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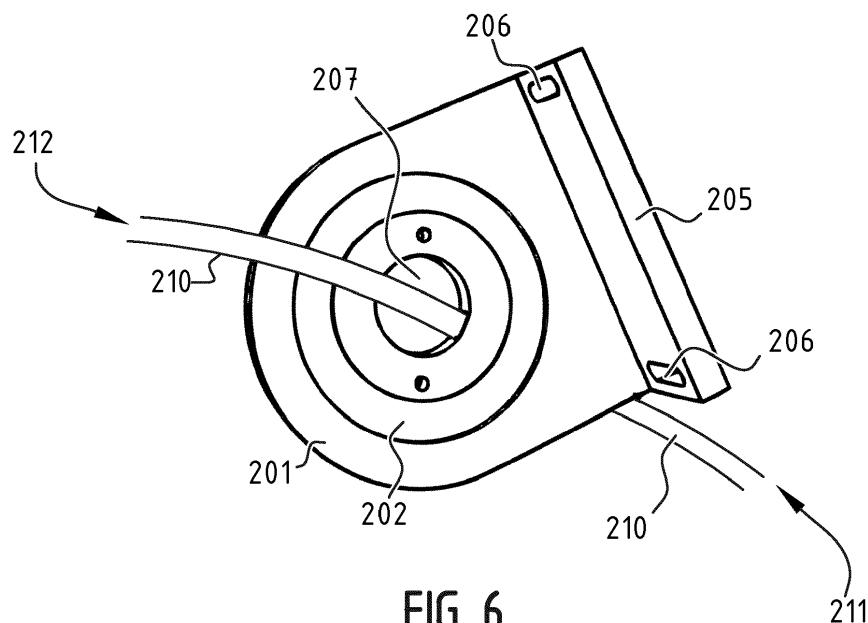
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(54) **ROLLER BLIND ASSEMBLY AND MOUNTING ELEMENT**

(57) Roller blind assembly comprising a roller with a first end and a second end, which roller defines a longitudinal axis; a blind which can be wound onto the roller, and first mounting means and second mounting means for rotatably bearing-mounting the roller at its first end and its second end on for instance at least one upright wall and/or ceiling, wherein the first mounting means and/or the second mounting means comprise a mounting

element which comprises a contact surface, which contact surface, in a situation in which the mounting means are connected to the roller, extends at the respective end of the roller substantially perpendicularly of the longitudinal axis thereof and is directed toward the roller, wherein the mounting element is provided in the contact surface with a recess for receiving at least a part of the respective end of the roller.



**FIG. 6**

**EP 3 514 317 A1**

## Description

**[0001]** The invention relates to a roller blind assembly comprising a roller with a first end and a second end, which roller defines a longitudinal axis, a blind which can be wound onto the roller, and first mounting means and second mounting means for rotatably bearing-mounting the roller at its first end and its second end on for instance at least one upright wall and/or ceiling, wherein the first mounting means and/or the second mounting means comprise a mounting element which comprises a contact surface, which contact surface, in a situation in which the mounting means are connected to the roller, extends at the respective end of the roller substantially perpendicularly of the longitudinal axis thereof and is directed toward the roller.

**[0002]** Such roller blind assemblies are per se known and generally commercially available.

**[0003]** Roller blinds are usually used to for instance screen a window and/or prevent or reduce incidence of heat and/or light. The already known roller blinds have the drawback that the contact surface of the mounting element and the roller blind are removed a distance from each other. This distance is thus not covered by the roller blind. When the roller blind is hung against or close to a wall with a mounting element, a gap between the roller blind and the wall, which is not covered by the roller blind, results when the roller blind is unwound, so that the window is not fully screened and/or light and/or heat is let through.

**[0004]** It is therefore an object of the invention to improve a roller blind assembly of the type stated in the preamble so that it is able to screen a greater part of a window and/or to prevent more incidence of heat and/or light.

**[0005]** According to a first aspect, the invention relates to a roller blind assembly comprising a roller with a first end and a second end, which roller defines a longitudinal axis, a blind which can be wound onto the roller, and first mounting means and second mounting means for rotatably bearing-mounting the roller at its first end and its second end on for instance at least one upright wall and/or ceiling, wherein the first mounting means and/or the second mounting means comprise a mounting element which comprises a contact surface, which contact surface, in a situation in which the mounting means are connected to the roller, extends at the respective end of the roller substantially perpendicularly of the longitudinal axis thereof and is directed toward the roller, and which mounting element comprises a rear surface which lies opposite the contact surface and is substantially parallel thereto, and a peripheral wall connecting the contact surface and the rear surface to each other, wherein the roller blind assembly comprises a drive which is placed in the roller and is provided with a power supply cable.

**[0006]** The object of the invention is achieved in such a roller blind in that the mounting element comprises a cable passage for passage of the power supply cable,

which cable passage lies substantially between the contact surface and the rear surface and debouches at a first end in the contact surface and debouches at a second end in the peripheral wall.

**[0007]** Because the cable passage debouches in the contact surface and the peripheral wall, and in particular not in the rear surface, it is not necessary for a space to be left for the power supply cable at the rear surface. The rear surface can thereby be placed closer to or against for instance a wall, whereby the distance between the wall and the mounting element is reduced. The overall distance between the wall and the blind, and thus the gap between the wall and the blind, when unwound, is thereby also reduced, with the result that greater part of a window can be screened and/or more incidence of heat and/or light can be prevented.

**[0008]** In an embodiment of the roller blind assembly according to the invention the contact surface has a central recess, and the cable passage debouches at its first end in a side wall of the central recess.

**[0009]** Because the contact surface is provided with a central recess, the cable passage can debouch in the central recess. The central recess can here provide space to reach the power supply cable and/or the cable passage during installation of the roller blind assembly. The power supply cable can in particular be bent with a relatively gentle curve in the central recess, which can be particularly advantageous when the power supply cable is provided with for instance a stiff conductor and/or a stiff insulating wall.

**[0010]** The central recess can alternatively or additionally provide the advantage that a drive which is optionally present in the roller can be received at least partially in the central recess.

**[0011]** The invention also relates to a mounting element for mounting a roller blind assembly on for instance at least one upright wall and/or ceiling, comprising a substantially flat contact surface, a rear surface which lies opposite the contact surface and is substantially parallel thereto, and a peripheral wall connecting the contact surface and the rear surface to each other, wherein the mounting element comprises a cable passage for passage of a power supply cable, which cable passage lies substantially between the contact surface and the rear surface and debouches at a first end in the contact surface and debouches at a second end in the peripheral wall.

**[0012]** Such a mounting element can form part of an above described embodiment of a roller blind assembly and provide the stated advantages associated therewith.

**[0013]** The mounting element can in particular comprise the above described features, individually or in any random, suitable combination.

**[0014]** The mounting element can provide the above described advantages, individually or in any random, suitable combination.

**[0015]** According to a second aspect, the invention also relates to a roller blind assembly comprising a roller

with a first end and a second end, which roller defines a longitudinal axis, a blind which can be wound onto the roller, and first mounting means and second mounting means for rotatably bearing-mounting the roller at its first end and its second end on for instance at least one upright wall and/or ceiling, wherein the first mounting means and/or the second mounting means comprise a mounting element which comprises a contact surface, which contact surface, in a situation in which the mounting means are connected to the roller, extends at the respective end of the roller substantially perpendicularly of the longitudinal axis thereof and is directed toward the roller, wherein one of the mounting elements is provided in the contact surface with a recess for receiving at least a part of the respective end of the roller.

**[0016]** The roller blind is generally situated at a distance from the end of the roller. This distance contributes to the distance between the contact surface and the roller blind, which results in the above described gap. Because the contact surface is provided with a recess for receiving the end of the roller, the roller blind can be placed closer to the contact surface, and in some cases even be placed against or almost against the contact surface. The distance between the contact surface and the roller blind thereby thus decreases or disappears or almost disappears, and thereby the gap between the roller blind and the possible wall thus also. The roller blind can hereby let through less heat and/or light and/or screen a greater part or all of a window.

**[0017]** The recess can lie deeper in the mounting element relative to the contact surface. The recess is in particular however 'blind', which means that the recess does not extend through the whole mounting element and thus does not form a continuous opening in the mounting element.

**[0018]** The mounting element can be provided with means for mounting the mounting element on for instance a wall or ceiling. The mounting element can particularly be provided with at least one continuous hole and/or slot for the purpose of mounting the mounting element on for instance a wall or ceiling by means of for instance screws, bolts and the like.

**[0019]** The mounting element can be a solid element. The mounting element can additionally or alternatively be formed integrally from one piece, for instance from a thick metal plate.

**[0020]** The mounting element can have a substantially L-shaped cross-section.

**[0021]** In an embodiment of the roller blind assembly according to the invention the recess has an outer periphery and an inner periphery, which inner periphery is closed and defines a central zone.

**[0022]** Because the recess has an inner periphery, the central zone of the mounting element can be raised relative to the recess. The mounting element can hereby be given a stronger form. This can be particularly advantageous when the central surface is connected to for instance other parts of the mounting means, such as op-

tionally a roller carrier.

**[0023]** In particular, an upper surface of the central zone can lie in the same plane as the contact surface.

**[0024]** The outer periphery of the recess can also be closed.

**[0025]** In another embodiment of the roller blind assembly according to the invention the recess is substantially annular and the central zone is raised relative to the recess, wherein the respective end of the roller has a peripheral edge protruding in the longitudinal direction of the roller.

**[0026]** Because the recess is annular, and the roller has a protruding peripheral edge, the protruding peripheral edge fits in the recess without leaving a large space of the recess empty. The recess can thereby take a relatively small form, while the recess can still receive a part of the end of the roller, whereby the mounting element can remain sufficiently strong.

**[0027]** The roller can particularly have a substantially circular cross-section.

**[0028]** Because an end of the roller has an protruding peripheral edge, the roller can at that end take an at least partially hollow form or comprise a cavity. Parts of the mechanism of the roller blind assembly can thereby be received in the roller.

**[0029]** In yet another embodiment of the roller blind assembly according to the invention the mounting means comprise a roller carrier which can be connected or is connected to the mounting element, which roller carrier, in a situation in which the mounting means are connected to the roller, extends into a cavity of the respective end of the roller.

**[0030]** Because the mounting means comprise a roller carrier which can extend into the end of the roller, an extension of the roller carrier lies within the central zone of the mounting element when it is connected to the roller. The roller carrier can thereby be received wholly or almost wholly by the roller and the recess together. The roller carrier need thereby not be visible, and the roller and/or the blind need not be placed further from the contact surface in order to leave space for the roller carrier.

**[0031]** In a practical embodiment of the roller blind assembly the mounting element is provided in its contact surface and/or in the central zone with a hole with screw thread, into which a roller carrier with a corresponding screw thread can be screwed.

**[0032]** In yet another embodiment of the roller blind assembly according to the invention the roller blind assembly comprises a drive which is placed in the roller and which is provided with a power supply cable, wherein the mounting element comprises a cable passage for passage of the power supply cable.

**[0033]** Because the drive is placed in the roller, a compact construction results and, once again, it is not necessary to leave a distance between the roller and/or the blind and the contact surface. The drive is provided with a power supply cable, for instance for the purpose of providing electrical power and/or control signals. Be-

cause the power supply cable can be passed through the cable passage, the power supply cable can be concealed such that a compact and reliable construction results. In particular, owing to the cable passage, the power supply cable cannot come into contact with moving parts such as the roller and/or the blind.

**[0034]** In yet another embodiment of the roller blind assembly according to the invention the cable passage extends from the central zone to an edge zone of the mounting element lying outside the outer periphery.

**[0035]** Because the cable passage extends from the central zone to the edge zone, the cable passage passes the recess. When the power supply cable has been passed through the cable passage, the power supply cable thus also passes the recess. The power supply cable need thereby not pass between the contact surface and the roller blind. It is also for this reason that the distance between the roller blind and the contact surface can be kept small and/or need not be present.

**[0036]** In yet another embodiment of the roller blind assembly according to the invention the cable passage runs clear of the recess.

**[0037]** Because the cable passage runs clear of the recess, the part of the roller received in the recess is not obstructed by a power supply cable which may run through the cable passage, and can move freely or easily in the recess. In the cable passage the power supply cable is in particular shielded from moving parts of the roller blind assembly, such as the roller and/or the blind, whereby the power supply cable is protected against damage.

**[0038]** In yet another embodiment of the roller blind assembly according to the invention the mounting element is provided in the central zone with a central recess, wherein the cable passage debouches in the central recess.

**[0039]** Because the mounting element is provided with a central recess, the cable passage can debouch in the central recess. The central recess can here provide space to reach the power supply cable and/or the cable passage during installation of the roller blind assembly. The power supply cable can in particular be bent with a relatively gentle curve in the central recess, which can be particularly advantageous when the power supply cable is provided with for instance a stiff conductor and/or a stiff insulating wall.

**[0040]** The central recess can alternatively or additionally provide the advantage that a drive which is optionally present in the roller can be received at least partially in the central recess.

**[0041]** The invention also relates to a mounting element for mounting a roller blind assembly on for instance at least one upright wall and/or ceiling, comprising a substantially flat contact surface, which contact surface is provided with a recess configured to receive at least a part of an end of a roller of the roller blind assembly.

**[0042]** Such a mounting element can form part of an above described embodiment of a roller blind assembly

and provide the stated advantages associated therewith.

**[0043]** The mounting element can in particular comprise the above described features, individually or in any random, suitable combination.

**[0044]** The mounting element can provide the above described advantages, individually or in any random, suitable combination.

**[0045]** The above described preferred features in embodiments of the invention can be combined in random manner in embodiments according to the first aspect and embodiments according to the second aspect. The invention will be further described with reference to the accompanying figures, wherein:

Figure 1 is a schematic perspective view of a roller blind assembly known from the prior art;

Figure 2 is a schematic cut-away view of the roller blind assembly of figure 1;

Figure 3 is a schematic enlarged front view of the mounting means of the roller blind assembly of figure 1;

Figure 4A is a schematic view of an embodiment of a mounting element according to the invention, and figure 4B is a schematic perspective view of the same mounting element with a roller carrier connected thereto;

Figures 5A and 5B are different schematic perspective views of another embodiment of the mounting element according to the invention;

Figure 6 is a schematic perspective view of the mounting element of figures 5A and 5B with a power supply cable;

Figure 7 is a schematic cross-section of a roller which can be used in a roller blind assembly according to the invention; and

Figure 8 is a schematic enlarged front view of the mounting means of an exemplary embodiment of the roller blind assembly according to the invention.

**[0046]** Corresponding elements are designated in the figures with corresponding reference numerals.

**[0047]** Figures 1 and 2 show a conventional roller blind assembly 1 which comprises a roller 2 with two outer ends, and a blind 3 which can be wound thereon. Roller blind assembly 1 is provided with mounting means 4 for mounting the roller blind assembly 1 on for instance at least one upright wall and/or a ceiling (not shown). In this case mounting means 4 are provided on both ends of roller 2, so that the roller can be mounted on the at least one upright wall and/or the ceiling on both sides. Each of the mounting means 4 comprises a conventional mounting element 9 and a roller carrier 5. This conventional mounting element 9 is formed by a thin metal plate. In a situation of use of roller blind assembly 1 the roller carrier 5 is connected to the respective conventional mounting element 9. Bearing-mounted over roller carrier 5 is a coupling carrier 6 which can be placed in the respective end of roller 2 and can rotate with roller 2. In this

specific example roller blind assembly 1 is an electrically driven roller blind assembly 1, and roller blind assembly 1 comprises a drive in the form of electric tube motor 7 which is connected non-rotatably to the respective roller carrier 5 in a situation of use of roller blind assembly 1. Electric tube motor 7 is provided at a drive end with a coupling carrier, for instance coupling carrier 6, which can be set into rotation by the electric tube motor 7. Coupling carrier 6 is connected non-rotatably to roller 2. In a situation of use of the roller blind assembly both roller carrier 5 and electric tube motor 7 and coupling carrier 6 are arranged in the roller.

**[0048]** Figure 3 shows schematically an enlargement of mounting means 4. Mounting means 4 are here shown in a situation of use, and mount roller blind assembly 1 on a ceiling (not shown) close to wall 8. In this example blind 3 is wound partially onto roller 2. Roller 2 is supported rotatably relative to mounting element 9 via roller carrier 5. This figure also shows that mounting element 9 is made from a thin plate. Mounting element 9 has a contact surface 10 which is directed toward roller 2. A distance "a" can be indicated between blind 3 on roller 2 and contact surface 10. A gap with a width of at least distance "a", which is not covered by roller blind assembly 1, therefore results parallel to wall 8. Light and/or heat can therefore enter through the gap in use of roller blind assembly 1.

**[0049]** Figures 4A and 4B each show a mounting element 100 according to the invention. Mounting element 100 is a thick, solid metal plate and is formed integrally from one piece. The mounting element has a contact surface 101. Contact surface 101 of this mounting element is provided with a recess 102. In this case recess 102 has been cut into contact surface 101. The end of roller 2 can be received in the recess 102, whereby almost no space "a" remains visible (see figure 8). In this case recess 102 is substantially annular. Recess 102 therefore defines a central zone 103, which is raised relative to recess 102. In this example the surface of central zone 103 lies in the same plane as contact surface 101. Central zone 103 is provided with two connecting holes 104 which can be used to connect mounting element 100 to a roller carrier 5 (see figure 4B). Alternatively, central zone 103 can be provided with a hole with a screw thread, into which a roller carrier 5 with a corresponding screw thread can be screwed. In this example mounting element 100 further also comprises an angled body 105 which defines a substantially right angle with contact surface 101. Angled body 105 is provided with continuous slots 106 which can be used to mount the mounting body against for instance a wall or a ceiling using for instance screws.

**[0050]** Figures 5A and 5B each show a different view of another embodiment of mounting element 200 according to the invention. This embodiment is largely the same as the embodiment of figures 4A and 4B. The elements of figures 5A and 5B which correspond to elements of figures 4A and 4B are designated with the reference nu-

meral of the corresponding element of figures 4A and 4B, increased by 100. Described below are only the features which distinguish this embodiment from that in figures 4A and 4B. The present embodiment has a central recess 207 and a cable passage 208. Cable passage 208 debouches at a first end in central recess 207 and at a second end in an edge zone 209 of mounting element 200. In this example central recess 207 is deeper than recess 202. Cable passage 208 is embodied as a tunnel with a rectangular cross-section and runs through mounting element 200. The skilled person will appreciate that this tunnel can also have a round, square or other form. In this specific example cable passage 208 runs clear of recess 202, i.e. cable passage 208 runs through mounting element 200 at a depth below contact surface 201 such that cable passage 208 passes under recess 202. Cable passage 208 could optionally touch recess 202, but not cross it.

**[0051]** Figure 6 once again shows the embodiment of figures 5A and 5B, this time with a power supply cable 210 through cable passage 208. As described above, cable passage 208 is concealed under contact surface 201 and under recess 202 so that power supply cable 210 in cable passage 208 is not visible. In a situation of use power supply cable 210 is connected with a plug end 211 to an electrical power source (not shown) and with a motor end 212 to tube motor 7. For the sake of clarity the motor end 212 of power supply cable 210 will in practice take a shorter form and plug end 211 of power supply cable 210 may in practice take a longer form.

**[0052]** Figure 7 shows a cross-section of roller 2, which shows that in this example tube 2 comprises a carrier groove 2' extending radially inward from a peripheral wall of roller 2. Carrier groove 2' can be used to fasten a roller blind in or on, and can serve as engagement for a drive. In a situation of use of roller blind assembly 1, when roller 2 thereof comprises such a carrier groove 2', at least a part of the carrier groove 2' can also be received in recess 102, 202 of the respective mounting element 100, 200.

**[0053]** Figure 8 shows how an end of roller 2 is received in recess 102. The distance "a" between contact surface 101 of mounting element 100 and roller blind 3 is hereby greatly reduced relative to the known embodiment of figure 3, and even practically absent.

**[0054]** Mounting element 100 in figure 8 can also be the mounting element 200 of figures 5A and 5B.

**[0055]** The invention is not limited to the shown and/or stated embodiments, but is also defined by the appended claims.

**[0056]** Recess 102, 202 has a rectangular cross-section in the shown embodiments, but recess 102, 202 can have any suitable cross-section, for instance a U-shaped or triangular cross-section.

**[0057]** Central zone 103, 203 is raised relative to recess 102, 202 in the shown embodiments, but need not be. In that case central zone 103, 203 can just as deep

as recess 102, 202.

**[0058]** Cable passage 209 has a rectangular cross-section in the shown embodiments, but can have any suitable cross-section, such as for instance a round cross-section.

**[0059]** Cable passage 209 is used for passage of a power supply cable 110, 210 in the shown embodiment, but can also be used for passage of for instance a signal cable or a combined signal and power supply cable.

## Claims

### 1. Roller blind assembly, comprising:

- a roller with a first end and a second end, which roller defines a longitudinal axis;
- a blind which can be wound onto the roller, and
- first mounting means and second mounting means for rotatably bearing-mounting the roller at its first end and its second end on for instance at least one upright wall and/or ceiling,

wherein the first mounting means and/or the second mounting means comprise a mounting element which comprises a contact surface, which contact surface, in a situation in which the mounting means are connected to the roller, extends at the respective end of the roller substantially perpendicularly of the longitudinal axis thereof and is directed toward the roller, and which mounting element comprises a rear surface which lies opposite the contact surface and is substantially parallel thereto, and a peripheral wall connecting the contact surface and the rear surface to each other,

wherein the roller blind assembly comprises a drive which is placed in the roller and is provided with a power supply cable,

#### **characterized in that**

the mounting element comprises a cable passage for passage of the power supply cable, which cable passage lies substantially between the contact surface and the rear surface and debouches at a first end in the contact surface and debouches at a second end in the peripheral wall.

2. Roller blind assembly according to claim 1, wherein the contact surface has a central recess, and the cable passage debouches at its first end in a side wall of the central recess.
3. Roller blind assembly according to claim 1 or 2, **characterized in that** the mounting element is provided in the contact surface with a recess in which at least a part of the respective end of the roller is received.
4. Roller blind assembly according to claim 3, wherein the recess has an outer periphery and an inner pe-

riphery, which inner periphery is closed and defines a central zone.

5. Roller blind assembly according to claim 4, wherein the cable passage extends from the central zone to an edge zone of the mounting element lying outside the outer periphery.
6. Roller blind assembly according to claim 5, wherein the cable passage runs clear of the recess.
7. Roller blind assembly according to any one of the claims 4-6, wherein the recess is substantially annular and the central zone is raised relative to the recess, and wherein the respective end of the roller has a peripheral edge protruding in the longitudinal direction of the roller.
8. Roller blind assembly according to any one of the foregoing claims, wherein the mounting element is solid and has a substantially L-shaped cross-section.
9. Roller blind assembly according to any one of the foregoing claims, wherein the mounting element is provided with means for mounting the mounting element on a wall or ceiling.
10. Roller blind assembly according to claim 9, wherein the mounting element is provided with at least one continuous hole and/or slot for the purpose of mounting the mounting element on a wall or ceiling by means of screws or bolts.
11. Roller blind assembly according to any one of the foregoing claims, wherein the mounting means comprise a roller carrier which can be connected or is connected to the mounting element, which roller carrier, in a situation in which the mounting means are connected to the roller, extends into a cavity of the respective end of the roller.
12. Roller blind assembly according to any one of the foregoing claims, further comprising a drive which is placed in the roller and which is provided with a power supply cable, wherein the mounting element comprises a cable passage for passage of the power supply cable.
13. Mounting element for mounting a roller blind assembly on for instance at least one upright wall and/or ceiling, comprising a substantially flat contact surface, a rear surface which lies opposite the contact surface and is substantially parallel thereto, and a peripheral wall connecting the contact surface and the rear surface to each other, **characterized in that** the mounting element comprises a cable passage

for passage of a power supply cable, which cable passage lies substantially between the contact surface and the rear surface and debouches at a first end in the contact surface and debouches at a second end in the peripheral wall.

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14. Mounting element according to claim 13, wherein the contact surface has a central recess, and the cable passage debouches at its first end in a side wall of the central recess.

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15. Mounting element according to claim 10 or 11, wherein the contact surface is provided with a recess configured to receive at least a part of an end of a roller of the roller blind assembly, wherein the recess preferably has an inner periphery and an outer periphery, which inner periphery is closed and defines a central zone, wherein the recess is preferably substantially annular and the central zone is preferably raised relative to the recess for the purpose of receiving the end of the roller, which has a peripheral edge protruding in the longitudinal direction of the roller.

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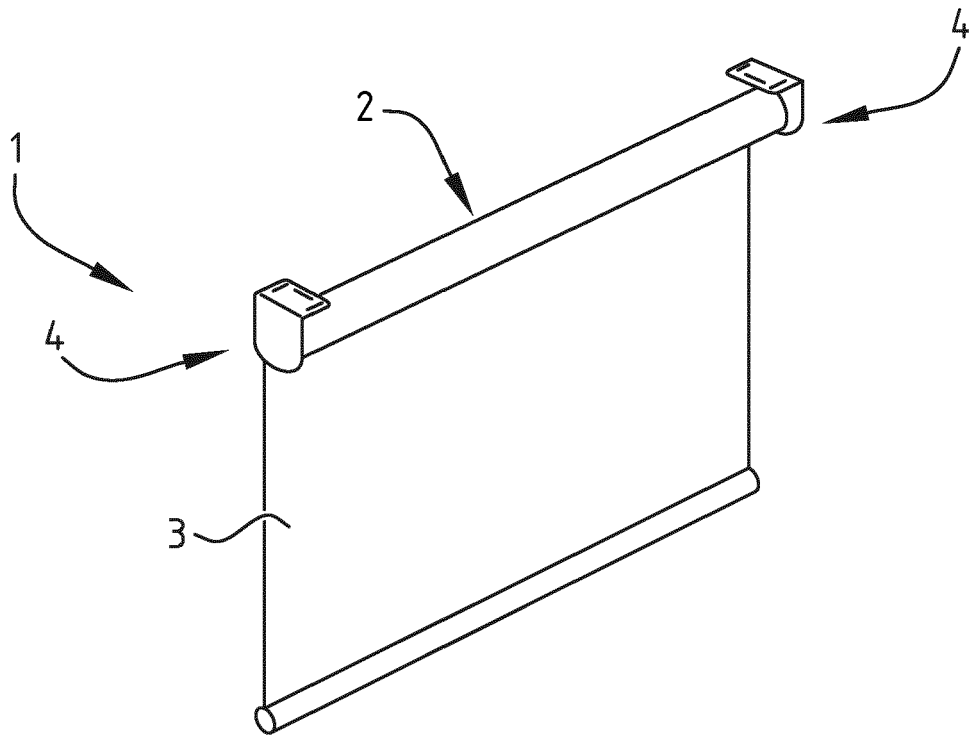


FIG. 1

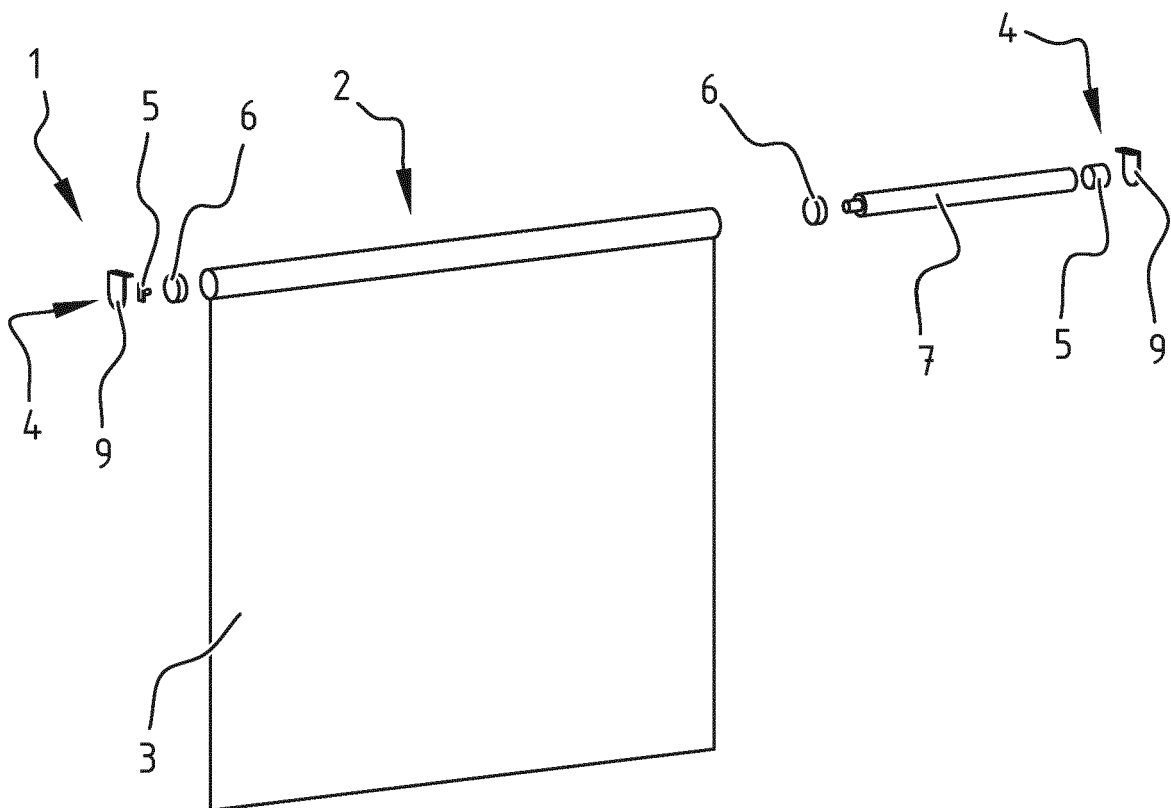


FIG. 2



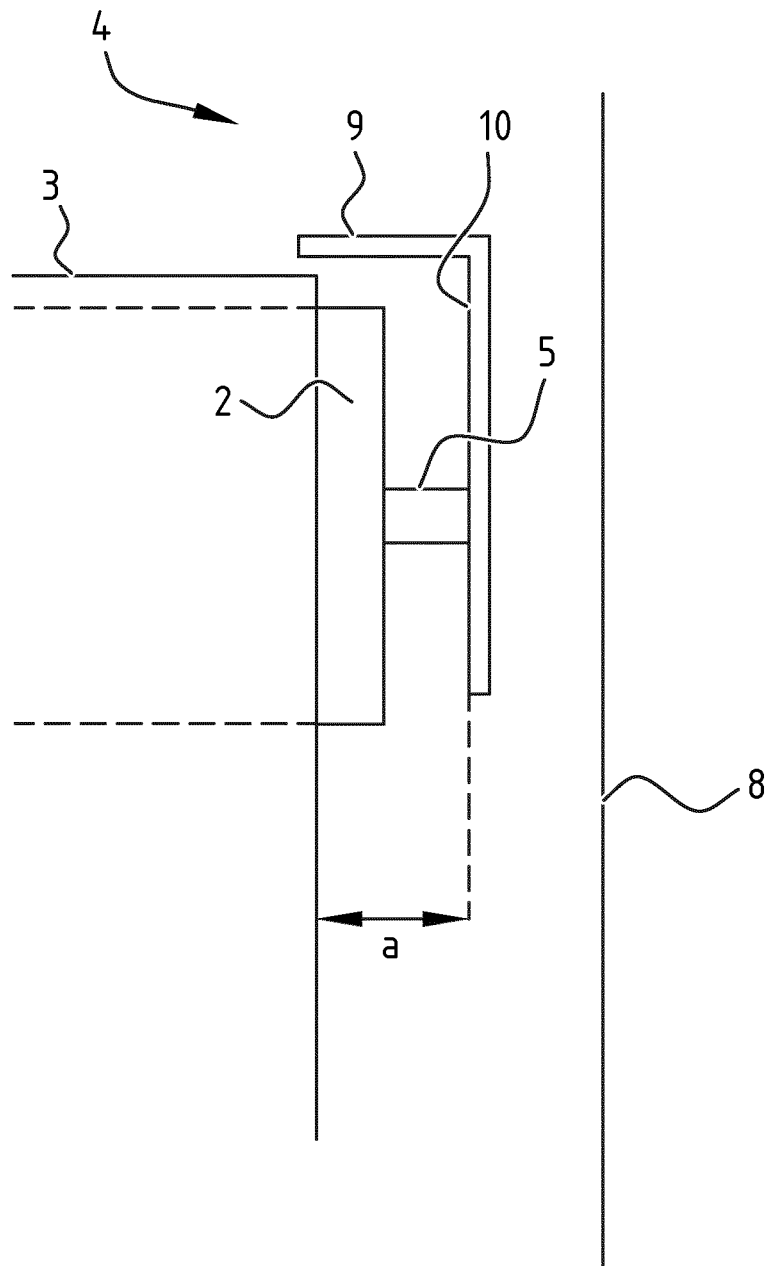


FIG. 3

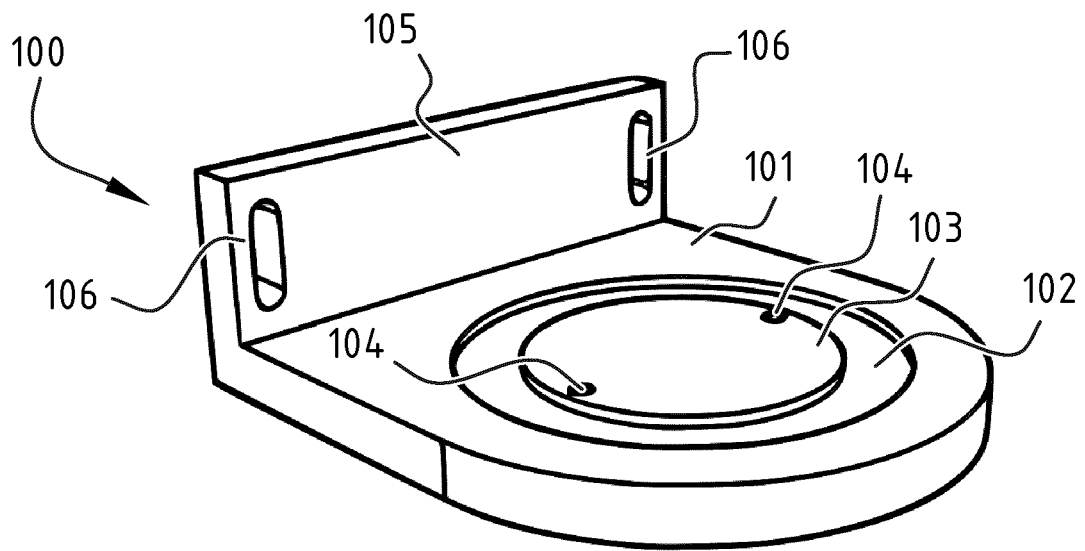


FIG. 4A

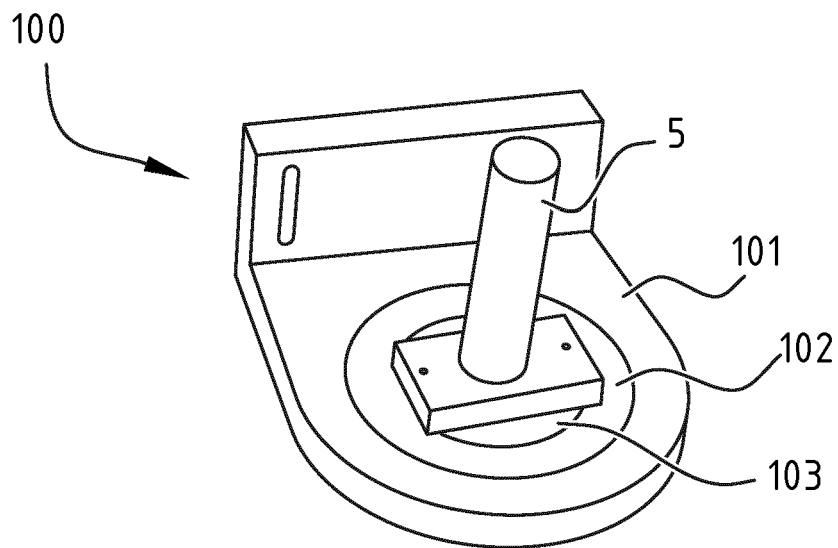


FIG. 4B

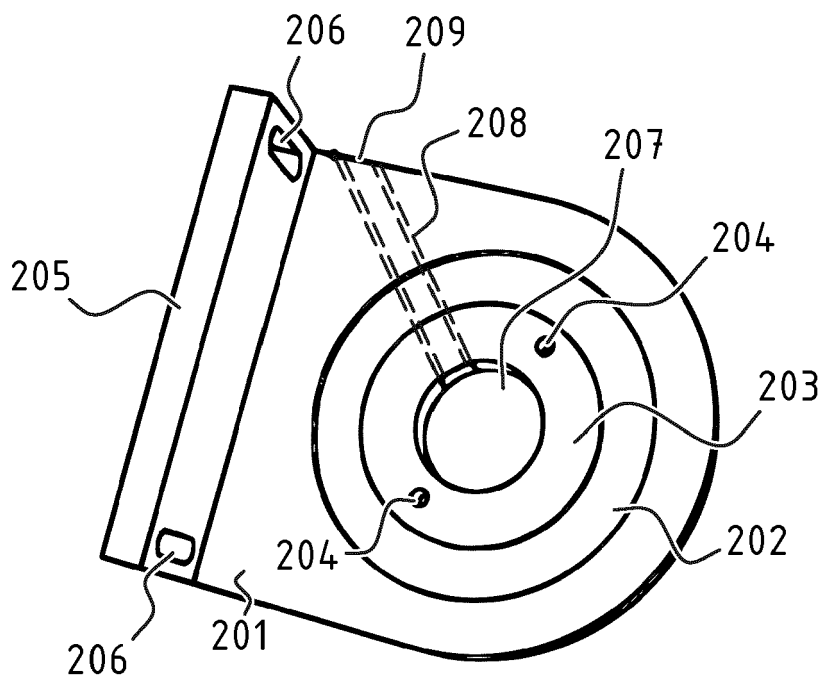


FIG. 5A

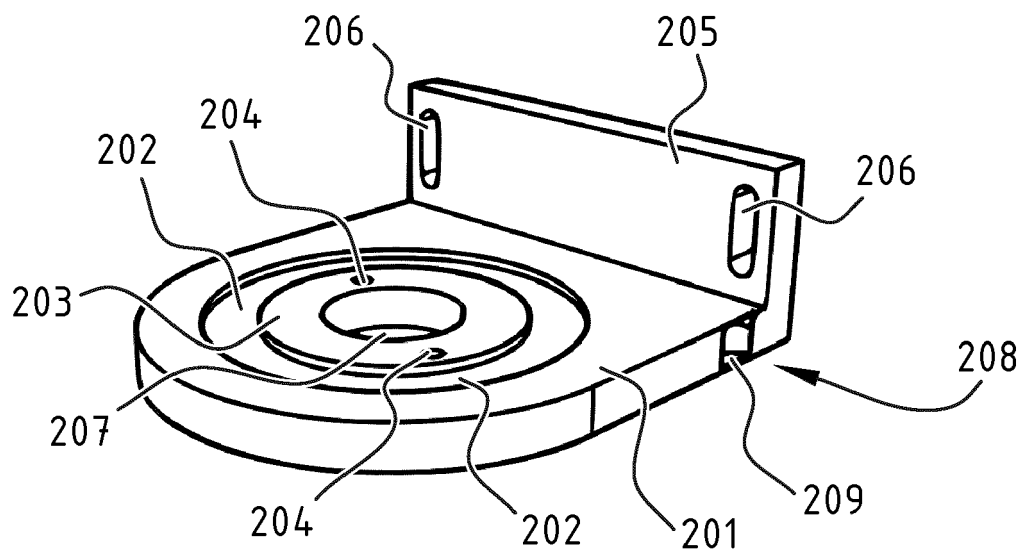
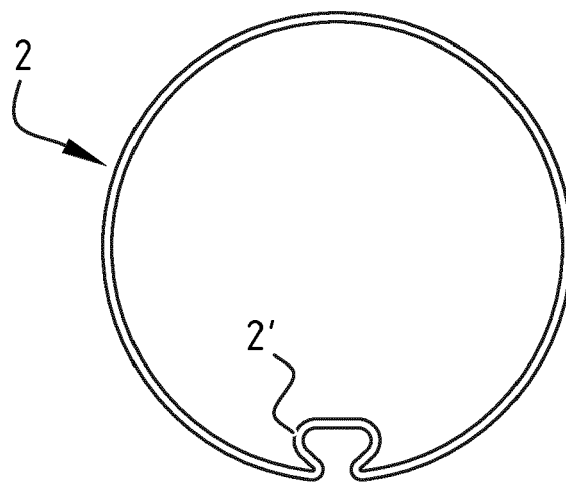
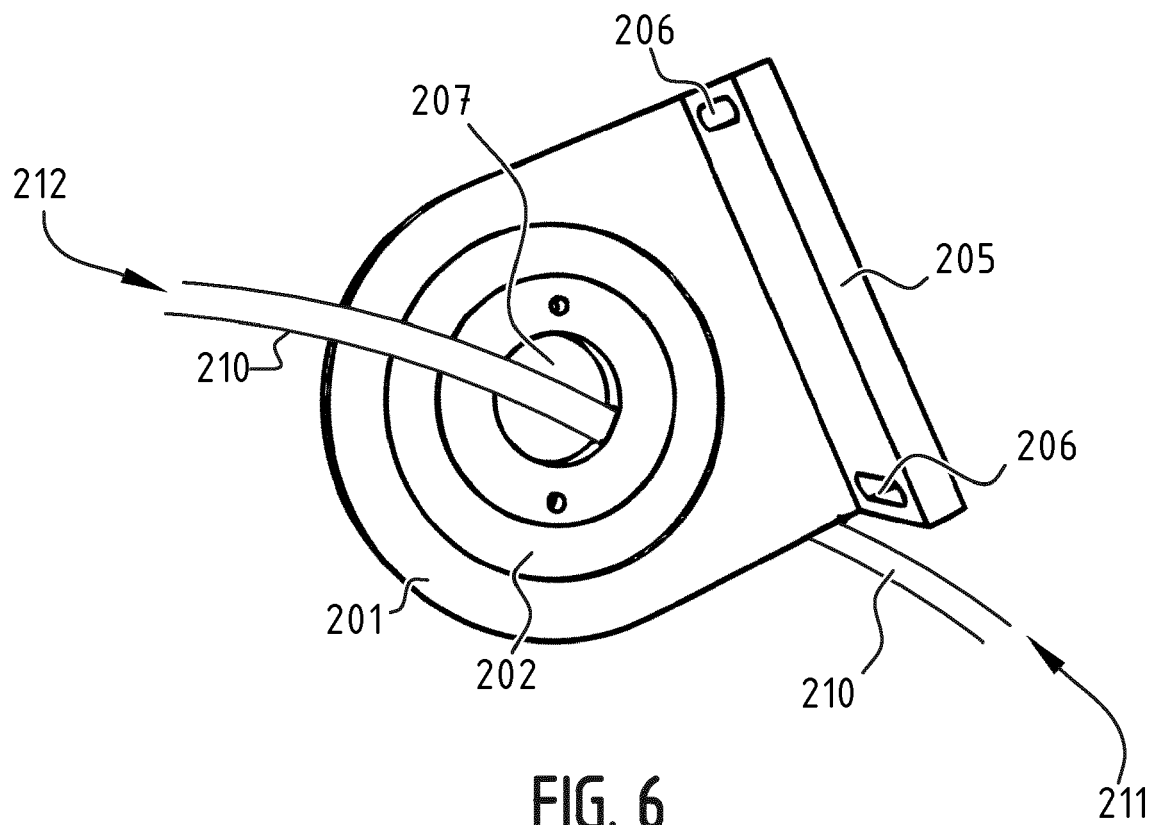


FIG. 5B



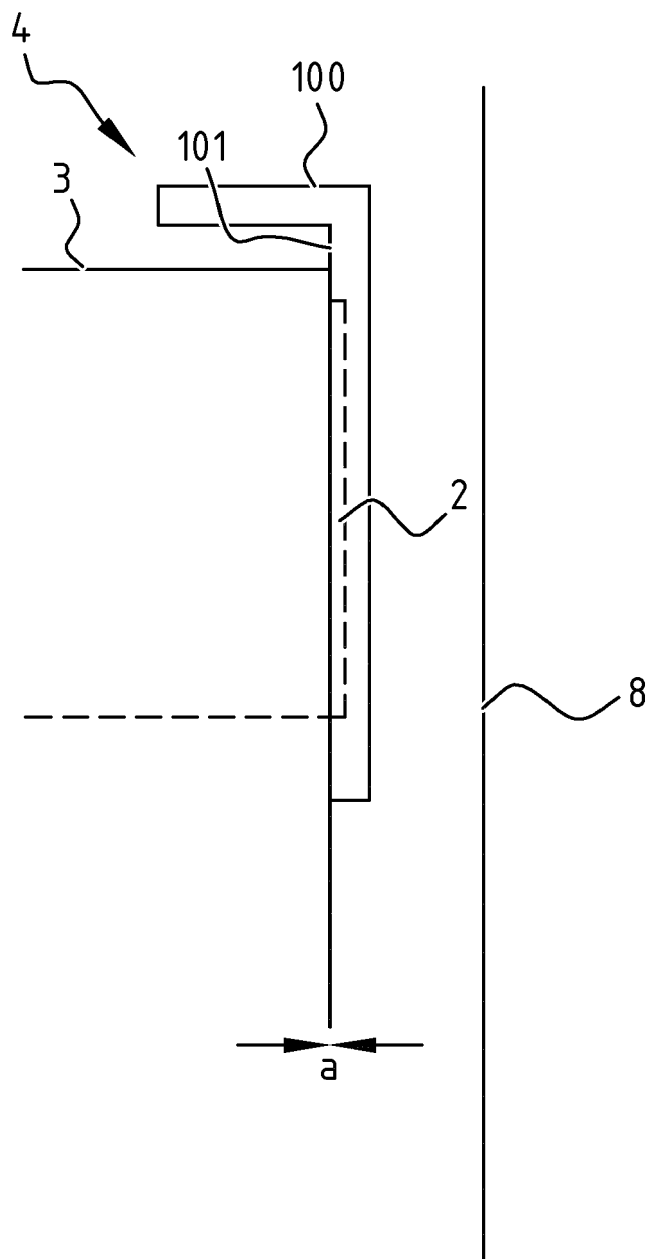


FIG. 8



## EUROPEAN SEARCH REPORT

Application Number  
EP 19 15 2150

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| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                |                                  |                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Citation of document with indication, where appropriate, of relevant passages                                                                                  | Relevant to claim                | CLASSIFICATION OF THE APPLICATION (IPC)     |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | WO 2017/176643 A1 (GEIGTECH EAST BAY LLC [US]) 12 October 2017 (2017-10-12)                                                                                    | 13-15                            | INV.<br>E06B9/50<br>E06B9/72                |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | * paragraphs [0020] - [0035]; figures 1-5 *                                                                                                                    | 1-12                             |                                             |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -----<br>EP 2 390 457 A2 (GEIGER GERHARD GMBH & CO [DE]) 30 November 2011 (2011-11-30)<br>* paragraphs [0020], [0022] - [0026], [0030]; figures 1-5 *<br>----- | 1-15                             |                                             |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                |                                  | TECHNICAL FIELDS SEARCHED (IPC)<br><br>E06B |
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