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(54) Window blind assembly

(57) A window blind assembly includes a horizontal frame (4), a roller rod (5), two roller blind shade elements (6), and a holding component (8). The horizontal frame (4) extends horizontally and is mounted at an upper edge portion of the window (3). The roller rod (5) extends horizontally, and is mounted to the horizontal frame (4). Each of the roller blind shade elements (6) has a top edge connected to the roller rod (5) such that the roller blind shade elements (6) are positioned horizontally adjacent to one another with a gap (61) formed therebetween. The roller blind shade elements (6) are able to be wound around and extended from the roller rod (5) as the roller rod 5 rotates. The holding component (8) includes a fastener portion (81) connected to the horizontal frame (4), and a holding portion (82) connected to the fastener portion (81) and which supports the roller rod (5) at a location corresponding to the gap (61) between the roller blind shade elements (6).

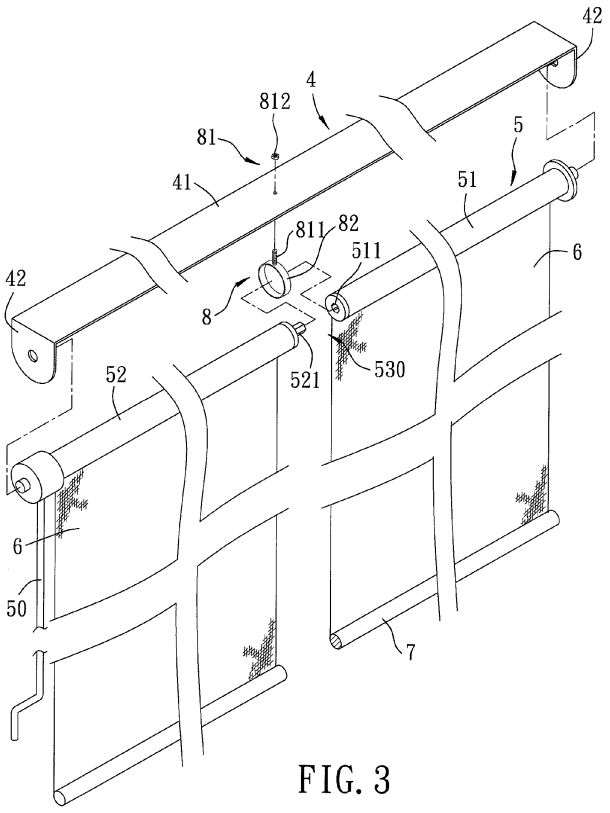

FIG. 3

EP 2 369 123 A1

Description

[0001] The present invention relates to a window blind assembly, more particularly to a window blind assembly that is structurally simple and can cover a window having a significant width.

[0002] Referring to Figure 1, a conventional window blind assembly includes a horizontal frame 11 that is mounted at an upper edge portion of a window, a roller rod 12 that extends horizontally, is mounted to the horizontal frame 11, and is operable to rotate about its axis, a roller blind cloth 13 a top edge of which is connected to the roller rod 12, and a cord 14 that is able to drive the roller rod 12 to rotate. The roller blind cloth 13 may be wound around and unwound from the roller rod 12 by pulling the cord 14 such that the roller rod 12 is rotated, thereby either covering or uncovering the window.

[0003] However, different windows have different dimensions. When a window has a significant width, or a plurality of windows share a single window blind assembly, the lengths of the horizontal frame 11 and the roller rod 12 need to be increased, and the width of the roller blind cloth 13 also needs to be increased.

[0004] The roller rod 12 is mounted to the horizontal frame 11 using only the two ends of the roller rod 12. When the roller rod 12 is increased in length and the roller blind cloth 13 is made correspondingly larger, the increased weight results in sagging of the roller rod 12, as shown by the dotted lines in Figure 1. As a result, creases will be formed in the roller blind cloth 13, thereby negatively affecting the overall appearance of the window blind assembly.

[0005] Although the thickness of the roller rod 12 can be increased to avoid such sagging thereof, the thicker roller rod 12 may also affect the appearance of the window blind assembly. Furthermore, the thicker roller rod 12 requires more material and therefore the cost of the window blind assembly is increased.

[0006] Therefore, the object of the present invention is to provide a window blind assembly, in which a roller rod thereof is prevented from being bent.

[0007] Accordingly, a window blind assembly of the present invention is adapted for being mounted to a window. The window blind assembly comprises a horizontal frame, a roller rod, two roller blind shade elements, and a holding component.

[0008] The horizontal frame extends horizontally and is mounted at or in proximity to an upper edge portion of the window.

[0009] The roller rod extends horizontally, is mounted to the horizontal frame, and is operable to rotate about its axis.

[0010] Each of the roller blind shade elements has a top edge connected to the roller rod such that the roller blind shade elements are positioned horizontally adjacent to one another with a gap formed therebetween. The roller blind shade elements are able to be wound around and extended from the roller rod as the roller rod rotates.

[0011] The holding component includes a fastener portion that is connected to the horizontal frame, and a holding portion connected to the fastener portion and which supports the roller rod at a location corresponding to the gap between the roller blind shade elements.

[0012] Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments with reference to the accompanying drawings, of which:

Figure 1 is a rear view of a conventional window blind assembly;

Figure 2 is a rear view of a window blind assembly according to a first preferred embodiment of the present invention;

Figure 3 is an exploded perspective view of the window blind assembly of the first preferred embodiment;

Figure 4 is a fragmentary rear view of the window blind assembly of the first preferred embodiment;

Figure 5 is an exploded perspective view of a window blind assembly according to a second preferred embodiment of the present invention; and

Figure 6 is an exploded perspective view of a window blind assembly according to a third preferred embodiment of the present invention.

[0013] Referring to Figures 2, 3 and 4, a first preferred embodiment of a window blind assembly of the present invention is adapted for being mounted to a window 3. The window blind assembly includes a horizontal frame 4, a roller rod 5, two roller blind shade elements 6, a weighting rod 7, and a holding component 8.

[0014] The horizontal frame 4 extends horizontally and includes a top plate 41 and two side plates 42. The top plate 41 of the horizontal frame 4 extends horizontally, and is mounted at or in proximity to an upper edge portion of the window 3. The side plates 42 of the horizontal frame 4 are connected respectively to two ends of the top plate 41. In this embodiment, the side plates 42 extend downwardly from the top plate 41 in a direction substantially perpendicular to the top plate 41.

[0015] The roller rod 5 extends horizontally. Two ends of the roller rod 5 are respectively mounted to the side plates 42 of the horizontal frame 4. The roller rod 5 is operable to rotate about its axis.

[0016] In this embodiment, the roller rod 5 includes a first rod portion 51, and a second rod portion 52 connected axially to the first rod portion 51. Each of the first and second rod portions 51, 52 has an outer end and an inner end. The outer ends of the first and second rod portions 51, 52 are connected respectively to the side plates 42 of the horizontal frame 4, and the inner ends thereof are connected to each other. The inner end of the first rod portion 51 has a hole-forming wall that defines a non-circular inserting groove 511. The inner end of the second rod portion 52 has a protrusion 521 inserted into and

corresponding in shape to the inserting groove 511. In this embodiment, the roller rod 5 is driven by a winding rod 50 to rotate, or may be driven by a motor. Thus, the driving method is not limited thereto.

[0017] The roller blind shade elements 6 have two top edges connected respectively to the first and second rod portions 51, 52 of the roller rod 5 in such a manner that the roller blind shade elements 6 are positioned horizontally adj acent to one another with a gap 61 formed therebetween. The roller blind shade elements 6 are able to be wound around and extended from the roller rod 5 as the roller rod 5 rotates.

[0018] The weighting rod 7 extends horizontally, and is connected to bottom edges of the roller blind shade elements 6. The weighting rod 7 pulls down on the roller blind shade elements 6 to flatten the same by virtue of its weight.

[0019] The holding component 8 includes a fastener portion 81 and a holding portion 82. A top end of the fastener portion 81 of the holding component 8 is connected to the top plate 41 of the horizontal frame 4. The holding portion 82 of the holding component 8 is connected to a bottom end of the fastener portion 81, and supports the roller rod 5 at a location corresponding to the gap 61 between the roller blind shade elements 6. In this embodiment, the location corresponding to the gap 61 also corresponds to where the first rod portion 51 and the second rod portion 52 are connected.In this embodiment, the fastener portion 81 includes a bolt 811 that extends through the top plate 41 of the horizontal frame 4, and a nut 812 engaged with the bolt 811. Moreover, in this embodiment, the holding portion 82 of the holding component 8 is in the form of a ring and is loosely sleeved on the roller rod 5, such that the holding portion 82 does not hinder rotation of the roller rod 5.

[0020] Moreover, in this and other embodiments of this invention, the portion of the roller rod 5 where the first and second rod portions 51, 52 are connected to each other may have a smaller diameter than the remainder of the roller rod 5 to thereby form a track 530 for receiving the holding portion 82 of the holding component 8. This ensures that the holding portion 82 of the holding component 8 remains at this portion of the roller rod 5 and allows for smooth rotation of the roller rod 5.

[0021] The roller blind shade elements 6 when in use can cover a window 3 having a wider width or a plurality of windows 3 by rotating the roller rod 5 to wind or unwind the roller blind shade elements 6. In addition, the fastener portion 81 is connected to the top plate 41, and the holding portion 82 supports the roller rod 5, such that sagging of the roller rod 5 due to the combined weight of the roller rod 5 itself and the roller blind shade elements 6 can be avoided. Hence, the roller blind shade elements 6 will not wrinkle or crease as a result of bending of the roller rod 5. Also, it is not necessary to increase the thickness of the roller rod 5 in an effort to prevent such sagging of the same, thereby reducing costs and maintaining the overall aesthetics of the window blind assembly.

[0022] Furthermore, because the roller rod 5 includes the first rod portion 51 and the second rod portion 52, the roller rod 5 is easily disassembled and fabricated, reducing manufacturing, packing, and shipping costs. Additionally, the roller rod 5 is easily mounted to the horizontal frame 4 by interconnecting the first rod portion 51 and the second rod portion 52, thereby simplifying the assembly process of the window blind assembly of the present invention.

[0023] Figure 5 illustrates a second preferred embodiment of the window blind assembly according to the present invention. The second preferred embodiment differs from the first preferred embodiment in the following aspects.

[0024] The holding portion 82 of the holding component 8 is C-shaped, and is loosely sleeved on the roller rod 5, such that the holding portion 82 does not hinder rotation of the roller rod 5.

[0025] Figure 6 illustrates a third preferred embodiment of the window blind assembly according to the present invention. The third preferred embodiment differs from the first preferred embodiment in the following aspects.

[0026] The roller rod 5 is a single piece, that is to say, the first rod portion 51 and the second rod portion 52 are configured as a single piece forming the roller rod 5, and therefore cannot be disassembled. The holding portion 82 supports the roller rod 5 to avoid bending of the roller rod 5 and therefore wrinkling of the roller blind shade elements 6.

Claims

1. A window blind assembly adapted for being mounted to a window (3), **characterized by**:

   a horizontal frame (4) that extends horizontally and is mounted at or in proximity to an upper edge portion of the window (3);
   a roller rod (5) that extends horizontally, is mounted to said horizontal frame (4), and is operable to rotate about its axis;
   two roller blind shade elements (6), each having a top edge connected to said roller rod (5) in such a manner that said roller blind shade elements (6) are positioned horizontally adjacent to one another with a gap (61) formed therebetween, said roller blind shade elements (6) being able to be wound around and extended from said roller rod (5) as said roller rod (5) rotates; and
   a holding component (8) that includes a fastener portion (81) that is connected to said horizontal frame (4), and a holding portion (82) connected to said fastener portion (81) and which supports said roller rod (5) at a location corresponding to the gap (61) between said roller blind shade elements (6).

2. The window blind assembly as claimed in claim 1, **characterized in that** said roller rod (5) includes a first rod portion (51) and a second rod portion (52) connected to said first rod portion (51), said roller blind shade elements (6) being connected respectively to said first and second rod portions (51,52).

3. The window blind assembly as claimed in claim 2, **characterized in that** each of said first and second rod portions (51, 52) has an outer end and an inner end, said outer ends being connected to said horizontal frame (4) and said inner ends being connected to each other, said inner end of said first rod portion (51) having a hole-forming wall that defines a non-circular inserting groove (511), said inner end of said second rod portion (52) having a protrusion (521) inserted into and corresponding in shape to said inserting groove (511).

4. The window blind assembly as claimed in claim 2, **characterized in that** said holding portion (82) of said holding component (8) supports said roller rod (5) at a location where said first rod portion (51) and said second rod portion (52) are connected.

5. The window blind assembly as claimed in claim 1, **characterized in that** said holding portion (82) of said holding component (8) is in the form of a ring and is loosely sleeved on said roller rod (5), such that said holding portion (82) does not hinder rotation of said roller rod (5).

6. The window blind assembly as claimed in claim 1, **characterized in that** said holding portion (82) of said holding component (8) is C-shaped and is loosely sleeved on said roller rod (5), such that said holding portion (82) does not hinder rotation of said roller rod (5).

7. The window blind assembly as claimed in claim 1, **characterized in that** a top end of said fastener portion (81) of said holding component (8) is connected to said horizontal frame (4), and said holding portion (82) of said holding component (8) is connected to a bottom end of said fastener portion (81).

8. The window blind assembly as claimed in claim 7, **characterized in that** said fastener portion (81) includes a bolt (811) that extends through said horizontal frame (4), and a nut (812) engaged with said bolt (811).

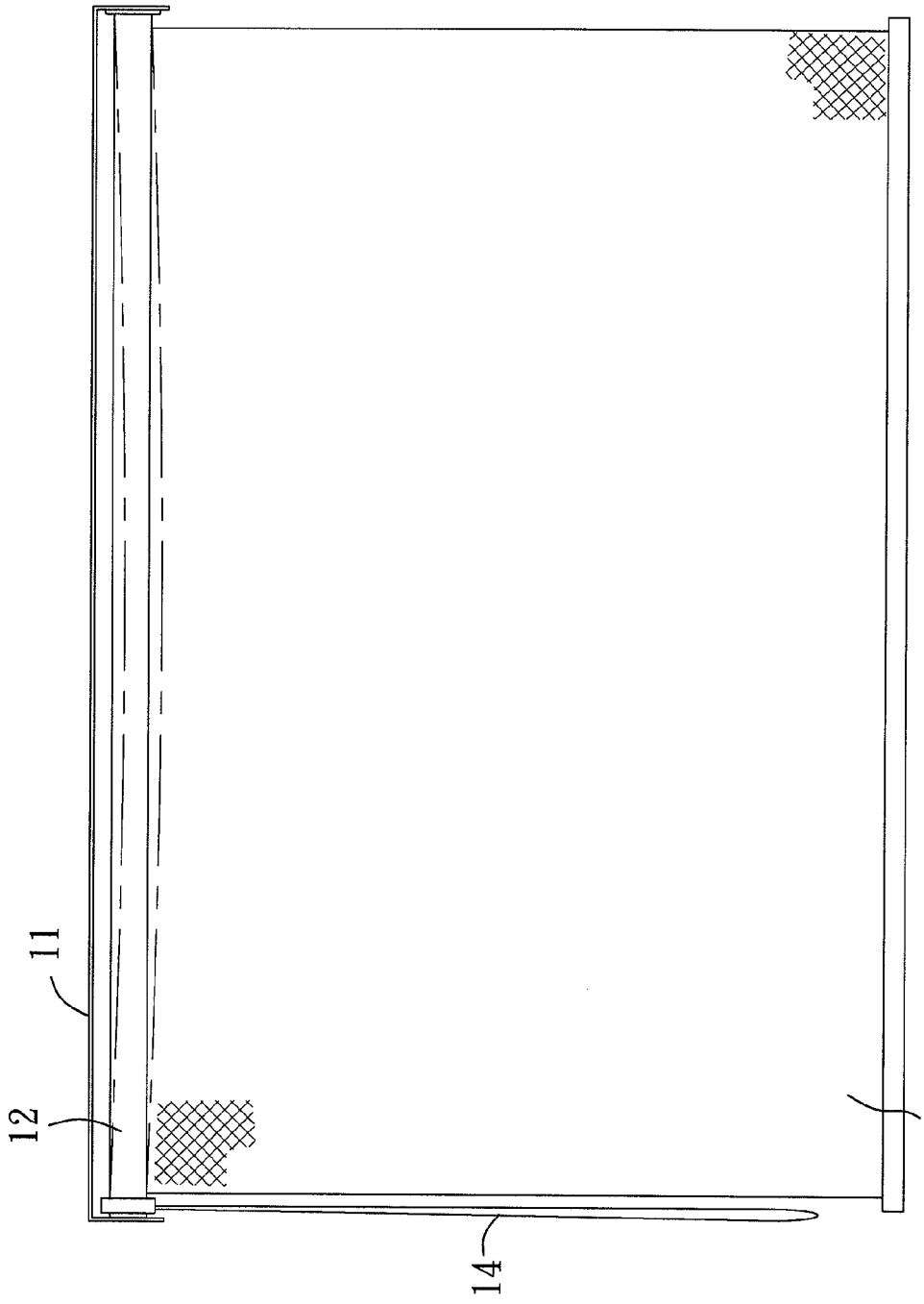

FIG. 1
PRIOR ART

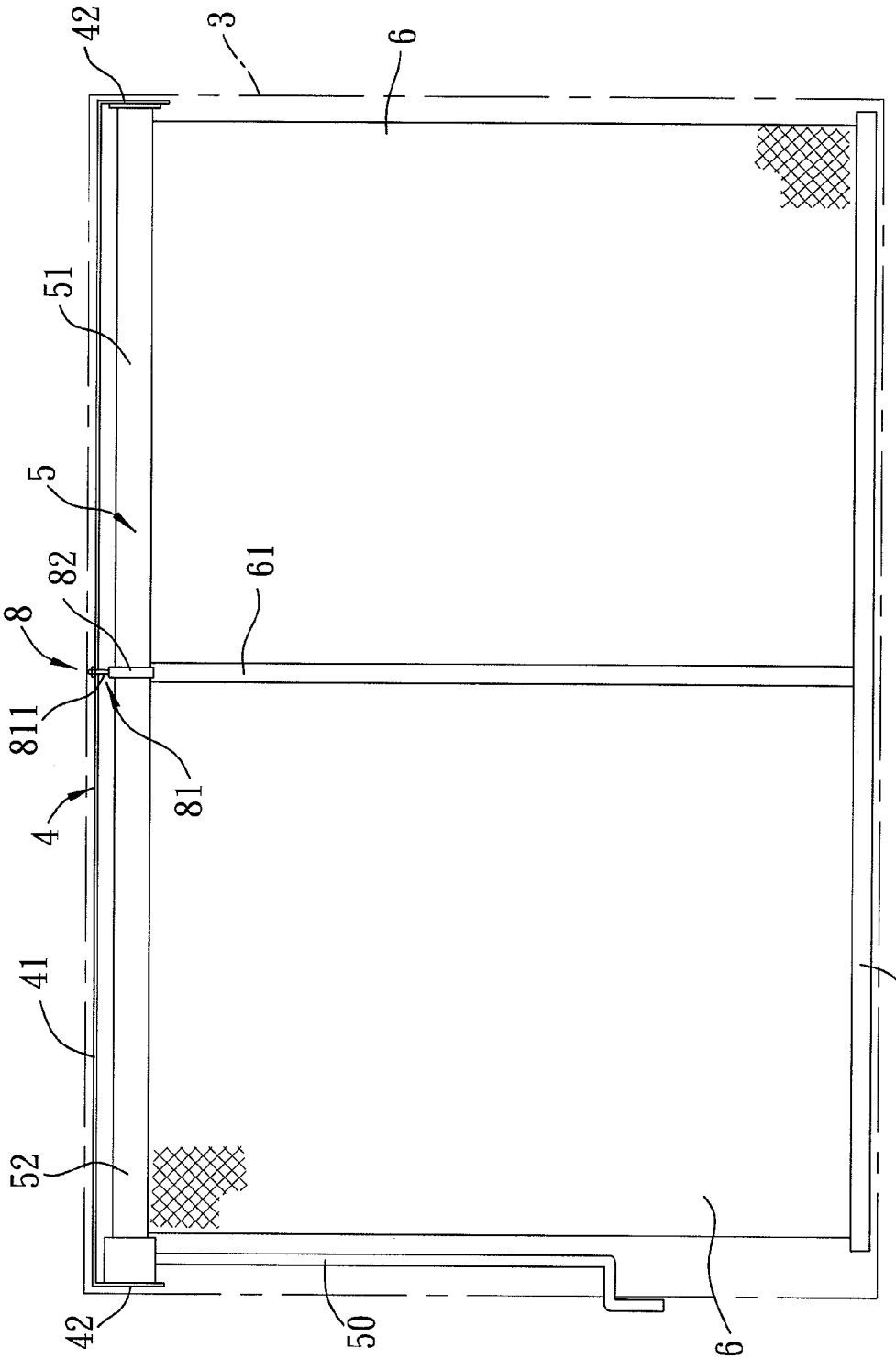

FIG. 2

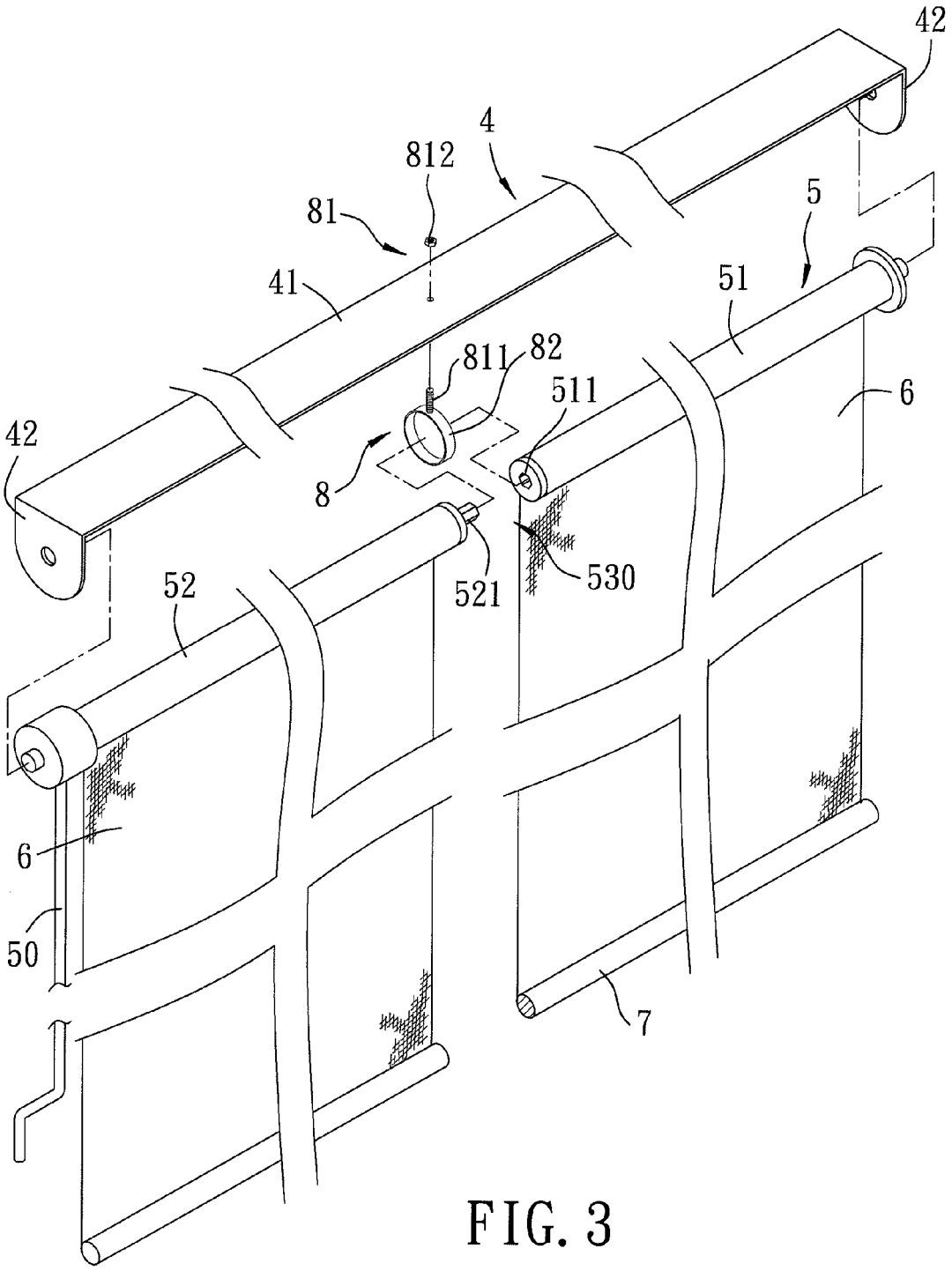

FIG. 3

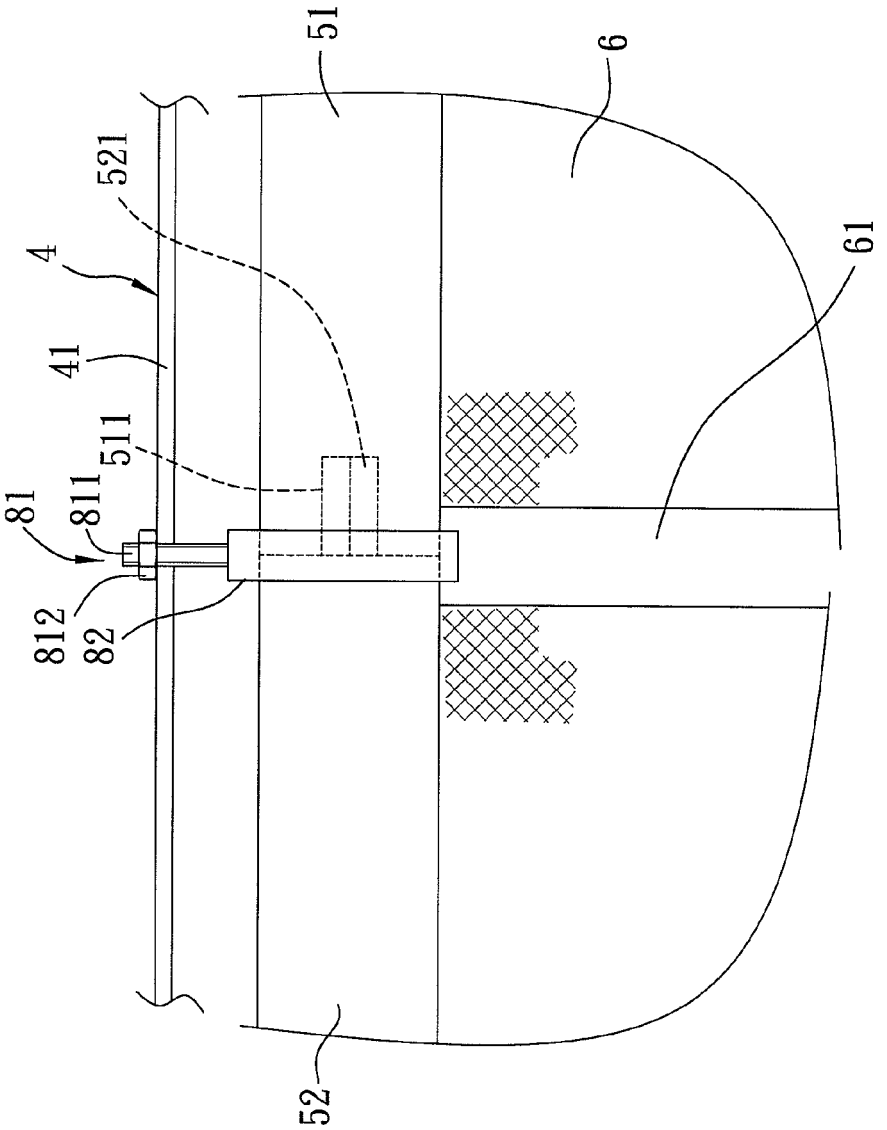

FIG. 4

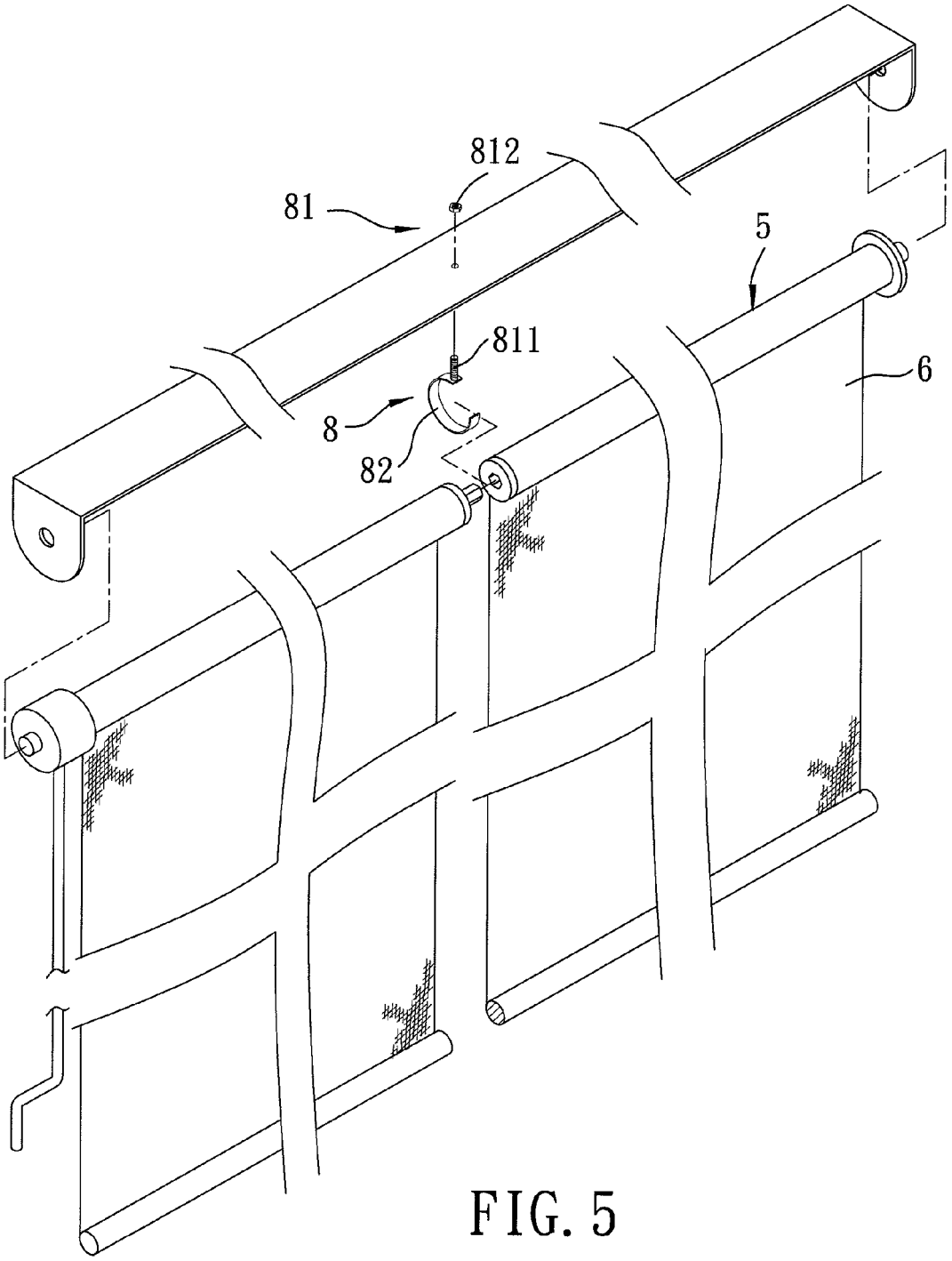

FIG. 5

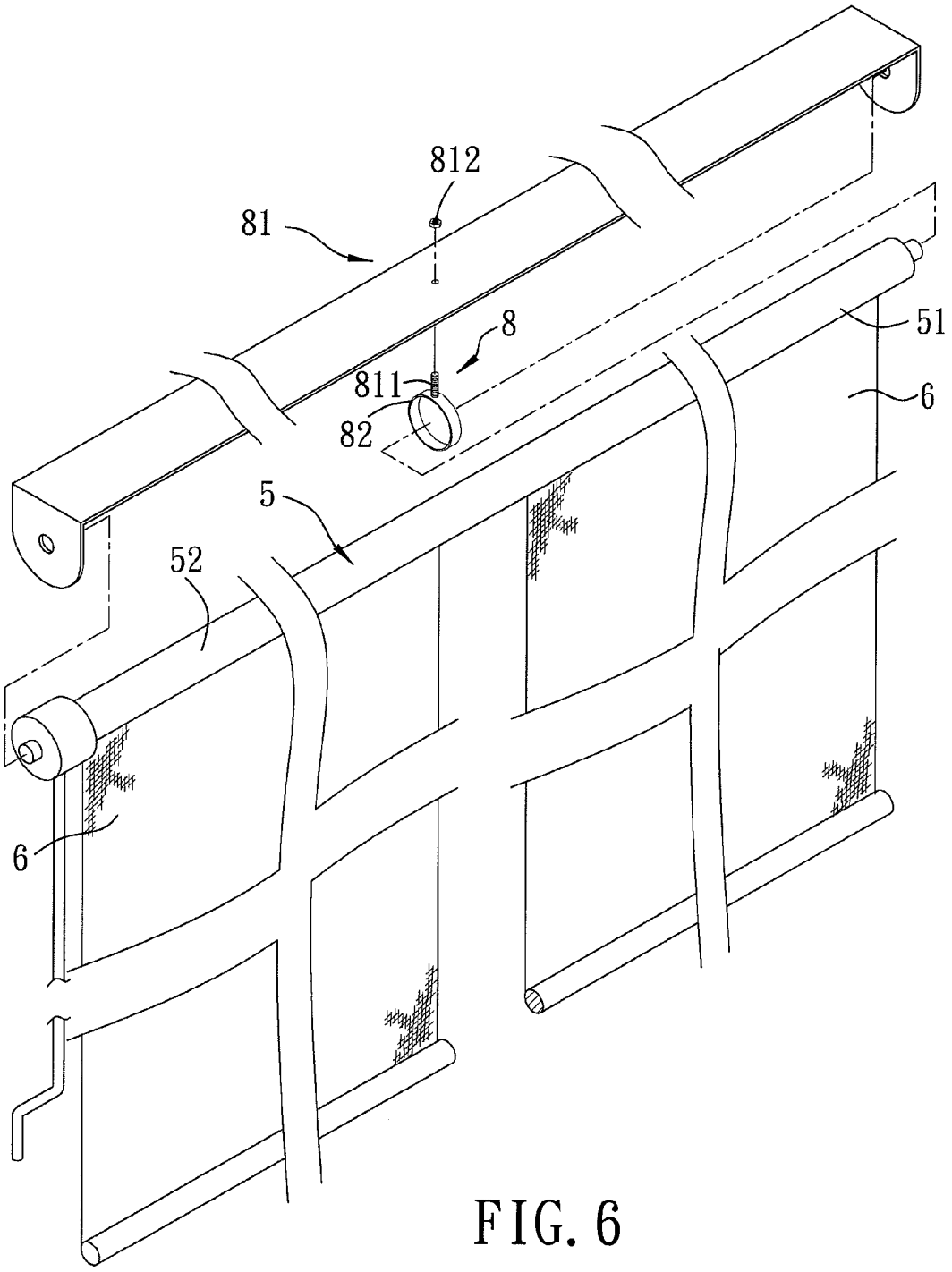

FIG. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 10 15 7918

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	WO 2010/030177 A2 (COULISSE B V [NL]; HENDRIKS WOUTER [NL]; DE VRIES RUBEN [NL]; KLEIN TU) 18 March 2010 (2010-03-18) * the whole document * -----	1-8	INV. E06B9/42 E06B9/50
Y	DE 101 63 122 A1 (BOS GMBH [DE]) 10 July 2003 (2003-07-10) * paragraph [0041] - paragraph [0049] * * figure 2 * -----	1-8	
A	EP 0 167 500 A2 (ARQUATI SPA [IT]) 8 January 1986 (1986-01-08) * Element 19 -figure 1 * -----	6	

TECHNICAL FIELDS SEARCHED (IPC)
E06B E04F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	20 September 2010	Cornu, Olivier

CATEGORY OF CITED DOCUMENTS

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20-09-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010030177 A2	18-03-2010	NONE	
DE 10163122 A1	10-07-2003	NONE	
EP 0167500 A2	08-01-1986	CA 1260820 A1	26-09-1989
		DE 3569772 D1	01-06-1989
		ES 287763 U	16-04-1987
		IT 1174229 B	01-07-1987
		US 4655010 A	07-04-1987

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