# United States Patent [19]

**Gould et al.**

[11] **3,750,225**

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[54] **STREET SWEEPING BRUSH**


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[52] **U.S. Cl.** ..... **15/182**
[51] **Int. Cl.** ..... **A46b 7/10**
[58] **Field of Search** ..... 15/182, 198, 200; 29/127



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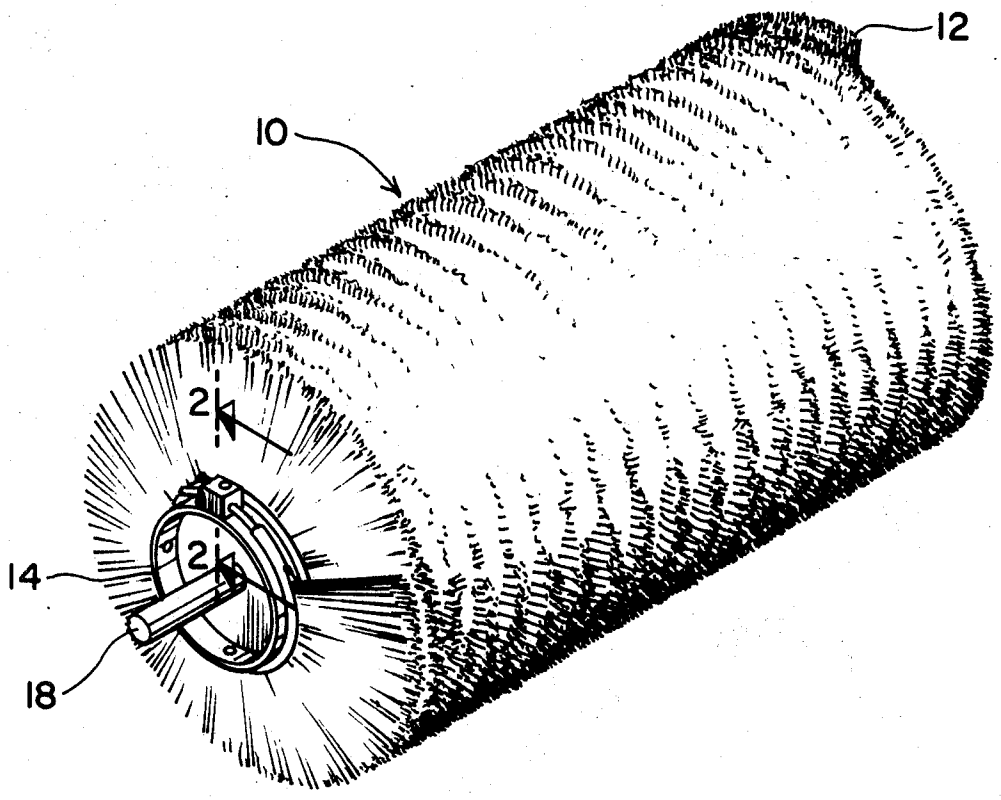
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[57] **ABSTRACT**

A rotary helical brush for sweeping or cleaning has a cylindrical core with a continuous fabricated helical coil bristle section encircling the core, and a device attached to an edge of the core and coupled to an end of the bristle section for preventing rotation of the bristle section in one direction during operation while permitting rotation in the opposite direction. The device includes a pivoted arm which engages the bristle section or an extension thereof.


**17 Claims, 9 Drawing Figures**



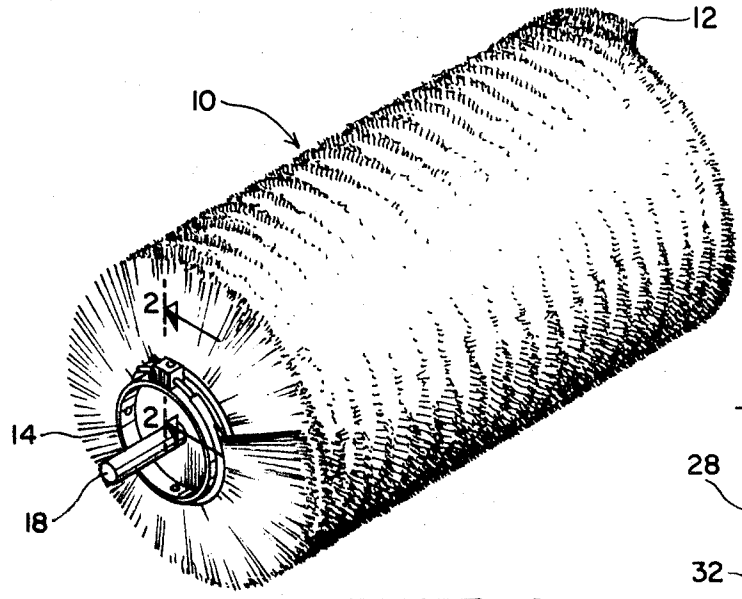



Fig. 1.

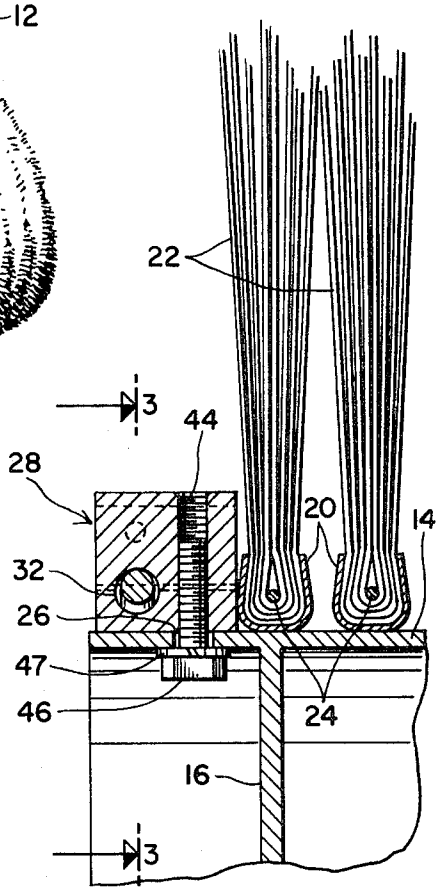



Fig. 2.

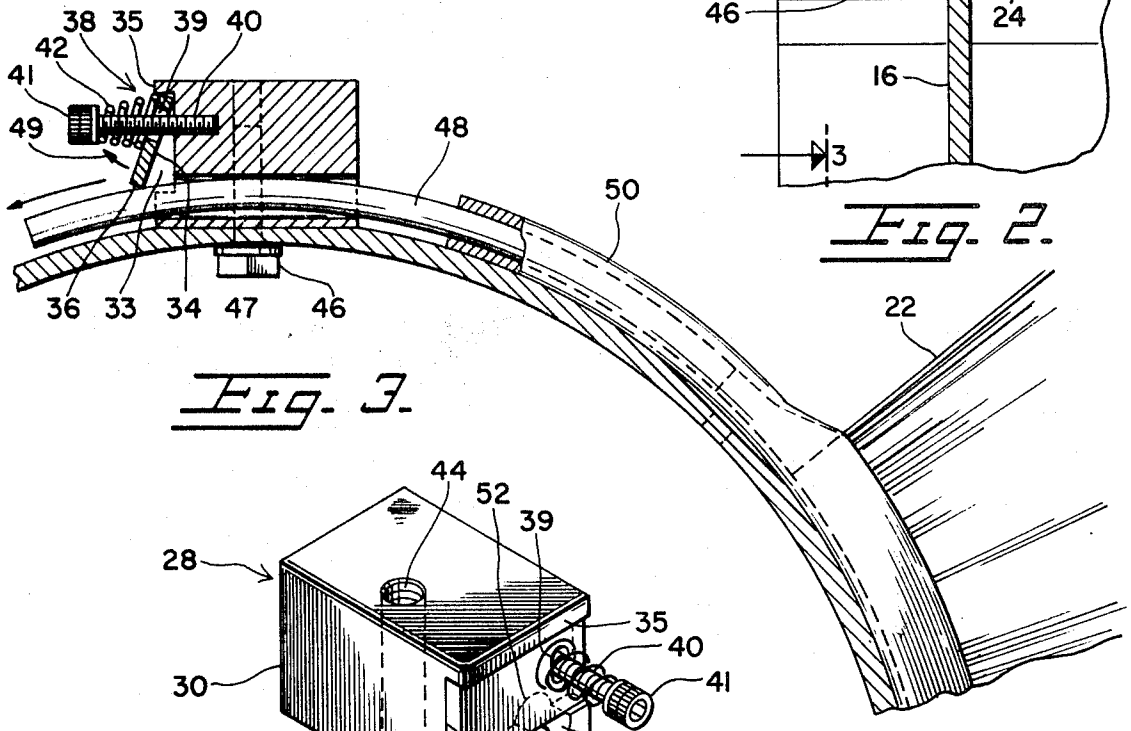



Fig. 3.




Fig. 4.

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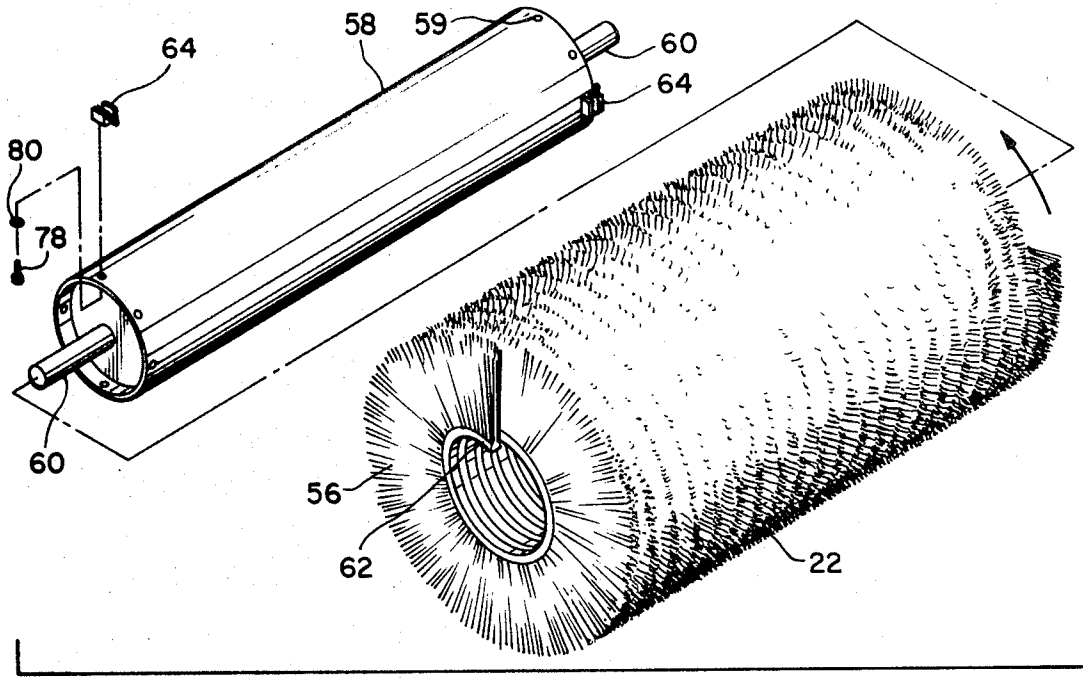



Fig. 5.

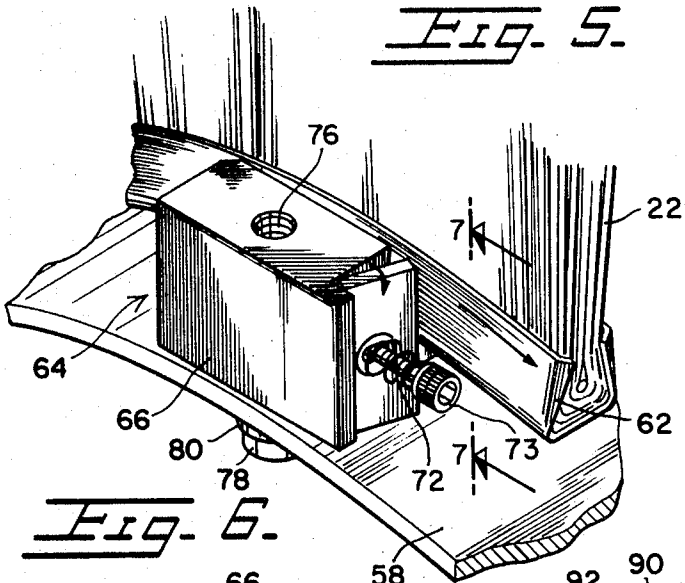



Fig. 6.

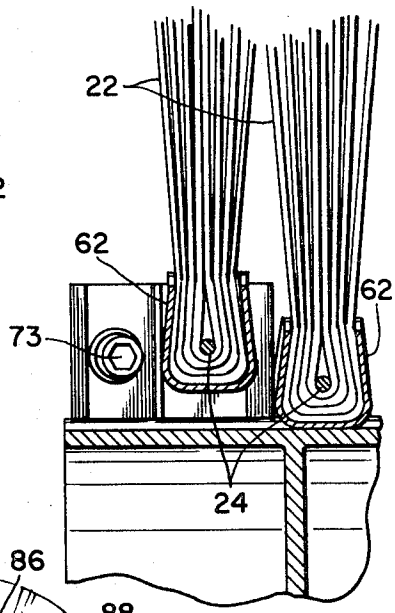



Fig. 7.

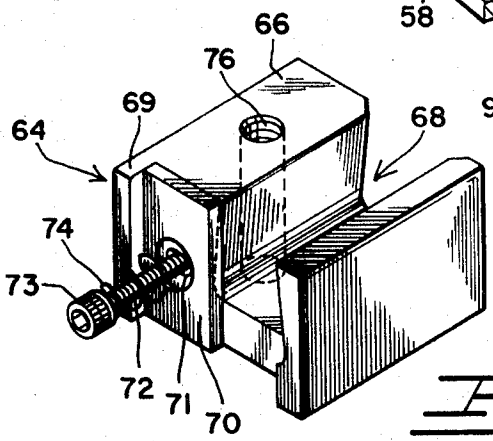



Fig. 8.

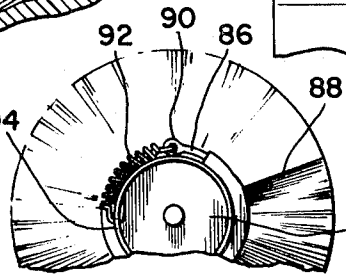



Fig. 9.

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# STREET SWEEPING BRUSH

## BACKGROUND OF THE INVENTION

The present invention relates generally to improvements in a rotary helical brush construction and more particularly to an improved prefabricated helical coil brush construction for permitting automatic tightening of the prefabricated continuous helical sweeping or cleaning element on the core during operation of the brush, and preventing unwinding of the coiled sweeping or cleaning element on the core.

A rotary helical brush having a prefabricated sweeping element is used for various brushing operations, such as a street sweeping, car washing, or industrial cleaning of surfaces of materials such as metal strips, or even fruit or vegetables. In this specification the brush structure will be described with respect to a street sweeping brush, but it will also apply to the brushes of other applications. The type of and degree of resiliency of the bristles could vary.

A rotary helical brush structure is adapted to be suitably positioned and attached to a source of power for rotation during operation. One type of brush has a prefabricated continuous helical coil sweeping element or bristle section installed about the existing brush core, which is then mounted or positioned on the power source, such as a street sweeper or tractor. The sweeping element or bristle section has a helically coiled base channel with bristles mounted in the base channel and radially projecting therefrom.

The prefabricated coiled sweeping element allows quick, easy replacement of the sweeping element on the core, as needed. In their unsupported condition the coils of the base channels of the sweeping element are easily flexed, so as to readily adapt to being positioned on the core. To assemble the brush, the helical base channel of the sweeping element is threaded or screwed into the rigid, fixed helical grooves on the core. These grooves may be cut into a wooden or metal core, or more recently could be formed from a rigid steel channel wound tightly to the desired diameter to form a core containing the grooves. The outer diameter of the helical grooves of the core is slightly less than the inner diameter of the helical base channel section of the sweeping element, with the difference in diameters providing the clearance required to easily assemble the replacement sweeping element onto the core by the workers. However, this clearance between the base channel section and the core allowed relative movement between these parts during the sweeping operation. In an attempt to prevent this rotation, which in effect merely reduced, but did not stop the relative movement between the coils of the sweeping element and the core, the coils were tightened about the core as much as possible prior to the sweeping operation and the ends of the sweeping element fastened in some manner to the core. By reason of the resiliency and the mass of the sweeping element, some space or clearance still remained between the core and the base channel despite the tightening. It should be noted that even though fractions of an inch may be the difference on the diameter it is the circumference that determines accumulation.

During the sweeping operation the large transverse force exerted on the bristles by the sweeping action of the bristles hitting the ground tightened the sweeping element on the core, so that the sweeping element essentially rotated in the grooves of the core in the direction of the helix. Since the ends of the sweeping element were fastened to the core, the clearance or slack of the sweeping element accumulated adjacent the end of the sweeping element in the direction of the helix, thereby having one portion of the sweeping element tight on the core while the remaining portion tended to become slack and loose on the core. Because of the looseness of the sweeping element on the core, it sometimes broke at such a point by the large transverse force of the sweeping action causing the street sweeper to be inoperative until the brush was repaired. In an effort to eliminate this problem, one end of the sweeping element was adjustably fastened to the core by means of a cable which required the operator to periodically stop the machine and tighten up and tie down the moving end of the sweeping element, which was done by pulling a flexible cable attacher mounted to the ends of the brush and then clamping the cable as taut as possible by hand. If the slack of the cable were not taken up by the operator periodically, the cable and possibly the sweeper element would snap by reason of the violent movement of the bristle elements on the core during sweeper operation.

To reduce as much as possible the relative axial movement between the sweeping element and the core, the grooves in the core were essential. The core grooves prevented displacement of the bristles axially unless the sweeping element became so loose so as to break, as discussed above. The grooves in the core provided dimensional stability to the sweeping element with respect to the core during brush operation. Since there was always some slack between the sweeping element and the core, despite relative tightening, the grooves could not be eliminated. The core grooves added to the difficulty of mounting the sweeping element on the core since it was difficult to screw or thread the sweeping element onto the core grooves because the grooves contained dirt and grime picked up during sweeping. Also, the core grooves became dented by flying objects such as stones and other hard items during the sweeping operation, which restricted and interfered with the sliding movement between the sweeping element and the core grooves. Also, as the base channel went farther along the core grooves, resistance increased requiring more force, which increased the friction and resistance. All of these factors also required slack between the core and the base of the sweeper element.

## SUMMARY OF THE INVENTION

It is thus a principal object of the present invention to provide a rotating brush assembly which takes up the slack of a prefabricated continuous sweeper section mounted on the cylindrical core of a brush and snubs the section to hold it in tightened condition.

Another object of the present invention is to provide a slack accumulator for permitting rotation of the helical sweeper section on a core in the threaded direction and preventing it in the other direction.

Still another object of the present invention is to provide a rotating brush having a smooth cylindrical core on which is mounted a prefabricated continuous coiled bristle section, which the ends of the bristle section can rotate in one direction, but not the other.

A further object of the present invention is to provide an automatic slack accumulator for a street sweeper

brush having a prefabricated coiled sweeping element, which allows rotation of the sweeper element in one direction in response to the rotation of the brush, while preventing it in the opposite direction.

A still further object of the present invention is to provide an automatic slack accumulator for predetermined movement of the bristle section of a street sweeper brush, which is easy and convenient to mount and use and is characterized by its ruggedness, reliability, durability, simplicity, high versatility and adaptability.

The above and other objects of the present invention will become apparent from the reading of the following description taken in conjunction with the accompanying drawing which illustrates preferred embodiments thereof.

In a sense the present invention contemplates the provision of a rotating brush such as for use with a mechanical street sweeper, comprising a cylindrical core, a helical sweeper section, including a helically extending base channel registering with said core and bristles mounted in said channel and radially projecting therefrom, and means mounted on said core and coupled to at least the end of the sweeper section toward which the sweeper section would advance if rotated, for permitting the rotation of said bristle section on said core in that one direction, while preventing rotation thereof in the opposite direction.

According to a preferred embodiment of the present invention, the base channel of the bristle section has an arm extending axially therefrom along substantially the same curvature as the helix. Mounted proximate the edge of the core is a slack accumulator which has a pivoted locking dog, which engages the arm attached to the base, and which dog allows movement in the direction of threading of the bristle section, and prevents movement in the opposite direction. The length of the arm on the base channel is approximately equal to the expected accumulation of the bristle section on the core during operation.

The improved brush construction overcomes the drawbacks and disadvantages of the brushes heretofore available. The automatic reception of the elongation of the sweeper section on the core during operation eliminates the accumulation of slack, avoids the periodic tightening of the cable heretofore required, and always assures a tight gripping of the sweeper section on the core in response to the rotation of the brush during the sweeping operation. This tightening effect even eliminates the necessity of providing a mating channel in the core for receiving the base channel of the bristle section, since the bristle section is tightened securely and automatically to the core by the sweeping action of the brush. The improved rotating brush is rugged, versatile, adaptable, easy to assemble, and of great durability under a wide range of operating conditions, and does not require skilled help for assembling and using.

## BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an elevational perspective view of a right-hand wound brush coil mounted on a core in accordance with the present invention;

FIG. 2 is an enlarged sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is an enlarged sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is an elevational perspective view of the slack accumulator device in FIGS. 1 through 3;

FIG. 5 is a perspective elevational view of a left-hand wound coil bristle section removed from the core support using a different embodiment of a slack accumulator;

FIG. 6 is an enlarged perspective view of the accumulator shown in FIG. 5 in operative position with a bristle section end;

FIG. 7 is an enlarged cross-sectional view taken along line 7—7 of FIG. 6;

FIG. 8 is a side perspective view of the accumulator shown in FIG. 6; and

FIG. 9 is an elevational perspective view of a further embodiment of a slack accumulator.

## DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the drawings, in which FIGS. 1–4 illustrate one embodiment of the present invention, the reference numeral **10** generally designates a street sweeping brush for use with a mechanical street sweeper (not shown) of the replaceable helical wound bristle type. As illustrated, brush **10** has a continuous helical sweeper element or unit **12** mounted about a generally cylindrical core **14** which is adapted to be mounted on and rotated by a mechanical street sweeper. Core **14** is generally cylindrical and has interior discs **16** which strengthen the core and support a center (not shown) and which receive a drive shaft, or as shown, a pair of stub shafts **18** at each end. Stub shafts **18**, as is well-known in the art, are readily removable from brush **10**, so that the brush structure **10** can be readily taken apart to put on a new sweeper element. Core **14** could also be a coiled rigid steel channel forming a helical grooved core. Mounted about the outer peripheral surface of core **14**, which as shown is generally smooth, is a prefabricated continuous helical coiled sweeper element or section **12**, which has a base channel **20**, advantageously of U-shape in cross-section to receive bristle material **22**. In assembly, the bristle material is folded about a cable **24** as the cable is fed into channel **20**, so that the bight of the bristle material is pressed and retained in channel **20** with straight leg portions projecting radially from channel **20**. During assembly, the upper portions of channel **20** are crimped or bent, such as illustrated in FIG. **2**, to hold bristles **22** in position, and the ends of the cable are fastened in a suitable manner to channel **20** in a manner well-known in the art.

Spaced about the outer peripheral surface of core **14** proximate at least one of the edges are series of holes or openings **26**. In one of openings **26** is mounted a slack accumulator device **28**, which has a body **30** advantageously made of metal and containing in its lower portion an axial bore or passageway **32** therethrough. One end of body **30** contains a recess **33** intersecting bore **32** and forms a ledge or boss **35** on the edge opposite bore **32**. Positioned within recess **33** is a locking dog or one-way clutch, shown as a spring-biased surface or wall **34**, which intersects a portion of the bore **32**, as seen best in FIGS. **2** and **3**. Wall **34** abuts ledge **35** and is biased against the end of body **30** by a bolt **40** threadedly received in body **30** and passing through an elongated passageway **39** in wall **34**. Positioned between the head **41** of bolt **40** and the outer surface of wall **34** is a spring **42** which urges wall **34** into abutting relation with the end of body **30**. The elongated pas-

sageway 39 in wall 34 and ledge 35 allows wall or element 34 to pivot about ledge 35 in a manner that will be discussed below. Passing transversely through body 30 is a threaded bore 44, which receives a bolt or other fastening device 46. As shown best in FIGS. 2 and 3, when slack accumulator device 28 is positioned on the outer surface of core 14 proximate an end, bolt 46 with a washer 47 passes through opening 26 on core 14 and is threadedly received in transverse bore 44 for firmly and fixedly holding device 28 in position. Other clamping or fastening arrangements can be provided.

Fixedly mounted to and extending outwardly from base channel 20 and following the same helical path, is an arm or rod 48. Arm 48 is fixedly locked in on the end of channel 20, which is shown clamped about one end of arm 48 and is illustrated at 50 in FIG. 3. Bore 32 is made large enough to receive the curved arm 48, as seen best in FIG. 3. While bore 32 is shown straight, it could, of course, be curved to follow the curvature of arm 48.

In assembly of brush 10, helical bristle unit 12 is positioned along the outer peripheral surface of core 14. Since the outer surface of core 14 is smooth, sweeping element 12 can be slid on axially. To aid in mounting the helical sweeper unit 12 onto core 14, the inner diameter of the bore formed by the helix of base channels 20 are slightly larger than the outer diameter of core 14, i.e. on the order of one-eighth of an inch per helix. After the sweeper unit 12 is slid onto core 14, one end is rotated, so as to tighten sweeper unit 12 on core 14, and that end is locked into position. It is convenient to use a slack accumulator device 28 on both ends. This is accomplished by mounting device 28 on the end of core 14 in the opening 26 closest to the end of arm 48 extending from channel 20. As seen best in FIG. 3, arm 48 is inserted into the end of bore 32 furthest from wall 34 and through the bore sufficiently to deflect wall 34 in the direction of arrow 49 in FIG. 3, so that edge 36 of wall 34 engages arm 48. The deflection and pivoting of arm or wall 34 compresses spring 42 urging edge 36 into contact with arm 48 preventing any return movement out of device 28. Arm 34 pivots about ledge 36. Helical sweeper unit 12 is tightened as much as possible onto core 14 by the operator, so that the undersurfaces of channels 20 approach the outer peripheral surface of core 14, and the other end of sweeper unit 12 is positioned in accumulator device 28 in a manner similar to that discussed above. However, by reason of the resiliency and bulk of sweeper unit 12, there still remains some slack along the length of sweeper unit with respect to core 14, despite all attempts of tightening. In use, with brush unit 10 rotating and the end of bristles 22 hitting the ground during a sweeping operation, a large transverse force is exerted on sweeper unit 12 causing channels 22 to tighten, thread and rotate relative to core 14. This threading operation urges arm 48 to move towards the edge of core 14 and pass through accumulator 28. This lengthening of sweeper unit 12 with respect to core 14 continues during operation of brush 10 and tightens sweeper unit 12 onto core 14 until no further tightening can occur. Wall 34 snubbing arm 48, prevents return movement of sweeper section 12 to its relaxed loose position, even when brush 10 is stopped. The length of arm 48 must be of sufficient length to pass through accumulator device 28 until all slack of sweeper unit 12 is taken up.

It is good practice in street sweeping operation to reverse brush 10 during use 180° on the sweeper unit to provide more uniform wear of the bristles. With accumulators 28 mounted at both ends of core 14, any slack accumulating between core 14 and sweeping unit 12 by the threading or tightening action in the opposite direction is easily taken up by slack accumulator 28 on the opposite end of the core. To completely replace sweeper unit 12 from core 14 merely requires a loosening of nut 40 to completely release wall 34 and allow the slack to return between sweeper unit 12 and core 14.

While a slack accumulator 28 was shown being used at both ends, it is only necessary to use it at least in association with the end of the sweeping element toward which the sweeping element would rotate, if it were rotated. Thus, if the sweeping element helix is right-handed, if the brush were rotated clockwise, the sweeping element would advance to the left as viewed facing the brush. This is illustrated in FIG. 1. In FIG. 5, a left-handed helix is shown rotating in a counter-clockwise direction.

A further embodiment of the present invention is illustrated in FIGS. 5 to 8, which show a continuous left-hand wound coiled helical bristle unit 56 removed from core 58. Axle 60 is shown extending from opposite ends of core 58, which as mentioned above could also be a stub or drive shaft. As illustrated in FIG. 7, bristles 22 are fixedly positioned in base channels 62. As shown mounted on the upper right-hand side of core 58 as viewed in FIG. 5 is slack accumulator 64, which is also illustrated on the left side in exploded position. Slack accumulator 64 has a body 66 through which passes an axial passageway 68. Extending axially outwardly from body 66 is an extension forming a shoulder 69. Abutting shoulder 69 at one end of body 66 is a wall or piece 70, which is biased against the end of body 66, and which transversely intersects passageway 68 as seen best in FIG. 6. Bolt 72, having an enlarged head 73, passes through an elongated opening 71 in piece 70, and is threadedly received within a threaded opening in the end of body 66. Interposed between the outer surface of piece 70 and enlarged head 73 of bolt 72 is a spring 74 for biasing piece 70 against the end of body 66. Slack accumulators 64 are positioned on core 58 in openings 59 by means of a bolt 78 which is received through transverse bore 76 in body 66. Washer 80 aids in securely fastening device 64 to core 58. The width of passageway 68 receives the base channel 62 of the bristle unit, as shown in FIG. 6, pivoting piece 70 about shoulder 69 and overcoming the compressive force of spring 74. The bottom edge of piece 70 engaging channel 62 allows base channel 62 to pass in one direction and prevents any movement in the opposite direction. The operation is substantially the same as discussed above with respect to the first embodiment.

While a smooth rod 48 was illustrated as used in the first embodiment, the outer surface could be roughened, threaded, grooved, serrated, or the like. With this roughened surface, such as threaded, the portion of the lower edge of piece 34 intersecting bore 32 can be cut out as shown by the lines in shadow, in FIG. 4, indicated at 52, to better engage the roughened surface. If a cable is attached to the core end, the cable can be used in place of the rod and passed through the accumulator to take up the slack. The cables used are relatively stiff and can be substituted for the rod.

Also, while one form of fastening accumulators **28** and **64** to their respective cores is shown, other means of clamping can be used, such as alternate bolts and nuts, welding, or the like. Also, while a smooth surfaced core was shown used with the present invention, conventional or existing cores having a spiral groove for mating with the bristle unit can also be used. The elimination of the spiral groove in the core allows easier installation of the sweeping elements and flexibility, and providing, if desired, for a more dense or heavier broom for the same core length by having the helices of the sweeping elements closer together.

In practice it has been found for easier installation of the sweeping element on the core, a slack about one-eighth of an inch is provided between the outer diameter of the core and inner diameter of the sweeping element. One type of heavier brush used with the mechanical street sweeper has 41 helices, which with one-eighth inch slack on the diameter per helix produces about a 15 inch axial movement of the ends of the broom maximum. This is reduced by prior tightening of the sweeping element on the core before operation.

A further embodiment is illustrated in FIG. **9** where an arm **86** extends from helical sweeper unit **88.** Arm **86** has an opening **90** at its end which receives one end of a spring **92** with the other end of spring **92** received within an opening **94** in core **96.** The other end of sweeper unit **88,** not shown, is affixed to core **96** in any convenient well-known manner such as bolts, cable or the like. Spring **92** is mounted in tension and must be able to contract and still maintain tension on arm **86** during the full tightening of sweeper unit **88** on core **96.**

Bristle unit **88** is tightened on core **96** as much as possible by hand, one end of spring **92** is received within opening **90** of arm **86** and spring **92** is placed in tension and put into one of the convenient openings **94** positioned radially about core **96.** The tension of spring **92** automatically keeps bristle unit **88** in tension during the sweeping operation while bristle unit **88** is continually tightened on core **96** during this sweeping operation. The spring automatically takes up the slack during sweeper operation.

When the brush is rotated 180° on the mechanical street sweeper for evening the wear of the bristles, the end of bristle unit **88** engaged by spring **92** is mechanically locked onto core **96** in the tightened position. Spring **92** is removed and positioned on the opposite end of the bristle unit. This is necessary since the bristle unit tightens and moves in one direction during the sweeping operation and unless the end that moved initially was tightened, it would then unthread when the brush was reversed 180° and the sweeping operation rotates the bristle unit in the opposite direction which would then tend to unthread the bristle unit end on the other end of the brush, and in effect, tighten the spring at that end.

While the rotary helical brush construction and slack accumulator made in accordance with the present invention was described and discussed with respect to a street sweeper brush for use on a mechanical street sweeper for illustrative purposes they could be used in other applications as previously mentioned. Also, the terms sweeper element and sweeper section as used in the specification and claims are intended to designate broadly the replaceable helical element containing the bristles and are not intended to be restricted to the sweeping operation, but a cleaning or washing operation as well, depending upon the use of the brush and the type of bristles used.

While there has been described and illustrated preferred embodiments of the present invention, it is apparent that numerous alterations, omissions and additions may be made without departing from the spirit thereof. For example, passageways **42** and **68** through devices **28** and **64,** respectively, could be made curved to conform to the curvature of the core body. Also, while spring **42** was shown generally conical to work with elongated opening in piece **34,** a washer can be used and a uniform diameter spring could be used.

What is claimed is:

**1.** A slack accumulator and snubbing device for use on a rotary helical brush having a core and a continuous coiled sweeping element mounted about and along the core of said brush comprising a body adapted to be removable mounted along an edge of said core, said body having a longitudinal passageway for coupling to an end portion of said sweeping element passing through said body from one end to beyond the other end of said body, said other end having a surface extending therefrom substantially transverse to the axis of said passageway, a piece having one edge pivotally mounted along said extending surface, the other edge of said piece extending into said passageway for interfering with the passage of said end portion of said sweeping element so as to be pivoted in response to movement of said sweeping element end portion through said passageway towards said piece, means biasing said piece towards said one end of said body whereby said piece prevents a rotation of said sweeping section on said core in one direction while permitting rotation in an opposite direction.

**2.** The device of claim **1,** wherein said piece has an elongated opening therethrough substantially transverse to the pivoting movement, and said biasing means includes a shaft passing through said opening and secured to said body and a spring interposed between the free end of said shaft and said piece.

**3.** A rotatable brush comprising a cylindrical core, a preassembled brush strip means helically wound on said core in one direction, and accumulator means mounted on said core adjacent to and coupled to one end of said brush strip means, said accumulator means continuously and positively taking up slack in one direction in said brush strip means that accumulates during operation of the brush and holding said brush strip means taut on said core, further said accumulator means preventing rotation of said brush strip means in the direction opposite to the direction of the helical winding while continuously permitting displacement of said one end of the brush strip means in the direction of the helical winder.

**4.** The brush of claim **3,** wherein said means comprises a one-way clutch coupled to said sweeping section end.

**5.** A rotatable brush comprising a cylindrical core, a helical sweeper section including a helically extending base channel registering with said core and bristles carried by said channel and radially projecting therefrom, and a one-way clutch mounted on said core adjacent to and coupled to at least one end of the sweeper section for permitting movement of such sweeper section on said core in the direction of the helical winder while preventing the movement of said sweeper section in the opposite direction.

6. The brush of claim 5, wherein said clutch is removably mounted on the core proximate the end of the core.

7. A brush of claim 5, wherein said clutch includes a pivoted piece biased in a closed position and pivoted in response to movement of said sweeper section in passing through said means in the direction of rotation of the sweeper section.

8. A rotating brush comprising a cylindrical core, a helical sweeper section including a helically extending base channel registering with said core and bristles carried by said channel and radially projecting therefrom, and means mounted on said core and coupled to at least one end of said sweeper section for continuously permitting movement of said sweeper section in one direction in response to accumulation of slack during brush operation and preventing movement of the sweeper section in the opposite direction, said means including a body having an axial passageway for receiving an end of said sweeper section, a piece spring loaded to abut the end of said body remote from the entrance of said sweeper section into said body and which has an edge extending into the passageway.

9. A brush as in claim 8, wherein said piece has an elongated opening through which passes a bolt received into said body, said body end having an extending surface substantially at right angles to the axis of said passageway, said piece pivoting along said extending surface.

10. A rotatable brush comprising a cylindrical core, a helical sweeper section including a helically extending base channel registering with said core, and bristles carried by said channel and radially projecting therefrom, an arm extending outwardly from the base channel of said bristle section having generally the same curvature of said channel, and means mounted on said core and engaging said arm for continuously permitting movement of said arm in one direction to accommodate slack of said sweeper section and preventing rotation of the sweeper section in the opposite direction.

11. A brush as in claim 10, wherein the one end of the sweeper section coupled to said means is the end towards which the sweeper section would advance if rotated, and said arm being of a length equal to the slack of the sweeper element on said core.

12. A rotating brush comprising a cylindrical core, a helical sweeper section including a helically extending base channel registering with said core and bristles carried by said channel and radially projecting therefrom, and means mounted on said core and engaging at least one end of the base channel of said sweeper section for continuously permitting movement of said sweeper section in one direction in response to accumulation of slack during brush operation and preventing movement of the sweeper section in the opposite direction.

13. A slack accumulator member for a brush strip means helically wound about a core means in one direction, said member adapted to be mounted on said core means adjacent to one end thereof and engaging one end of said brush strip and including means for continuously and positively taking up slack in said brush strip in one direction that accumulates during sweeping and maintaining said brush strip taut and further permitting movement of said brush strip means in one direction only and preventing the movement in the opposite direction.

14. A helical sweeper section used on a rotating brush and cooperating with a cylindrical helical core and having a brush slack accumulator device containing a passageway therethrough mounted along an edge of set core with a one-way clutch means extending into said passageway, comprising a helically extending base channel for registering with said core, a plurality of bristles carried by said base channel and radially projecting therefrom, and an arm extending outwardly from an end of said base channel and adapted to pass through said passageway of said accumulator and engage said clutch means therein for accommodating movement of said sweeper section on said core in the direction of helical winding while preventing movement in the opposite direction.

15. A sweeper section of claim 14, wherein said arm has generally the same curvature as said base channel about said core.

16. A helical sweeper section of claim 14, wherein said arm is a cable fastened to said base channel.

17. In combination, cylindrical core for mounting a rotating brush thereon, said core adapted to receive a helically extending base channel about said core, said base channel having a member extending outwardly from one end thereof and said channel carrying bristles which radially project therefrom, and means removably mounted along an edge of said core and engaging said member extending from said base channel, said means continuously and positively taking up slack in said base channel that accumulates during operation and holding said channel taut which allows movement of said base channel in one direction when mounted on said base core while preventing movement thereof in the opposite direction.

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