



(11) **EP 2 469 009 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
22.01.2014 Bulletin 2014/04

(51) Int Cl.:
E06B 9/54 (2006.01)

(21) Application number: **11193155.6**

(22) Date of filing: **13.12.2011**

(54) **Roller mosquito net**

Moskitorollnetz

Moustiquaire roulant

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **22.12.2010 IT TO20101038**

(43) Date of publication of application:
27.06.2012 Bulletin 2012/26

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Description

[0001] The present invention is relative to a roller mosquito net and, in particular, to a roller mosquito net with supports, preferably magnetic supports, adapted to avoid the formation of bends when the guide elements are stretched. Roller mosquito nets typically comprise a screen wound on a roller, which is supported by a vertical fixed sectional element fitted to the frame and is fixed, at its free end, to a sectional element that slides when it is manually pulled to open and close the screen itself.

[0002] Furthermore, during the opening and the closing procedure, the guide elements of the screen slide inside the sectional element, which is manually translated to open and close the screen. A typical example of a roller mosquito net is described in patent EP 1905944.

[0003] Said guides, in the upper portion of the frame, tend to bend in the middle, when the mosquito net is completely stretched, especially if the window has one single opening and is very large.

[0004] This bending generates a passage that allows insects to enter the room that is supposed to remain insect-free, thus causing the mosquito net to lose its function of protection against insects.

[0005] The object of the present invention is to solve the problems described above by providing a mosquito net, which is provided with supports, preferably magnetic supports, which are suited to avoid the formation of bends when the upper guide elements are stretched.

[0006] The present invention will now be described with reference to the accompanying drawings, which illustrate a non-limiting embodiment, wherein:

- figure 1 shows a roller mosquito net according to the present invention;
- figure 2 shows a prospective view of a detail of a second embodiment of the roller mosquito net according to the present invention;
- figures 3A and 3B show, in a prospective view, the detail of the guide, in a section view, and of the guide element comprising the bodies of the roller mosquito net according to the present invention in two different alternative embodiments.

[0007] With reference to figure 1, the mosquito net comprises a fixed sectional element 10 and a mobile sectional element 11, which is substantially arranged parallel to fixed sectional element 10, which contains an inner roller (not shown), on which screen 13 of mosquito net 1 is wound. Screen 13 is held by fixed sectional element 10, at the end that is not wound on inner roller.

[0008] Mosquito net 1 comprises, furthermore, guide elements 14 and 24, which are respectively arranged on the upper and lower edge and are fixed, in correspondence to their first ends, to respective end pieces 15 and 26.

[0009] The other ends of guide elements 14 and 24 slide on rotation end pieces 18 and 19, which are firmly

constrained to fixed sectional element 10, and, while sliding, they move forward inside fixed sectional element 10 itself.

[0010] The elements of upper guide 14, furthermore, slide inside a guide sectional element 9, which is supported by frame 20 of mosquito net 1.

[0011] In figure 1, sectional element 9 is moved to the side, so as to allow a better vision of upper guide 14.

[0012] Guide elements 14 and 24 substantially form a chain of bodies 30, 30', which are hinged to each other.

[0013] Mosquito net 1 comprises, furthermore, support means, adapted to support upper guide element 14, for example by attracting element 14 towards sectional element 9, so as to keep said guide element 14 stretched and avoid the formation of bends when said mosquito net 1 is stretched. Said support means comprise a first magnetic portion 41, which is preferably made of a material with magnetic features, such as for example natural or induced magnets, and a second metal portion 42, which is made of a metal material adapted to interact with materials with magnetic features.

[0014] Portions 41 and 42 are respectively arranged, for example, on upper guide element 14 and inside sectional element 9, so as to interact with one another, for example by attracting one another until they strike one another thanks to the magnetic force generated by magnetic portion 41, so that metal portion 42 is attracted until it adheres to magnetic portion 41 itself.

[0015] Mosquito net 1 is operated by hand or by means of a motor, which, while rotating in a clockwise or anti-clockwise direction, actuates the forward or backward movement of mobile sectional element 11, so as to allow screen 13 of mosquito net 1 to be stretched or retracted without manual operations.

[0016] During the stretching of screen 13 of said mosquito net 1, said support means interact with one another, so that guide element 14 does not form bends.

[0017] In the embodiment shown in figures 1 and 3A, magnetic portion 41 is arranged inside sectional element 9 and metal portion 42 is arranged on at least one body 30 or 30' comprised in upper guide 14.

[0018] In the alternative embodiment shown in figures 2 and 3B, magnetic portion 41 is arranged on at least one body 30 or 30' and the metal portion is arranged inside sectional element 9.

[0019] Magnetic portion 41 preferably has an oblong sheet-like shape with a reduced thickness, adapted to avoid interferences with the sliding movement of mosquito net 1, when the latter is stretched or wound.

[0020] Magnetic portion 41 is fixed by means of fixing means, such as for example screws, or by means of gluing. Metal portion 42 preferably has an oblong sheet-like shape with a reduced thickness, adapted to avoid interferences with the normal sliding movement of mosquito net 1.

[0021] Metal portion 42 is fixed by means of fixing means, such as for example screws, or by means of gluing. Portions 41 or 42 are preferably fixed to bodies 30

and 30' on the upper surface of bodies 30 or 30' themselves and on the upper inner surface of sectional element 9.

[0022] Alternatively, said portions 41 or 42 are fixed on a lateral surface of said bodies 30 and 30' and, as a consequence, on the corresponding lateral inner surface of sectional element 9, so as to allow the interaction between said portions 41 or 42 with the purpose of avoiding the formation of bends. In the embodiment of mosquito net 1 shown in figures 2 and 3B, magnetic portion 41 has a reduced length with respect to sectional element 9 and is fixed along the center line of sectional element 9 itself.

[0023] In an embodiment of said mosquito net 1, magnetic portion 41 has a length that takes up almost the entire length of sectional element 9.

[0024] In a further embodiment of said mosquito net 1, there is a plurality of magnetic portions 42, which have a reduced length with respect to sectional element 9 and are fixed to sectional element 9 spaced apart at the same distance, so that the magnetic attraction effect is distributed on almost the entire length of sectional element 9.

[0025] In another embodiment of said mosquito net 1, there is a plurality of metal portions 42, which present a length that is equal to the length of body 30 or 30'.

[0026] As shown in figure 3, mosquito nets 1 can be provided, in which metal portion 42 is arranged on sectional element 9, while magnetic portion 41 is arranged on bodies 30 and 30'; in this case, all the combinations of embodiments described above can be applied by simply switching portions 41 and 42.

[0027] When the mobile sectional element overcomes the first half of the maximum extension of screen 13, it is necessary to support said guide element 14, in order to avoid the formation of bends.

[0028] In the explanatory and non-limiting solution, a plurality of bodies 30 or 30' are provided with a portion 41 or 42 of said support means, which are equally distributed, so that, during the stretching of said screen 13, said portions 41 or 42 interact in sequence with complementary portion 42 or 41, in order to support guide element 14.

[0029] The presence of support elements, furthermore, makes the sliding movement of bodies 30 and 30' easier, thus aiding the sliding movement of mobile sectional element 11, which allows a faster stretching of screen 13.

[0030] When mosquito net 1 has to be wound again, the force exerted by the motor to make mobile sectional element 11 get closer to fixed sectional element 10 is higher than the magnetic force that allows the interaction between magnetic portion 41 and metal portion 42.

[0031] In an alternative embodiment, sectional element 9 comprises metal portion 42, since sectional element 9 itself is made of a metal material adapted to interact with magnetic materials.

[0032] In a further embodiment, said sectional element 9 comprises magnetic portion 41, since at least one portion of the inner surface of said sectional element 9 is

coated with a magnetic material.

[0033] In an alternative embodiment, said support means comprise at least one first magnetic portion 41 and at least one second magnetic portion, which are arranged on mosquito net 1 so that the surfaces that strike each other present an opposite polarity, in order to guarantee a magnetic attraction between the parts.

[0034] In a further embodiment, said support means comprise at least one first magnetic portion 41 and at least one second magnetic portion, wherein, for example, the first magnetic portion 41 is electronically controlled by an electronic circuit, adapted to change the magnetic polarity of said portion 41.

[0035] Said controlled polarity change of a magnetic portion causes the two magnetic portions to attract one another during the stretching of screen 13, while, when screen 13 is wound, the two magnetic portions repel one another due to the fact that, for example, magnetic portion 41 has changed its polarity, thus assuming the same polarity of the second magnetic portion.

[0036] Said electronic circuit polarizes said magnetic portions, in order to change its magnetic polarity, as a function of the commands transmitted to the motor. Said magnetic portion controlled by the electronic circuit is made of a conductive material, adapted to change its magnetic polarity as a function of a signal that has been applied to it.

Claims

- Roller mosquito net (1), comprising a fixed sectional element (10), a mobile sectional element (11) disposed in a parallel way to said fixed sectional element (10) and a screen (13), wound at one end on a roller, the screen (13) having a first and second end and being positioned within said movable sectional element (11) and fixed at its opposite end to said fixed sectional element (10); the roller mosquito net (1) also comprising guide elements (14, 24) for the movable sectional element (11) made by a plurality of mutually hinged bodies (30, 30a), which slide inside a guide sectional element (9) carried by a frame of the mosquito net (1), said roller mosquito net (1) comprising support means (41, 42) for supporting the upper guide element (14) in order to avoid the formation of bends when the mosquito net (1) is stretched, **characterized in that** said support means comprise at least a metal portion (42) and at least a magnetic portion (41), the one being associated to the upper guide (14) and the other being associated to the sectional element (9) for mutually interact, by attracting the upper guide element (14) to the guide sectional element (9).
- Mosquito net according to claim 1, wherein said metal and magnetic portions (41 and 42) have a laminar shape for not interfering with the operation of said

mosquito net (1).

3. Mosquito net according to claim 1, wherein the magnetic portion (41) is fixed to the sectional element (9) and the metal portion (42) is fixed to the bodies (30 and 30') of the upper guide (14). 5
4. Mosquito net according to claim 3, wherein the magnetic portion (41) is fixed to the centre of the guide sectional element (9), and the metal portion (42) is fixed to a plurality of bodies (30) of the upper joint (14) non consecutive and equally distributed. 10
5. Mosquito net according to claim 1, wherein the magnetic portion (41) is fixed to the bodies (30, 30') and the metal portion (42) is fixed to the guide sectional element (9). 15
6. Mosquito net according to claim 5, wherein the magnetic portion (41) has a length which nearly occupies the whole of the guide sectional element (9). 20
7. Mosquito net according to claim 1, wherein said support means comprise at least a first magnetic portion (41) and at least a second magnetic portion, in which the two magnetic portions (41) have opposite polarities, for mutually interacting, by attracting the upper guide element (14) towards the guide sectional element (9). 25
8. Mosquito net according to claim 7, wherein the first magnetic portion (41) is fixed to the guide sectional element (9) and the second magnetic portion is fixed to the bodies (30, 30'). 30
9. Mosquito net according to claim 7, wherein a magnetic portion (41) is electronically controlled by an electronic circuit for modifying the magnetic polarity of such portion (41). 35

Patentansprüche

1. Insektenschutzrollo (1), das ein stationäres Teilelement (10), ein bewegliches Teilelement (11), das auf parallele Art und Weise an dem stationären Teilelement (10) angeordnet ist, und eine Abschirmung (13) aufweist, die an einem Ende auf eine Rolle gewickelt ist, wobei die Abschirmung (13) ein erstes und ein zweites Ende hat und innerhalb des beweglichen Teilelements (11) positioniert und an ihrem entgegengesetzten Ende an dem stationären Teilelement (10) befestigt ist; wobei das Insektenschutzrollo (1) auch Führungselemente (14, 24) für das bewegliche Teilelement (11) aufweist, die aus einer Vielzahl gegenseitig scharniervverbundener Körper (30, 30a) bestehen, die innerhalb eines Führungsteilelements (9) gleiten, das von einem Rahmen des Insekten-

schutzrollos (1) getragen wird, wobei das Insektenschutzrollo (1) ein Tragmittel (41, 42) zum Tragen des oberen Führungselements (14) aufweist, um das Bilden von Knicken zu vermeiden, wenn das Insektenschutzrollo (1) gestreckt wird, **dadurch gekennzeichnet, dass** das Tragmittel mindestens einen metallischen Abschnitt (42) und mindestens einen magnetischen Abschnitt (41) aufweist, wobei der eine mit der oberen Führung (14) und der andere mit dem Teilelement (9) verbunden ist, um gegenseitig in Wechselwirkung zu treten, indem das obere Führungselement (14) zu dem Führungsteilelement (9) angezogen wird.

2. Insektenschutzrollo nach Anspruch 1, wobei der metallische und der magnetische Abschnitt (41 und 42) eine laminare Form haben, um den Betrieb des Insektenschutzrollos (1) nicht zu beeinträchtigen.
3. Insektenschutzrollo nach Anspruch 1, wobei der magnetische Abschnitt (41) an dem Teilelement (9) befestigt ist und der metallische Abschnitt (42) an den Körpern (30 und 30') der oberen Führung (14) befestigt ist.
4. Insektenschutzrollo nach Anspruch 3, wobei der magnetische Abschnitt (41) an der Mitte des Führungsteilelements (9) befestigt ist und der metallische Abschnitt (42) an einer Vielzahl von Körpern (30) der oberen Verbindung (14) nicht aufeinanderfolgend und gleichmäßig verteilt befestigt ist. 30
5. Insektenschutzrollo nach Anspruch 1, wobei der magnetische Abschnitt (41) an den Körpern (30, 30') befestigt ist und der metallische Abschnitt (42) an dem Führungsteilelement (9) befestigt ist. 35
6. Insektenschutzrollo nach Anspruch 5, wobei der magnetische Abschnitt (41) eine Länge hat, die fast das vollständige Führungsteilelement (9) belegt. 40
7. Insektenschutzrollo nach Anspruch 1, wobei das Tragmittel mindestens einen ersten magnetischen Abschnitt (41) und mindestens einen zweiten magnetischen Abschnitt aufweist, wobei die zwei magnetischen Abschnitte (41) entgegengesetzte Polungen haben, um miteinander in Wechselwirkung zu treten, indem sie das obere Führungselement (14) zu dem Führungsteilelement (9) anziehen.
8. Insektenschutzrollo nach Anspruch 7, wobei der erste magnetische Abschnitt (41) an dem Führungsteilelement (9) befestigt ist und der zweite magnetische Abschnitt an den Körpern (30, 30') befestigt ist.
9. Insektenschutzrollo nach Anspruch 7, wobei ein magnetischer Abschnitt (41) elektronisch von einer elektronischen Schaltung zum Ändern der magneti-

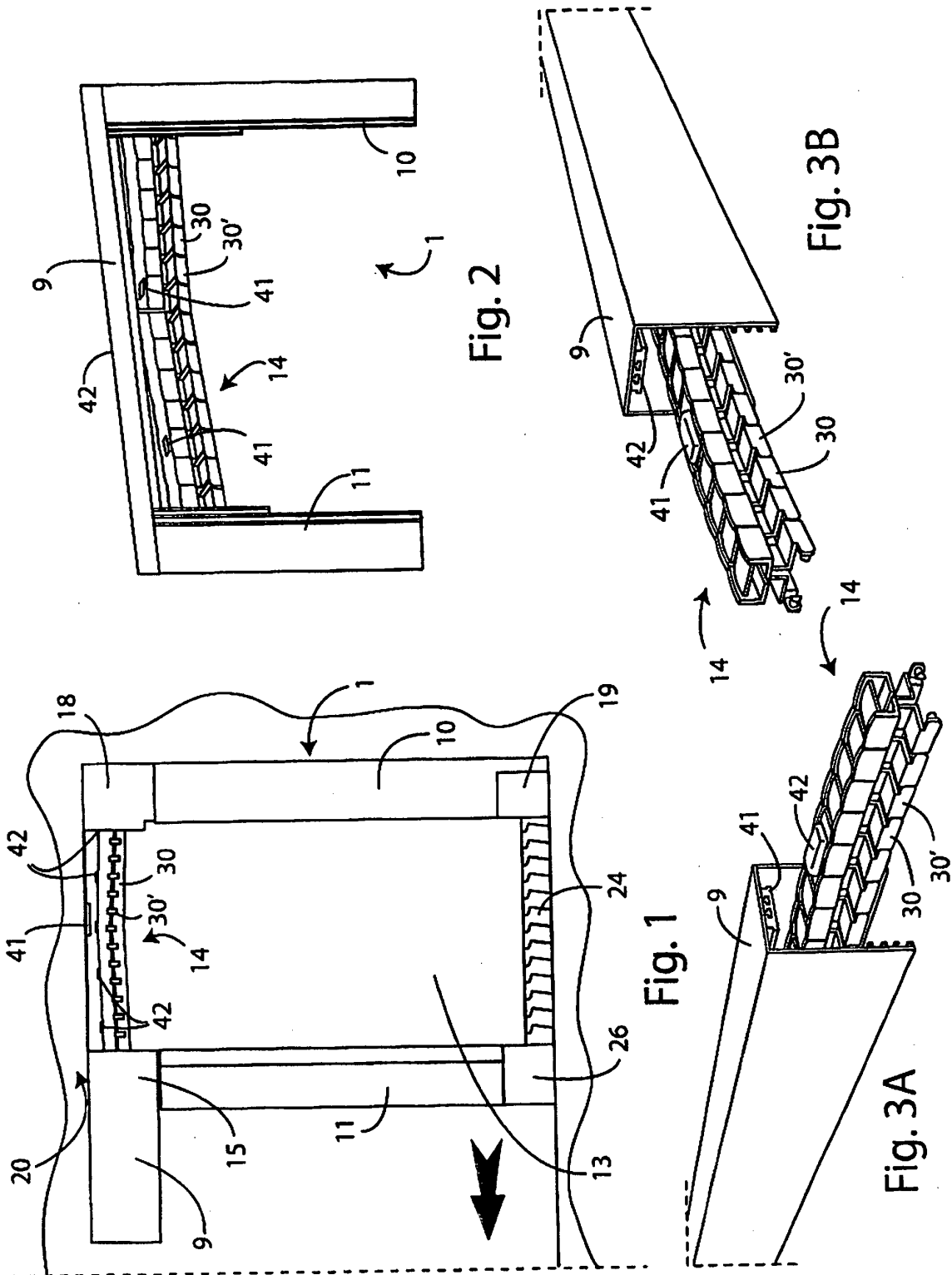
schen Polung dieses Abschnitts (41) gesteuert wird.

Revendications

1. Moustiquaire à rouleaux (1) comprenant un élément transversal fixe (10), un élément transversal mobile (11) disposé parallèlement au dit élément transversal fixe (10) et une toile (13), enroulée à une extrémité sur un rouleau, la toile (13) ayant une première et une seconde extrémité et étant positionnée à l'intérieur dudit élément transversal mobile (11) et étant fixée au niveau de son extrémité opposée au dit élément transversal fixe (10), la moustiquaire à rouleaux (1) comprenant également des éléments de guidage (14, 24) pour l'élément transversal mobile (11) constitués d'une pluralité de corps articulés les uns aux autres (30, 30a), qui coulissent à l'intérieur d'un élément transversal de guidage (9) porté par un châssis de la moustiquaire (1), ladite moustiquaire à rouleaux (1) comprenant des moyens de support (41, 42) permettant de supporter l'élément de guidage supérieur (14) afin d'éviter la formation de courbures lorsque la moustiquaire (1) est déployée, **caractérisée en ce que** lesdits moyens de support comprennent au moins une portion métallique (42) et au moins une portion magnétique (41), l'une étant associée au guide supérieur (14) et l'autre étant associée à l'élément transversal (9) afin d'agir l'une sur l'autre, en attirant l'élément de guidage supérieur (14) vers l'élément transversal de guidage (9).
2. Moustiquaire selon la revendication 1, dans lequel lesdites portions métallique et magnétique (41 et 42) ont une forme laminaire afin de ne pas interférer avec le fonctionnement de ladite moustiquaire (1).
3. Moustiquaire selon la revendication 1, dans lequel la portion magnétique (41) est fixée à l'élément transversal (9) et la portion métallique (42) est fixée aux corps (30 et 30') du guide supérieur (14).
4. Moustiquaire selon la revendication 3, dans lequel, la portion magnétique (41) est fixée au centre de l'élément transversal de guidage (9) et la portion métallique (42) est fixée à une pluralité de corps (30) du joint supérieur (14) non consécutifs et répartis à égale distance.
5. Moustiquaire selon la revendication 1, dans lequel la portion magnétique (41) est fixée aux corps (30, 30') et la portion métallique (42) est fixée à l'élément transversal de guidage (9).
6. Moustiquaire selon la revendication 5, dans lequel la portion magnétique (41) a une longueur qui occupe pratiquement l'intégralité de l'élément transversal

de guidage (9).

7. Moustiquaire selon la revendication 1, dans lequel lesdits moyens de support comprennent au moins une première portion magnétique (41) et au moins une seconde portion magnétique, dans laquelle les deux portions magnétiques (41) ont des polarités opposées, afin d'agir mutuellement l'une sur l'autre, en attirant l'élément de guidage supérieur (14) vers l'élément transversal de guidage (9).
8. Moustiquaire selon la revendication 7, dans laquelle la première portion magnétique (41) est fixée à l'élément transversal de guidage (9) et la seconde portion magnétique est fixée aux corps (30, 30').
9. Moustiquaire selon la revendication 7, dans laquelle une portion magnétique (41) est contrôlée électroniquement par un circuit électronique permettant de modifier la polarité magnétique de cette portion (41).



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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