

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 83850258.1

(51) Int. Cl.³: **A 46 B 3/14**
A 46 B 3/16, A 46 B 7/06
E 01 H 1/02

(22) Date of filing: 28.09.83

(30) Priority: 29.09.82 SE 8205558

(43) Date of publication of application:
04.04.84 Bulletin 84/14

(84) Designated Contracting States:
AT CH DE GB LI

(71) Applicant: **Droeser, Walter**
Ragnarökgatan 7
S-723 55 Västerås(SE)

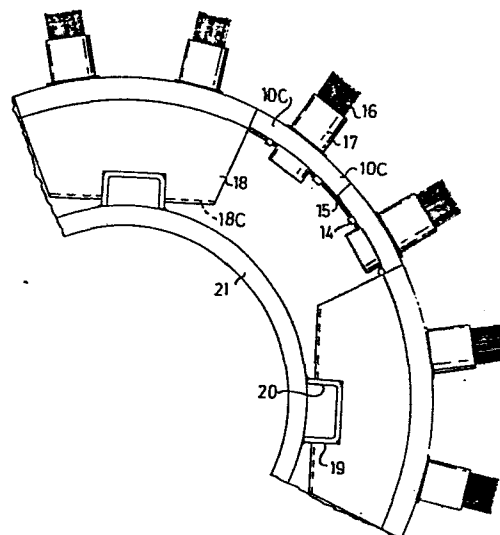
(72) Inventor: **Droeser, Walter**
Ragnarökgatan 7
S-723 55 Västerås(SE)

(74) Representative: **Horney, Johan et al,**
H. Albiñs Patentbyrå AB Box 7664
S-103 94 Stockholm(SE)

(54) **Brush ring for cleansing machines.**

(57) A brush ring for a roller brush in a cleansing machine includes a ring (10C) having a U-shaped cross section. Openings (11) with upstanding walls (12) are made in the ring and the bent-over ends of the hairpin-like bristle bundles (16) are thrust into the openings. The bent-over bristles are free inwards of the inside of the ring, and a locking wire (15) is taken through these ends to form a locking wire ring on the inside of the annular bar for reliably retaining the bristle bundles in the openings when the ring is rotated during operation.

FIG. 5



BRUSH RING FOR CLEANSING MACHINES

The present invention relates to a brush ring for cleansing machines intended, inter alia, for airports and streets. A plurality of brush rings are mounted one after the other on a rotor to form a roller brush.

5 The known brush rings can be manufactured in different ways. In one known method, manufacture starts with a straight U-shaped bar. This is bent into a ring, and its meeting ends are welded together. The hairpin-shaped bristle bundles form an eye at the bent-over end and
10 through this a metal wire is threaded so that the bundles are strung on the wire like beads on a string. With the bristle bundles mounted on it, the wire is subsequently wound round the ring in its U-shaped groove. The wire is tensioned in the groove and the ends of the wire welded
15 together. Since the bristle bundles will be subjected to considerable centrifugal forces during rotation of the roller brush, the metal wire will be subjected to large forces and there is thus the risk that the weld at the ends
20 of the wire will break. Should this happen, all the bristle bundles will be cast off and can injure persons in the vicinity.

Another known brush ring of the kind in question is manufactured by bending two bars to a circular shape and welding them together while the bristle bundles are clamped
25 between the rings, as illustrated in the Swedish Patent No. 186 616, for example. The rings are kept to each other by spot welding. If one or more welds were to fail, one or more bristle bundles will be cast off with the risk of personal injury.

30 The object of the present invention is therefore to provide a brush ring where the bristle bundles are retained in a reliable manner and without the risk of rupture in vital weld joints.

This is achieved with a brush ring which has, in
35 accordance with the invention, the characterizing features

disclosed in the following claim.

A brush ring manufactured in accordance with the invention is schematically illustrated on the accompanying drawings, as well as a roller brush provided with such
5 rings.

Fig. 1 is a schematic perspective view of a U-shaped bar with openings having upstanding side walls for the reception of hairpin-like bristle bundles,

Fig. 2 is a cross section through the bar and a bristle
10 bundle fitted into one of the openings,

Fig. 3 is another cross section and illustrates locating means on the underside of the bar for a locking wire which is taken through the bent-over ends of the bristle bundles,

Fig. 4 is a side view of the straight bar with the
15 bristle bundles fitted and the locking wire retaining them on the underside of the bar,

Fig. 5 is a partial end view to a reduced scale of a brush ring in accordance with the invention and mounted on
20 a rotor,

Fig. 6 is a cross section through a pair of brush rings mounted on a rotor,

Fig. 7 is a view from above of the joint between the ends of the bar after it has been bent into a ring,

Fig. 8 is a side view of this joint, and
25

Fig. 9 illustrates the joint as seen from below.

The sheet metal bar in Fig. 1 is a U-shaped bar 10 formed with extruded openings 11 at uniform spacing. The extrusions are denoted by the numeral 12 and are intended
30 for providing support for the bristle bundles.

Narrow strips are stamped out and pressed downwards between the openings to form eyelet-shaped location apertures 14 for a locking wire 15 intended for passing through the apertures.

35 The hairpin-shaped bristle bundles 16 are pressed down into the openings 11 and are downwardly provided with an elastic sleeve 17 for keeping the bundles bent double. At

the lower end 18 of the bristle bundle, these wires are bent double and leave an axial channel through which the locking wire is inserted so that the bristle hairpins will be caught by this wire 15 in a manner very reliably retaining the bristle bundle in the opening 11.

Manufacture of the bar with the bristle bundles can be done by machine by the bundles being fitted one after the other in the respective opening 11 while the locking wire 15 is advanced and passed through the wall of the sleeve 17 and through the channel at the bent-over end of the respective bristle bundle.

The length of the bar is selected as being somewhat longer than the circumference of the final brush ring, and this also applies to the length of the locking wire.

The bar is bent up into a ring 10C and mounted on a mandrel having an outer diameter substantially equal to the inner diameter of the final brush ring.

One end 10A of the bar is joggled on three sides to fit the other end 10B, and the overlapping ends are welded together.

The ends 15A, 15B of the locking wire will also overlap, and they are also welded together to form a locking wire ring.

A number of spoke means 18 are arranged inwards of the ring 10C. Each spoke means consists of sheet metal bent into a U-shape with two legs 18A, 18B and a web 18C innermost. An axial slot 19 is made in the web and legs to suit axial splines 20 on the rotor 21. The upper edges of the legs are flanged out forming support for the inside of the ring and guidance for the edges of the ring. The edges are bent upward along the edge flanges of the bar, the raised edges of the legs being welded to said edge flanges.

The brush ring with its spoke means may now be easily mounted on the rotor and in coaction with the axial splines to form a pack of brush rings of desired extension.

Alternatively, the bar 10 can first be bent into a ring, subsequent to which the bristle bundles are mounted

24.1

0105040

4

in the openings 11 and locked with the locking wire 15.
The ends of the bar are finally fastened together as well
as the ends of the locking wire.

CLAIM

A brush ring for roller brushes in cleansing machines, including a ring with a U-shaped cross section and a ring of a locking wire arranged contiguous to the ring, the locking wire extending through the radially inward, bent-over ends of a number of hairpin-like bristle bundles, characterized in that in the bottom of the ring (10C) there are made a plurality of uniformly spaced openings (11) with upstanding walls (12) to form support for the bent-over ends (18) of the bristle bundles (16) inserted in the openings, and in that the locking wire (15) is on the inside of the ring and taken through the bent-over ends of the bundles to retain the bundles in position when they are subjected to centrifugal forces.

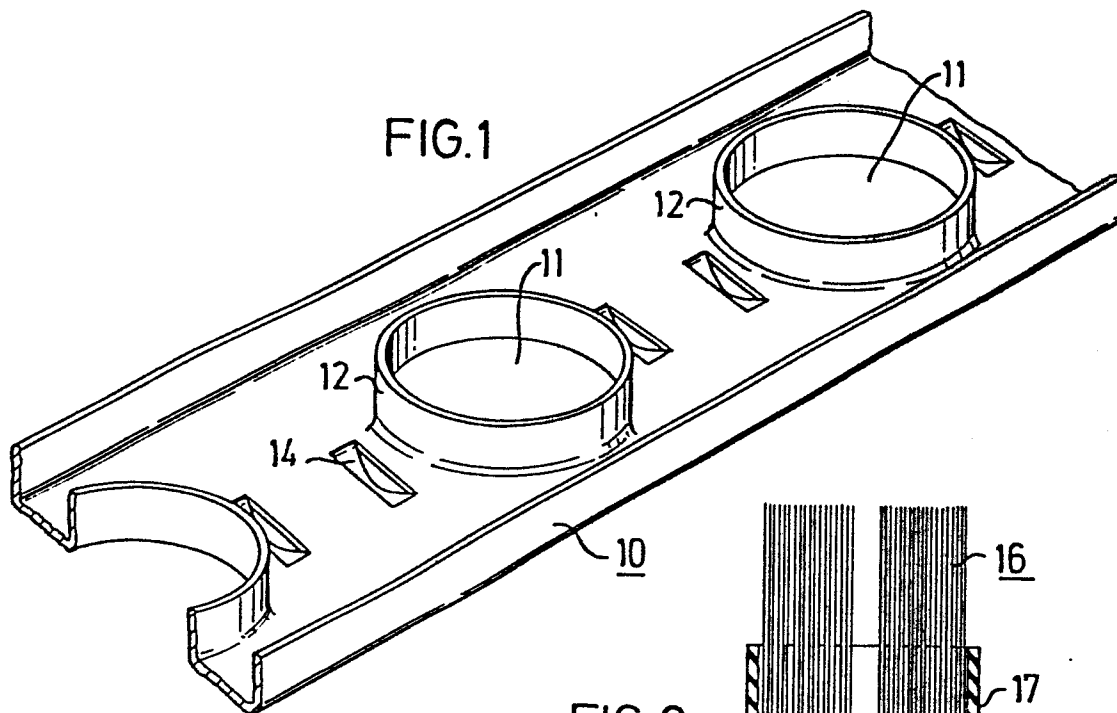


FIG.2

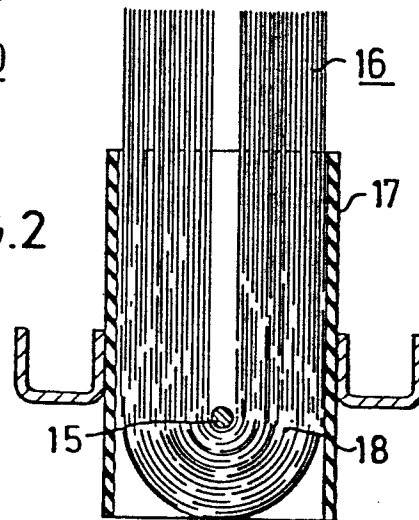


FIG.3

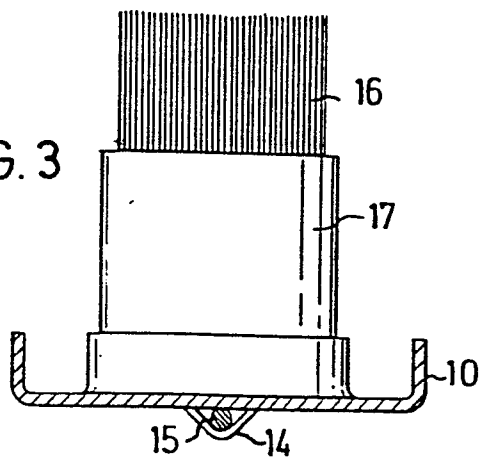


FIG.4

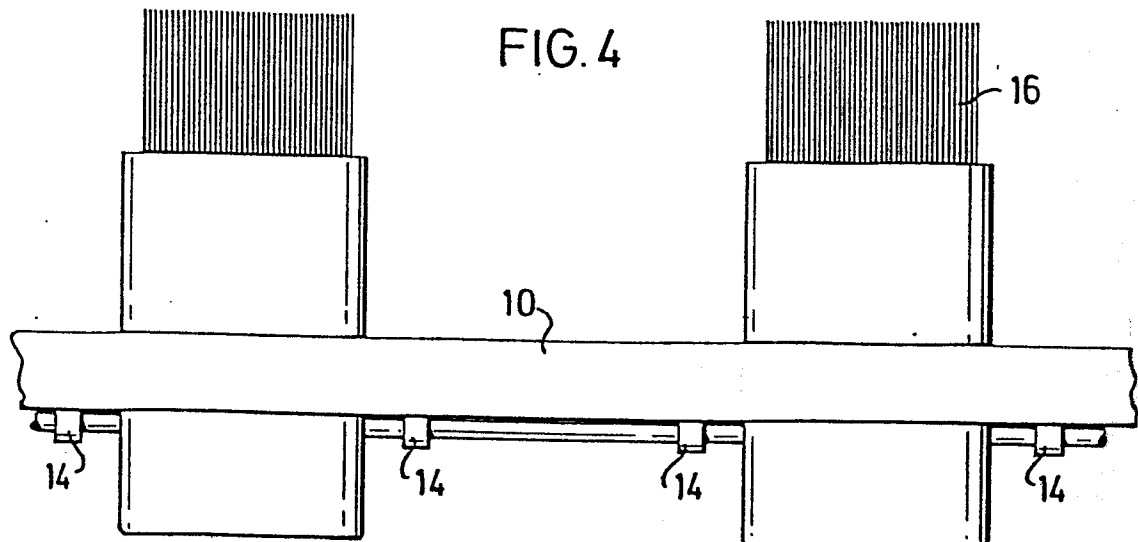
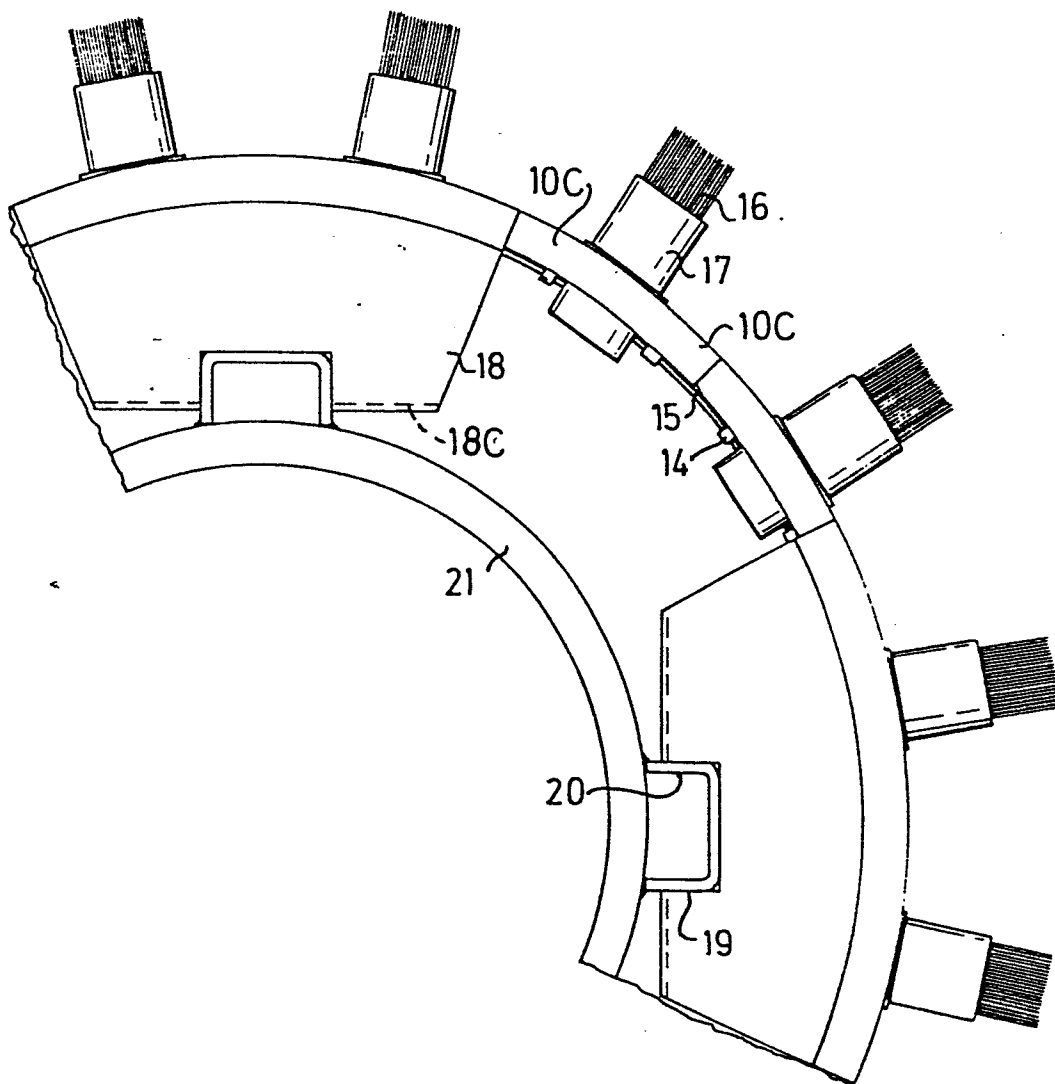
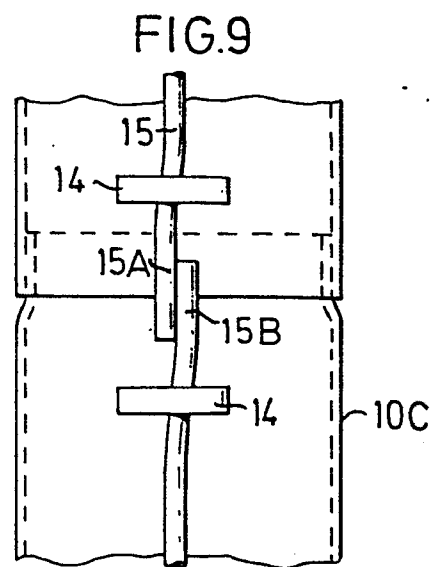
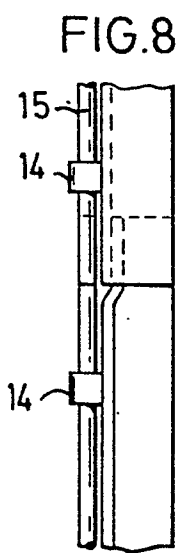
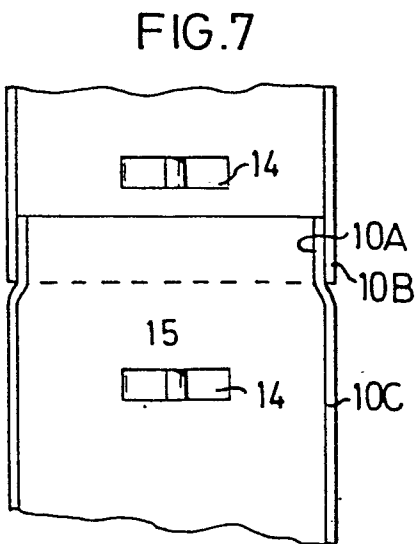
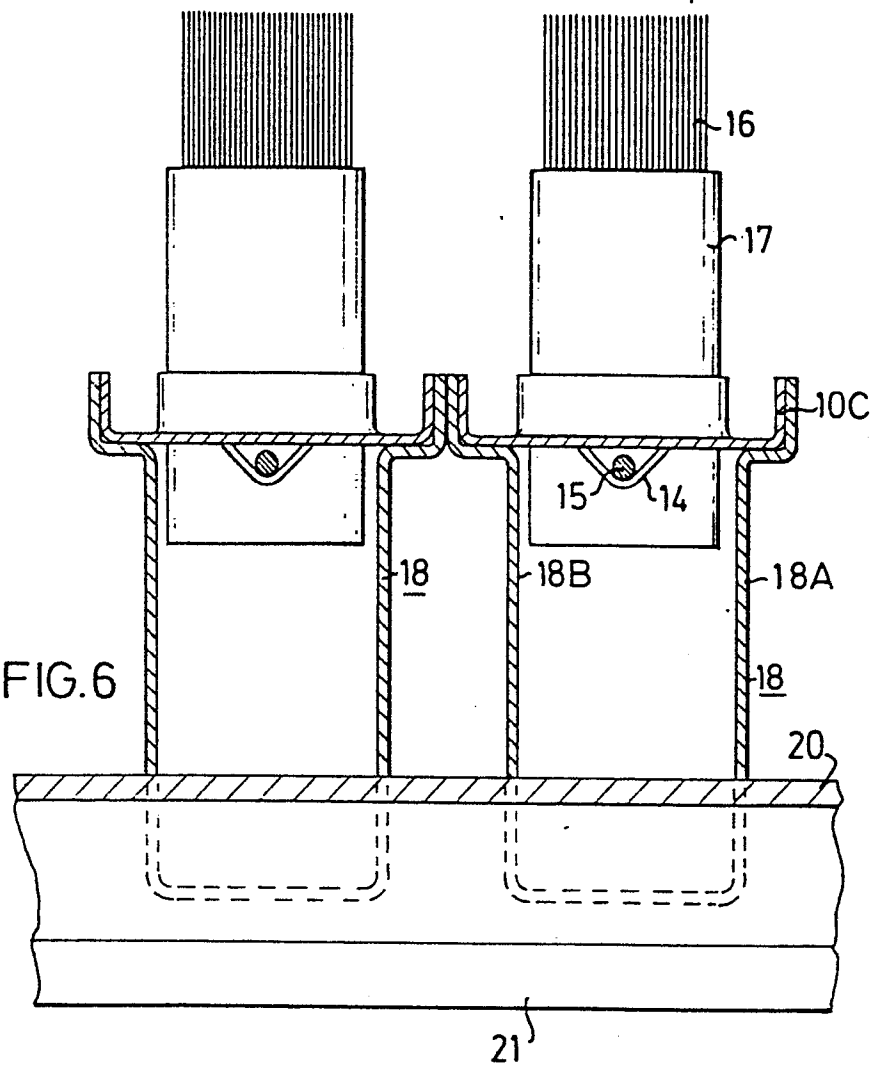


FIG. 5







European Patent
Office

EUROPEAN SEARCH REPORT

0105040

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 83850258.1
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 7)
A	DE - A1 - 3 023 745 (DROESER) * Totality * --	1	A 46 B 3/14 A 46 B 3/16 A 46 B 7/06
A	AT - B - 350 620 (REISLÄNDER) * Totality * --	1	E 01 H 1/02
A	US - A - 3 142 854 (NIELSEN) * Totality * --		
A	AT - B - 1 409 (WAWROSCH, FISCHER) * Totality * --		
A	US - A - 2 688 762 (VOSE) --		
A	DE - C - 323 094 (MENGEN, SIEBEN) * Fig. 1 * ----		
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 21-12-1983	Examiner PIRKER
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			