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(54) **Awning for roof window screening**

(57) An awning consisting of an assembly rail (1) and a body connected together in hinged mode about a turning axis parallel to the axle (7) of the roller (8), the assembly rail being fixed to the external surface of the window cover and the body able to be turned aside when mounting the assembly rail. The assembly rail (1) and the housing (2) are connected together by an elastic hinge joint (3).

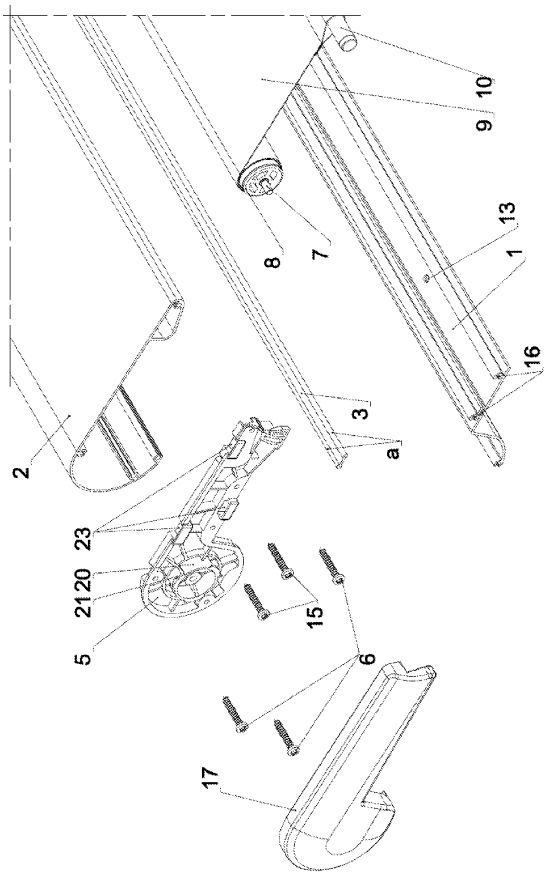

fig. 1a

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Description

[0001] The subject of the invention is an awning screening a roof window by means of a flexible translucent material fixed to the external surface of the window or a window cover. The translucent material, being wound on a roller by means of a turning spring, is fixed at its moving end to a roller, which is shifted manually.

[0002] There exist commercially available models fixed by screws to the external surface of the window cover, in which the awning consists of a coiling mechanism driven by a spring tensioned when the roller is being uncoiled. The awning is being fastened by external fixtures connected with the cover at the end opposite to the direction of stretching the translucent material. The material is being unrolled manually from the inside of the building. Upon opening the window, the translucent material can be unrolled by pulling a beam fixed to the movable end of the translucent material. The beam can then be attached to small hooks at the external, lower edge of the window. In these models, the side covers of the caisson containing the roller with the wound material are screwed to the housing by bolts or screws.

[0003] The drawback of these solutions is primarily the location of the mounting fixtures. This not a problem when assembling the awning is done by a person at the outside of the window. The mostly used method of assembling from the inside is difficult due to the considerable distance of the mounting points from the window aperture. Moreover, that way of fixing determines the form of the cross-section of the awning, which extends much above the surface of the window. Another mounting disadvantage is fixing the side covers by screws. When having to mount or remove the covers, the trouble is similar. This is particularly inconvenient when two or more awnings are to be located close to each other. Access to the screws fixing the side covers is then very difficult. Besides, applying such assembly items like bolts or screws, directly subjected to weather, can lead to leakage or corrosion upon longer usage.

[0004] There exists also a model, in which the awning with functional features similar to the above ones is being fixed to the inner surface of the roof window cover. That solution requires however, in view of the necessity to provide space for the awning, applying covers with a higher profile. Besides, it occupies an additional surface of the window aperture, diminishing its clearance.

[0005] The aim of the invention is such a design of the awning and of its mounting elements, which eases it fixing to the external surface of the roof window or its cover. This is particularly important when the awning has to be mounted by a person standing inside the building. Further, the new awning is provided with side covers, the design and method of connecting with the body is straightforward and effective, necessitating no extra tools.

[0006] The essence of the invention consist in that the awning is composed of an assembly rail and a body connected together in a hinged way, about an axis parallel to the roller axis; the assembly rail is fixed to the external surface of the window cover and the body is being turned up when mounting the assembly rail. One part, the fixed assembly rail, is fixed to the external surface of the window or the window cover using standard fasteners. The second part, turning about a hinge and containing the remaining parts of the device, is being moved away when mounting the rail or doing other servicing actions.

[0007] The hinge, preferably made of rubber or an elastic material, has the form of thin strip with a preferably flat cross-section, both ends of the section having an additional assembly profile, the thickness of which is greater than the thickness of the hinge strip. The form and the size of the hinge strip with assembly profiles enable free inserting of the strip into longitudinal channels having a fitting form, made in the assembly rail and in the housing of the awning, at the same time preventing sliding out in transversal direction. That way of joining forms an elastic hinge and safeguards tightness of the joint, protecting from weather the material of the awning wound on the roller.

[0008] The hinged joint can also be made using stiff shaped elements, formed directly in the parts being joined. The specific feature of that solution is the ability to dismantle and reassembly the parts quickly. Moreover, that solution makes it possible, when required, to open the housing easily to a degree enabling servicing, without the necessity to dismantle the awning completely.

[0009] Applying the suggested solution permits hiding of the assembly elements inside the caisson of the awning and locating them directly at the window aperture, which considerably facilitates the operation of fixing the awning to the roof window cover. Such a solution makes it possible to reduce the overall dimensions of the awning and by the same to diminish the space occupied by it.

[0010] The awning body, connected in a hinged way with the assembly rail of the awning, contains a coiling mechanism with a driving spring being tensioned when unwinding the material on the roller. The roller is seated on a rotary axle supported preferably at its both ends on consoles, which at the same time constitute closing elements of the body, and generally are being fixed to the housing by screws. One end of the driving spring is fixed to the console, and its other end, the movable one, to the roller.

[0011] An indispensable element of the solution is a system of fixing the side covers, enabling easy mounting and dismounting without tools. The suggested solution in form of a rotary snapping mechanism fulfills that condition.

[0012] The cover, adequately for the left and right hand side of the awning, having the form and outline providing complete covering of the console in operating position, is mounted on the console by a rotary snapping mechanism. Is has therefore on its inner side at least two catches, preferably symmetrically situated on the inner circumference of the locating ring. The whole is preferably made

as one element formed by casting or injection molding. The catches are to mesh with the corresponding catch seats made on the external circumference of the basic ring with a smaller diameter, formed on the console. Mounting the cover requires that the diameter limiting the height of the catches is greater than the external diameter of the basic ring on the console, and analogously, that the diameter limiting the height of the catch seats is smaller than the inner diameter of the locating ring. The described snapping mechanism is advantageously placed concentrically with the roller.

[0013] The covers have, if required, additional catches along the external profile, which are meshing in the final phase of the closing turn with their corresponding seats in the consoles; this provides safe fixing on the whole circumference. The advantage of that solution is the absence of any fasteners sticking out, and excellent protection of the cover against accidental sliding out from the housing.

[0014] The housing includes slides guiding the awning material when stretching it out. The guiding elements are smoothly profiled, so that their contact with the sliding material occurs on a large surface. They can have either flat or curvilinear surfaces with a large radius. The effect is considerable diminishing of the noise caused by the material sliding out of the awning body.

[0015] The external awning presented in the first embodiment is shown in the assembly drawings, fig. 1 a - left hand side, and fig. 1b - right hand side, both in exploded view. The cross section view, fig. 2, shows the parts essential to explain the idea of hinged joining, while fig. 3 shows the way of mounting the awning on the cover of a roof window. Fig. 4 shows the cover of awning, fig. 5 - the way of assembling the cover, fig. 6 - the awning with the fitted cover. Fig 7 and fig. 8 present the awning with another design of the hinged joint.

[0016] The awning consists basically of the assembly rail being fixed to the external surface of the window cover, and of the body, which by the housing 2 is connected with the assembly rail by means of the hinge 3 made of a strip of rubber or another flexible material. The strip has preferably a flat cross-section with round assembly profiles (**a**) along its side edges, the diameter of which is twice the thickness of the strip. The size and form of the hinge 3 correspond to the grasping form of the longitudinal channels 4 in the assembly rail 1 and the housing 2. This enables sliding-in the assembly profiles (**a**) of the strip 3 sideways into the channels, at the same time preventing its pulling away crosswise. This design of joining provides a tight, elastic hinge of the articulating assembly rail 1 and the body.

[0017] The complete body of the awning, which is enclosed on its whole length by the housing 2, the assembly rail 1, and the hinge 3, comprises additionally two symmetrical consoles 5 fixed to the housing 2 by the screws 6. The consoles enclose the construction on both ends and prevent uncontrolled sliding-out of the hinge strip from the channels 4. The consoles 5 serve also to support the rotary axle 7, on which is set the roller 8 with the wound-up translucent material 9. The roller 8 is part of the coiling mechanism driven by a spring (not shown in the drawing), which is being tensioned when unwinding the roller. The spring is fixed on one end to the console 5 and on its opposite, moving end to the roller 8 by means of suitably formed catch holes in these elements.

[0018] The translucent material 9 is being uncoiled manually by moving the stiffening bar 10, using for that purpose the grip 11. When the translucent material 9 is in coiled position, the stiffening bar 10 rests in the fittingly formed recesses 12. In that position, the stiffening bar is kept by the tension of the spring (not shown in the drawing), which is slightly pre-tensioned. Moving the stiffening bar 10 to use the awning causes tensioning the spring by turning it and creates a force able to keep the translucent material 9 constantly stretched, and also to wind it up completely upon releasing the tensioning bar form recesses.

[0019] The hinged joint of the assembly rail 1 and the housing 2 makes it possible to swing out the housing. This gives access to the mounting holes 13 made in the assembly rail 1.

[0020] Assembling the awning, having the body turned up about the hinge 3, consists in fixing the assembly rail 1 to the external surface of the window cover by fitting at least two fixing elements, mostly screws 14, through the mounting holes 13, as shown in Fig. 3. The body of the awning can then be set back to its operating position. Securing the body in that position against uncontrolled turning up is done by the screws 15 screwed-in through the holes in the consoles 5 into the shaped sockets 16 in the assembly rail 1.

[0021] The awning assembled as described here is fully operational. Improved tightness and better appearance is provided by the covers 17 shown in fig. 4, which hide the following assembly elements: the consoles 5, the screws 6, and screws 15.

[0022] These covers 17, placed symmetrically on both sides of the awning, are being fitted using a rotary snapping mechanism. Each cover has on its inner side three catches 18 symmetrically arranged on the inner circumference of the locating ring 19. The cover 17, the locating ring 19, and the catches 18 are made as one part, by casting or injection molding. On the external circumference of the basic ring 20 made in the console 5 there are symmetrically arranged three catch sockets 21, which mate with the corresponding catches 18. The catching sockets 21 are suitably formed to ease setting in the catches 18. In order to enable assembling the cover using the described mechanism, it is essential that the diameter limiting the height of the catches is greater, by the assembly clearance, than the external diameter of the basic ring 20 in the console 5, and analogously, that the diameter limiting the height of the catch sockets is smaller, by a similar amount, than the inner diameter of the locating ring 19. Both rings, the locating one 19 and the basic 20 are concentric with the roller 8.

[0023] Assembling the cover comprises sliding it over on to the console in a proper sequence of movements, the first being sliding the locating ring 19 with its catches 18 on to the basic ring 20 with its catching sockets 21, which is shown in fig. 4. That sliding-in of the rings is possible only in an angular position of cover, in which the catches and the catching sockets do not collide. Turning the cover to its closed position, shown in Fig. 5, causes snap mating of the corresponding catches and catch sockets.

[0024] The covers 17 are provided with additional transverse catches 22. These catches, upon turning the cover to its closed position, mate with the sockets 23 made on the external surface of the console 5, and provide secure fixing on the whole contact surface of the cover with the console and the housing 2, as shown in fig. 6. The advantage of that solution is the absence of protruding fasteners, and also protection against accidental falling off of the cover, providing at the same time the possibility of easy manual assembly and disassembly.

[0025] The housing of the awning is provided with the slides 24 guiding the translucent material 9, when pulling it out of the housing. The advantage consists in smooth profiling of the surface of the slides 24, so that their contact with the sliding translucent material occurs on a possibly large surface. This results in a smaller pressure per unit surface of the material 9 on the slide 24. The effect is much lesser noise caused by the material moving out or into the body of the awning.

[0026] The awning in the second embodiment differs from the first one by the kind of hinge joining, shown in fig. 7 and fig. 8. It is made of stiff elements, suitably formed directly in the assembly rail 1 and the housing 2. The profile of the assembly rail at the joint with the housing ends in the form of the yoke 26, mating with a spiral catch. Fitting the spiral catch 25 into the yoke 26 is possible only in open position of the body - see fig. 7. Turning the body to closed position causes blocking the spiral catch in the yoke - see fig. 8. The particular feature of that solution consists in the possibility to release and join again the mating elements easily and quickly.

Claims

1. Awning for roof window screening, fixed to the external surface of the window or the window cover, particularly of rectangular form, consisting of a housing, roller consoles, side covers, and a flexible translucent material coiling up on a roller being driven by a spring causing a turning moment and the material ending along its movable edge on a manually shifting beam, **characterized in that** it consists of an assembly rail (1) and a body, connected in hinged mode about an axis parallel to the axle (7) of the roller (8), the assembly rail being fixed to the external surface of the window and the body being turned aside when mounting the assembly rail.

2. Awning according to claim 1 **characterized in that** the assembly rail (1) and the housing (2) are connected together by an elastic hinge joint (3).

3. Awning according to claim 2 **characterized in that** the elastic hinge joint (3) is a strip of material with rectangular cross-section, ending at both sides with assembly profiles (a) of a thickness greater than the thickness of the hinge joint.

4. Awning according to claim 3 **characterized in that** the assembly profiles (a) are of round cross-section, the diameter of which is twice as great as the thickness of the flat part of the hinge joint.

5. Awning according to claim 3 **characterized in that** the assembly rail (1) and the housing (2) have channels (4) of a shape and size that fit the section of the hinge joint (3).

6. Awning according to claim 1 **characterized in that** the assembly rail (1) and the housing (2) are connected together directly by a separable shape joint formed in the housing (2) and the assembly rail (1).

7. Awning according to claim 6 **characterized in that** the joining element of the shape joint in the assembly rail (1) is a spiral catch (25).

8. Awning according to claim 6 **characterized in that** the joining element of the shape joint in the housing (2) is a yoke (26).

9. Awning according to claim 1 **characterized in that** the roller (8) is set on an axle (7) supported on two symmetrically arranged consoles (5) being fixed in separable way to the housing (2) on its both ends.

10. Awning according to claim 1 **characterized in that** the covers (17) are mounted on the consoles (5) by means of a rotary snapping mechanism.

11. Awning according to claim 10 **characterized in that** the covers (17) have locating rings (19) and the consoles (5) have basic rings for reciprocal positioning when assembling the covers.

12. Awning according to claim 10 **characterized in that** the covers (17) have catches (18), and the consoles (5) have catch sockets (21) for reciprocal snap joining upon setting the cover in assembled position.

13. Awning according to claim 1 **characterized in that** it has slides (24) guiding the translucent material (9), being an integral part of the housing (2).

14. Awning according to claim 13 **characterized in that** the slides (24) have flat surfaces on places contacting with the translucent material (9).

15. Awning according to claim 13 **characterized in that** the slides (24) have curvilinear surfaces on places contacting with the translucent material (9).

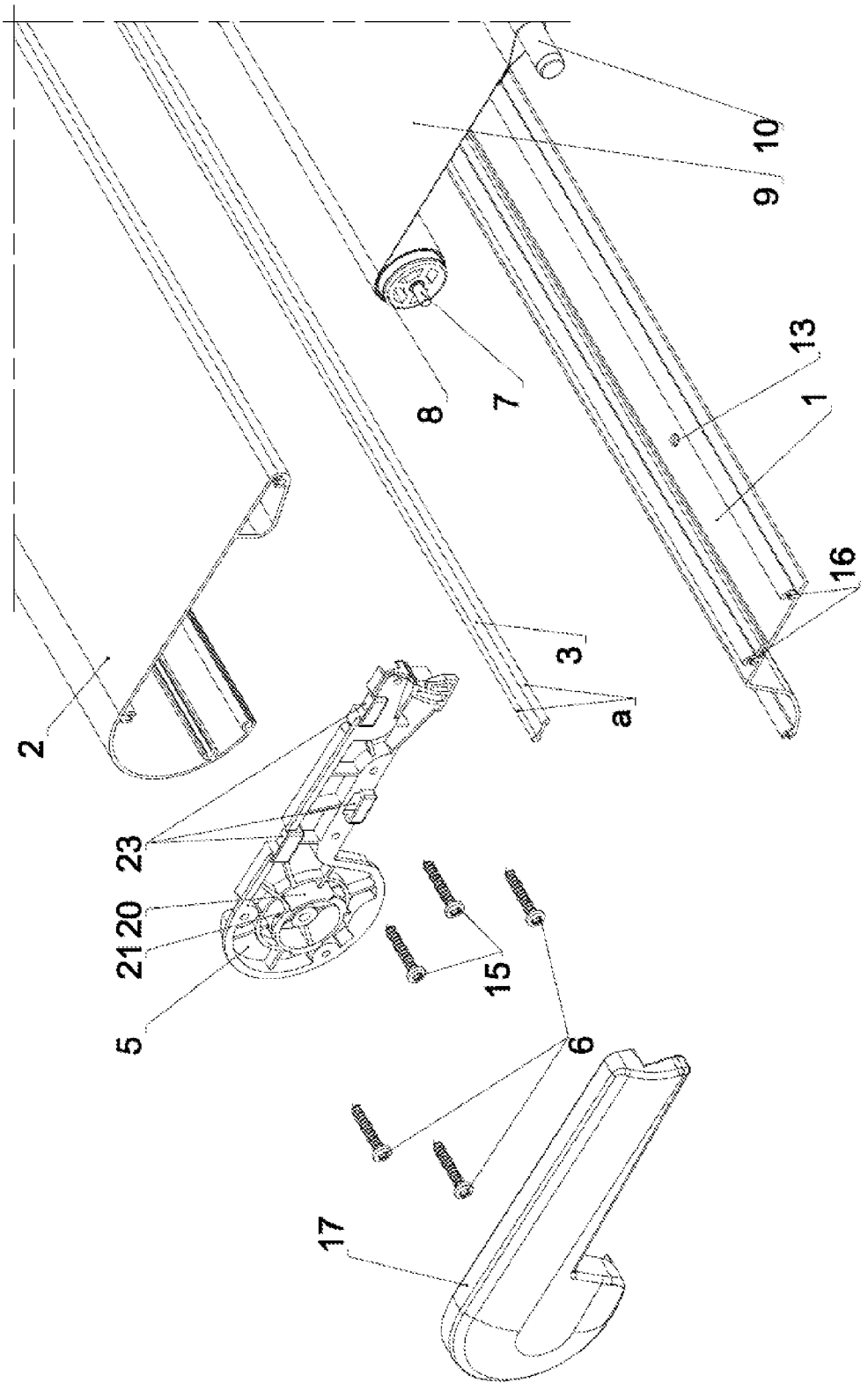

fig. 1a

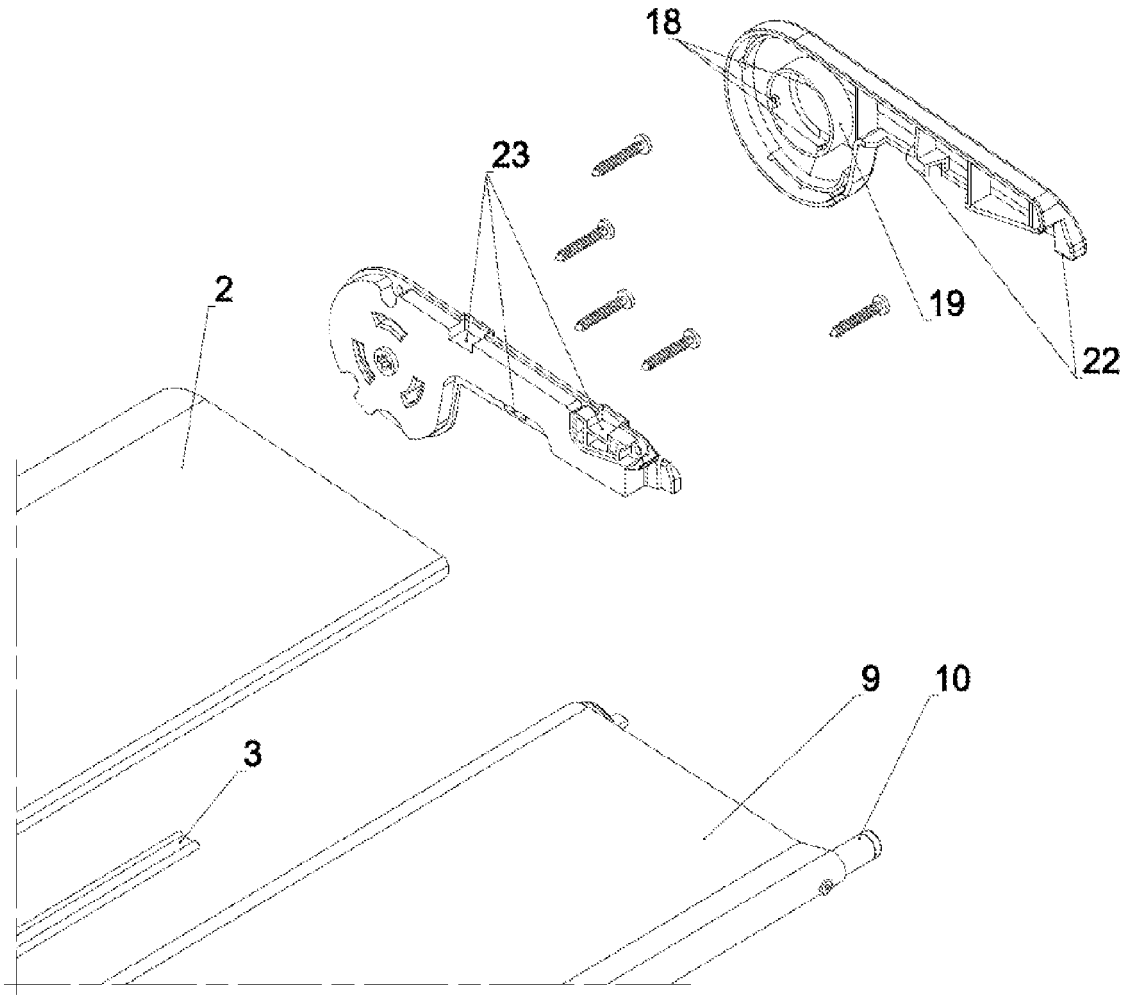

fig. 1b

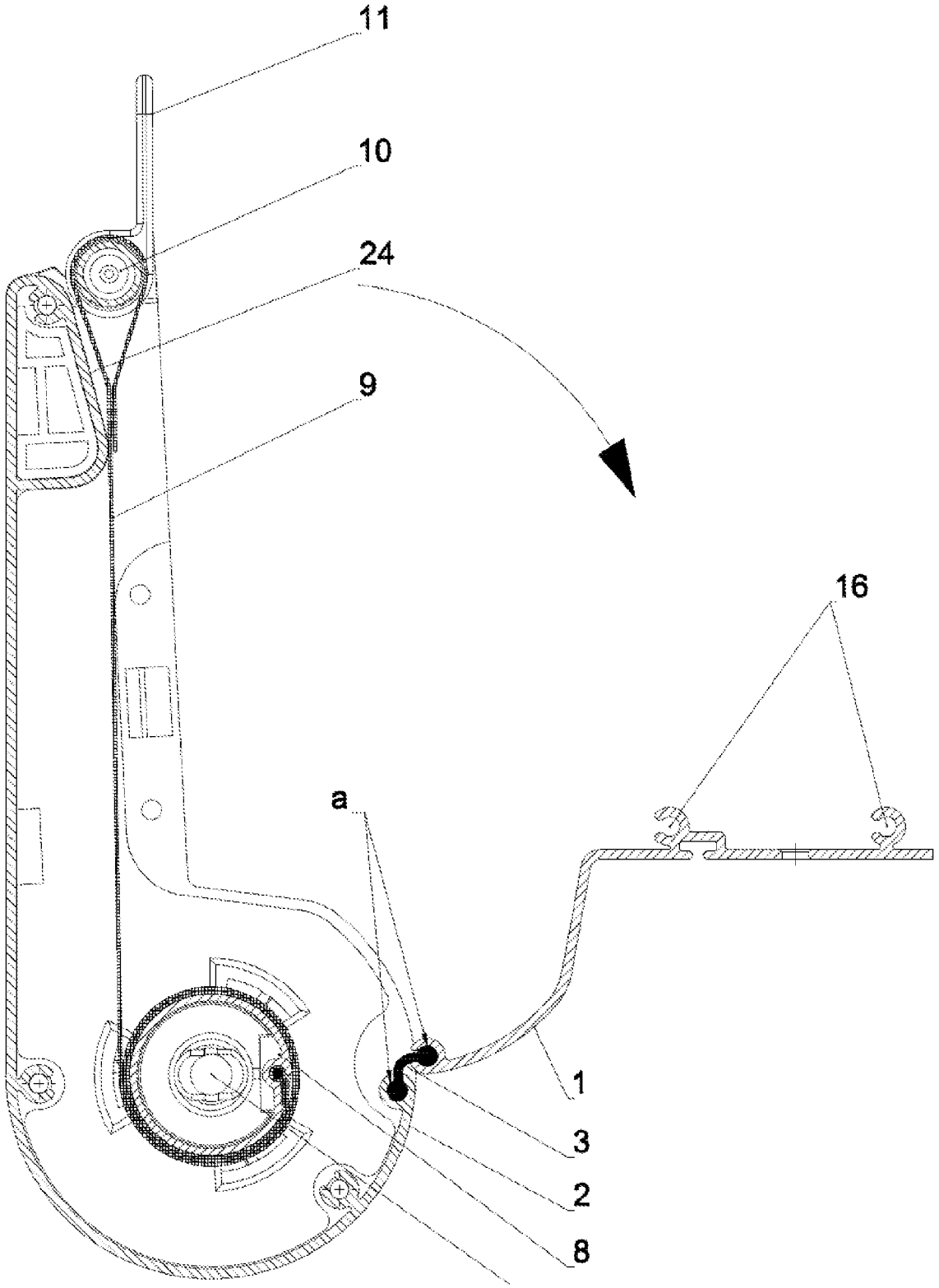

fig. 2

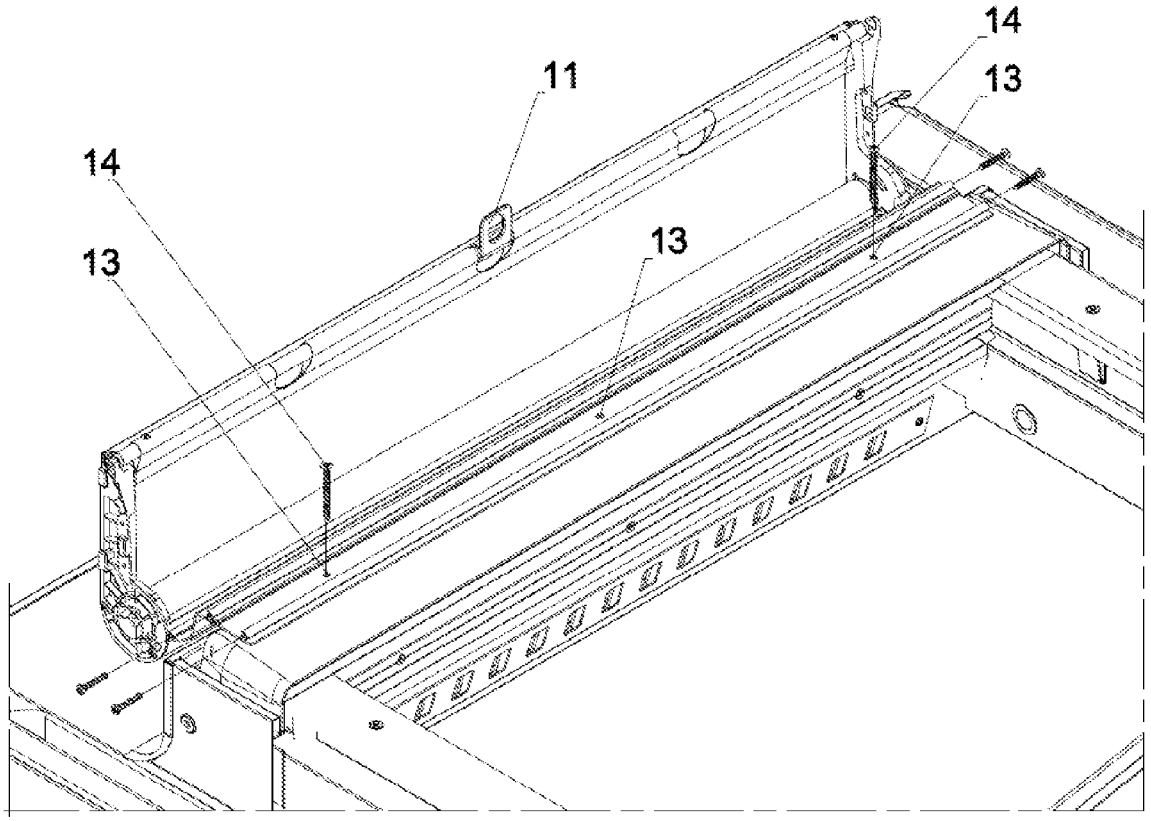

fig. 3

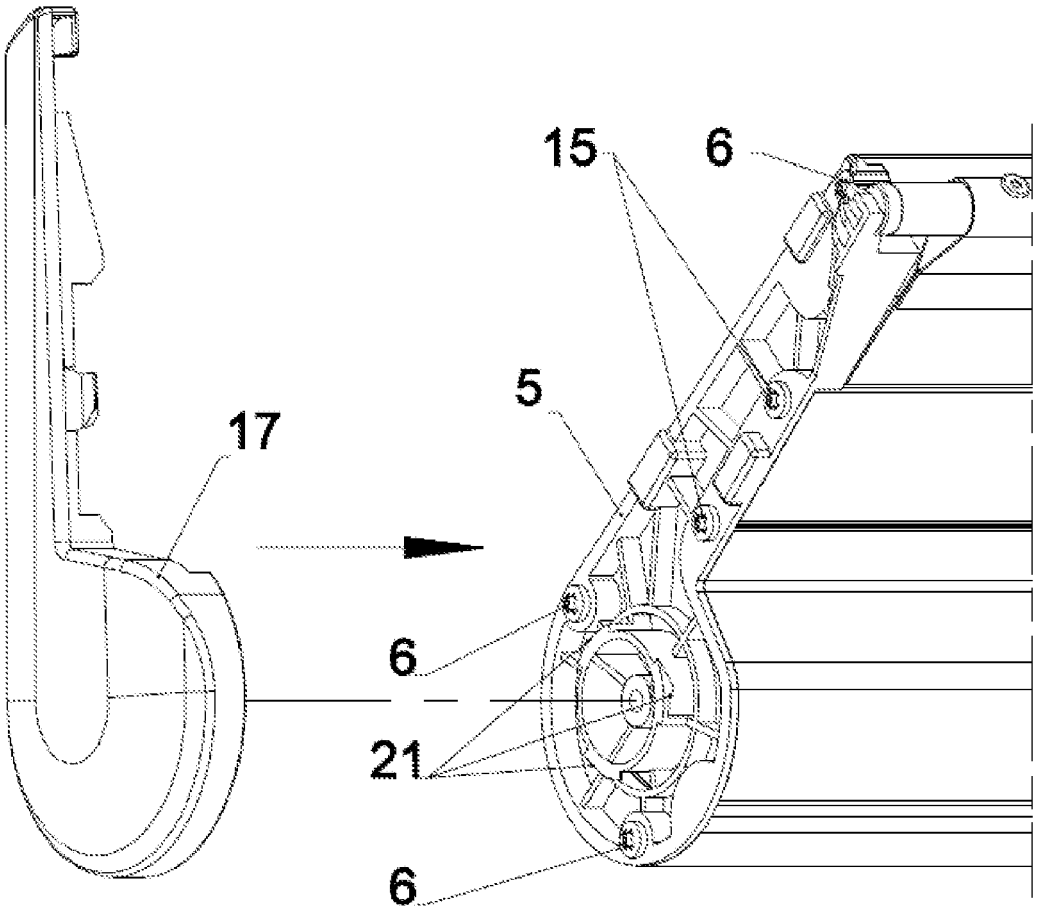

fig. 4

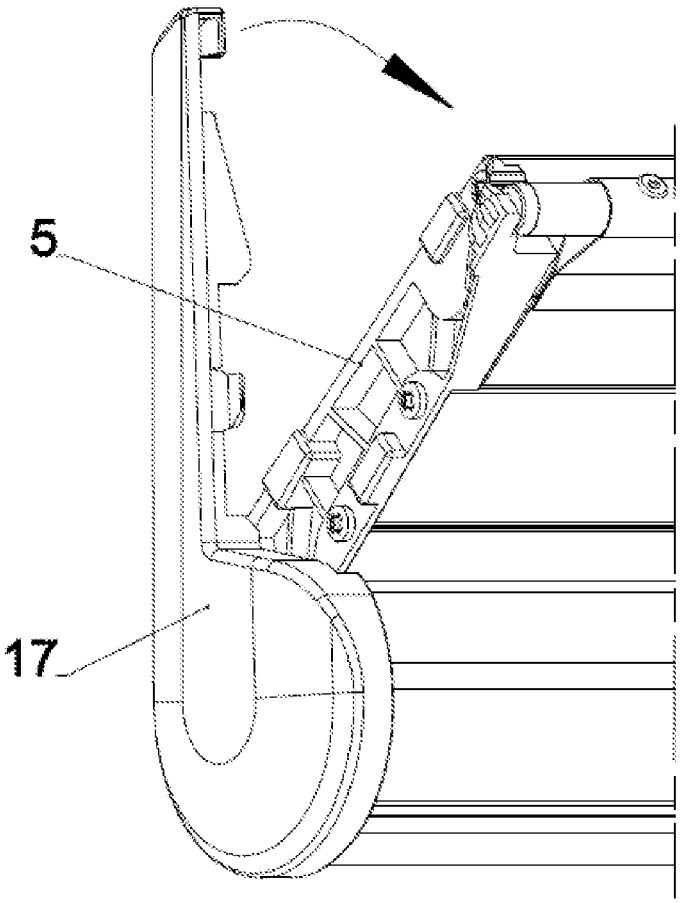

fig. 5

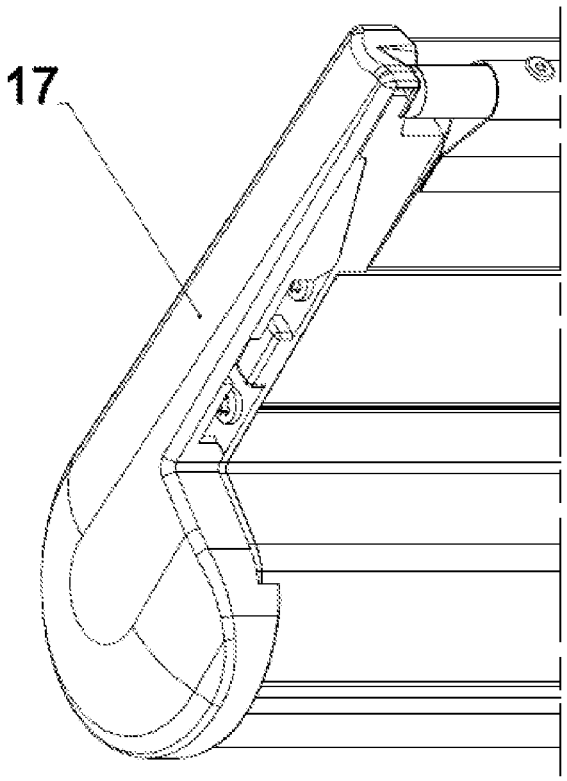

fig. 6

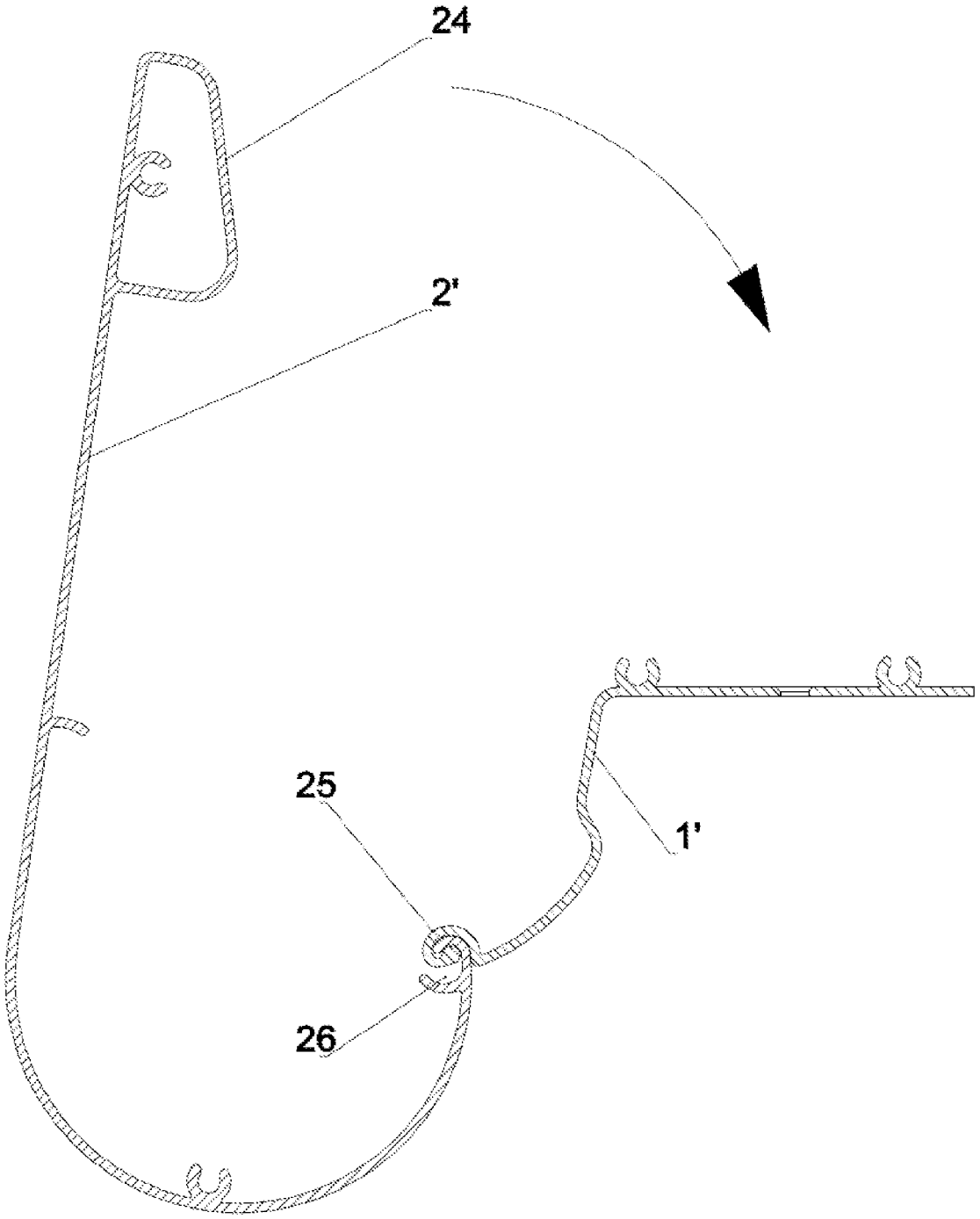

fig. 7

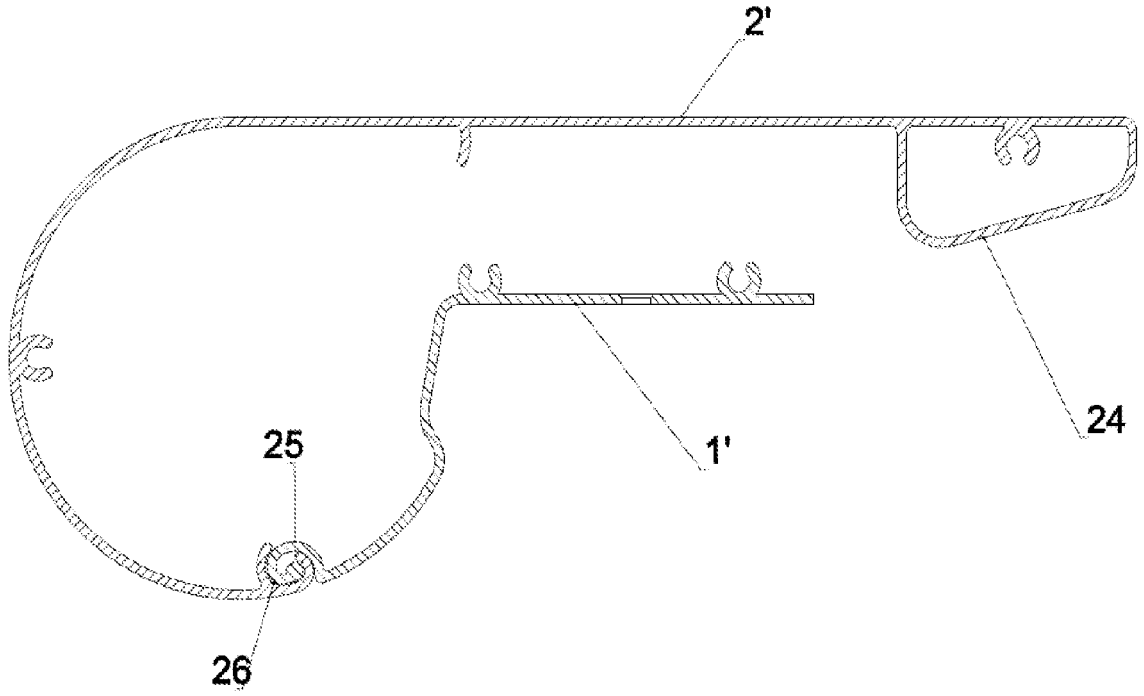

fig. 8