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(72) Inventor: **Gasparini, Fabio Stefano**  
**I-20041, Agrate Brianza (MB) (IT)**

(74) Representative: **Cicogna, Franco**  
**Ufficio Internazionale Brevetti**  
**Dott.Prof. Franco Cicogna**  
**Via Visconti di Modrone, 14/A**  
**20122 Milano (IT)**

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(71) Applicant: **Resstende S.r.l.**  
**20041 Agrate Brianza (MB) (IT)**

(54) **Roller curtain construction for screening glazed surfaces**

(57) A roller curtain construction (1), either manually or automatically operated, comprises a curtain roller (3) for winding thereon a metal curtain (2), either with or with-

out a curtain box (14), and aluminium extruded guides (4) or guides constituted by a stainless steel material cables or rods, which are designed based on a surface to be covered.

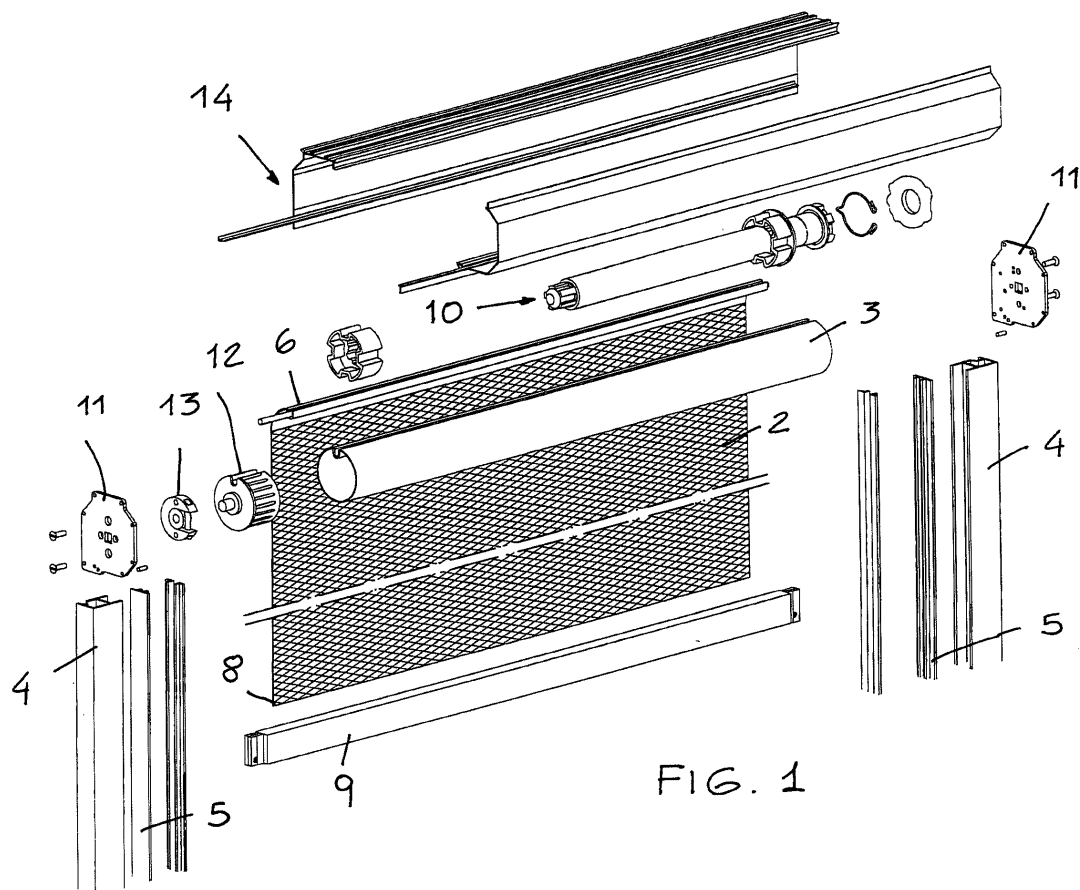


FIG. 1

## Description

### BACKGROUND OF THE INVENTION

[0001] The present invention relates to a roller curtain construction, specifically designed for screening glazed surfaces or the like.

[0002] Sun screening systems including glass fiber or polyester cloth materials designed for performing thermal and light screening functions are commercially available.

[0003] However, prior screening systems have a small resistance against atmospheric agents such as wind, smog and UV radiation, causing said prior screening systems to be quickly aged.

### SUMMARY OF THE INVENTION

[0004] Accordingly, the aim of the present invention is to provide a roller curtain or blind construction allowing to properly screen any desired glazed surfaces under any meteorological conditions, while providing an efficient thermal insulation of the glazed face and a very high resistance against wind-caused breakages.

[0005] Within the scope of the above mentioned aim, a main object of the invention is to provide such a roller curtain or blind construction which can be easily driven either by a manual or electric driving mechanism.

[0006] Another object of the invention is to provide such a roller curtain or blind construction allowing to provide a desired screening effect only as the latter is effectively required, without space limitations and with very good aesthetic and architectonic advantages.

[0007] Yet another object of the invention is to provide such a curtain or blind construction which is very flexible in operation and which may be used with a lot of different articles to be screened, to fit it to specific functional and aesthetic requirements.

[0008] Yet another object of the present invention is to provide such a curtain or blind construction which, owing to its specifically designed structural features is very reliable and safe in operation.

[0009] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a roller curtain construction for screening glazed surfaces, **characterized in that** said roller curtain construction comprises a curtain or blind element adapted to be wound on a winding roller, either through motor driven or manual winding means, and being laterally guided by guiding means, said curtain comprising braided arrangement of ropes and stainless steel rod elements.

[0010] Said roller curtain construction may be used either with or without a curtain box, and with aluminium extruded side guides, or cable or stainless steel rod guides, suitably designed depending on the glazed surfaces to be screened or covered.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment thereof, which is illustrated, by way of an indicative, but not limitative, example, in the accompanying drawings, where:

Figure 1 is a perspective view of a roller curtain or blind construction according to the present invention, including aluminium extruded guides and anti-noise contoured elements;

Figure 2 is a further perspective view of the roller curtain construction according to the present invention, including a plurality of guides constituted by stainless steel cables or ropes;

Figure 3 is yet another perspective view of the roller curtain construction according to the present invention, with guides constituted by stainless steel circular cross-section rod elements;

Figure 4 is yet another perspective view, on an enlarged scale, showing in a detailed manner a top end portion of the roller curtain construction with extruded aluminium guides and anti-noise contoured element; Figure 5 is yet another perspective view, on an enlarged scale, showing in a detailed manner the left top end portion of the roller curtain construction with guides constituted by stainless steel circular cross-section rod elements;

and

Figure 6 is yet another perspective view, on an enlarged scale, showing in a detailed manner the right top end portion of the roller curtain construction including guides constituted by stainless steel circular cross-section rod elements.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0012] With reference to the number references of the above mentioned figures, the roller curtain or blind construction according to the present invention, which has been generally indicated by the reference number 1, comprises a curtain 2 which may be wound on a winding roller 3 by using either motor driven or manual driving means.

[0013] Said curtain 2 is constituted by a braided arrangement of stainless steel ropes and circular cross-section rods.

[0014] The weft of the metal curtain cloth construction may be easily changed by modifying the thickness of said rod elements and ropes or by suitably changing their arrangement, to provide a required protection against the sun rays and for controlling the sun ray radiation diffusion.

[0015] It is possible to change the number of ropes used for each square meter and the diameter of the cross rods, depending on the radiation strength to be achieved,

without changing the essential protective properties.

**[0016]** The inventive roller curtain 2 is laterally guided by curtain guiding means.

**[0017]** In figure 1 is shown a roller curtain construction according to the present invention, in which said guide means comprise a plurality of aluminium extruded guides, generally indicated by the reference number 4.

**[0018]** Within each said extruded guide 4 an anti-noise contoured element 5 is arranged.

**[0019]** As shown, the top end portion 6 of the curtain 2 is so formed as to be easily engaged and locked in a longitudinal slot 7 formed on the winding roller 3.

**[0020]** The free end portion 8 of the curtain 2, in turn, is associated with or coupled to a contoured element 9 the weight of which has been so designed as to provide the curtain with a tension sufficient to allow said curtain to easily slide.

**[0021]** According to the invention, the roller curtain construction can be automatically driven by a driving electric motor 10 engaged within the roller 2 at an end portion of the latter and being firmly coupled to the attachment portion 11 of said roller.

**[0022]** The opposite end portion of the roller 2 comprises a support portion 12 rotatably engaging the other attachment or fitting 11 through a bearing 13.

**[0023]** The roller attachment or fitting portions 11 comprise metal plates which are coupled to the wall and support the respective extruded guides 4.

**[0024]** The roller curtain construction may also comprise a curtain box, generally indicated by the reference number 14.

**[0025]** Figures 2 and 4 show a roller curtain construction according to the present invention, in which the guide means comprise a plurality of stainless steel cables or ropes, generally indicated by the reference number 41.

**[0026]** The top end portion 6 of the curtain 2 is so designed as to be easily engaged and locked in a longitudinal slot 7 formed on the winding roller 3.

**[0027]** The other free end portion 8 of the curtain 2, in turn, is associated with or coupled to a contoured element 91 which, at its end portions, comprises block elements 92 having a weight suitable to provide the curtain with a tension sufficient to allow said curtain to easily slide.

**[0028]** The block elements 92 comprise each a hole 93 for engaging therein the stainless steel cable 41, so as to allow the curtain 2 to evenly slide.

**[0029]** As stated, the curtain construction may be automatically driven by an electric driving motor 10 engaged in the roller 2 at an end portion of the latter, and being firmly connected to the attachment or fitting portion 11 of said roller.

**[0030]** The opposite end portion of the roller 2 comprises a support element 12 rotatably engaging the other attachment or fitting portion 11 of the roller, through a respective bearing 13.

**[0031]** The roller attachment or fitting portions 111 comprise bent plates which are coupled to the wall and thereto the top end portions of the cables or ropes 41 are

connected.

**[0032]** Figures 3, 5 and 6 show a roller curtain construction according to the present invention, in which the guide means comprise stainless steel rod elements, generally indicated by the reference number 42.

**[0033]** The top end portion 6 of the curtain 2 is so arranged as to be easily and quickly engaged and locked in a longitudinal slot or recess 7 formed on the winding roller 3.

**[0034]** The free end portion 8 of the curtain 2, in turn, is associated with or coupled to a contoured element 91 comprising, at its end portions, respective block elements 94 having each a weight adapted to provide the curtain with a tension sufficient to allow said curtain to easily and evenly slide.

**[0035]** Said block elements 94 comprise each a respective block hole or other engagement means for a respective guide rod 42, so as to allow the curtain 2 to evenly slide.

**[0036]** The roller curtain construction, as stated, may be automatically driven by an electric driving motor 10 engaged within the roller 2, at an end portion of the latter, and firmly coupled to the attachment or fitting portion 112 of said roller.

**[0037]** The end portions of the roller 2 are each provided with a supporting element 121 rotatably engaging the respective attachment or fitting portion 112.

**[0038]** Said attachment or fitting portions 112 of said roller comprise bent plates which are coupled to the wall and thereto the top end portions of the rods 42 are connected.

**[0039]** The roller curtain construction may also comprise a curtain box, generally indicated by the reference number 141.

**[0040]** It has been found that the invention fully achieves the intended aim and objects.

**[0041]** In fact, the invention has provided a roller curtain construction including a metal net constituted by braided stainless steel ropes and circular cross-section rods, providing the inventive curtain with a very high strength against stresses from atmospheric agents, in particular wind.

**[0042]** The stainless steel material of the subject curtain prevents said curtain from being deteriorated because of UV radiation and smog.

**[0043]** A further advantage of the inventive curtain construction is that it further provides a very good thermal insulation of the building face.

**[0044]** Moreover, by changing the weft of the metal curtain, that is by merely changing the thickness of the rod elements and ropes, or changing their arrangement, a good protection against sun radiation is moreover achieved.

**[0045]** Furthermore, the curtain construction according to the present invention prevents the building inside temperature from excessively increasing, since it prevents any sun direct radiation, thereby achieving a very high power saving.

**[0046]** Furthermore, the number by  $m^2$  of the curtain ropes may be easily changed, together with the diameter of cross rod elements depending on the desired screening degree to be achieved, without changing the essential characteristics of the curtain.

**[0047]** In practicing the invention, the used materials, as well as the contingent size and shapes, can be any, depending on requirements.

## Claims

1. A glazed surface screening roller curtain construction, **characterized in that** said curtain construction comprises a curtain element which can wound on a winding roller either by automatic or manual driving means, and being laterally guided by guiding means, said curtain construction comprising a plurality of stainless steel braided ropes and rod elements.
2. A glazed surface screening roller curtain construction, according to claim 1, **characterized in that** said metal curtain has a variable weft, said weft being changed by modifying a thickness of said rods and ropes or changing their arrangement to provide a target protection degree against sun radiation and for controlling the radiation diffusion.
3. A glazed surface screening roller curtain construction, according to claim 1, **characterized in that** the number of ropes used/ $m^2$  and the diameter of the cross rod elements in said curtain may be changed according to the radiation intensity to be achieved.
4. A glazed surface screening roller curtain construction, according to claim 1, **characterized in that** said guide means comprise a plurality of aluminium extruded guides, within each said extruded guide being arranged an anti-noise contoured element.
5. A glazed surface screening roller curtain construction, according to claim 1, **characterized in that** said guide means comprise stainless steel cables.
6. A glazed surface screening roller curtain construction, according to claim 1, **characterized in that** said guide means comprise stainless steel rods.
7. A glazed surface screening roller curtain construction, according to one or more of the preceding claims, **characterized in that** said curtain has a top end portion so arranged and sized as to be engaged and locked in a longitudinal slot or recess formed on said winding roller.
8. A glazed surface screening roller curtain construction, according to one or more of the preceding claims, **characterized in that** said curtain has a free

end portion associated with a contoured element having a weight designed for allowing said curtain to be so tensioned as to easily slide.

9. A glazed surface screening roller curtain construction, according to one or more of the preceding claims, **characterized in that** said curtain construction is automatically driven by an electric driving motor engaged in an end portion of said roller and being firmly coupled to an attachment portion of said roller, said roller having an opposite end portion including a support element rotatably engaging another attachment portion of said roller through a bearing.
10. A glazed surface screening roller curtain construction, according to one or more of the preceding claims, **characterized in that** said attachment portions of said roller comprise metal plates which are coupled to a wall and support respective extruded guides or said stainless steel cables or rods, said curtain construction further including a curtain box.

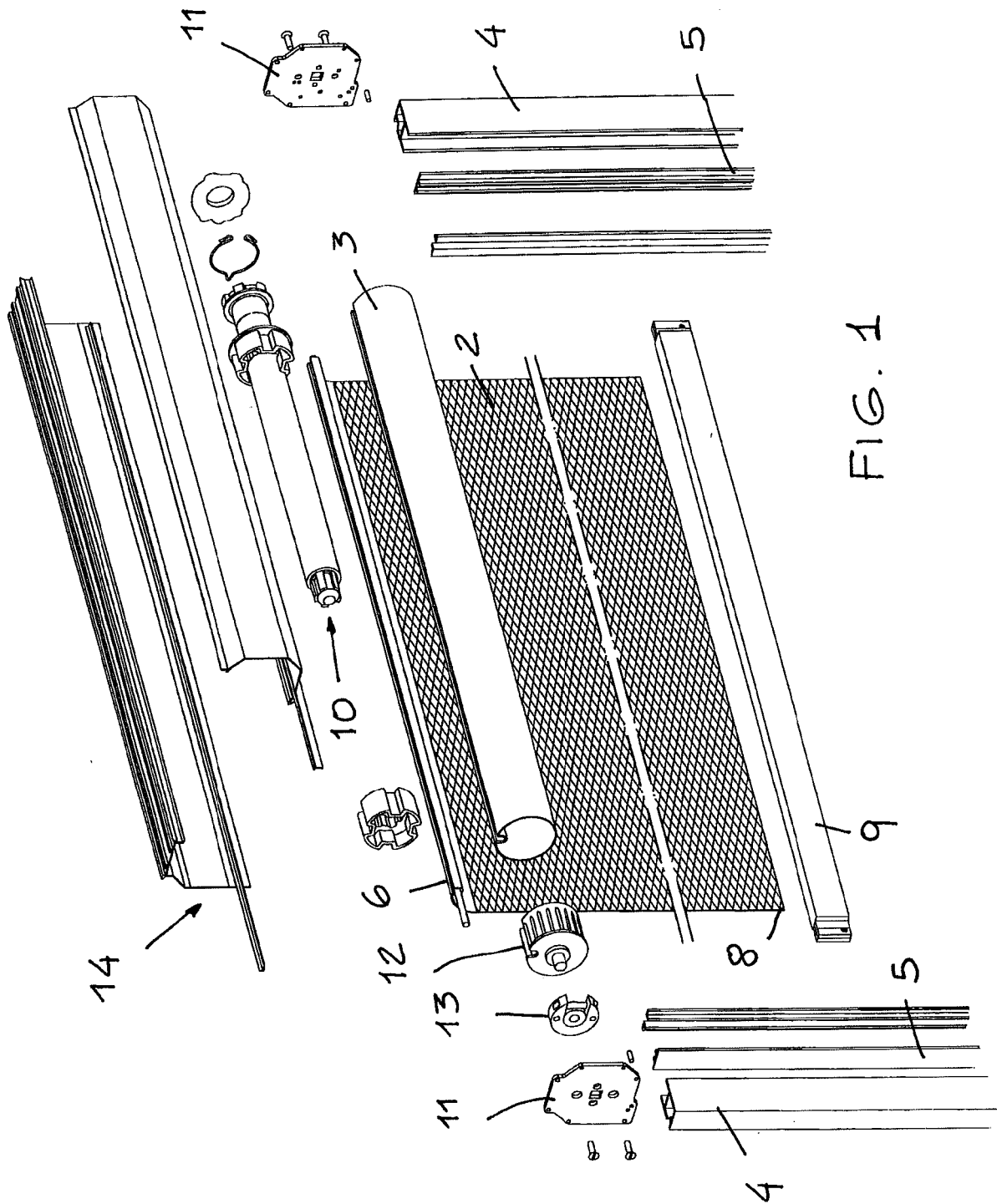
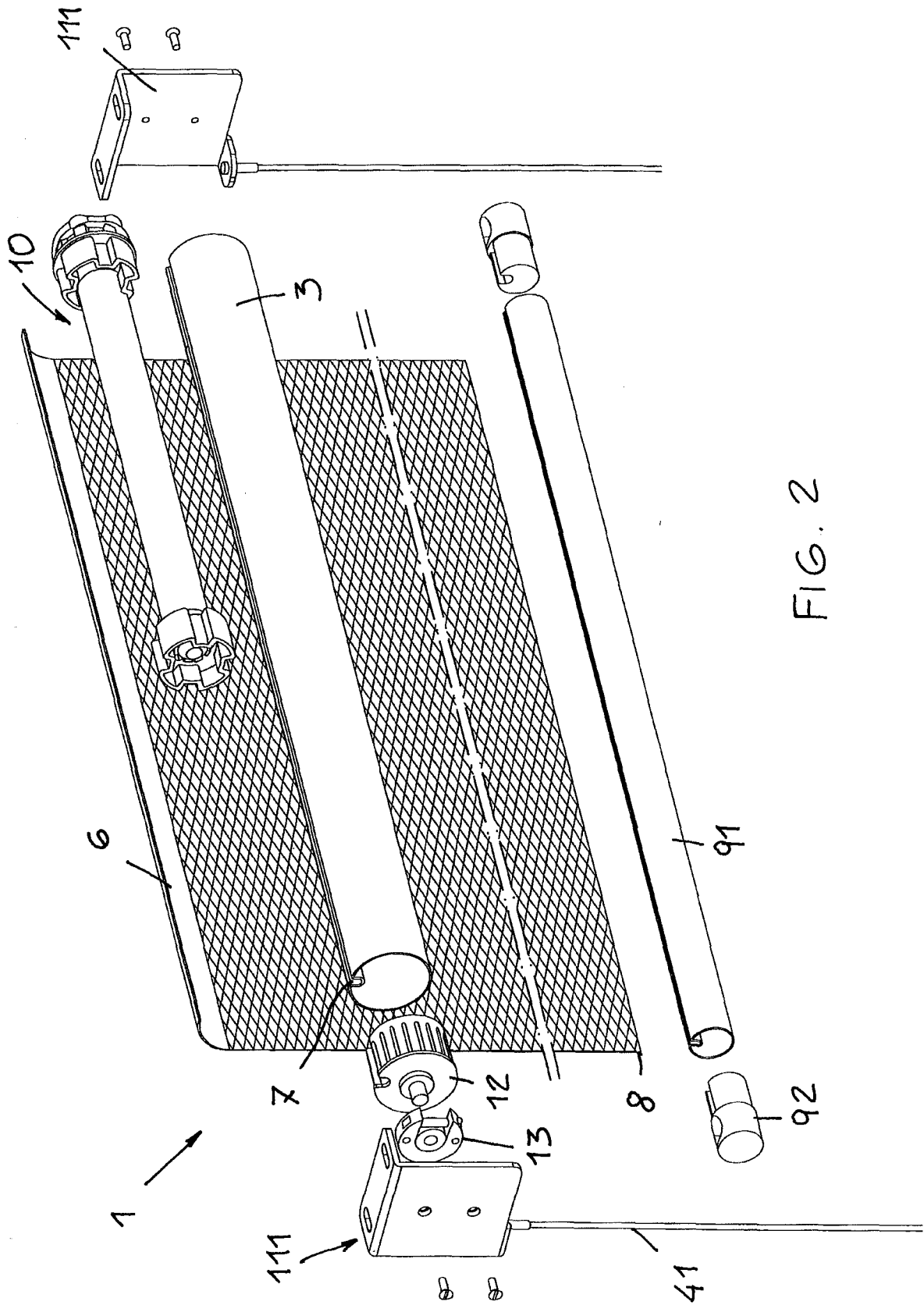
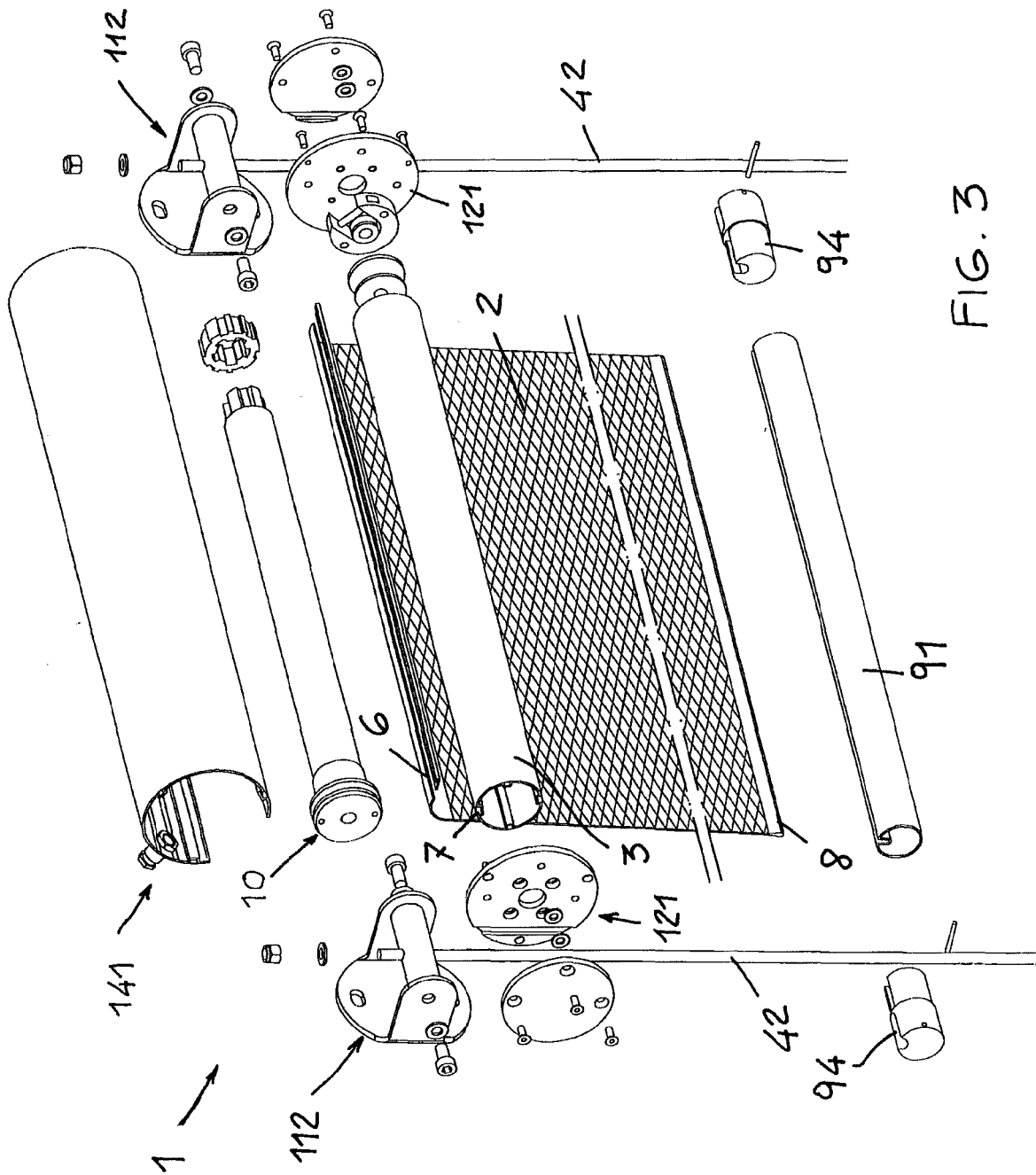


FIG. 1



2  
E16



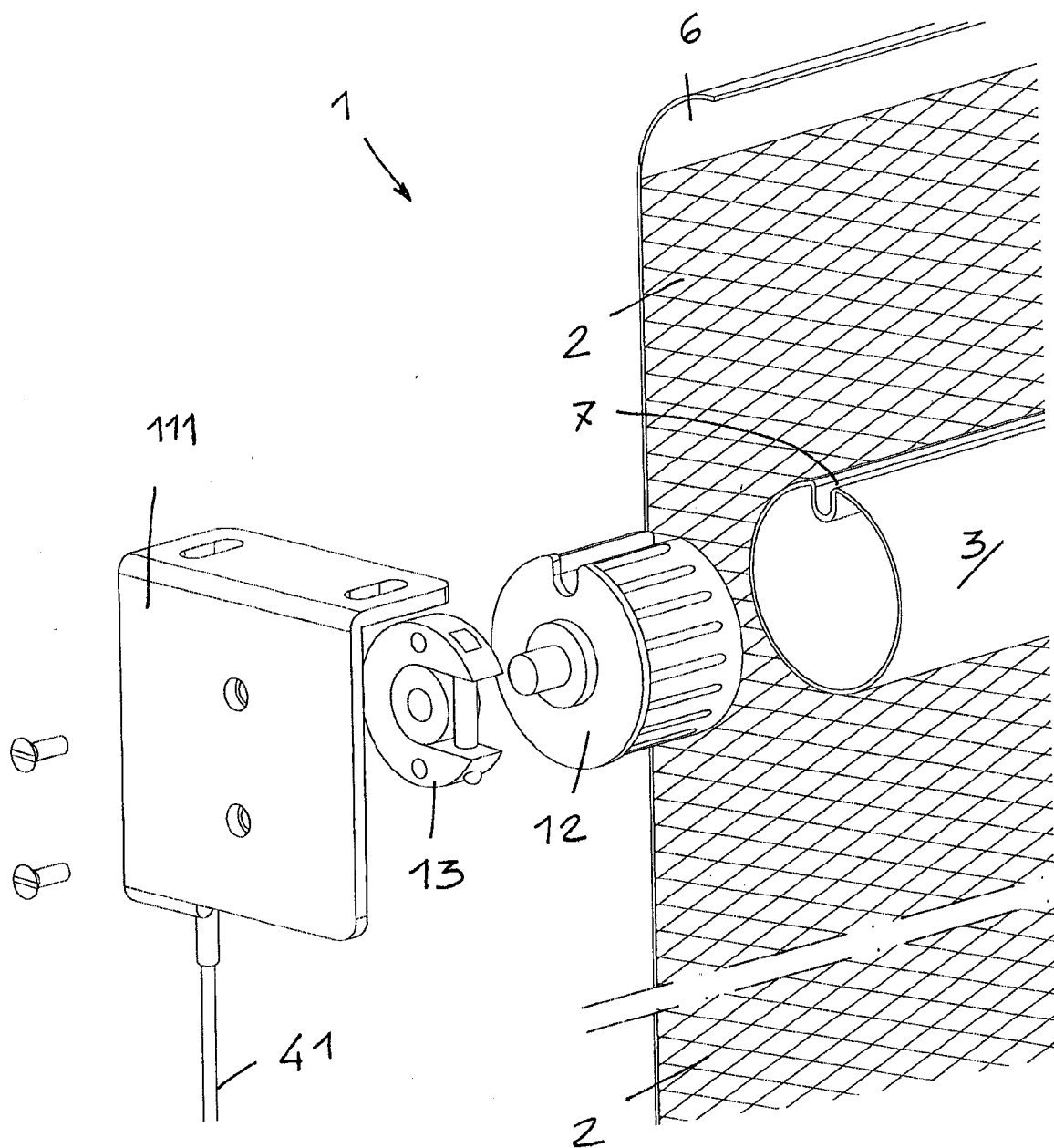


FIG. 4

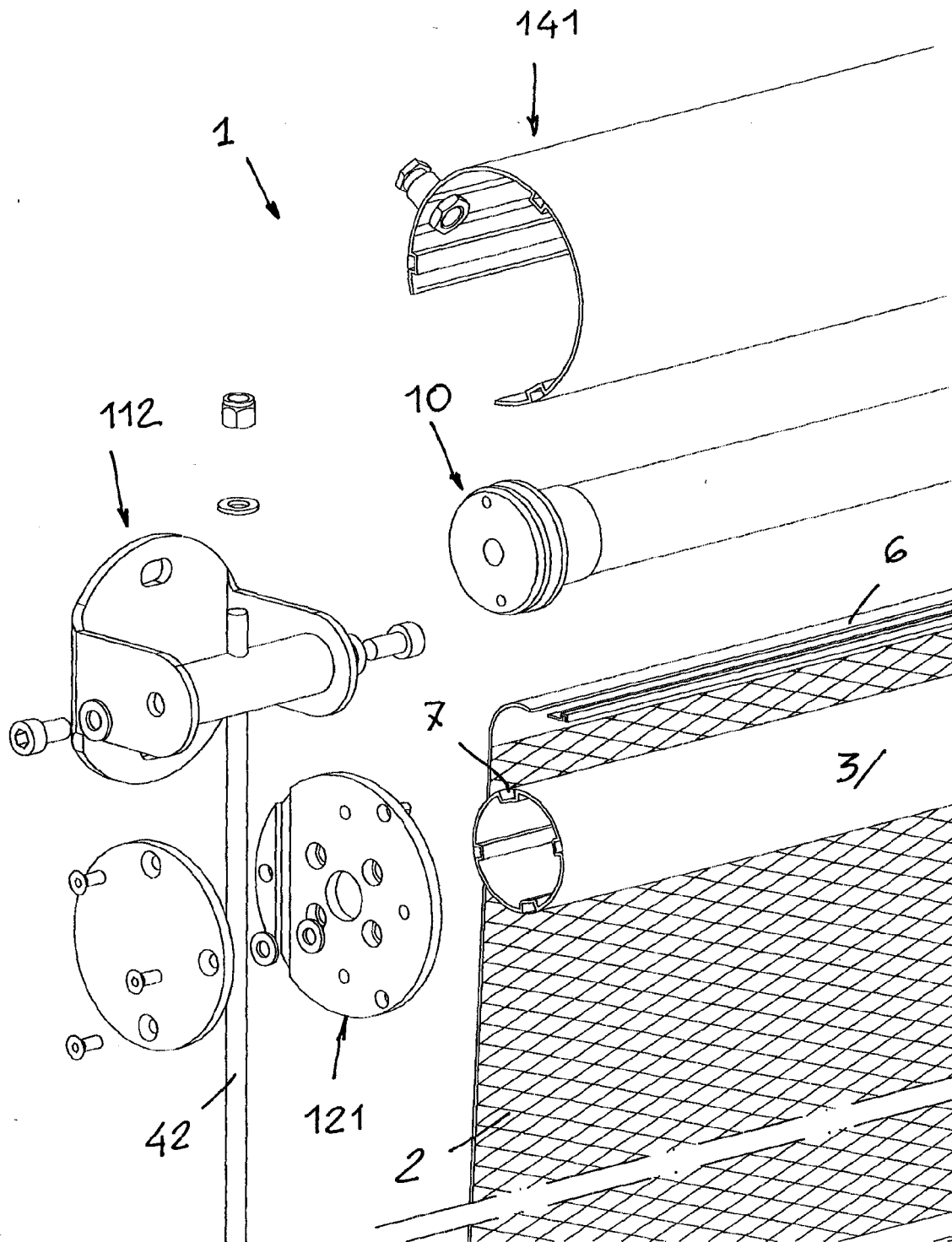


FIG. 5

