in number with their bodies occupying substantially quadrant spaces between the plates.

5. Rotary street sweeper gutter broom comprising upper and lower spaced disc plates respectively of

greater and lesser diameters, replaceable brush segments each including a bristle-retaining body removably held between said plates and carrying bristles depending arcuately about the lower plate, means releasably retaining said segments against outward displacement from between the plates, dividers between the bodies of adjacent segments, the segments being shiftable to be rotationally driven by the dividers, said segments being four in number with their bodies occupying substantially quadrant spaces between the plates, and

said plates being interconnected and the segments being releasably held in said spaces by said means including bolts passing through the plates with clearance about the bolts.

6. A broom according to claim 4 in which said dividers include means for vertically supporting said segments during their insertion between the plates.

7. A broom according to claim 6 in which said supporting means is in the form of inverted radial T-shaped brackets secured to the upper plate inside the lower plate.

8. A broom according to claim 7 in which said segment retaining means includes bolts passing through the upper and lower plates and through openings in the segment bodies, the bolts interconnecting the plates and serving upon being tightened to clamp the segment bodies between them but with allowance for shifting of the bodies.

9. A broom according to claim 8 in which said T-shaped members have web extents directly opposite inwardly convergent edges of the segment bodies.

10. A broom according to claim 9 in which the lower plate is annular and has a central open area.

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