



(11) **EP 2 905 415 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
27.06.2018 Bulletin 2018/26

(51) Int Cl.:
E06B 9/266^(2006.01) E06B 9/384^(2006.01)

(21) Application number: **15153998.8**

(22) Date of filing: **05.02.2015**

(54) **DEVICE AND METHOD FOR APPLYING HOOKS OR CLIPS TO THE SLATS OF VENETIAN BLINDS WITH FOLDED EDGES PROVIDED WITH ABUTMENT GASKETS**

VORRICHTUNG UND VERFAHREN ZUR ANWENDUNG VON HAKEN ODER CLIPS BEI LAMELLEN VON JALOUSIEN MIT GEFALZTEN RÄNDERN MIT ANSCHLAGSDICHTUNGEN VERSEHEN

DISPOSITIF ET PROCÉDÉ POUR APPLIQUER DES CROCHETS OU DES CLIPS À DES LATTES DE STORES VÉNITIENS AVEC BORDS REPLIÉS FOURNIS AVEC DES JOINTS DE BUTÉE

(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: **07.02.2014 IT PD20140020**

(43) Date of publication of application:
12.08.2015 Bulletin 2015/33

(73) Proprietor: **Dallan S.p.A.**
31033 Castelfranco Veneto (Treviso) (IT)

(72) Inventor: **DALLAN, Sergio**
31033 Castelfranco Veneto (Treviso) (IT)

(74) Representative: **Zanettin, Gianluigi**
Jacobacci & Partners S.p.A.
Via Berchet, 9
35131 Padova (IT)

(56) References cited:
EP-A2- 2 653 646 FR-A1- 2 543 211

EP 2 905 415 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Field of application

[0001] This invention covers a device and method for applying hooks or clips to the slats of Venetian blinds with folded edges provided with abutment gaskets.

State of the art

[0002] As is known, Venetian blinds are constituted by a plurality of slats, arranged parallel to each other and maintained in position by string support structures. These structures are essentially of two types.

[0003] A first type of structure is called "complete ladder", i.e., constituted by two parallel ribs (arranged in the direction of the height of the blinds) and a plurality of crosspieces that connect them to each other at regular distances. A slat is associated to each crosspiece, supported (if the crosspiece is single) or inserted (if the crosspiece is multiple).

[0004] A second type of structure is called "separate ladders" or "semi-ladder", i.e., constituted by two cords separated from each other and each provided with a plurality of string eyelets, distributed at regular distances along the single cord. The support cords are positioned in pairs on opposite sides of the slats, generally transversely aligned. The cords are associated to the slats at the eyelets using clips or hooks fastened on the side edges of the slats themselves. The slats, which may have any section such as C, Z or S-shaped, must have folded edges B (as shown in Figure 1) so as to constitute a reinforced zone capable of rigidly supporting a hook or clip.

[0005] In a Venetian blind slats come into contact with each other at the longitudinal edges. To prevent wear or scraping of the slats at the contact points and reduce noise resulting from contact between the slats, abutment gaskets are inserted along the edges. Figure 2 shows a slat with folded edges provided with an abutment gasket S. More in detail, these abutment gaskets S are constituted by an elongated anchoring portion S1, which is inserted inside the folded edge of the slat, and a covering tongue S2, which extends from the anchoring portion S1 to cover the inside of the folded edge and protrude from the slat so as to be interposed between the slat and another slat in the contact zone.

[0006] Devices are known for the automatic application of the hooks or clips on the folded edges of the slats. These devices are constituted by a central guide A along which the slat L slides, as shown in Figures 3 and 4. Laterally to such a guide, a matrix M is positioned on each side to lock the folded edge of the slat. This matrix consists of two movable parts, which are coupled together to grip the edge of the slat in a locking seat D.

[0007] A first part M1 of the matrix is arranged on the outside side of the slat and carries a hook feeder A and a pusher element P. The pusher element P is guided to

enter inside the locking seat D defined by the two parts of the matrix, carrying in front of itself a single hook to apply to the edge. The hooks are positioned placed in front of the head of the pusher element through a chute C connected to the feeder A. The second part M2 of the matrix is arranged on the inner side of the slat, below it, as shown in Figures 3 and 4.

[0008] An example of a device for the automatic application of the hooks or clips on the folded edges of the slats is disclosed in EP2653646A2 in the name of the same applicant.

[0009] Such devices, although very efficient and reliable, however, are nevertheless not suitable for the application of hooks on slats with folded edges provided with abutment gaskets S. When applied on the edge of the slat, the hooks would pierce the entire gasket S, including the covering tongue S2, locking the latter against the edge of the slat. This reduces the flexibility of the tongue S2, accelerating wear over time and thus reducing functionality.

[0010] There is therefore the need in the field of the production of Venetian blinds to have a device which allows the application of hooks or clips on slats with folded edges provided with abutment gaskets, leaving the covering tongues of the gaskets completely free from the hooks.

Presentation of the invention

[0011] Therefore, the purpose of this invention is to totally or partially eliminate the drawbacks of the prior art cited above, by providing a device and a method for applying hooks or clips on slats of Venetian blinds with folded edges provided with abutment gaskets that allows the application of hooks or clips on slats provided with abutment gaskets, leaving the covering tongues of the gaskets completely free from the hooks.

[0012] A further purpose of this invention is to make available a device for applying hooks or clips to the slats of Venetian blinds with folded edges provided with abutment gaskets that is both simple to manage and reliable.

[0013] A further purpose of this invention is to make available a device for applying hooks or clips to the slats of Venetian blinds with folded edges provided with abutment gaskets that is both simple and inexpensive to manufacture.

Brief description of the drawings

[0014] The technical characteristics of the invention, according to the above-mentioned purposes, can be clearly understood from the claims listed below and its advantages will become more apparent from the detailed description that follows, made with reference to the attached drawings, which show one or more purely exemplary and non-limiting embodiments wherein:

- Figure 1 shows a perspective view of an example of

- a slat with folded edges;
- Figure 2 shows an orthogonal side view of an example of a slat with folded edges provided with abutment gasket;
- Figures 3 and 4 show a device for applying hooks of known type, in two different operating positions;
- Figures 5 to 10 schematically show the operation of a device for the application of hooks or clips on slats of Venetian blinds according to an embodiment of the invention.

Detailed description

[0015] With reference to the attached drawings, 1 indicates a device for applying hooks or clips to the slats of Venetian blinds with folded edges provided with abutment gaskets according to the invention.

[0016] As will be clearly described below, the device 1 according to the invention allows the application of hooks or clips on slats with folded edges provided with abutment gaskets, leaving the covering tongues of the gaskets completely free from the hooks.

[0017] Advantageously, the device 1 can be inserted into a unit for stacking slats on support semi-ladders for the production of Venetian blinds, and in particular, it can be inserted in the stacking unit covered by patent application No. PD2012A000061 in the name of the same applicant.

[0018] Here and in the following description and claims, reference will be made to the device 1 in condition of use. References to a lower or higher position must be understood in this sense.

[0019] According to a general embodiment of the invention, the device 1 for the application of hooks or clips on slats of Venetian blinds comprises a guide (not shown in the attached drawings) which defines a track 2 along which a slat L is positioned. In particular, along this track 2 the slat L is made to slide to bring different portions of the edge in correspondence to the matrix 10.

[0020] Operationally, the guide is suitable to position the slat L so that it is placed in one of the two half-spaces 01 and 02 defined by a reference plane m and in such a way that the slat L has its longitudinal edges B1, B2 positioned on this reference plane m. The half-space occupied by the slat is indicated with 01 in the attached drawings.

[0021] Preferably, in a condition of use, the above reference plane m is horizontal and the slat L is arranged above the plane, i.e., in the upper half-space 01. However may embodiments be envisaged in which this reference plane is not horizontal.

[0022] Still according to the above general embodiment, the device 1 comprises at least a first matrix 10, which is arranged in the vicinity of the track 2 and defines a seat 13 destined to receive a portion of a longitudinal edge B1 of the slat L.

[0023] This matrix 10 comprises at least one access aperture 14 to the seat 13. Through this aperture 14,

hooks or clips G are made to enter into the seat 13 to be applied to the edge portion housed therein (as can be seen in the sequence of Figures 5 to 10).

[0024] Said seat 13 is formed at the interface between a first portion 11 and a second portion 12 in which the first matrix 10 is divided.

[0025] These two portions 11, 12 of the matrix are movable with respect to the reference plane m between:

- a closed position, in which the two portions 11, 12 are juxtaposed to close the seat 13 around the edge portion B1 so as to hold it locked in position and allow the application of at least one hook or clip (see Figures 7 and 8); and
- at least one open position, in which the two portions 11, 12 of the matrix are distanced from each other to open the seat 13 and thus free the movement of the slat (see in particular Figures 5 and 10).

[0026] A first portion 11 of the matrix is provided with a projecting appendage 15 destined to skim the edge B of the slat.

[0027] Operationally, in passing from said open position to said closed position, the first portion 11 is movable so as to move this projecting appendage 15 from a position outside the track 2 (see Figure 5) to a position inside the track (see Figure 6), so that this appendage 15 crosses the edge B1 of the slat L, remaining in the half-space 02 not occupied by the slat and tangent to the reference plane m (see sequence Figures 5 and 6).

[0028] In this way, if the slat L is provided with an abutment gasket S with a tongue S2 covering the folded edge B, the appendage 15, with its movement from the outside position to the inside position, engages the covering tongue S2, moving the tongue away from the B1 and preventing it from being closed inside the seat 13.

[0029] From the above description it is clear how the device 1 according to the invention allows distancing a covering tongue S2 of a possible abutment gasket from the edge of a slat before the edge B1 is closed inside the seat 13 for the application of a hook or clip G. Operationally, when the first portion 11 is brought into the closed position together with the second portion 12 of the matrix, the covering tongue S2 is moved away from the edge through the interposition of the appendage 15 and, therefore, the application of a hook or clip cannot involve the tongue.

[0030] According to a preferred embodiment shown in the attached drawings, in said closed position, the appendage 15 of the first portion 11 of the matrix 10 defines, at least partly, the seat 13 in which the edge portion B is locked. In other words, the appendage 15 is positioned at the interface with the second portion 12 of the matrix. This constructional feature is advantageous in that it simplifies the structure of the first portion 11 of the matrix 10. In fact, the appendage 15 acts as both an interposition element between the edge B1 of the slat and the covering tongue S2, and a delimiting element of the seat 13.

[0031] Operationally, according to a preferred embodiment, the first portion 11 of the matrix 10 is moveable in such a way that, once the appendage 10 has been brought into said position inside the track 2, the appendage 15 passes beyond the reference plane m and moves at least partially into the half-space 01 occupied by the slat L, inserting itself between the edge B of the slat and the covering tongue S2 (see sequence Figures 6 and 7).

[0032] Advantageously, when the first portion 11 is brought into the closed position, the appendage 15 (interposed between the edge B1 of the slat L and the tongue S2 of the gasket S) can be brought close to the edge, delimiting the seat 13.

[0033] Advantageously, the device 1 according to the invention comprises means (not shown in the attached figures) for moving the two portions 11,12 of the matrix between said open position and said closed position. Preferably such movement means are suitable to separately move the two portions 11 and 12 of the matrix 10. In particular, these movement means may comprise carriages associated to the two portions of the matrix and related actuator means.

[0034] Preferably, the movement of the two portions 11 and 12 of the matrix 10 is controlled by a logic control unit (not shown in the attached figures) that controls the movement means according to a predefined movement logic of the two portions, and in particular of the first portion 11.

[0035] As previously mentioned, in a condition of use, the reference plane m is preferably horizontal and the slat L is arranged above the plane. In this case, the first portion 11 of the matrix, i.e., the portion that carries the projecting appendage 15, moves and positions itself - at least in some operational phases - below the slat L, and, thus, "internally" to the slat (at least with the projecting appendage 15), while the second portion 12 is maintained "externally" to the slat.

[0036] Regardless of the spatial orientation of the reference plane m, in the closed position the first portion 11 of the matrix is always interacting with the inner surface of the folded edge of the slat. Here, "inner surface" means the surface facing towards the centreline of the slat itself, in contrast with the "outer surface", which is, instead, facing in the opposite direction. The application of the hooks or clips takes place in correspondence to the outer surface of the edge of the slat, since the hook or the clip must be placed on the outside edge in order to be associated to a supporting semi-ladder. On the inner surface of the edge - in the opposite position to the direction of application of the hook - the hook or the clip only grips to anchor itself firmly to the slat.

[0037] Advantageously, the first portion 11 of the matrix 10 is provided with one or more cavities open on the seat 13, which are suitable to guide the closing of a hook or clip G against the edge portion B. The access aperture 14 to the seat 13 (through which the hooks or clips are applied on the edge) is, instead, formed in the second portion 12 of the matrix.

[0038] Preferably, the device 1 comprises:

- a hook or clip feeder G (not shown in the attached figures) suitable for placing hooks in the matrix 13 at the access aperture 14; and
- a pusher element (not shown in the attached figures) suitable to engage the access aperture 14 to push a hook G positioned therein against the edge portion B closed in the seat 13.

[0039] Preferably, as shown in the attached drawings, said first matrix 10 is positioned on a first side 2' of the track 2 along which a slat L is positioned.

[0040] Preferably, the device 1 comprises a second matrix (not shown) structurally and functionally identical to the first at least as described above. This second matrix is arranged on a second side 2" of the track opposite to the first side 2'. This second matrix allows the application of hooks or clips on an edge B2 of the slat opposite to that on which the first matrix 10 can operate.

[0041] This invention covers a method for applying hooks or clips to the slats of Venetian blinds with folded edges provided with abutment gaskets.

[0042] Preferably, but not necessarily, the method is applied on a device 1 according to this invention.

[0043] According to a general embodiment, the method comprises the following operational steps:

- a) positioning a slat L along a track 2 so that the slat is placed in one of the two half -spaces 01 defined by a reference plane m with its longitudinal edges B1, B2 positioned on such reference plane m;
- b) preparing in proximity to the track 2, at least one matrix 10, is divided into a first 11 and a second portion 12.

At the interface between the two portions 11, 12, this matrix 10 defines a seat 13 to receive an edge portion B1 of the slat L. These two portions 11,12 of the matrix 10 are movable in relation to the reference plane m between a closed position, wherein the two portions 11,12 are positioned alongside each other to close the seat 13 around the portion of edge B1 so as to keep the latter locked in position and permit the application of at least one hook or clip, and at least one open position, wherein the two portions 11,12 of the matrix are distanced from one another to open the seat 13 and thus free the movement of the slat. The first portion 11 of the matrix is provided with a projecting appendage 15.

The method further comprises the following additional operating steps:

- c) placing the two portions 11,12 of the matrix in the above open position with the first portion 11 placed in such a way that the projecting appendage is placed in a position outside the track and thus the slat (see Figure 5);
- d) moving the first portion 11 of the matrix so as to move the projecting appendage 15 from the outside

position to an inside position of the track, so that such appendage 15 crosses the edge of the slat.

[0044] In the movement between the outside position and inside position, the appendage 15 is maintained in the half-space 02 not occupied by the slat and tangent to the reference plane m so as to skim the edge. Thanks to this movement, the projecting appendage 15 engages the covering tongue S2 of the gasket S distancing it from the edge (see sequence Figures 5 and 6).

[0045] The subsequent steps of the method are the following:

e) moving the first portion 11 of the matrix so that, once the appendage 15 has been brought into said inside position, the appendage 15 passes beyond the reference plane m and moves at least partially into the half-space 01 occupied by the slat L, inserting itself between the edge B of the slat and the covering tongue S2;

f) bringing the two portions 11,12 into the closed position, leaving the covering tongue S2 outside the seat 13; and

g) applying a hook or clip G to the portion of edge locked in the seat 13, without engaging the covering tongue since it is not closed inside the seat 13.

[0046] The cycle of steps can then be repeated by opening the seat 13 and sliding the slat along the track L so that a different edge portion is engaged in the matrix 10.

[0047] The invention allows obtaining many advantages in part already described.

[0048] The device and method for the application of hooks or clips on Venetian blind slats according to the invention allows applying hooks or clips on slats provided with abutment gaskets, leaving the covering tongues of the gaskets completely free from the hooks. In fact, thanks to the invention the covering tongues are distanced from the edges of the slats and maintained outside the matrix during the application of the hooks.

[0049] The device for applying hooks or clips according to the invention is also both simple to manage and reliable. In fact, the temporary distancing of the tongues is performed by the matrix itself, without the need to provided elements dedicated to this operation. This has the advantage of simplifying construction and ensures greater operational reliability.

[0050] For the reason explained above, the device 1 according to the invention is simple and inexpensive to manufacture. In fact, for the purposes of the invention, complex or costly technical solutions are not required.

[0051] Therefore, the invention thus conceived achieves the predefined purposes.

Claims

1. Device for applying hooks or clips to the slats of Venetian blinds with folded edges provided with abutment gaskets, comprising:

- a guide defining a track (2) along which a slat (L) is positioned, said guide positioning the slat so that the latter is placed in one of the two half-spaces (01) defined by a reference plane (m) with its longitudinal edges (B1, B2) positioned on such reference plane (m); and

- at least a first matrix (10) which defines a seat (13) destined to receive a portion of a longitudinal edge (B1) of the slat (L) and comprising at least one access aperture (14) to the seat (13) through which hooks or clips are made to enter said seat to be applied to the portion of edge housed therein, said seat (13) being made at the interface between a first portion (11) and second portion (12) into which the first matrix (10) is subdivided, the two portions (11, 12) of the matrix being movable in relation to the reference plane (m) between a closed position, wherein the two portions (11,12) are positioned alongside each other to close the seat (13) around the portion of edge (B1) so as to keep the latter blocked in position and permit the application of at least one hook or clip, and at least one open position, wherein the two portions (11,12) of the matrix are distanced from one another to open the seat (13) and thus free the movement of the slat, **characterised in that** the first portion (11) of the matrix is provided with a projecting appendage (15) destined to skim the edge (B) of the slat, in passing from the open position to the closed position said first portion (11) being movable so as to shift said projecting appendage (15) from a position outside the track to a position inside the track, so that said appendage (15) crosses the edge of the slat staying in the half-space (02) not occupied by the slat and tangent to the reference plane (m), if said slat (L) is provided with an abutment gasket (S) with a covering tongue (S2) of the edge (B) said appendage (15) engaging with its movement from the outside position to the inside position said tongue (S2) thereby distancing the tongue from the edge and preventing it from being closed inside the seat (13).

2. Device according to claim 1, wherein in said closed position the appendage (15) defines at least partially the seat (13) in which the portion of edge (B) is blocked, the first portion (11) of the matrix being movable in such a way that, once the appendage (15) has been brought into said position inside the track, the appendage (15) passes beyond the reference

- plane (m) and moves at least partially into the half-space (01) occupied by the slat (L), inserting itself between the edge (B) of the slat and the tongue (S2) covering the abutment gasket (S) where present.
3. Device according to claim 1 or 2, comprising means for moving the two portions (11, 12) of the matrix between the open position and the closed position. 5
 4. Device according to one or more of the previous claims, wherein the first portion (11) of the matrix (15) is provided with one or more cavities open on the seat (13), which are suitable to guide the closing of a hook or clip (G) against the edge portion (B). 10
 5. Device according to one or more of the previous claims, wherein the access aperture (14) to the seat (13) is made in the second portion (12) of the matrix. 15
 6. Device according to one or more of the previous claims, comprising: 20
 - a hook or clip feeder (G) suitable for placing hooks (G) in the matrix (13) at the access aperture (14) ; and 25
 - a pusher element suitable to engage the access aperture (14) to push a hook (G) positioned therein against the edge portion (B) closed in the seat (13). 30
 7. Device according to one or more of the previous claims, wherein said first matrix (10) is positioned on a first side (2') of the track (2) along which a slat (L) is positioned. 35
 8. Device according to claim 7, comprising a second matrix, positioned on a second side (2'') of the track opposite the first side (2'), said second matrix permitting the application of hooks or clips on an edge (B2) of the slat opposite that on which the first matrix (10) may operate. 40
 9. Stacking unit of slats on support half-ladders for the production of venetian blinds **characterised in that** it comprises at least one device (1) for applying hooks or clips to the slats according to one or more of the previous claims. 45
 10. Method for applying hooks or clips to the slats of Venetian blinds with folded edges provided with abutment gaskets, the latter comprising a covering tongue (S2) of the edge (B) of the slat, the method comprising the following operating steps: 50
 - a) positioning a slat (L) along a track (2) so that the slat is placed in one of the two half -spaces (01) defined by a reference plane (m) with its longitudinal edges (B1, B2) positioned on such

- reference plane (m);
- b) providing next to said track (2) at least one matrix (10) divided into a first (11) and a second portion (12), said matrix (10) defining at the interface between the two portions (11, 12) a seat (13) for housing a portion of edge (B) of the slat (L), the two portions (11, 12) of the matrix (10) being movable in relation to the reference plane (m) between a closed position, wherein the two portions (11,12) are positioned alongside each other to close the seat (13) around the portion of edge (B1) so as to keep the latter blocked in position and permit the application of at least one hook or clip, and at least one open position, wherein the two portions (11,12) of the matrix are distanced from one another to open the seat (13) and thus free the movement of the slat, the first portion (11) of the matrix being provided with a projecting appendage (15);
 - c) placing the two portions (11, 12) of the matrix in said open position with the first portion (11) placed in such a way that the projecting appendage is placed in a position outside the track and thus outside the slat;
 - d) moving said first portion (11) of the matrix so as to shift said projecting appendage (15) from said position outside the track to a position inside the track, so that said appendage (15) crosses the edge of the slat, in said movement the appendage (15) being kept in the half-space (02) not occupied by the slat and tangent to the reference plane (m), so as to skim said edge, with its movement from the outside position to the inside position the projecting appendage (15) engaging the covering tongue (S2) of the gasket (S) distancing it from the edge;
 - e) moving the first portion (11) of the matrix so that once the appendage (15) has been brought into said inside position, the appendage (15) passes beyond the reference plane (m) and moves at least partially into the half-space (01) occupied by the slat (L), inserting itself between the edge (B) of the slat and the covering tongue (S2);
 - f) bringing the two portions (11, 12) into the closed position, leaving the covering tongue (S2) outside the seat (13);
 - g) applying a hook or clip (G) to the portion of edge blocked in the seat (13).

Patentansprüche

1. Vorrichtung zur Anwendung von Haken oder Clips bei den Lamellen von Jalousien mit gefalteten Kanten, mit Anschlagsdichtungen versehen, umfassend:

- eine Führung, die eine Spur (2) bestimmt, entlang der eine Lamelle (L) positioniert ist, wobei die Führung die Lamelle so positioniert, dass diese in einem der zwei Halbräume (O1) platziert ist, die durch eine Referenzebene (m) bestimmt sind, wobei ihre Längskanten (B1, B2) auf einer solche Referenzebene (m) positioniert sind; und
- mindestens eine erste Matrix (10), die einen Sitz (13) bestimmt, der vorgesehen ist, einen Abschnitt einer Längskante (B1) der Lamelle (L) aufzunehmen, und umfassend mindestens eine Zugangsöffnung (14) zu dem Sitz (13), durch die Haken oder Clips in den Sitz eingeführt werden, um an dem Abschnitt der Kante angewendet zu werden, der darin untergebracht ist, wobei der Sitz (13) an der Schnittstelle zwischen einem ersten Abschnitt (11) und zweiten Abschnitt (12) gefertigt ist, in die die erste Matrix (10) unterteilt ist, wobei die zwei Abschnitte (11, 12) der Matrix in Bezug auf die Referenzebene (m) zwischen einer geschlossenen Position, in der die zwei Abschnitte (11, 12) nebeneinander positioniert sind, um den Sitz (13) um den Abschnitt der Kante (B1) zu schließen, sodass dieser in seiner Position blockiert ist und die Anwendung mindestens eines Hakens oder Clips ermöglicht ist, und mindestens einer offenen Position beweglich sind, in der die zwei Abschnitte (11, 12) der Matrix voneinander beabstandet sind, um den Sitz (13) zu öffnen und somit die Bewegung der Lamelle frei zu machen, **dadurch gekennzeichnet, dass** der erste Abschnitt (11) der Matrix mit einem vorspringenden Anhang (15) versehen ist, der dazu vorgesehen ist, die Kante (B) der Lamelle zu streifen, wobei der erste Abschnitt (11) beim Übergehen von der offenen Position zu der geschlossenen Position so beweglich ist, dass er den vorspringenden Anhang (15) von einer Position außerhalb der Spur zu einer Position innerhalb der Spur verschiebt, sodass der Anhang (15) die Kante der Lamelle überquert, die in dem Halbraum (O2) bleibt, der nicht von der Lamelle belegt und tangential zu der Referenzebene (m) ist, falls die Lamelle (L) mit einer Anschlagdichtung (S) mit einer Abdecklasche (S2) der Kante (B) versehen ist, wobei der Anhang (15) mit seiner Bewegung von der Außenposition zu der Innenposition in die Lasche (S2) eingreift, wodurch die Lasche von der Kante beabstandet und daran gehindert wird, in dem Sitz (13) eingeschlossen zu werden.
2. Vorrichtung nach Anspruch 1, wobei in der geschlossenen Position der Anhang (15) zumindest teilweise den Sitz (13) bestimmt, in dem der Abschnitt der Kante (B) blockiert ist, wobei der erste Abschnitt (11) der Matrix in einer solchen Weise beweglich ist, dass, sobald der Anhang (15) in die Position innerhalb der Spur gebracht worden ist, der Anhang (15) über die Referenzebene (m) gelangt und sich zumindest teilweise in den Halbraum (O1) bewegt, der durch die Lamelle (L) belegt ist, wobei er sich zwischen die Kante (B) der Lamelle und die Lasche (S2) einfügt, die die Anschlagdichtung (S) abdeckt, wo sie vorhanden ist.
3. Vorrichtung nach Anspruch 1 oder 2, umfassend Mittel zum Bewegen der zwei Abschnitte (11, 12) der Matrix zwischen der offenen Position und der geschlossenen Position.
4. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, wobei der erste Abschnitt (11) der Matrix (15) mit einem oder mehreren Hohlräumen versehen ist, die auf dem Sitz (13) offen sind, die geeignet sind, den Verschluss eines Hakens oder Clips (G) gegen den Kantenabschnitt (B) zu führen.
5. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, wobei die Zugangsöffnung (14) zu dem Sitz (13) in dem zweiten Abschnitt (12) der Matrix gefertigt ist.
6. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, umfassend:
- einen Haken- oder Clipzubringer (G), der geeignet ist, Haken (G) in der Matrix (13) an der Zugangsöffnung (14) zu platzieren; und
 - ein Drückerelement, das geeignet ist, in die Zugangsöffnung (14) einzugreifen, um einen Haken (G), der darin positioniert ist, gegen den Kantenabschnitt (B) zu drücken, der in dem Sitz (13) geschlossen ist.
7. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, wobei die erste Matrix (10) an einer ersten Seite (2') der Spur (2) positioniert ist, entlang der eine Lamelle (L) positioniert ist.
8. Vorrichtung nach Anspruch 7, umfassend eine zweite Matrix, die an einer zweiten Seite (2'') der Spur gegenüber der ersten Seite (2') positioniert ist, wobei die zweite Matrix die Anwendung von Haken oder Clips an einer Kante (B2) der Lamelle gegenüber derjenigen ermöglicht, an der die erste Matrix (10) arbeiten kann.
9. Stapleinheit von Lamellen auf Stützhableitern zur Herstellung von Jalousien, **dadurch gekennzeichnet, dass** sie mindestens eine Vorrichtung (1) zur Anwendung von Haken oder Clips bei den Lamellen nach einem oder mehreren der vorhergehenden An-

sprüche umfasst.

10. Verfahren zur Anwendung von Haken oder Clips bei den Lamellen von Jalousien mit gefalzten Kanten, mit Anschlagsdichtungen versehen, wobei diese eine Abdecklasche (S2) der Kante (B) der Lamelle umfassen, wobei das Verfahren die folgenden Arbeitsschritte umfasst:

a) Positionieren einer Lamelle (L) entlang einer Spur (2), sodass die Lamelle in einem der zwei Halbräume (O1) platziert ist, die durch eine Referenzebene (m) bestimmt sind, wobei ihre Längskanten (B1, B2) auf einer solchen Referenzebene (m) positioniert sind;

b) Vorsehen neben der Spur (2) von mindestens einer Matrix (10), die in einen ersten (11) und einen zweiten Abschnitt (12) geteilt ist, wobei die Matrix (10) an der Schnittstelle zwischen den zwei Abschnitten (11, 12) einen Sitz (13) zum Unterbringen eines Abschnitts der Kante (B) der Lamelle (L) bestimmt, wobei die zwei Abschnitte (11, 12) der Matrix (10) in Bezug auf die Referenzebene (m) zwischen einer geschlossenen Position, in der die zwei Abschnitte (11, 12) nebeneinander positioniert sind, um den Sitz (13) um den Abschnitt der Kante (B1) zu schließen, sodass dieser in seiner Position blockiert ist und die Anwendung von mindestens einem Haken oder Clip ermöglicht ist, und mindestens einer offenen Position beweglich sind, in der die zwei Abschnitte (11, 12) der Matrix voneinander beabstandet sind, um den Sitz (13) zu öffnen und somit die Bewegung der Lamelle frei zu machen, wobei der erste Abschnitt (11) der Matrix mit einem vorspringenden Anhang (15) versehen ist; c) Platzieren der zwei Abschnitte (11, 12) der Matrix in der offenen Position, wobei der erste Abschnitt (11) in einer solchen Weise platziert ist, dass der vorspringende Anhang in einer Position außerhalb der Spur und somit außerhalb der Lamelle platziert ist;

d) Bewegen des ersten Abschnitts (11) der Matrix, um so den vorspringenden Anhang (15) von der Position außerhalb der Spur zu einer Position innerhalb der Spur zu schieben, sodass der Anhang (15) die Kante der Lamelle überquert, wobei der Anhang (15) in dieser Bewegung in dem Halbraum (O2) gehalten wird, der nicht durch die Lamelle belegt und tangential zu der Referenzebene (m) ist, um so die Kante zu streifen, wobei der vorspringende Anhang (15) mit seiner Bewegung von der Außenposition zu der Innenposition in die Abdecklasche (S2) der Dichtung (S) eingreift, wodurch sie von der Kante beabstandet wird;

e) Bewegen des ersten Abschnitts (11) der Matrix, sodass, sobald der Anhang (15) in die In-

nenposition gebracht worden ist, der Anhang (15) über die Referenzebene (m) gelangt und sich zumindest teilweise in den Halbraum (O1) bewegt, der durch die Lamelle (L) belegt ist, wobei er sich zwischen die Kante (B) der Lamelle und die Abdecklasche (S2) einfügt;

f) Bringen der zwei Abschnitte (11, 12) in die geschlossene Position, wobei die Abdecklasche (S2) außerhalb des Sitzes (13) gelassen wird;

g) Anwenden eines Hakens oder Clips (G) an dem Abschnitt der Kante, der in dem Sitz (13) blockiert ist.

Revendications

1. Dispositif pour appliquer des crochets et des pinces aux lattes de stores vénitiens avec des bords pliés pourvus de joints de butée, comprenant :

- un guide définissant une gorge (2) le long de laquelle une latte (L) est positionnée, ledit guide positionnant la latte de sorte que cette dernière soit placée dans l'un des deux demi-espaces (O1) définis par un plan de référence (m) avec ses bords longitudinaux (B1, B2) positionnés sur ce plan de référence (m) ; et

- au moins une première matrice (10) qui définit une assise (13) destinée à recevoir une portion d'un bord longitudinal (B1) de la latte (L) et comprenant au moins une ouverture d'accès (14) à l'assise (13) à travers laquelle des crochets ou des pinces sont amenés à entrer dans ladite assise pour être appliqués à la portion de bord logée à l'intérieur, ladite assise (13) étant réalisée au niveau de l'interface entre une première portion (11) et une seconde portion (12) dans lesquelles la première matrice (10) est subdivisée, les deux portions (11, 12) de la matrice étant mobiles par rapport au plan de référence (m) entre une position fermée, dans laquelle les deux portions (11, 12) sont positionnées le long l'une de l'autre pour fermer l'assise (13) autour de la portion de bord (B1) de façon à conserver cette dernière bloquée en position et permettre l'application d'au moins un crochet ou une pince, et au moins une position ouverte, dans laquelle les deux portions (11, 12) de la matrice sont espacées l'une de l'autre pour ouvrir l'assise (13) et libérer ainsi le mouvement de la latte, **caractérisé en ce que** la première portion (11) de la matrice est pourvue d'un appendice saillant (15) destiné à effleurer le bord (B) de la latte, en passant de la position ouverte à la position fermée ladite première portion (11) étant mobile de façon à déplacer ledit appendice saillant (15) d'une position à l'extérieur de la gorge à une

- position à l'intérieur de la gorge, de sorte que ledit appendice (15) croise le bord de la latte restant dans le demi-espace (O2) non occupé par la latte et tangent au plan de référence (m), si ladite latte (L) est pourvue d'un joint de butée (S) avec une languette couvrante (S2) du bord (B), ledit appendice (15) s'enclenchant avec son mouvement de la position extérieure à la position intérieure, ladite languette (S2) espaçant ainsi la languette du bord et l'empêchant d'être fermée à l'intérieur de l'assise (13).
2. Dispositif selon la revendication 1, dans lequel dans ladite position fermée, l'appendice (15) définit au moins partiellement l'assise (13) dans laquelle la portion de bord (B) est bloquée, la première portion (11) de la matrice étant mobile de manière à ce que, une fois que l'appendice (15) a été amené dans ladite position à l'intérieur de la gorge, l'appendice (15) passe au-delà du plan de référence (m) et se meuve au moins partiellement dans le demi-espace (O1) occupé par la latte (L), s'insérant entre le bord (B) de la latte et la languette (S2) couvrant le joint de butée (S) là où il est présent.
 3. Dispositif selon la revendication 1 ou 2, comprenant un moyen pour mouvoir les deux portions (11, 12) de la matrice entre la position ouverte et la position fermée.
 4. Dispositif selon une ou plusieurs des revendications précédentes, dans lequel la première portion (11) de la matrice (15) est pourvue d'une ou de plusieurs cavités ouvertes sur l'assise (13), qui sont adaptées pour guider la fermeture d'un crochet ou d'une pince (G) contre la portion de bord (B).
 5. Dispositif selon une ou plusieurs des revendications précédentes, dans lequel l'ouverture d'accès (14) à l'assise (13) est réalisée dans la seconde portion (12) de la matrice.
 6. Dispositif selon une ou plusieurs des revendications précédentes, comprenant :
 - un dispositif d'alimentation en crochets ou pinces (G) adapté pour placer des crochets (G) dans la matrice (13) au niveau de l'ouverture d'accès (14) ; et
 - un élément poussoir adapté pour enclencher l'ouverture d'accès (14) pour pousser un crochet (G) positionné à l'intérieur contre la portion de bord (B) fermée dans l'assise (13).
 7. Dispositif selon une ou plusieurs des revendications précédentes, dans lequel ladite première matrice (10) est positionnée sur un premier côté (2') de la gorge (2) le long de laquelle une latte (L) est positionnée.
 8. Dispositif selon la revendication 7, comprenant une seconde matrice, positionnée sur un second côté (2'') de la gorge opposé au premier côté (2'), ladite seconde matrice permettant l'application de crochets ou de pinces sur un bord (B2) de la latte opposé à celui sur lequel la première matrice (10) peut fonctionner.
 9. Unité d'empilage de lattes sur des demi-échelles de support pour la production de stores vénitiens, **caractérisée en ce qu'elle** comprend au moins un dispositif (1) pour appliquer des crochets ou des pinces aux lattes selon une ou plusieurs des revendications précédentes.
 10. Procédé pour appliquer des crochets ou des pinces aux lattes de stores vénitiens avec des bords pliés pourvus de joints de butée, ces derniers comprenant une languette couvrante (S2) du bord (B) de la latte, le procédé comprenant les étapes de fonctionnement suivantes :
 - a) positionnement d'une latte (L) le long d'une gorge (2) de sorte que la latte soit placée dans l'un des deux demi-espaces (O1) définis par un plan de référence (m) avec ses bords longitudinaux (B1, B2) positionnés sur ce plan de référence (m) ;
 - b) fourniture à côté de ladite gorge (2) d'au moins une matrice (10) divisée en une première (11) et une seconde (12) portion, ladite matrice (10) définissant au niveau de l'interface entre les deux portions (11, 12) une assise (13) pour loger une portion de bord (B) de la latte (L), les deux portions (11, 12) de la matrice (10) étant mobiles par rapport au plan de référence (m) entre une position fermée, dans laquelle les deux portions (11, 12) sont positionnées le long l'une de l'autre pour fermer l'assise (13) autour de la portion de bord (B1) de façon à conserver cette dernière bloquée en position et permettre l'application d'au moins un crochet ou une pince, et au moins une position ouverte, dans laquelle les deux portions (11, 12) de la matrice sont espacées l'une de l'autre pour ouvrir l'assise (13) et libérer ainsi le mouvement de la latte, la première portion (11) de la matrice étant pourvue d'un appendice saillant (15) ;
 - c) placement des deux portions (11, 12) de la matrice dans ladite portion ouverte avec la première portion (11) placée de manière à ce que l'appendice saillant soit placé dans une portion à l'extérieur de la gorge et ainsi à l'extérieur de la latte ;
 - d) mouvement de ladite première portion (11) de la matrice de façon à déplacer ledit appen-

dice saillant (15) de ladite position à l'extérieur de la gorge à une position à l'intérieur de la gorge, de sorte que ledit appendice (15) croise le bord de la latte, dans ledit mouvement l'appendice (15) étant conservé dans le demi-espace (O2) non occupé par la latte et tangent au plan de référence (m), de façon à effleurer ledit bord, avec son mouvement de la position extérieure à la position intérieure l'appendice saillant (15) enclenchant la languette couvrante (S2) du joint (S) l'espaçant du bord ;

e) mouvement de la première portion (11) de la matrice de sorte qu'une fois que l'appendice (15) a été amené en contact dans ladite position intérieure, l'appendice (15) passe au-delà du plan de référence (m) et se meurt au moins partiellement dans le demi-espace (O1) occupé par la latte (L), s'insérant entre le bord (B) de la latte et la languette couvrante (S2) ;

f) fait d'amener les deux portions (11, 12) dans la position fermée, laissant la languette couvrante (S2) à l'extérieur de l'assise (13) ;

g) application d'un crochet ou d'une pince (G) à la portion de bord bloquée dans l'assise (13).

5

10

15

20

25

30

35

40

45

50

55

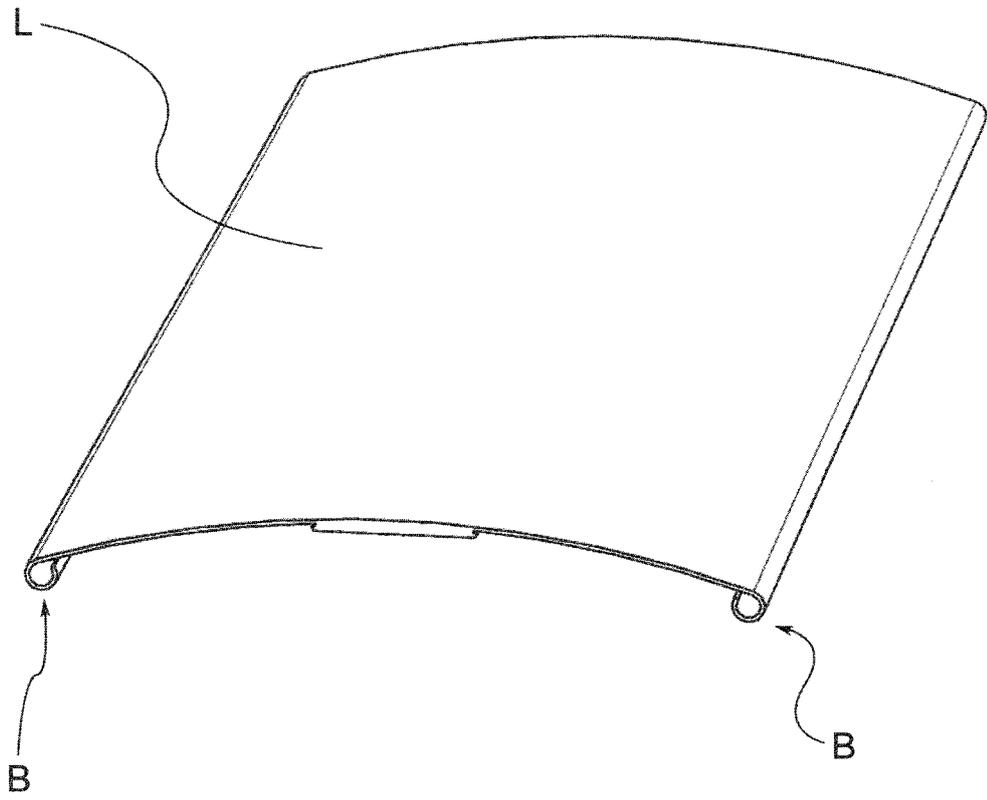


FIG. 1

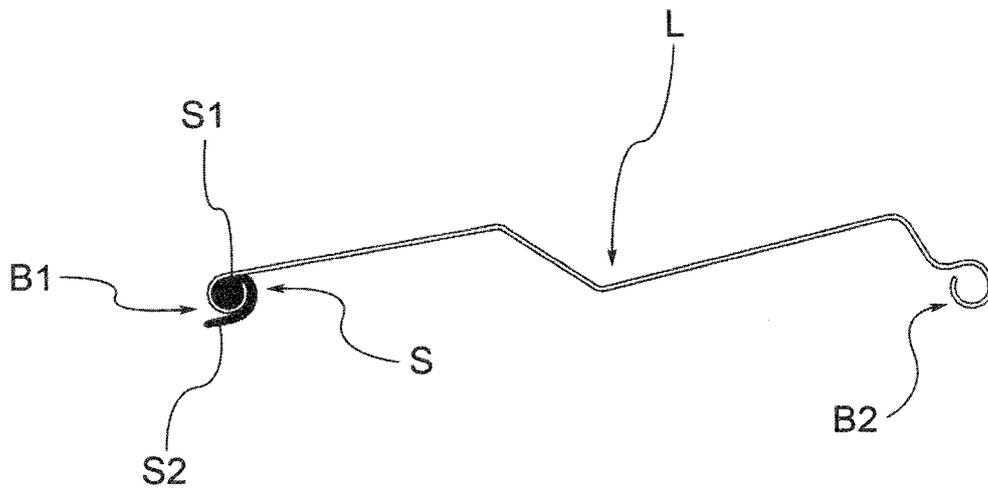


FIG. 2

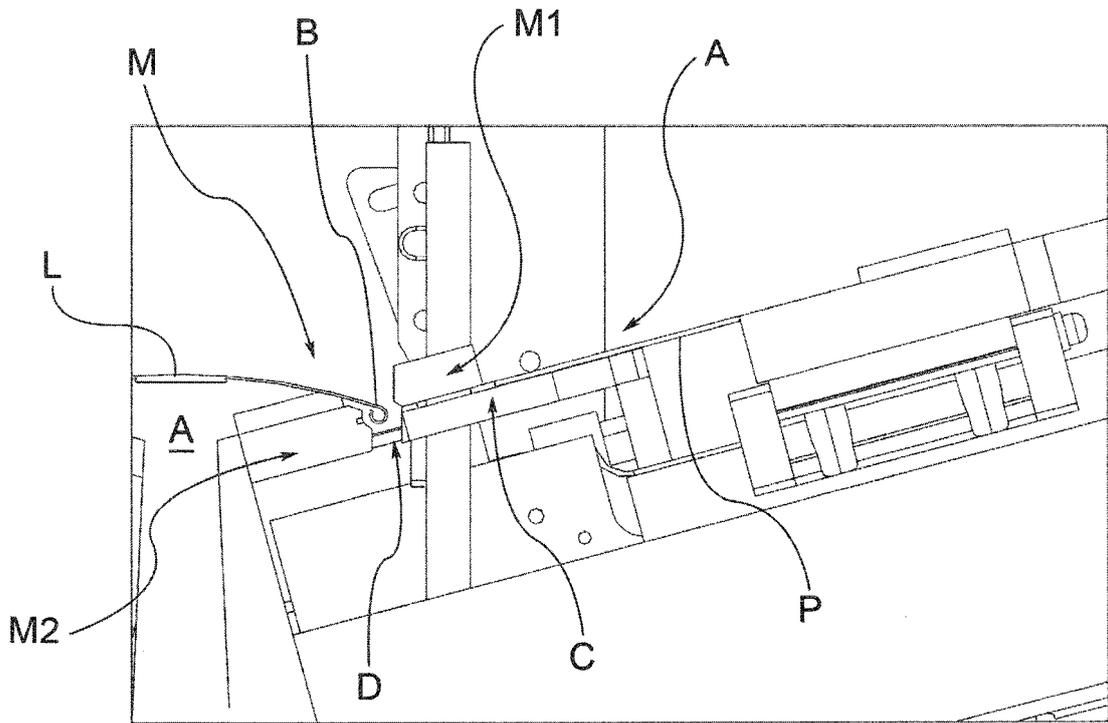


FIG.3

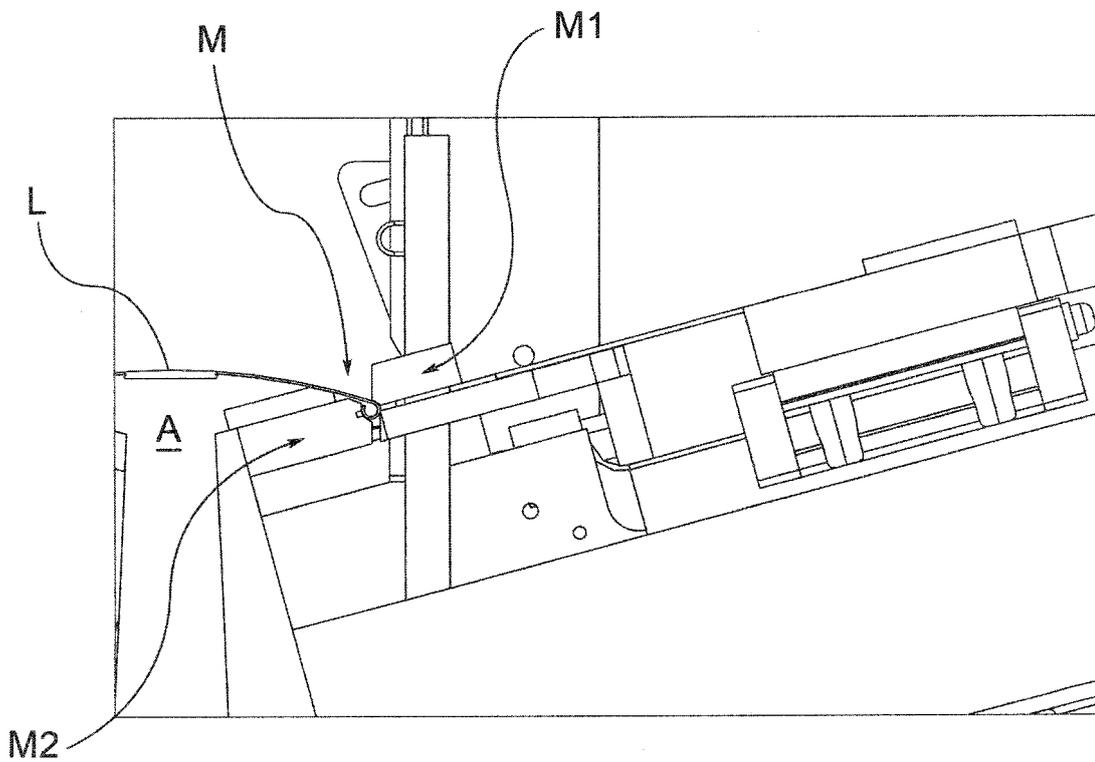


FIG.4

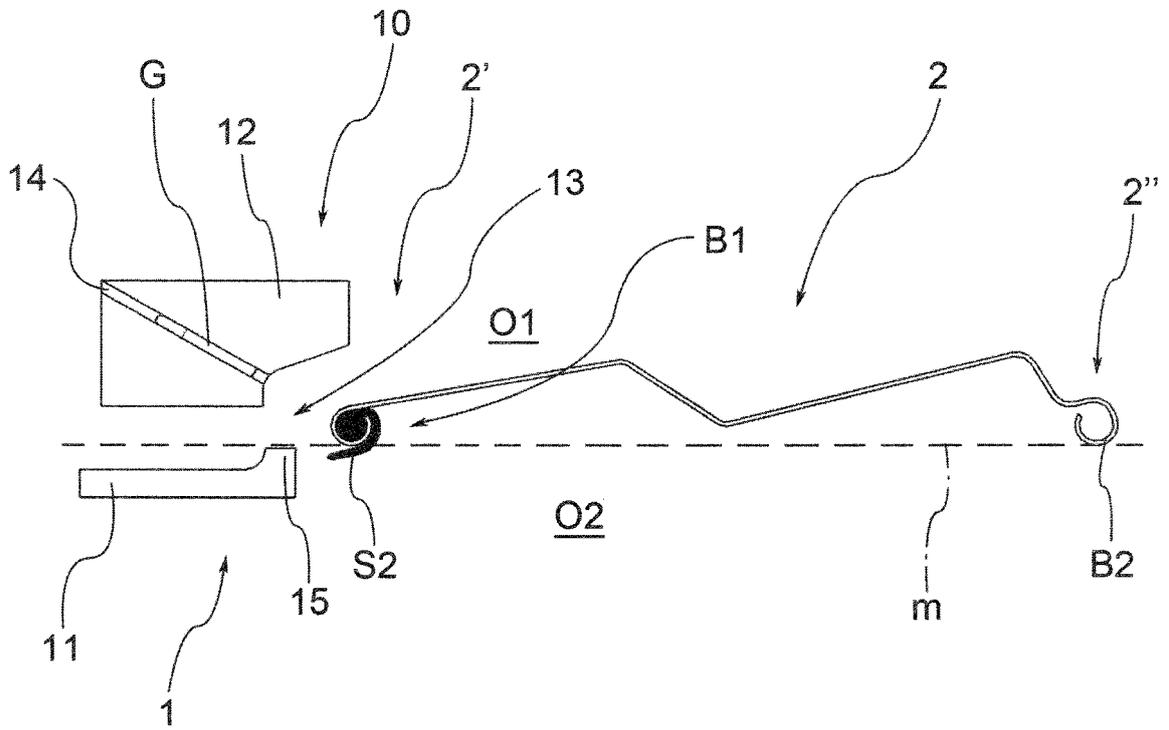


FIG. 5

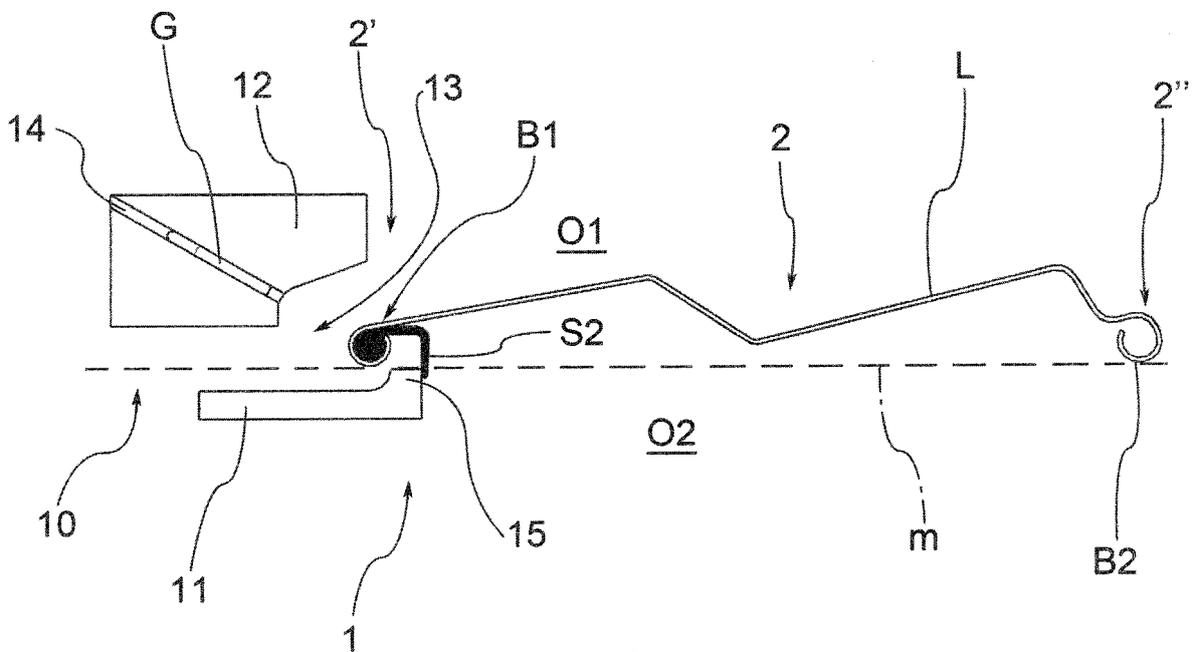


FIG. 6

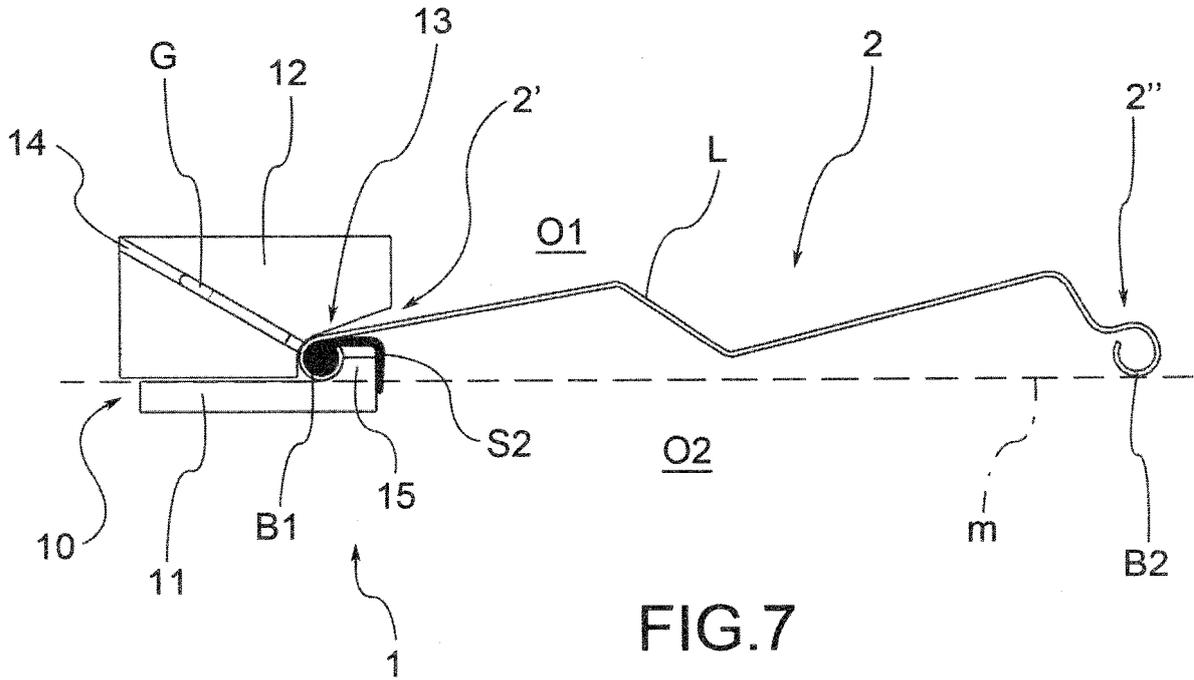


FIG.7

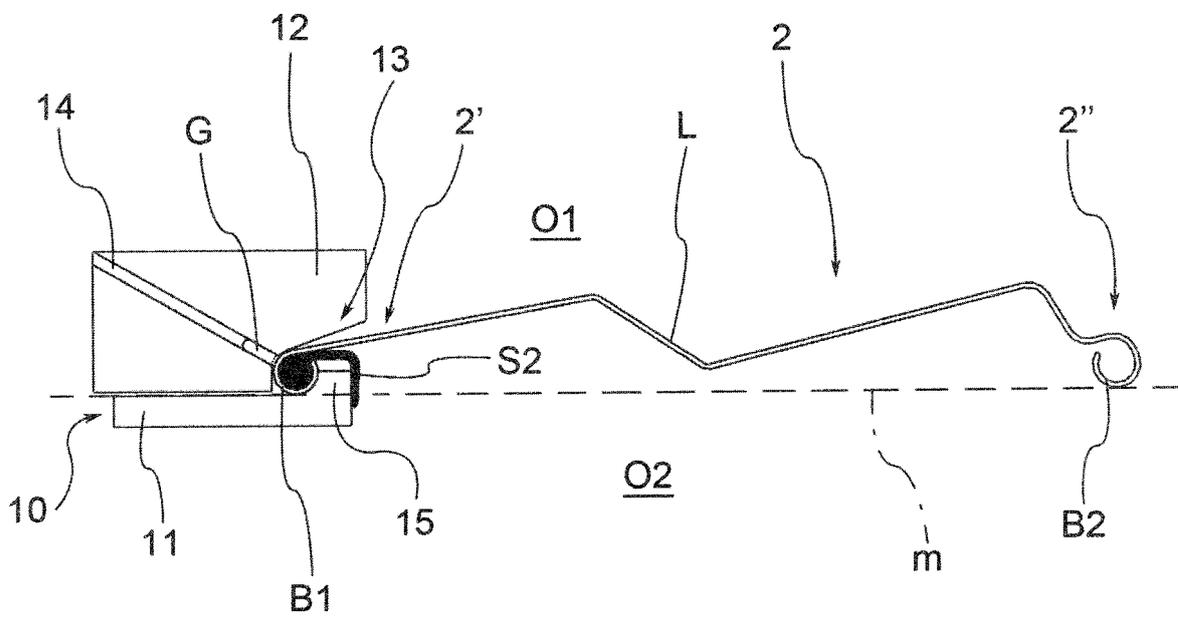


FIG.8

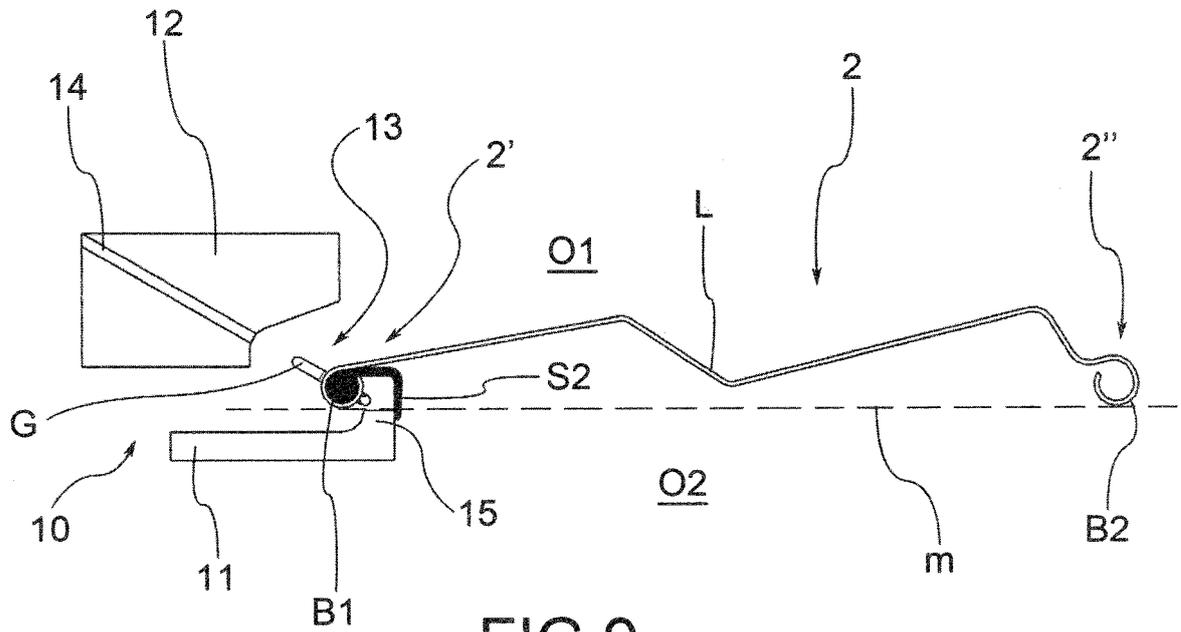


FIG. 9

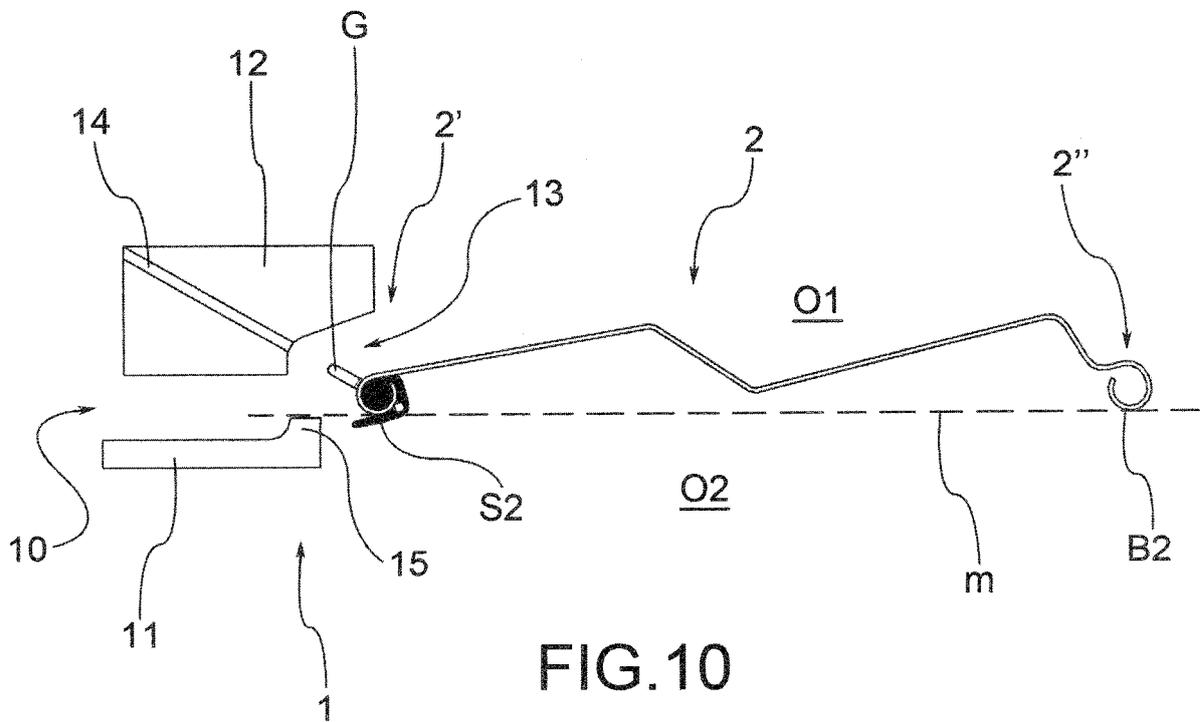


FIG. 10

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 2653646 A2 [0008]
- IT PD20120061 A [0017]