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(54) Roller for roller shades fitted with clamping means to secure an end of a web for shades to said roller.

(57) A roller for roller shades fitted with clamping means to secure an end of a web for curtains to said roller is described; said roller comprising an internal tubular structure (2) fitted with: coupling elements (3,4) to connect a roller (1) to a device which is able to rotate said roller (1); slots fitted with first longitudal openings and able to house clamping elements (23) for in edge (24) of a curtain (25); cylindrical hollows (20,21,22) to house supporting rods (26) of the curtain (25); external surfaces to back up an end fitted with a self-adhesivs strip to fix the curtain to the roller (1); advantageously the clamping element (23) is made by a male part of a slide fastener able to be engaged with a female part of the slide fastener, which is fastened on the edge (24) of said curtain (25).

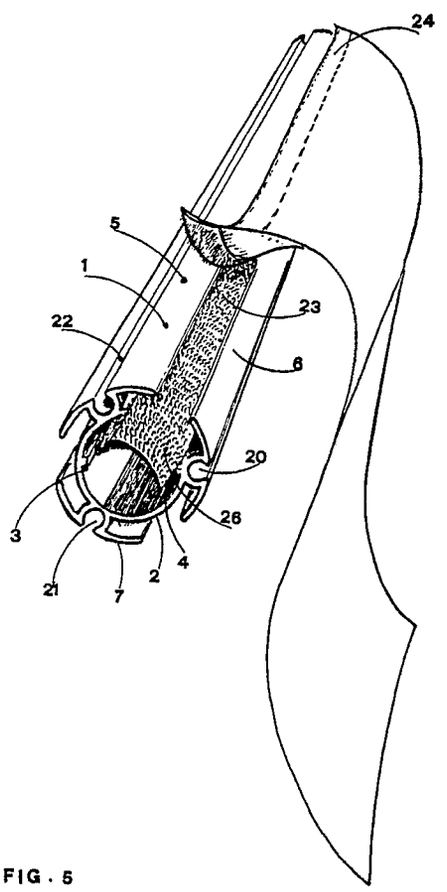

FIG. 5

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ROLLER FOR ROLLER SHADES FITTED WITH CLAMPING MEANS TO SECURE AN END OF A WEB FOR CURTAINS TO SAID ROLLER.

The present invention relates to a roller for a roller shade, the roller being of the kind provided with clamping means to connect the roller to a device able to rotate the same roller, with first slots for a rod arranged in an end of a curtain, with second slots for a male connector of a slide fastener placed in said end and with cylindrical surfaces to sustain an end of a curtain, which has an adhesive strip.

At present, a roller shade is fixed to the roller by means of an adhesive strip which has to changed every time that the curtain is washed; for this reason it is hard to locate properly the strip on the end of the curtain which has to fixed again to the roller also because the above operation is generally carried out by persons unskilled in the art.

The invention as claimed is intended to remedy these drawbacks. It solves the problem of how to design a roller for roller shades fitted with clamping means to secure an end of a web for curtains to said roller, in which the element which fastens the curtain to the roller is able to be washed with the curtain without suffering damages due to the same washing; the reassembly of the washed curtain to the roller is made very easily also by an ordinary person unskilled in the art.

The advantages offered by the invention are mainly that the elements which fasten the curtain to the roller does not suffer damages during the washing of the curtain, consequently the same elements are able to be used very often; further if one part of said elment deteriorates, this is replaceable with an identical part able to be found in commerce. At last, in the mass production it is not necessary to define separately rollers in which the clamping of the curtain to the roller is obtained by means of a rod or by means of an adhesive or by means of a slide fastener, because the roller according to the present invention incluedes in a single unity the three types of the above rollers.

Other characteristics, aims and advantages of a roller according to the present invention will be better understood by referring to the enclosed drawings, which refers to non-restrictive examples, in which:

Fig.1 is a cross section of a roller according to the present invention before of the insertion in said roller of a clamping element for an edge of a curtain;

Fig.2 represents the roller of the Fig.1 after the insertion of said clamping element in a slot made in said roller;

Fig.3 represents the roller of the Fig.1 after the final assembly of said clamping element in said slot, according to a first assembling method;

Fig.4 shows the roller of the Fig.1 after the final assembly of said clamping element in said slot, according to a second assembling method;

Fig.5 is a perspective view of a roller in accordance with the present invention with an edge of a curtain partially engaged with said clamping element;

Fig.6 represents the roller of the Fig.1 after the final assembly of a rod able to fix the curtains in a cavity of which the roller is provided;

Fig.7 represents a curtain fixed to the roller by means of an adhesive strip;

The figures show a roller for roller shades fitted with clamping means to secure an end of a web for curtains to said roller.

In accordance with the Fig.1 a roller 1 is made by an internal tubular structure 2 fitted with two coupling elements 3 and 4, which are diametrically opposed each other to connect said roller 1 to a device, not shown, which is able to rotate said roller 1. Said tubular structure 2 extends in the whole length of said roller 1.

Said tubular structure 2 is integral with three structural elements 5, 6 and 7, which are identical each other and which extend longitudinally in the direction of the central axis of symmetry A_r of said roller 1; said structural elements 5, 6 and 7 having, respectively, identical cylindrical external walls 8, 9, 10, 11, 12 and 13 which are able to define the radial dimensions of said roller 1.

Three cylindrical surfaces 14, 15 and 16 are, respectively, on the inside of said structural elements 5, 6 and 7 so as to define three internal slots 17, 18 and 19. Respectively said slots 17, 18 and 19 are delimited by means of said external walls 8, 9, 10, 11, 12 and 13 and which are provided with first longitudinal openings 31, 32 and 33 which extend along the whole length of said roller 1 in a parallel way to said axis A_r.

Said slots 17, 18 and 19 extend along the whole length of said roller 1 and have, respectively, axes of symmetry A_1, A_2, A_3 which are parallel to said axis A_r; said axes of symmetry A_1, A_2, A_3 being placed at predetermined constant angular distances the value of which is 120° to maintain the dynamical balance of said roller 1.

Three cylindrical hollows 20, 21 and 22 are provided, respectively, in said structural elements 5, 6 and 7; said cylindrical hollows 20, 21 and 22 being able to extend in a radial way in the direction of the inside of said structural elements 5, 6 and 7 to reach said structure 2 and to develop longitudinally along the whole length of said roller 1. Said

cylindrical hollows 20, 21 and 22 have, respectively, axes of symmetry A_4, A_5, A_6 which are parallel to said axis A_r; said axes of symmetry A_4, A_5, A_6 being placed at predetermined constant angular distances the value of which is 120° to maintain the dynamical balance of said roller 1.

Said cylindrical hollows 20, 21 and 22 have second longitudinal openings 34, 35 and 36 which extend along the whole length of said roller 1 in a parallel way to said axis A_r.

As shown in the Figures from 2 to 5 each of said slots 17, 18 and 19 is able to house a clamping element 23 for an edge 24 of a curtain 25. Said clamping element 23 extend inside of one of said slots 17, 18 or 19 along the whole longitudinal size of the same slot so as to allow to fix the whole length of said edge 24 to said roller 1.

In a first embodiment of the invention shown in the Fig.3 a known adhesive is used to fix said clamping element 23 on the inside part of one of said slots 17 (18 or 19); said adhesive being covered over the surface 14 (15 or 16) of one of said slots 17 (18 or 19).

In a second embodiment of the invention shown in the Fig.4 said clamping element 23 is fixed on the inside part of one of said slots 17 (18 or 19) by means of a bend of said walls 8 and 13; said bends being turned towards the inside part of said slot 17 and extending along the whole longitudinal size of the same walls 8 and 13.

It is obvious that the slot 17 can be replaced by the slots 18 or 19; for that reason, if said clamping element 23 deteriorates, it is possible to insert a new element 23 in a slot in which the walls are not bent and to fix the new element 23 by means of an adhesive covered over a surface 14 or 15 or also by bending the same walls as above described.

Advantageously said clamping element 23 is made by a male part of a slide fastener able to be engage with a female part of the slide fastener, which is fastened on the edge 24 of said curtain 25.

Said roller 1 is suitable also for the assembly shown in the Fig.6, in which a curtain 25 is fixed to said roller 1 by means of a supporting rod 26 inserted in an end 28 bent into oneself of said curtain 25. Said rod 26 is inserted in one of said cylindrical hollows 20, 21 or 22 and has longitudinal sizes comparable with the longitudinal sizes of one of said hollows 20 (21 or 22).

Further each of said walls from 8 to 13 has an external surface 37 which is able to back up an end 29 fitted with a self-adhesive strip 30 to fix said curtain 25 to said roller 1, as can be noted in the Fig.7.

Said roller 1 is suitable for anyone of the above assemblies which can be chosen after its purchasing in accordance with the fashion, the tast or the opportunity of the of the assembler or of the owner.

Claims

1. Roller for roller shades fitted with clamping means to secure an end of a web for curtains to said roller comprising an internal tubular structure (2) fitted with coupling elements (3,4) to connect a roller (1) to a device which is able to rotate said roller (1); said structure (2) extending in the whole length of said roller (1); said structure (2) and said roller (1) having a central axis of symmetry (A_r), wherein said structure (2) is integral with a plurality of structural elements (5,6,7) which are identical each other and which extend longitudinally in the direction of said axis of symmetry (A_r); said structural elements (5,6,7) having, respectively, identical cylindrical external walls (8,9,10,11,12,13) which are able to define the radial dimensions of said roller (1); said structure (2) having in the inside parts of said structural elements (5,6,7) cylindrical surfaces (14,15,16) placed as to define internal slots (17,18,19), which are delimited by means of said external walls (8,9,10,11,12,13) and and which are provided with first longitudinal openings (31,32,33), said opening (31,32,33) enxtending along the whole length of said roller (1) in a parallel way to said axis (A_r); said slots (17,18,19) having axes of symmetry (A_1,A_2,A_3) which are parallel to said axis (A_r) which axes (A_1,A_2,A_3) are placed at predetermined constant angular distances each other; each one of said slots (17,18,19) being able to house a clamping element (23) for an edge (24) of a curtain (25); said clamping element (23) extending inside of one of said slots (17,18,19) along the whole longitudinal size of the same slot so as to allow to fix the whole length of said edge (24) to said roller (1); fixing methods being provided to fix slid clamping element (23) in the inside part of one of said slots (17,18,19); cylindrical hollows (20,21,22) being provided, respectively, in said said structural elements (5,6,7); said cylindrical hollows (20,21,22) extending in a radial way in the direction of the inside of said structural elements (5,6,7) to reach said structure (2) and being able to develop longitudinally along the whole length of said roller (1); said cylindrical hollows (20,21,22) having axes of symmetry (A_4,A_5,A_6) which are parallel to said axis (A_r) which axes (A_4,A_5,A_6) are placed at predetermined constant angular distances each other; said cylindrical hollows (20,21,22) being fitted with second longitudinal openings (34,35,36), which extend along the whole length of said roller (1) in a parallel way to said axis (A_r); each one of said cylindrical hollows (20,21,22) being able to house a supporting rod (26) which inserted in an end (28) bent into oneself of said curtain (25) said rod (26)

having longitudinal sizes comparable with the longitudinal sizes of one of said hollows (20,21,22); each one of said walls (8,15 9,10,11,12,13) being fitted with an external surface (37) which is able to back up an end (29) provided with a self-adhesive strip (30) to fix said curtain (25) to said roller (1).

2. Roller as claimed in claim 1, wherein the fixing of said clamping element (23) in the inside part of one of said slots (17,18,19) is made by means of an adhesive; said adhesive being covered between one of said surfaces (14,15,16) and said clamping element (23).

3. Roller as claimed in claim 1, wherein the fixing of said clamping element (23) in the inside part of one of said slots (17,18, 19) is made by means by means of a bend of said walls (8, 13,9,10 11,12); said bend being turned towards the inside part of one of said slots (17,18,19) and extending along the whole longitudinal size of the same walls (8,13,9,10 11,12).

4. Roller as claimed in claims 2 or 3, wherein said clamping element (23) is made by a male part of a slide fastener able to be engage with a female part of the slide fastener, which is fastened on the edge (24) of said curtain (25).

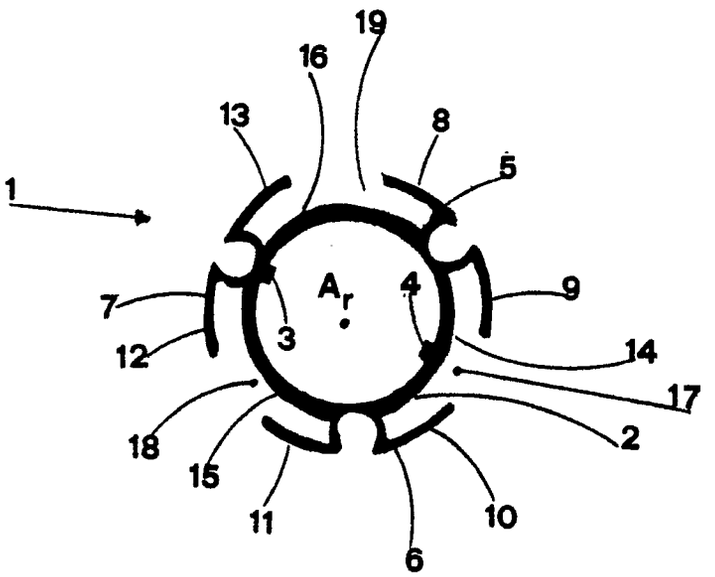

FIG.1

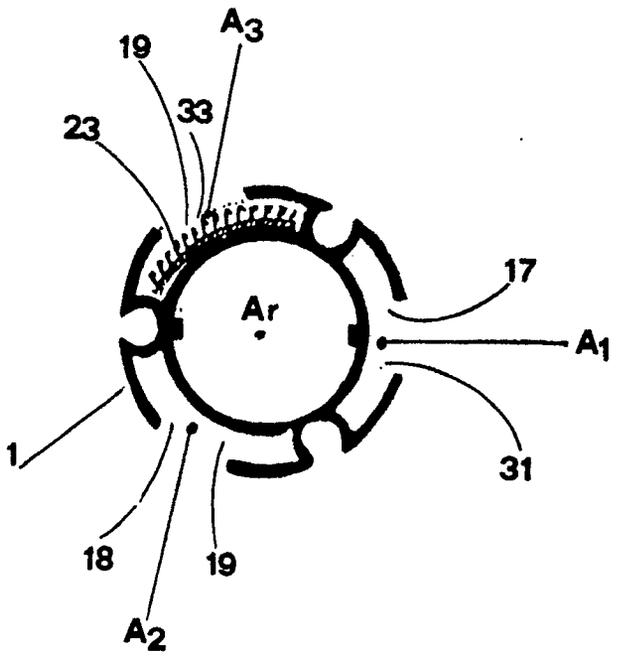

FIG. 2

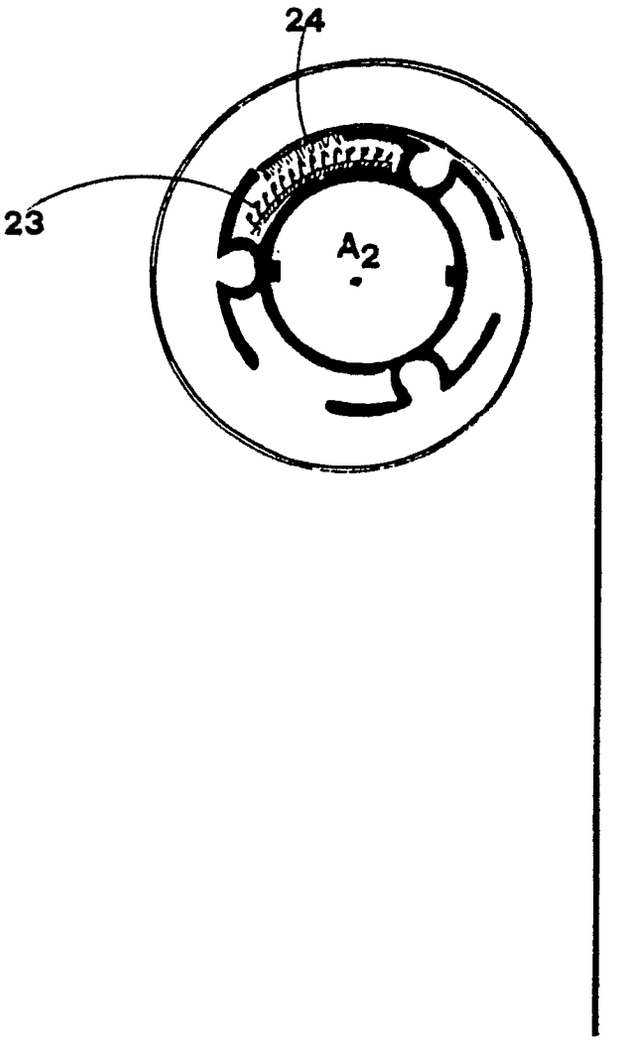

FIG. 3

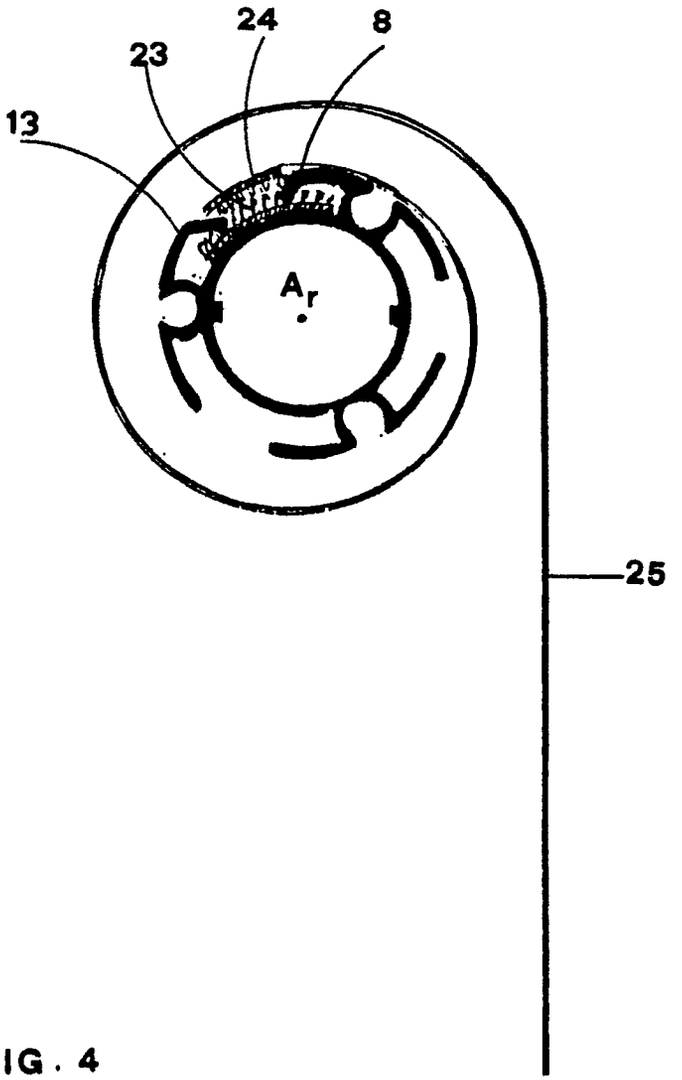

FIG. 4

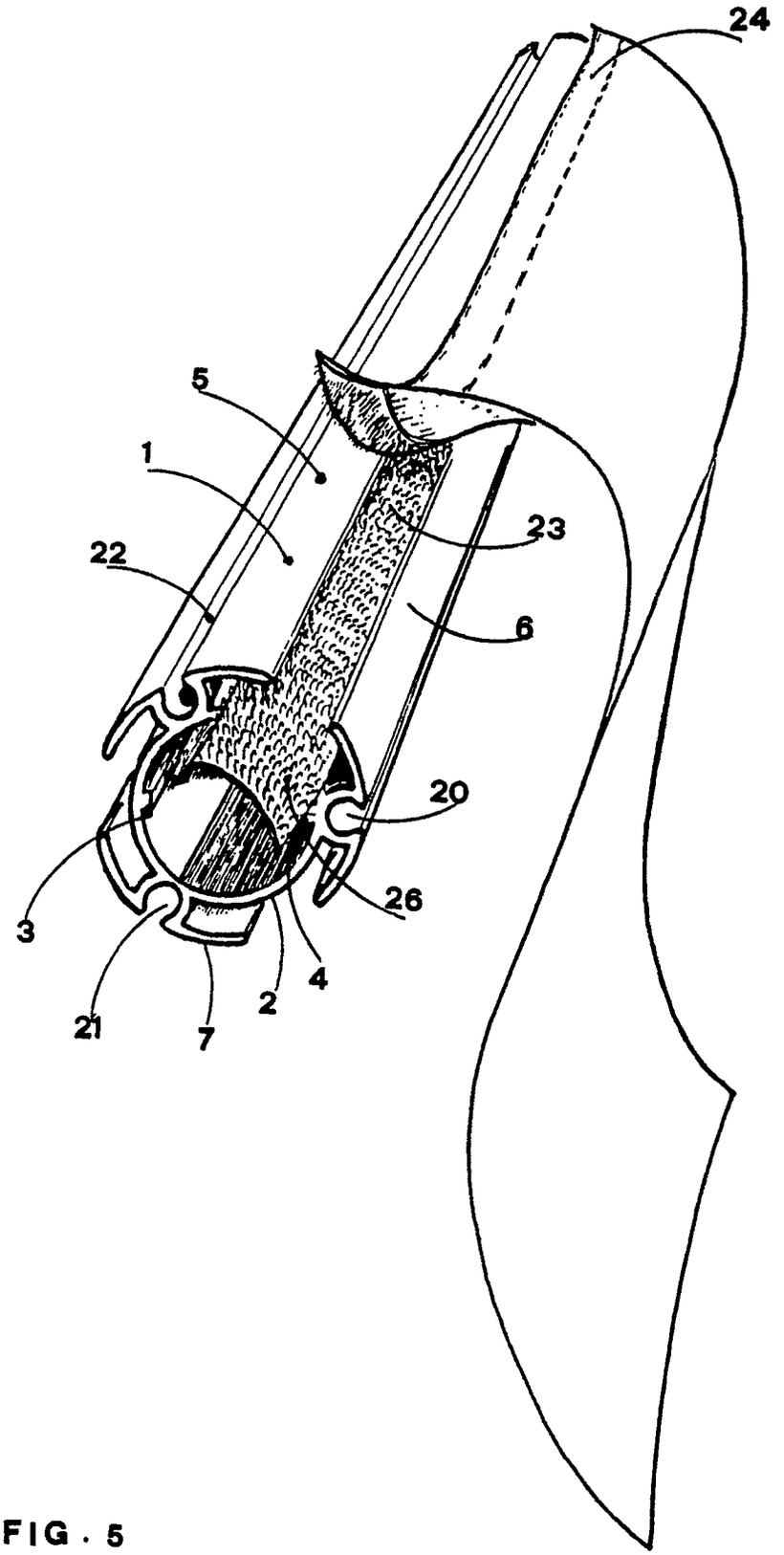

FIG. 5

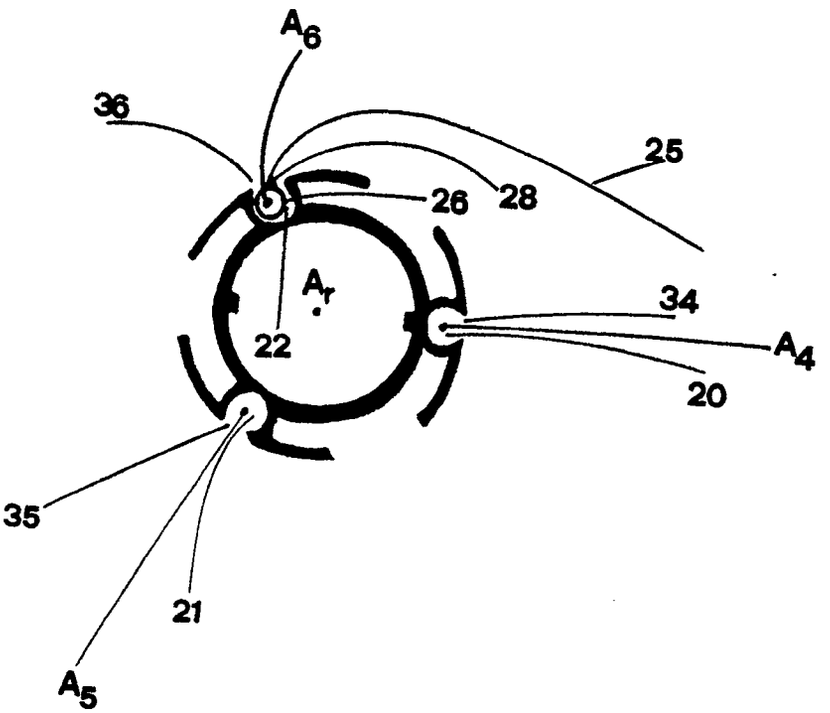

FIG. 6

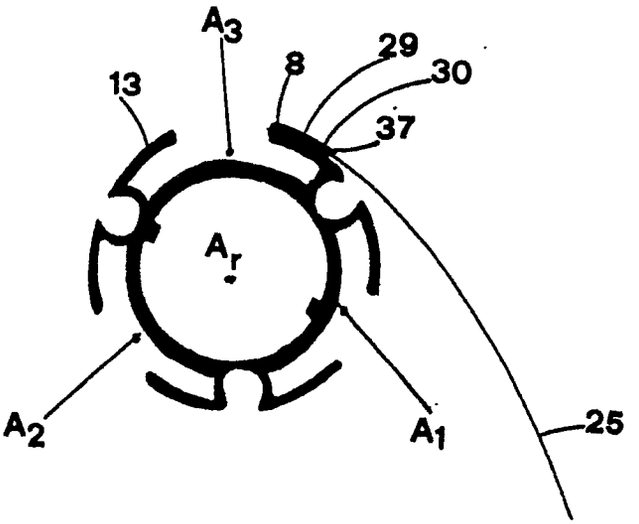

FIG 7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 10 3605

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	DE-A-2124264 (WESSEL) * the whole document *	1	E06B9/171
A	DE-B-1272499 (CLOPAY CORP) * column 6, line 34 - column 7, line 6; figures 11-14 *	1	
A	CH-A-261567 (MEIER) * the whole document *	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22 OCTOBER 1990	KUKIDIS S.

CATEGORY OF CITED DOCUMENTS

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