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(54) **CLAMP FOR SKYLIGHTS AND SMOKE EXTRACTORS**

KLAMMER FÜR DACHLICHTER UND RAUCHABZÜGE

BRIDE POUR TABATIERES OU EXTRACTEURS A FUMEE

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DE-B- 1 509 096 **US-A- 2 144 140**

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Description

[0001] The invention concerns a clamp that is particularly suitable for blocking together the dome and the frame that compose the cover of a skylight or of a smoke extractor.

[0002] It is known that skylights and smoke extractors are substantially composed of a cover which, by means of one or more hinges, is connected to a base which marks off an opening made in the structure of a building and communicates with the outside environment.

[0003] The cover comprises a frame which supports a dome which is generally transparent and which is fixed to it by means of special clamps around the perimeter.

[0004] According to an embodiment of a known type which is shown in FIG. 1, a clamp, indicated overall with **M**, comprises a first element **Ma** having a first end **Ea** connected to the frame **T** of the skylight or of the smoke extractor and a second element **Mb** having the free end **Eb** resting on the outside of the dome **C**, above the frame **T**.

[0005] Both the elements **Ma** and **Mb** are connected to each other by fastening means composed of knurls **Za, Zb** on the ends of each element, reciprocally in contact, and of a screw **V** passing through a slot **A** in the second element **Mb** and mating in a threaded hole **F** in the first element **Ma**.

[0006] The screw **V** tightening pressure and the interference between the knurls block the two elements together, securing the dome **C** to the frame **T** below.

[0007] A first inconvenience presented by the clamps of the type described lies in the fact that, to fasten them, the operator must apply pressure manually on the second element **Mb**, forcing it down in the direction indicated by the arrow **F** and sliding the knurls **Za** and **Zb** reciprocally until the desired degree of pressure is obtained between the dome **C** and the frame **T**.

[0008] He then fastens the screw **V** which holds the clamp elements tight in the desired position.

[0009] It may be understood that the degree of pressure with which the clamp **M** holds the dome **C** against the frame **T** depends on the regulation carried out by the operator, and therefore his experience and ability is decisive.

[0010] Furthermore, by proceeding in this way it is difficult to ensure the same degree of tightness for all the clamps.

[0011] Another inconvenience of the clamps of the type described lies in the fact that the first element **Ma** is fixed onto the frame **T** by means of a through screw **Va** which anchors the end **Ea** to the upper plate **P**.

[0012] The fixing of the clamp **M** therefore requires the drilling of the first element **Ma**, the drilling of the frame **T** and their reciprocal connection by applying the through screw **Va**.

[0013] The maker must therefore drill a series of holes on the frame and on the clamp which, once made, require him to apply the clamp always in the same posi-

tion. Using clamps of the known type, the clamp fixing position is therefore fixed and invariable and is defined before installation of the skylight or of the extractor.

[0014] A further inconvenience lies in the fact that, as the end **Ea** of the first element **Ma** is on the plate **P** of the frame **T**, it is covered by the sealing gasket **S** placed between the dome **C** and the frame **T**. This leads to a non homogeneous distribution of pressure along the frame perimeter and may cause deformation, with the result that closure is not hermetic.

[0015] *DE-A-1 509 096 discloses a clamp for a skylight having two hangers connected together by a screw and wherein one of said hanger is fixed to the frame of the skylight by a bolt.*

[0016] *US-A-2,144,140 discloses a clamping device adapted for mounting an electric switch on the dashboard of a car which comprises a pair of jaw members connected together for movement toward and away from each other.*

[0017] This invention aims to overcome all the inconveniences listed.

[0018] In particular, a first aim of the invention is to realise a clamp which allows the installer to regulate the tightening force of the dome against the frame with greater precision.

[0019] Another aim of the invention is to realise a clamp which, as well as holding together the dome and the frame which make up the cover of a skylight or of a smoke extractor, can be applied on the frame without having to make a hole in it.

[0020] Another aim is that, when applied on the frame, the clamp shall not interrupt the linearity and flatness of the gasket inserted between the frame and the dome.

[0021] Another aim is that the clamp in the invention may be applied in any position on the frame.

[0022] The last but not the least aim is that the position of application of the clamp on the frame may be shifted as the installer wishes, even after installation of the skylight or smoke extractor.

[0023] These aims are achieved by realising a skylight or smoke-extractor assembly with a clamp suited to blocking together the dome and the frame which compose the cover of said assembly the main features of which are according to the main claim.

[0024] In a preferred embodiment, said at least one hinge is placed corresponding to the fixing means and comprises a concave seat with a substantially C-shaped transverse profile, created in the first/second element, and a pin, created in the second/first element, having a transverse profile mating with the concave seat. The pin and the respective seat may be removably coupled by sliding them reciprocally in an axial direction following the common axis of rotation.

[0025] Preferably, at one end the first element presents coupling means which couple removably by snapping into a longitudinal channel located in the edge on the outer side wall of the frame.

[0026] The coupling means comprise a recess, creat-

ed in the first element, which holds a corresponding first protruding edge belonging to the longitudinal channel and an angular heel, created in the first element on the part opposite the above-mentioned recess, which mates by interference and snaps into an angular seat in the frame itself.

[0027] The angular seat is located between a second protruding edge, also belonging to the longitudinal channel and facing the previous one, and a shaped appendix of the frame protruding from the above-mentioned channel.

[0028] In cross section, this channel has a C-shaped profile in which the free ends are composed of the protruding edges, facing each other.

[0029] The fixing means are placed corresponding to the hinge and comprise a nut screw which belongs to the second element, in which mates a screw the end of which meets a contact surface belonging to the second element.

[0030] Advantageously, the hinged fastening means and the screw fixing means with which the clamp is provided enable the fitter to make sensitive and extremely precise regulation of the degree of compression with which the dome and the frame are reciprocally tightened.

[0031] Also advantageously, the clamp of the invention may be applied on the skylight or on the smoke extractor even after this has been put in place and in any position along the outside edge of the frame.

[0032] The aims and advantages stated will be better shown in the description of a preferred embodiment of the invention, which is given as an example without limitation and which refers to the enclosed diagrams in which:

- FIG. 1 shows a cross section of a clamp made with the known technique;
- FIG. 2 shows an axonometric view of the clamp of the invention;
- FIG. 3 shows a cross section of the clamp of the invention shown in FIG. 2;
- FIG. 4 shows an exploded view of the clamp of the invention shown in FIG. 3;
- FIG. 5 shows a detail of the clamp of the invention during connection to the frame.

The clamp of the invention is shown in an axonometric view in FIG. 2 and in a cross section in FIG. 3 where it is indicated overall with 1 and its purpose is to block together the dome C and the frame T which compose the cover, indicated overall with L, of a skylight or of a smoke extractor.

It may be observed, referring also to FIG. 4, that the clamp 1 comprises a first element 2 connected to the frame T and a second element 3 having the free end 4 resting externally on the dome C above the frame T and the opposite end 5 coupled to the first element 2 by fastening means.

[0033] According to the invention the fastening means are composed of at least one hinge 6 which forms an axis of rotation X of the elements 2, 3 substantially parallel to the plain defined by the frame T.

[0034] More precisely the hinge 6 comprises a concave seat 6a having a substantially C-shaped transverse profile, created in the first element 2 and a pin 6b created in the second element 3 having a transverse profile mating with the concave seat 6a.

[0035] The seat and the pin may be coupled in a stable but removable manner by sliding them reciprocally in an axial direction following the common axis of rotation X stated above, which they define when they are reciprocally coupled. Corresponding to the hinge 6 there are also fixing means indicated overall with 11, which, as may be seen in greater detail in the exploded view shown in FIG. 4, comprise a nut screw 11a belonging to the second element 3 and a contact surface 11b belonging to the first element 2, combined with a screw 12 which mates with the nut screw 11a and which presents a manoeuvring head 12a and an end 12b which cooperates by contrast against the contact surface 11b.

[0036] It may also be seen that the nut screw 11a is located just upstream from the pin 6b and that, in the contact surface 11b, there is a concave seat 6a into which fits the above-mentioned pin 6b.

[0037] One edge of end 11c made in relief and protruding at a right angle to the contact surface 11b, laterally catches the end 12b of the screw 12 holding it in place corresponding to the contact surface 11b.

[0038] The first element 2 has coupling means at one end 2a, indicated overall with 7, which couple removably by snapping into a longitudinal channel 8 located in the edge on the outer side wall 9 of the frame T.

[0039] In particular it may be seen in FIG. 4 that the coupling means 7 comprise a recess 7a which holds a first protruding edge 8a belonging to the longitudinal channel 8 and an angular heel 7b, on the part opposite the recess, 7a, which snaps into an angular seat 8b located between a second protruding edge 8c of the longitudinal channel 8 and a shaped appendix 10 of the frame T protruding from the longitudinal channel 8.

[0040] It may also be seen that the free end 4 of the second element 3 supports a flexible element 13 with a concave surface 13a facing the dome C, coupled in an articulated manner to the free end by means of a hinge element, indicated overall with 14 and substantially the same as the hinge element that forms the fastening means 6 between the elements 2 and 3.

[0041] As regards the operation for securing the dome C on the frame T it is first of all necessary to connect the first element 2 of the clamp 1 to the frame T.

[0042] For this purpose, as may be seen in FIG. 5, the first element 2 is tilted and brought closer to the frame T so as to insert the first protruding edge 8a of the channel 8 into the recess 7a. Then, forcing the first element 2 in a substantially horizontal direction as indicated by the arrow F, the angular heel 7b is pushed into the an-

gular seat **8b** until it snaps into place.

[0043] The protruding profile **7c** of the first element **2** to which the angular heel **7b** belongs, thus rests on the corresponding shaped profile **10a** of the shaped appendix **10**.

[0044] The flexible element **13** then snaps onto the free end **4** of the second element **3** and the elements **2** and **3** are connected to each other, coupling the pin **6b** by sliding it along the axis **X** into the corresponding concave seat **6a**.

[0045] To force the dome **C** against the frame **T**, the operator adjusts the head **12a** of the screw **12** and, screwing it into the respective nut screw **11a**, forces the end **12b** against the contact surface **11b**.

[0046] The second element **3** therefore tends to turn around the axis **X** following the anticlockwise direction indicated by the arrow **R** in FIG. 3, forcing the dome **C** against the frame **T**.

[0047] Preferably, a gasket **G** is inserted.

[0048] The operator can perform sensitive regulation of the thrust of the dome **C** against the frame **T** by tightening or slackening the screw **12** in the respective nut screw **11a**.

[0049] The advantages offered by the use of the clamp described above may be understood.

[0050] Above all it is not necessary to drill a hole in the frame **T** or even in the elements that make up the clamp, since the connection is guaranteed by the snap closure of the coupling means **7**.

[0051] This leads to a reduction of workshop processes and allows the clamp to be fitted in any position along the frame, even on site, when the skylight or smoke extractor has already been installed.

[0052] Moreover the operator receives an advantage in tightening operations, because the closing thrust of the dome against the frame may be very precisely regulated with the screw torque, if necessary using a torque wrench. Moreover the arrangement of the clamp fastening at the side of the frame means that the contact between the dome **C** and the frame **T** takes place continuously along the whole plate **P** of the frame **T**. A uniform distribution of pressure is thus obtained in all points of the frame, guaranteeing the same degree of hermetic seal in every point.

[0053] For greater safety, each of the elements **2** and **3** which compose the clamp presents a seat respectively, **15**, **16** between which is secured a tie rod **17** which guarantees lasting stability of the closure, even if the screw **12**, should accidentally work slack.

[0054] In particular the tie rod **17** may be composed, for example, of a screw passing through the elements **2**, **3**, against which it is tightened by nuts placed at the end.

[0055] In another embodiment the tie rod may also be composed of a snap-on metal collar fitted with suitable means of manoeuvring to keep it tight.

[0056] It may therefore be understood that the clamp in the invention achieves all the set aims.

[0057] Although the clamp in the invention has been described with reference to the enclosed figures, it may present different shapes and dimensions from those illustrated.

[0058] Also as regards the coupling means and fastening means, these too may be made with different shapes and dimensions from those illustrated and described.

[0059] It is therefore understood that any variations in execution made to the clamp that are not mentioned and described, in so far as they fall within the field covered by the following claims, are all to be considered protected by this patent.

Claims

1. A skylight or smoke-extractor assembly (1) having a cover (L) consisting of a frame (T) connected to a dome (C) by means of a clamp, said clamp comprising:

- a first element (2) connected to said frame (T);
- a second element (3) having a free end (4) resting externally on said dome (C) above said frame (T) and an opposite end (5) removably coupled to the first element (2) by fastening means (6), said fastening means (6) being composed of at least one hinge (6) which forms an axis of rotation (X) of said elements (2, 3), substantially parallel to the plain defined by said frame (T);
- fixing means (11) adapted to block said second element (3) against said dome (C),

characterised in that said at least one hinge (6) is placed in correspondence with said fixing means (11) and comprises a concave seat (6a) with a substantially C-shaped transverse profile, created in one of said first/second element (2, 3) and a pin (6b) created in the other of said second/first element (3, 2), said pin having a transverse profile mating with said concave seat, said pin (6b) and said seat (6a) being removably coupled together by sliding said pin and seat reciprocally in an axial direction following the common axis of rotation (X).

2. The assembly (1) according to claim 1) **characterised in that** said fixing means (11) comprise at least one nut screw (11a) belonging to said first/second (2, 3) element and at least one screw (12) coupled to said nut screw (11a) and having the end (12b) opposite the manoeuvring head (12a) which cooperates by contrast against the contact surface (11b) belonging to said second/first element (3, 2).
3. The assembly (1) according to claim 2) **characterised in that** said nut screw (11a) is located just up-

stream from said pin (6b).

4. The assembly (1) according to claim 2) **characterised in that** in said at least one contact surface (11b) there is said concave seat (6a). 5
5. The assembly (1) according to claim 2) **characterised in that said** at least one contact surface (11b) presents one edge of the end in relief (11c) suited to catching laterally against the end (12b) of said screw (12). 10
6. The assembly (1) according to claim 1) **characterised in that** said first element (2) presents at one end (2a) coupling means (7) which couple removably by snapping into a longitudinal channel (8) located in the edge on the outer side wall (9) of said frame (T). 15
7. The assembly (1) according to claim 6) **characterised in that** said coupling means (7) comprise at least one recess (7a) which holds a corresponding first protruding edge (8a) belonging to said longitudinal channel (8) and at least one angular heel (7b) on the part opposite said at least one recess (7a) which snaps into an angular seat (8b) located between a second protruding edge (8c) of said longitudinal channel (8) and a shaped appendix (10) of said frame (T) protruding from said channel (8). 20 25
8. The assembly (1) according to claim 7) **characterised in that** said longitudinal channel (8) presents a cross section having a C-shaped profile in which the free ends are composed of said protruding edges (8a, 8c) facing each other. 30 35
9. The assembly (1) according to claim 7) **characterised in that** said angular heel (7b) belongs to a shaped profile (7c) of said first element (2) and rests against the corresponding shaped profile (10a) of said shaped appendix (10) when said longitudinal channel (8) receives the coupling of said first element (2). 40
10. The assembly (1) according to claim 1) **characterised in that** it comprises at least one flexible element (13) coupled in an articulated manner to the free end (4) of said second element (3), suited to resting against said dome (C). 45
11. The assembly (1) according to claim 10) **characterised in that** said flexible element (13) presents a curved profile with the concave part (13a) facing said dome (C). 50
12. The assembly (1) according to claim 1) **characterised in that** said first element (2) and said second element (3) each present at least one seat (15, 16) 55

for holding a safety tie rod (17).

Patentansprüche

1. Eine Oberlicht- oder Rauchabzugeinheit (1) mit einem Deckel (L), bestehend aus einem Rahmen (T), der mit einer Kuppel (C) verbunden ist mittels einer Klemme, wobei diese Klemme Folgendes umfasst:

- ein erstes, mit dem Rahmen (T) verbundenes Element (2);
- ein zweites Element (3) mit einem freien Ende (4), das außen an der Kuppel (C) über dem Rahmen (T) liegt, und mit einem entgegengesetzten Ende (5), das abnehmbar mit dem ersten Element (2) gekuppelt ist durch Befestigungsmittel (6), die aus wenigstens einem Scharnier (6) bestehen, welches eine Drehachse (X) der Elemente (2, 3) bildet, die im Wesentlichen parallel zu der durch den Rahmen (T) gebildeten Ebene steht;
- Fixiermittel (11), dazu geeignet, das zweite Element (3) gegen die Kuppel (C) zu blockieren,

dadurch gekennzeichnet, dass das wenigstens eine Scharnier (6) in Entsprechung mit den Fixiermitteln (11) positioniert ist und eine konkave Aufnahme (6a) mit einem im Wesentlichen C-förmigen Querprofil im ersten oder im zweiten Element (2, 3) umfasst, sowie einen Zapfen (6b) in dem jeweils anderen, zweiten oder ersten Element (3, 2), wobei das Querprofil des Zapfens mit der konkaven Aufnahme zusammenpasst und der Zapfen (6b) und die Aufnahme (6a) abnehmbar miteinander gekuppelt sind durch wechselseitiges Verschieben von Zapfen und Aufnahme in axiale Richtung gemäß der gemeinsamen Drehachse (X).

2. Die Einheit (1) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** die Fixiermittel (11) wenigstens eine Mutterschraube (11a) umfassen, die zum ersten/zweiten Element (2, 3) gehört, und wenigstens eine mit der Mutterschraube (11a) verbundene Schraube (12), deren dem Schraubenkopf (12a) entgegengesetztes Ende (12b) durch Gegenwirkung gegen die Kontaktfläche (11b) des zweiten/ersten Elements (3, 2) wirkt. 45
3. Die Einheit (1) gemäß Patentanspruch 2), **dadurch gekennzeichnet, dass** die Mutterschraube (11a) unmittelbar vor dem Zapfen (6b) positioniert ist. 50
4. Die Einheit (1) gemäß Patentanspruch 2), **dadurch gekennzeichnet, dass** sich in der wenigstens einen Kontaktfläche (11 b) die konkave Aufnahme (6a) befindet. 55

5. Die Einheit (1) gemäß Patentanspruch 2), **dadurch gekennzeichnet, dass** die wenigstens eine Kontaktfläche (11 b) an einer Endkante ein Relief (11c) aufweist, das geeignet ist, seitlich in das Ende (12b) der Schraube (12) einzurasten. 5
6. Die Einheit (1) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** das erste Element (2) an einem Ende (2a) Kupplungsmittel (7) zur abnehmbaren Verbindung durch Einschnappen in einen Längskanal (8) in der Kante an der äußeren Seitenwand (9) des Rahmens (T) aufweist. 10
7. Die Einheit (1) gemäß Patentanspruch 6), **dadurch gekennzeichnet, dass** die Kupplungsmittel (7) wenigstens eine Vertiefung (7a) aufweisen, die eine entsprechende, erste hervorstehende Kante (8b) hält, welche zum Längskanal (8) gehört, sowie wenigstens einen Winkelabsatz (7b) an der Seite gegenüber der wenigstens einen Vertiefung (7a), welcher in eine winkelige Aufnahme (8b) einrastet, die sich zwischen einer zweiten, hervorstehenden Kante (8c) des Längskanals (8) und einem aus dem Kanal (8) herausragenden, geformten Ansatzstück (10) des Rahmens (T) befindet. 20 25
8. Die Einheit (1) gemäß Patentanspruch 7), **dadurch gekennzeichnet, dass** der Längskanal (8) einen Querschnitt mit C-Profil hat, dessen freie Enden aus den einander gegenüberliegenden, hervorstehenden Kanten (8a, 8c) bestehen. 30
9. Die Einheit (1) gemäß Patentanspruch 7), **dadurch gekennzeichnet, dass** der Winkelabsatz (7b) zu einem Formprofil (7c) des ersten Elements (2) gehört und am entsprechenden Formprofil (10a) des geformten Ansatzstücks (10) anliegt, wenn das erste Element (2) in den Längskanal (8) eingekuppelt wird. 35 40
10. Die Einheit (1) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** sie wenigstens ein flexibles Element (13) umfasst, das am freien Ende (4) des zweiten Elements (3) angelenkt ist und geeignet ist, an der Kuppel (C) anzuliegen. 45
11. Die Einheit (1) gemäß Patentanspruch 10), **dadurch gekennzeichnet, dass** das flexible Element (13) ein gekrümmtes Profil hat, dessen konkaver Teil (13a) der Kuppel gegenüber liegt. 50
12. Die Einheit (1) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** das erste Element (2) und das zweite Element (3) jeweils wenigstens eine Aufnahme (15, 16) zur Befestigung einer Sicherheits-Zugstange (17) aufweisen. 55

Revendications

1. Une unité pour lanterneau ou extracteur à fumées (1) ayant une couverture (L) se composant d'un cadre (T) relié à une coupole (C) au moyen d'un étau, ledit étau comprenant:

- un premier élément (2) relié audit cadre (T);
- un deuxième élément (3) ayant une extrémité libre (4) s'appuyant à l'extérieur sur ladite coupole (C) au-dessus dudit cadre (T) et une extrémité opposée (5) reliée d'une manière amovible au premier élément (2) par des moyens de fixation (6), lesdits moyens de fixation (6) étant composés d'au moins une charnière (6) qui forme un axe de rotation (X) desdits éléments (2, 3), essentiellement parallèle au plan défini par ledit cadre (T);
- des moyens de fixation (11) indiqués pour bloquer ledit deuxième élément (3) contre ladite coupole (C),

caractérisée en ce que ladite au moins une charnière (6) se trouve à hauteur desdits moyens de fixation (11) et comprend un siège concave (6a) avec un profil transversal essentiellement en C, créé dans un desdits premier/deuxième éléments (2, 3) et un goujon (6b) créé dans l'autre desdits premier/deuxième élément (3, 2), ledit goujon ayant un profil transversal se couplant avec ledit siège concave, ledit goujon (6b) et ledit siège (6a) étant reliés d'une manière amovible en faisant coulisser ledit goujon et ledit siège réciproquement en une direction axiale suivant l'axe de rotation commun (X).

2. L'unité (1) selon la revendication 1) **caractérisée en ce que** lesdits moyens de fixation (11) comprennent au moins une vis-mère (11a) appartenant audit premier/deuxième (2, 3) élément et au moins une vis (12) reliée à ladite vis-mère (11a) et ayant l'extrémité (12b) opposée à la tête de manoeuvre (12a) qui coopère par contraste avec la surface de contact (11b) appartenant audit premier/deuxième élément (3, 2).
3. L'unité (1) selon la revendication 2) **caractérisée en ce que** ladite vis-mère (11a) se trouve juste en amont par rapport audit goujon (6b).
4. L'unité (1) selon la revendication 2) **caractérisée en ce que** sur ladite au moins une surface de contact (11b) il y a un siège concave (6a).
5. L'unité (1) selon la revendication 2) **caractérisée en ce que** ladite au moins une surface de contact (11b) présente un bord de l'extrémité en relief (11c) indiqué pour s'encaster latéralement sur l'extrémité

(12b) de ladite vis (12).

6. L'unité (1) selon la revendication 1) **caractérisée en ce que** ledit premier élément (2) présente sur une extrémité (2a) des moyens d'accouplement (7) qui se couplent d'une manière amovible en se couplant par encliquetage dans un canal longitudinal (8) positionné sur le bord sur la paroi extérieure (9) dudit cadre (T). 5
7. L'unité (1) selon la revendication 6) **caractérisée en ce que** lesdits moyens d'accouplement (7) comprennent au moins une cavité (7a) qui retient un premier bord saillant correspondant (8a) appartenant audit canal longitudinal (8) et au moins un talon angulaire (7b) sur la partie opposée à ladite au moins une cavité (7a) qui se couple par encliquetage dans un siège angulaire (8b) positionné entre un deuxième bord saillant (8c) dudit canal longitudinal (8) et une pièce en saillie (10) dudit cadre (T) saillant dudit canal (8). 10
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20
8. L'unité (1) selon la revendication 7) **caractérisée en ce que** ledit canal longitudinal (8) présente une coupe transversale ayant un profil en C dans laquelle les extrémités libres se composent de dits bords saillants (8a, 8c) l'un en face de l'autre. 25
9. L'unité (1) selon la revendication 7) **caractérisée en ce que** ledit talon angulaire (7b) appartient à un profil façonné (7c) dudit premier élément (2) et s'appuie contre le profil façonné correspondant (10a) de ladite pièce en saillie façonnée (10) quand ledit canal longitudinal (8) reçoit l'accouplement dudit premier élément (2). 30
35
10. L'unité (1) selon la revendication 1) **caractérisée en ce qu'elle** comprend au moins un élément flexible (13) couplé d'une manière articulée à l'extrémité libre (4) dudit deuxième élément (3), indiqué pour s'appuyer contre ladite coupole (C). 40
11. L'unité (1) selon la revendication 10) **caractérisée en ce que** ledit élément flexible (13) présente un profil courbe avec la partie concave (13a) étant en face de ladite coupole (C). 45
12. L'unité (1) selon la revendication 1) **caractérisée en ce que** ledit premier élément (2) et ledit deuxième élément (3) présentent chacun au moins un siège (15, 16) pour retenir un tirant de sécurité (17). 50

55

Prior Art

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(102)

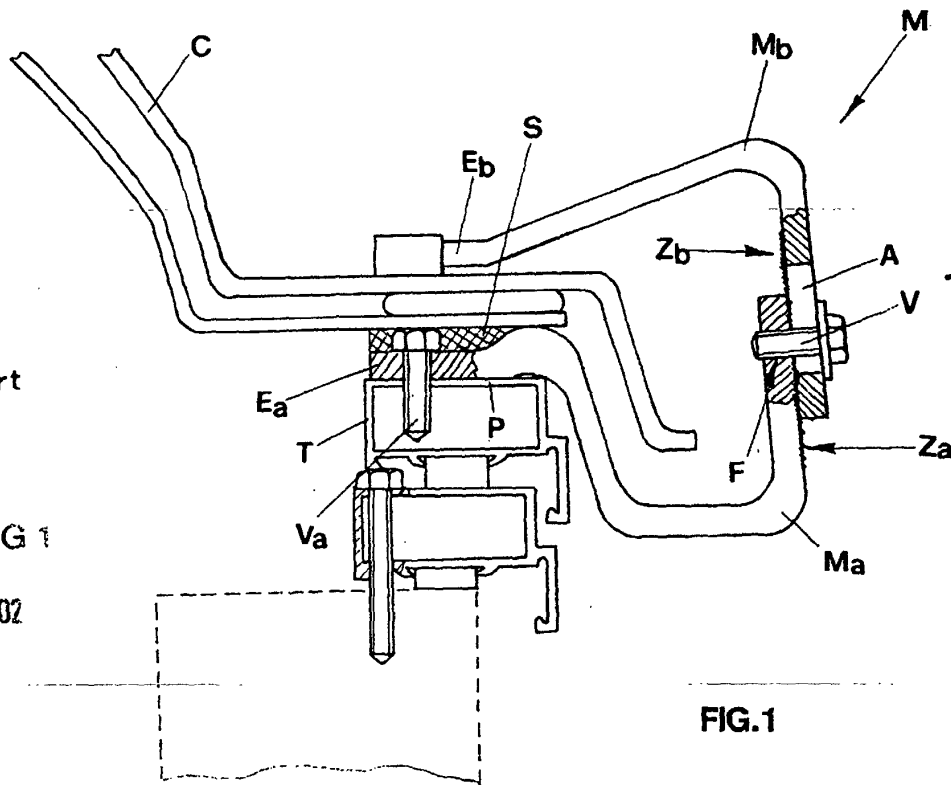


FIG.1

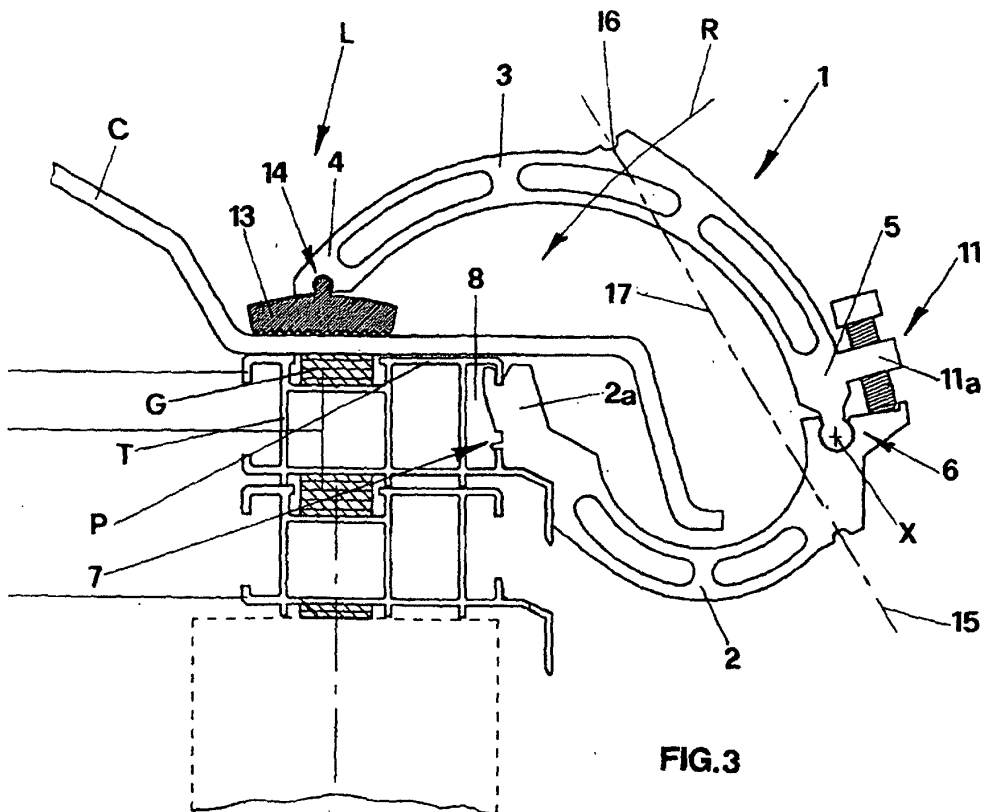


FIG.3

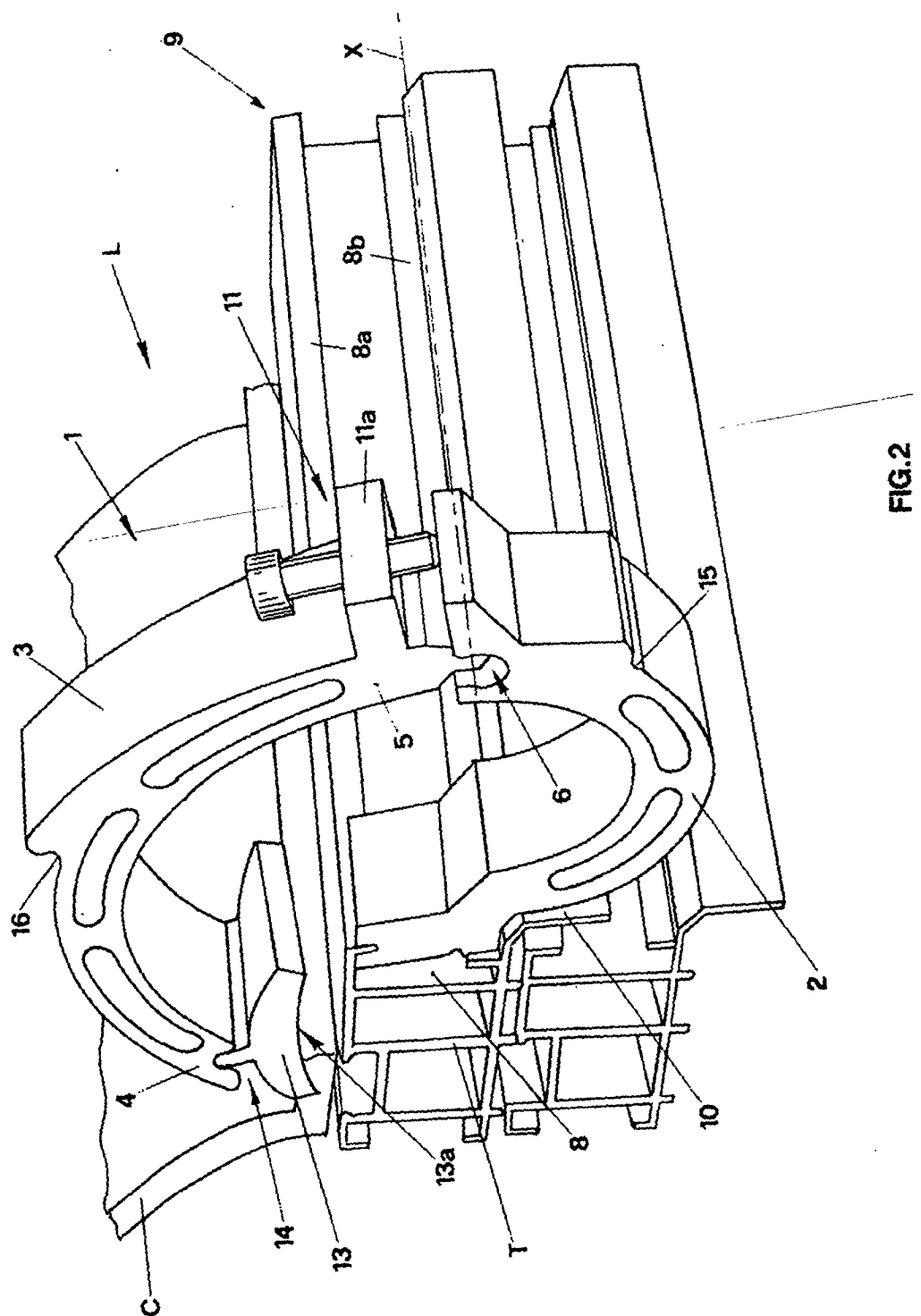


FIG. 2

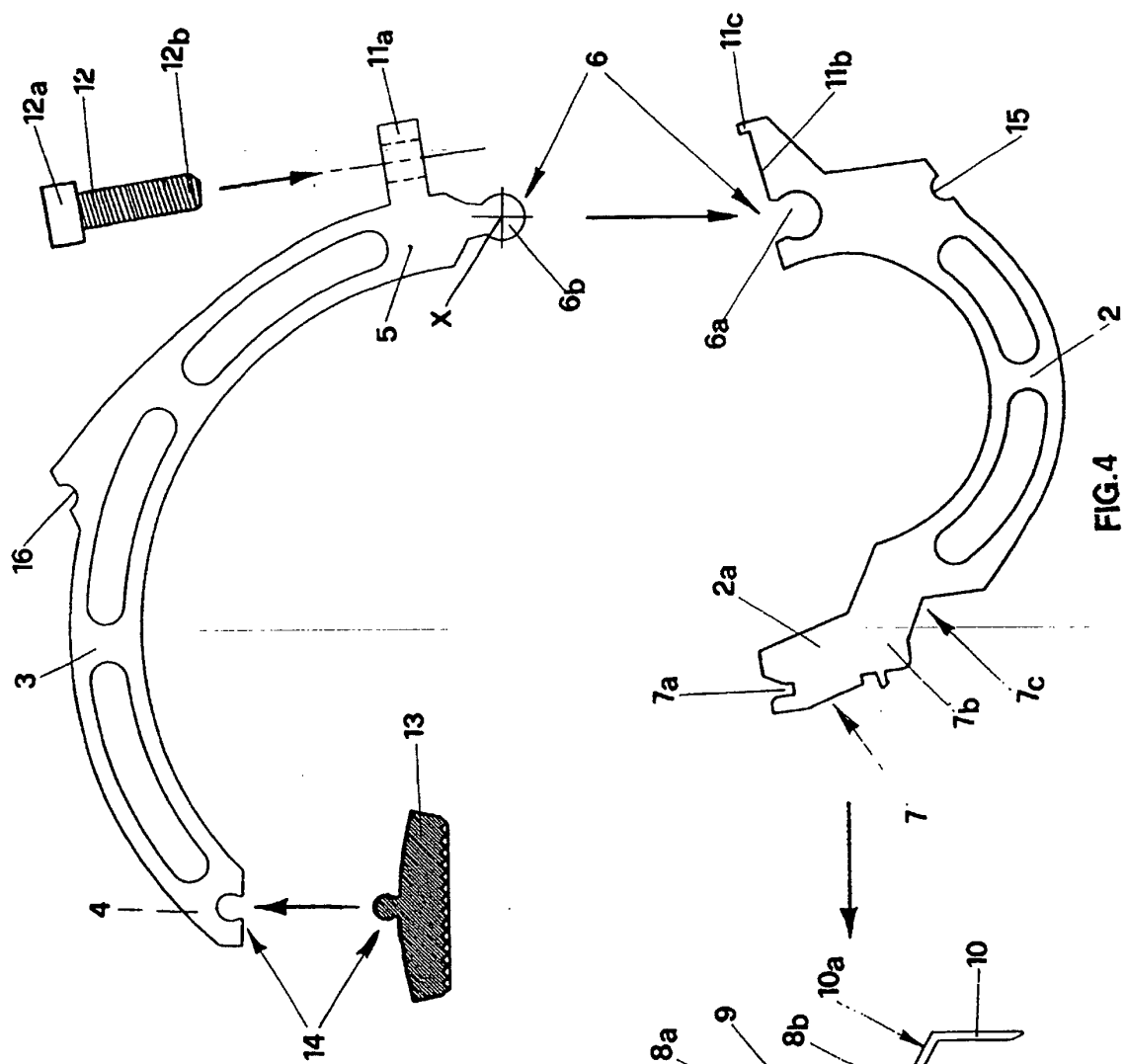


FIG. 4

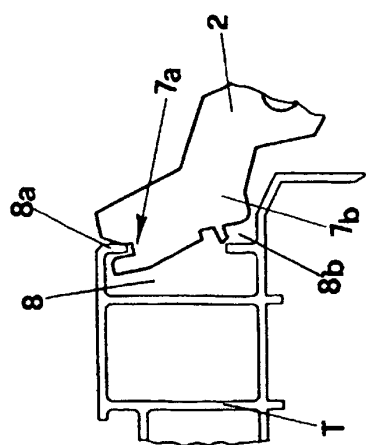


FIG. 5

