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(54) **MECHANISM BLOCKING THE ROTATION OF ROLLER BLINDS WINDING ROLLER WITH A SPRING DRIVE, SPECIALLY WINDOW BLINDS**

MECHANISMUS ZUR BLOKIERUNG DER ROTATION DER WELLE MIT AUFWICKELFEDER VON ROLLVORHÄNGEN, INSBESONDERE FENSTERROLLO

MÉCANISME BLOQUANT LA ROTATION D'UN ROULEAU D'ENROULEMENT DE STORE À ROULEAUX MUNI D'UN RAPPEL À RESSORT, NOTAMMENT POUR DES STORES DE FENÊTRE

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Description

[0001] The subject of invention is a mechanism blocking the rotation of roller blinds winding roller with a spring drive, specially a window blinds, used to block the sunshade in its set position of unwinding.

[0002] In rolling mechanisms there is often used a spring drive to pull in i.e. to lift and stretch the sunshade in the direction of winding. To keep the sunshade in a desired position of unwinding, blocking mechanisms are used. Exemplary mechanism blocking the sunshade in a desired position are known from patent specifications No. EP 044134; WO 91/03619 and US 4534396. Blocking mechanism is usually embedded into roller blinds' structure. In such designs, after the sunshade had been unrolled from the roller, it is blocked in its lower position.

[0003] From patent abstracts No. US 4372432 and US 5375643 it is known a helical spring partly wound round a plastic part. This solution is simpler design-wise than other known solutions although dimensional tolerances of the spring and of the plastic part do not allow to achieve a satisfactory design.

[0004] Also known, from the published application EP 0627542, is a mechanism to block rotation of a screen winding wheel, said mechanism having a sleeve rotatably supported on the winding axis, said sleeve comprising a track in form of a closed cam in which a ball is partly embedded, said ball also partly embedded in a cavity of an actuator, said actuator slidably disposed between the winding wheel and said sleeve with said track. A spring is disposed between the winding wheel and the actuator. Another winding spring is positioned between the winding pipe and the cam sleeve. On the winding axis a pin is rotatably mounted, said pin having holes for a locking element, and the pin is permanently fixed to the sleeve winding pipe. The sleeve with the cam is fixed rotatably in relation to the rotary actuator, which in turn is slidably embedded in relation to the sleeve and the pin.

[0005] Mechanism blocking the rotation of roller blinds winding roller with a spring drive, specially a window blinds, immovably fixed to roller blinds holder and its winding roller, according to the invention is characterized by the fact that it is built from a sleeve with four cams formed on its inner surface, whereas a pocket is formed in one of the middle cams, in that sleeve there is rotatably located a roller with a guide as an oblong groove, formed above the cams on its cylindrical side. Between the guide and cams there is a ball which during revolution of the roller against the sleeve, depending on the direction of that rotation, is moved between the cams or blocked in a pocket formed in the cam in positions from I to IV, blocking or releasing relative revolution of the roller and the sleeve.

[0006] Advantageously on the internal surface of the sleeve there are formed two cam systems of the same shape, offset one against another with 180° on the surface of the sleeve.

[0007] The advantage of the invention is design-wise simple solution allowing for reliable blocking of winding roller against roller blinds holders in different positions of unrolled sunshade, being wound onto winding roller.

[0008] The subject of invention is shown as example of realization, where fig. 1 presents longitudinal section of the blocking mechanism, fig. 2 presents unfold view of the sleeve's internal surface with the cams from fig. 1, fig. 5 presents unfold view of the sleeve surface.

[0009] Blocking mechanism immovably fixed to roller blinds holder and its winding roller, on which the sunshade is wound up, consists of sleeve 1 on whose internal surface cams 2a, 2b, 2c and 2d are formed whereas in the cam 2b there is formed a pocket 2e. Sleeve 1 is supported rotatably on roller 3, in the cylindrical surface of that roller there is formed a guide 4 as an oblong groove. In the guide 4 there is partially seated a ball 5, the other part of which, protruding above the surface of roller 3, is located bet ween cams 2a, 2b, 2c and 2d. The ball 5, during revolution of the roller 3 against the sleeve 1, depending on the direction of that revolution, is blocked in a pocket 2e formed in the cam 2b or moves freely between cams 2a, 2b, 2c, 2d in positions I, II, III, IV marked in fig. 2.

[0010] Blocking mechanism can be embedded into roller blinds construction in the following way. Roller 3 of the blocking mechanism is immovably fixed to roller blinds holder and sleeve 1 is immovably fixed to winding roller of roller blinds-In the rest point of roller blinds, what means entirely wound up sunshade, on winding roller the ball 5 takes position I in guide 4 of roller 3 between cams 2a and 2b, whereas position I allows for rolling of the sunshade. In case of unrolling of the sunshade, wound up on winding roller with at least half-turn if the winding roller, ball 5 moves through position IV into position II between cams 2c and 2d. In this position mechanism allows for unrolling of the sunshade to its desired length, after decelerated unrolling the spring mechanism operates and there is changed direction of revolution of winding roller and rolling of the sunshade. Ball 5 is moved into position III into pocket 2e of cam 2b. In this position of the ball 5 mechanism is blocked and the sunshade at its desired length is stopped. To unlock the mechanism and allow for rolling the sunshade it is needed to slightly pull the sunshade downwards so that winding roller revolves between 1/5 and 1/2 of a turn what makes the ball 5 to move into position I between cams 2a and 2c.

[0011] If the blocked sunshade is pulled with more than 1/2 of a turn and next is released, then the ball 5 moves through IV and position II into position III and the sunshade in blocked in a new position.

[0012] In another example of realization the blocking mechanism is built from sleeve 1, roller 3 and guide 4 with a ball 5, however on cylindrical part of sleeve 1 there are formed two pairs of cams 2a, 2b, 2c and 2d, offset one against another with 180°, fig. 5.

Claims

1. Mechanism blocking the rotation of roller blinds winding roller with a spring drive, specially a window blinds, immovably fixed to roller blinds holder and its winding roller, having a sleeve with a cam guide for a ball, characteristic that it is built from a sleeve (1) with four cams (2a), (2b), (2c), (2d) formed on its inner surface, a pocket (2e) being formed in said cam (2b), and the sleeve (1) is rotatably supported on a roller (3), said roller (3) having on its cylindrical surface a guide (4) formed as an oblong groove, and between the guide (4) and the cams (2a), (2b), (2c) and (2d) there is a ball (5) which during revolution of the roller (3) against the sleeve (1), depending on the direction of that rotation, is moved between the cams (2a), (2b), (2C) and (2d) or blocked in a pocket (2e) formed in the cam (2b) in positions from I to IV, blocking or releasing relative revolution of the roller (3) and the sleeve (1).

2. Mechanism according to claim 1, characteristic that on the internal surface of the sleeve (1) there are formed two cam systems by cams (2a), (2b), (2c) and (2d), offset one against another by 180° with a formed pocket (2e), cams (2c) and (2d).

Patentansprüche

1. Ein die Drehbewegung der Wickelwelle des Rollladens mit federgespeichertem Antrieb blockierendes Verriegelungssystem, insbesondere des Fensterrollladens, mit einem Montagehalter und einer Wickelwelle des Rollladens unbeweglich verbunden, das eine Buchse mit einer Nockenführung für die Kugel aufweist, **dadurch gekennzeichnet, dass** es aus einer Buchse (**1**) mit vier an ihrer inneren Fläche geformten Nocken (**2a**), (**2b**), (**2c**), (**2d**) besteht, wobei der Sitz (**2e**) im Nocken (**2b**) geformt ist und darüber hinaus die Buchse an der Welle (**3**) drehbar gelagert ist, die an der zylinderförmigen Fläche eine Führung (**4**) in Form einer Längsnut aufweist, und zwischen der Führung (**4**) und den Nocken (**2a**), (**2b**), (**2c**), (**2d**) hingegen eine Kugel (**5**) angebracht ist, die bei der Relativdrehung zwischen der Welle (**3**) und der Buchse (**1**) in Abhängigkeit von der Richtung zwischen den Nocken (**2a**), (**2b**), (**2c**), (**2d**) verlagert beziehungsweise in dem im Nocken (**2b**) geformten Sitz (**2e**) in der Lage von I bis IV blockiert wird, indem sie die Relativdrehung zwischen der Welle (**3**) und der Buchse (**1**) blockiert oder freigibt.

2. Das Verriegelungssystem nach dem Anspruch 1, **dadurch gekennzeichnet, dass** an der inneren Fläche der Buchse (**1**) ein Doppelsystem von Nocken (**2a**), (**2b**), (**2c**), (**2d**) geformt ist, wobei das eine System gegen dem anderen um 180° mit geformtem Sitz (**2e**) sowie Nocken (**2c**) und (**2d**) verschoben ist.

Revendications

1. Le mécanisme de blocage du movement rotatif du rouleau d'enroulement du rideau avec un entraînement à ressort, en particulier du rideau de fenêtre, reliée de manière fixe avec une poignée de montage du rideau et avec le rouleau d'enroulement du rideau, comportant un manchon avec une came de guidage pour la bille, **caractérisé en ce qu'**il comprend un manchon (1) avec quatre cames (2a), (2b), (2c) et (2d) formées sur son surface intérieure, et où le siège (2e) est formé dans la came (2b), et le manchon (1) est monté rotativement sur un arbre (3), ayant sur la surface cylindrique un guide (4), sous la forme d'une rainure longitudinale, et entre le guide (4) et les cames (2a), (2b), (2c) et (2d) est disposée une bille (5), laquelle lors de la rotation relative entre l'arbre (3) et le manchon (1) en fonction de la direction, est déplacée entre les cames (2a), (2b), (2c), (2d) ou bloquée dans le siège (2e) formé dans la came (2b) dans la position de I à IV, pour blocquer ou libérer la rotation relative entre l'arbre (3) et le manchon (1).

2. Le mécanisme de blocage selon la revendication 1, **caractérisé en ce que** sur la surface intérieure du manchon (1) est formé un double système des cames (2a), (2b), (2c) et (2d), et où l'un desdits systèmes est décalé par rapport à l'autre de 180°, avec formé le siège (2e), les cames (2c) et (2d).

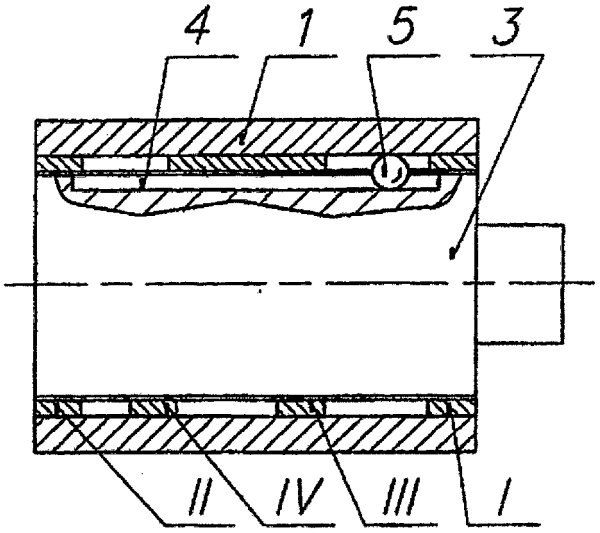

Fig. 1

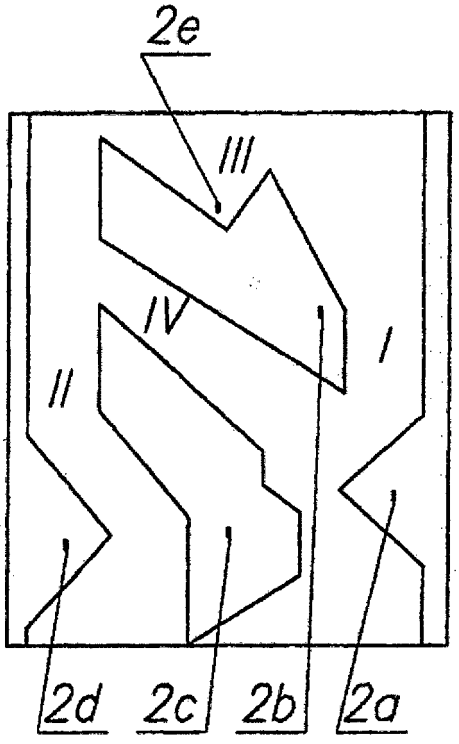

Fig. 2

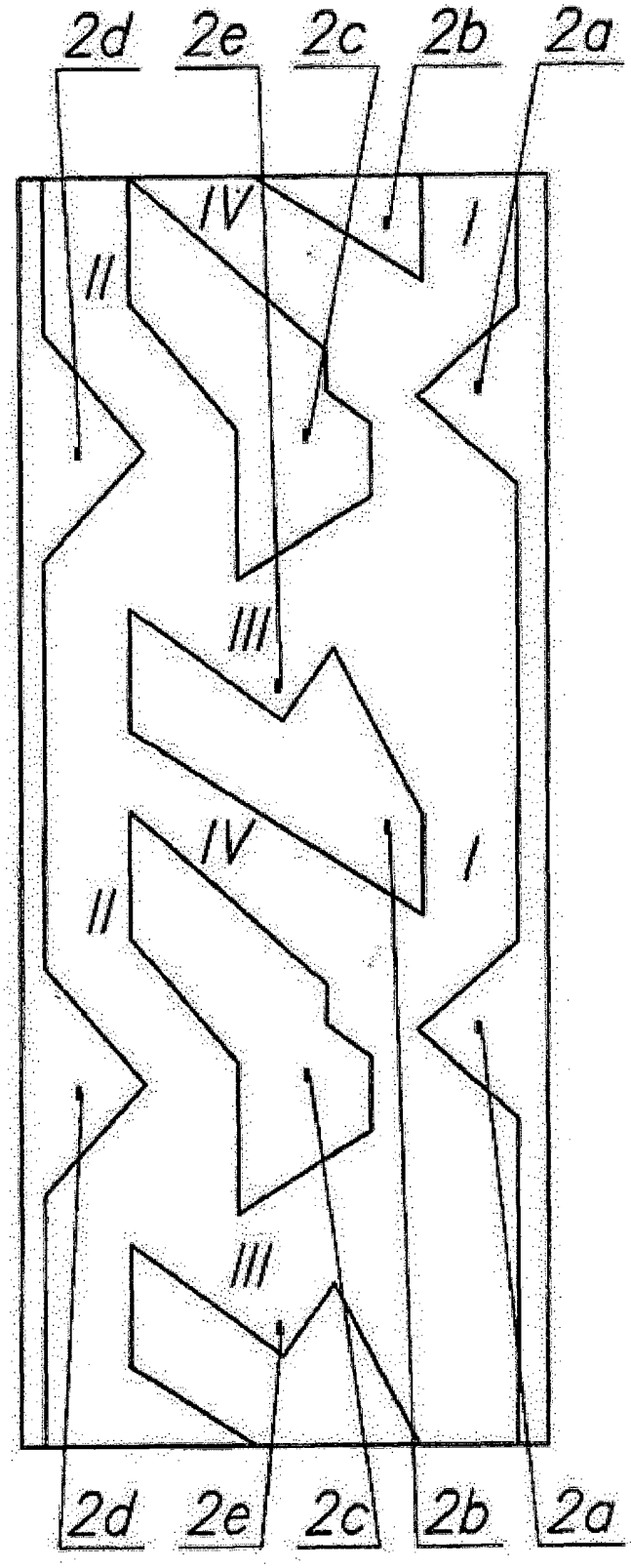

Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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