



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 470 036 B1

(12)

EUROPEAN PATENT SPECIFICATION

(49) Date of publication of patent specification: **21.12.94** (51) Int. Cl.⁵: **A47C 1/12**

(21) Application number: **91500085.5**

(22) Date of filing: **31.07.91**

(54) **Structure for the formation of rows of seats and seat formed with this structure.**

(30) Priority: **03.08.90 ES 9002104**

(43) Date of publication of application:
05.02.92 Bulletin 92/06

(45) Publication of the grant of the patent:
21.12.94 Bulletin 94/51

(84) Designated Contracting States:
DE FR GB IT

(56) References cited:
EP-A- 0 419 395
FR-A- 2 139 844
US-A- 3 230 005
US-A- 3 990 741

(73) Proprietor: **INDUSTRIAS FIGUERAS, S.A.**
Ctra. de Parets a Bigues, Km. 7,70
E-08186 Lliça de Munt (Barcelona) (ES)

(72) Inventor: **Figueras Mitjans, José**
Ctra. de Parets a Bigues, Km. 7,70
E-08186 Lliça de Munt (Barcelona) (ES)

(74) Representative: **Ponti Sales, Adelaida Oficina**
Ponti
Passeig de Gracia, 33
E-08007 Barcelona (ES)

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid (Art. 99(1) European patent convention).

Description

The present invention refers to a structure for the formation of rows of seats, and to a seat formed with this structure.

BACKGROUND OF THE INVENTION

The structure object of patent no. 8903161 (see also EP-A-0419395) is formed of a tubular longitudinal beam of rectangular cross-section, to two of whose larger opposing sides are fixed the seat itself and the backrest, formed by two pieces, preferably of a dish-like metal sheeting, provided with respective flat and inclined faces destined to be juxtaposed upon the corresponding faces of the longitudinal beam, to which they are attached by bolts. The longitudinal beam itself incorporates panels which constitute little tables. The longitudinal beam of the structure is supported by legs provided with a clamp fixed around the longitudinal beam.

Practice has shown that it is possible to make some improvements to the structure object of the mentioned patent, basically affecting the longitudinal beam, in order to improve the solidity of the seat and backrest fastening to the longitudinal beam itself.

Other improvements to the structure also affect the configuration of the clamp of the legs, which is simpler than in the embodiment of the mentioned patent, and the fastening means of the panels which constitute the little tables.

DESCRIPTION OF THE INVENTION

In the structure for the formation of rows of seats, object of the present patent, the cross-section of the longitudinal beam comprises two flat sides forming between them an acute angle, the flat faces of the seat and backrest being juxtaposed on said flat sides of the beam, and a third rear side having ribs near the connections with said two flat sides and depressions adjacent said ribs, while the seats and the backrests are provided, on their respective faces which are juxtaposed to the flat sides of the longitudinal beam, with shoulders whose contour corresponds to that of the ribs of the longitudinal beam, so that they can be coupled thereon in the assembled position.

Advantageously said third rear side of the cross-section of the longitudinal beam further comprises an outwardly bulging portion, arranged between said depressions, and an inner reinforcing partition arranged between the two flat sides.

The panels which make up the little tables are joined to a bracket and assembly piece on the longitudinal beam, which piece includes, at least, a

rigid wing which projects from below with respect to the panel, provided with fastening means to one of the sides of the longitudinal beam. The rigid wing is provided with a shoulder which has a profile corresponding with the ribs of the longitudinal beam, for coupling thereof to one of them in the assembly position.

The projecting wing of the support piece of the panels which make up the little tables presents some orifices, the positions of which coincide with those of the orifices with which the faces of the seats and backrests are provided, and which in turn coincide with other orifices throughout the length of one of the faces of the longitudinal beam, to permit the passage of fastening bolts for the seats and little tables.

The longitudinal beam is provided with spaced-apart openings into which there slot one of the semi-clamps which make up the securing clamp of each of the legs which support the longitudinal beam, opposite which openings the longitudinal beam is fitted with an internal partition provided with an orifice facing another orifice on the opposite side of the longitudinal beam itself. These orifices allow for the passage of the union bolt of the two semi-clamps.

One of the semi-clamps presents the face for coupling to the longitudinal beam with a profile complementary to that of the dished face of the longitudinal beam and to its ribs and depressions.

The semi-clamps are juxtaposed to each other by two complementary faces, one of them presenting a prolongation in the form of a tail, to which is fitted a third piece with means of guidance with respect to that prolongation, fitted with bolts accessible from the exterior in order to achieve expansion or approximation of this piece with respect to the prolongation of the semi-clamp. The third piece and the tail of one of the semi-clamps are housed in the upper end of the tubular leg in which is fitted the clamp for securement to the longitudinal beam.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of all that has been set forth in the present specification there are attached some drawings in which, solely by way of example, a practical case of embodiment of the structure object of the present invention is represented.

In these drawings, figure 1 is a perspective view exploded diagram of a row of seats provided with the structure described; figure 2 is a perspective view exploded diagram of one of the union clamps of the longitudinal beam; figure 3 is a cross-section view of one of the clamps incorporated into the corresponding leg and fixed around the longitudinal beam; figure 4 is a similar

view showing the union of a seat and a backrest to the longitudinal beam; figure 5 is a cross-section view of a little table fixed to the longitudinal beam; and figure 6 is a perspective view of an assembled row of seats.

DESCRIPTION OF A PREFERRED EMBODIMENT

With reference to the drawings, the structure object of the present patent comprises a longitudinal beam of general reference -1- which has a cross-section shaped approximately like a sector of a circle, with two flat sides -2- and -3- which form an angle between them with a rounded edge -4-, and a third rear side -5-, dished, throughout the length of which and near its edges the longitudinal beam presents two longitudinal ribs -6- and near them corresponding longitudinal depressions -7- limiting the dished part -5- of this rear face of the profile. The interior of the profile is reinforced by a transversal partition -8- near the edge -4-, provided with spaced orifices -9-.

At the edge -4- of the structure there are some spaced-apart openings -10-, which affect part of the sides -2- and -3-, facing the orifices -9- of the partition -8-.

On the sides -2- and -3- of the longitudinal beam -1- there are pairs of orifices -11-, spaced apart regularly, with the orifices of each pair set at the same distance apart.

In the openings -10- of the longitudinal beam there slot some semi-clamps -12-, complemented by other semi-clamps -13-, in such a way that each pair constitutes a clamp destined to be secured to the longitudinal beam -1- by means of a transversal bolt -14- which joins them and passes through the longitudinal beam -1- via orifices -15- aligned with respect to orifices -9- provided for this purpose (figure 3).

The semi-clamps -12- and -13- present juxtaposed inclined surfaces -16- and -17-, with aligned orifices -18- for the fastening of an optional bolt -18a-. Semi-clamp -13- presents an internal profile complementary to the profile of the dished face -5- and the depressions -7- of the longitudinal beam -1-, for perfect coupling to the same.

The semi-clamp -12- has a prolongation in the form of a tail -12a-, to which a piece -19- is juxtaposed. The tail -12a- and the piece -19- have complementary orifice -20- and pin -21- sets, which centre and guide the positions of both. The piece -19- is provided with two bolts -22-, threaded into orifices -22a-, which press against the tail of the semi-clamp -12-.

The assembly formed by the tail -12a- and the piece -19- is destined to be housed in the upper end of tubular columns -23- provided with feet -24- or -25-. These columns with their respective feet

constitute the support legs for the longitudinal beam -1- by means of the semi-clamps -12- and -13-, coupled to each other around the same, as illustrated in figure 3 of the drawings. In this position, when the bolts -22- are operated, the piece -19- moves away from or closer to the tail -12a-, thus fixing or releasing the clamp assembly in relation to the end of the tubular column -23-.

To the faces -2- of the longitudinal beam -1- are anchored the seats -26-, provided with a rear surface -27- finished with an arched shoulder -28- for fitting around the corresponding rib -6-. The fastening of the seats -26- is carried out by means of bolts -29- which pass through orifices -30- provided in the surface -27-, and the orifices -11- of the longitudinal beam -1- (figure 4).

The bolts themselves -29- fix to backrests -31-, paired up with the seats -26-, in a similar way to the latter, with a lower surface -32- with orifices -32a- aligned with orifices -11- and -30-. The lower surface -32- is finished with an arched shoulder -33- which fits around the corresponding rib -6-.

The structure also comprises some little tables -34- fitted with a lower bracket -35-, with an inclined wing or surface -36-, provided with orifices -37- which can be aligned with orifices -11- of the longitudinal beam -1-, for passage of the fastening bolts -38- (figure 5). The inclined surface -36- presents a shoulder -36a- which may be adapted around one of the ribs -6- of the profile -1-.

It should be noted that the orifices -37- of the surface -36- of the bracket -35- have the same layout as the orifices -30- and -32a- of the surfaces -27- and -32- of the seats -26- and backrests -31-, so that it is possible to assemble a little table in the place of a seat and backrest.

The structure is completed by some arms or side endings -39-, with means for fixing of same to the ends of the longitudinal beam -1-.

Of the described structure it is necessary to stress the configuration of the longitudinal beam -1- fitted with sets of ribs -6- and depressions -7-, into which the seat and backrest shoulders -28- and -33- fit, in such a way that the longitudinal beam ensures not only union by juxtaposition of the surfaces -27- and -32- of the seats and backrests to faces -2- and -3- of the longitudinal beam -1- by means of fastening bolts -29-, but also guarantees perfect coupling of those components, thanks to the fitting mentioned above, providing the structure with greater safety and solidity.

Claims

1. Structure for the formation of rows of seats, formed of a tubular longitudinal beam (1), to two of whose sides are fixed the seat (26) and the backrest (31) respectively, said seat (26)

and backrest (31) being each provided with a flat and an inclined face (27,32) intended to be juxtaposed and attached by bolts upon the corresponding sides of the longitudinal beam, panels which constitute little tables (34) being incorporated to said longitudinal beam, and the latter being supported by legs provided with a clamp (12,13) fixed around the longitudinal beam, characterized in that the cross-section of the longitudinal beam comprises two flat sides (2,3) forming between them an acute angle, the flat faces (27,37) of the seat (26) and backrest (31) being juxtaposed on said flat sides (2,3) of the beam, and a third rear side (5) having ribs (6) near the connections with said two flat sides (2,3) and depressions (7) adjacent said ribs (6), while the seats (26) and the backrests (31) are provided, on their faces (27,32) which are juxtaposed to the flat sides (2,3) of the longitudinal beam with shoulders (28, 33) whose contour corresponds to that of the ribs (6) of the longitudinal beam, so that they can be coupled thereon in the assembled position.

2. Structure as claimed in claim 1, characterized in that said third rear side (5) of the cross-section of the longitudinal beam further comprises an outwardly bulging portion, arranged between said depressions (7), and an inner reinforcing partition (8) arranged between the two flat sides (2,3).

3. Structure as claimed in claim 1, characterized in that the panels (34) which make up the little tables are joined to a bracket and assembly piece (35) on the longitudinal beam, which piece includes, at least, a rigid wing (36) which projects from below with respect to the panel, provided with fastening means to one of the sides of the longitudinal beam, which wing is provided with a shoulder (36a) which has a profile corresponding with the ribs (6) of the longitudinal beam, for coupling thereof to one of them in the assembly position.

4. Structure as claimed in claims 1 and 3, characterized in that the projecting wing (36) of the support piece of the panels (34) which make up the little tables presents some orifices (37), the positions of which coincide with those of the orifices (30) with which the faces (27, 32) of the seats and backrests juxtaposed to the faces (2, 3) of the longitudinal beam are provided, and which in turn coincide with other orifices (11), provided throughout the length of one of the faces of the longitudinal beam, to permit the passage of fastening bolts (29) for

the seats and little tables.

5. Structure as claimed in claim 1, characterized in that the longitudinal beam (1) is provided with spaced-apart openings (10) into which there slot one of the semi-clamps (12) which make up the securing clamp of each of the legs supporting the longitudinal beam, opposite which openings the longitudinal beam is fitted with an internal partition (8) provided with an orifice (9) facing another orifice (15) on the opposite side of the longitudinal beam itself, said orifices allowing for the passage of the union bolt of the two semi-clamps.

6. Structure as claimed in claims 1 and 2, characterized in that one of the semi-clamps (13) presents the face for coupling to the longitudinal beam with a profile complementary to that of the dished face (5) of the longitudinal beam and of its ribs and depressions.

7. Structure as claimed in claims 1, 2 and 6, characterized in that the semi-clamps are juxtaposed to each other by complementary faces (16,17), only one of them presenting a prolongation in the form of a tail (12a), to which is fitted a third piece (19) with means of guidance with respect to that prolongation, fitted with bolts (22) accessible from the exterior in order to achieve expansion or approximation of this piece with respect to the prolongation of the semi-clamp, both pieces being housed in the upper end of the tubular leg (23) in which is fitted the clamp for securement to the longitudinal beam.

8. Seat formed with the structure of any of the previous claims.

Patentansprüche

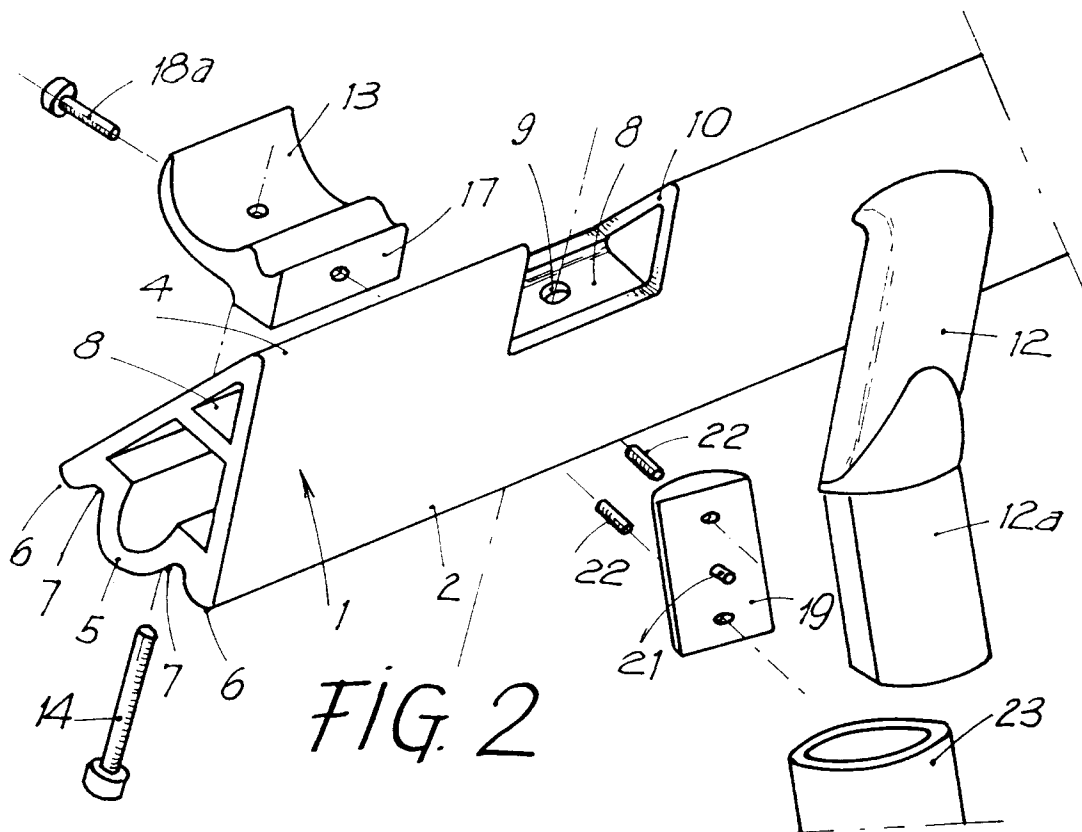
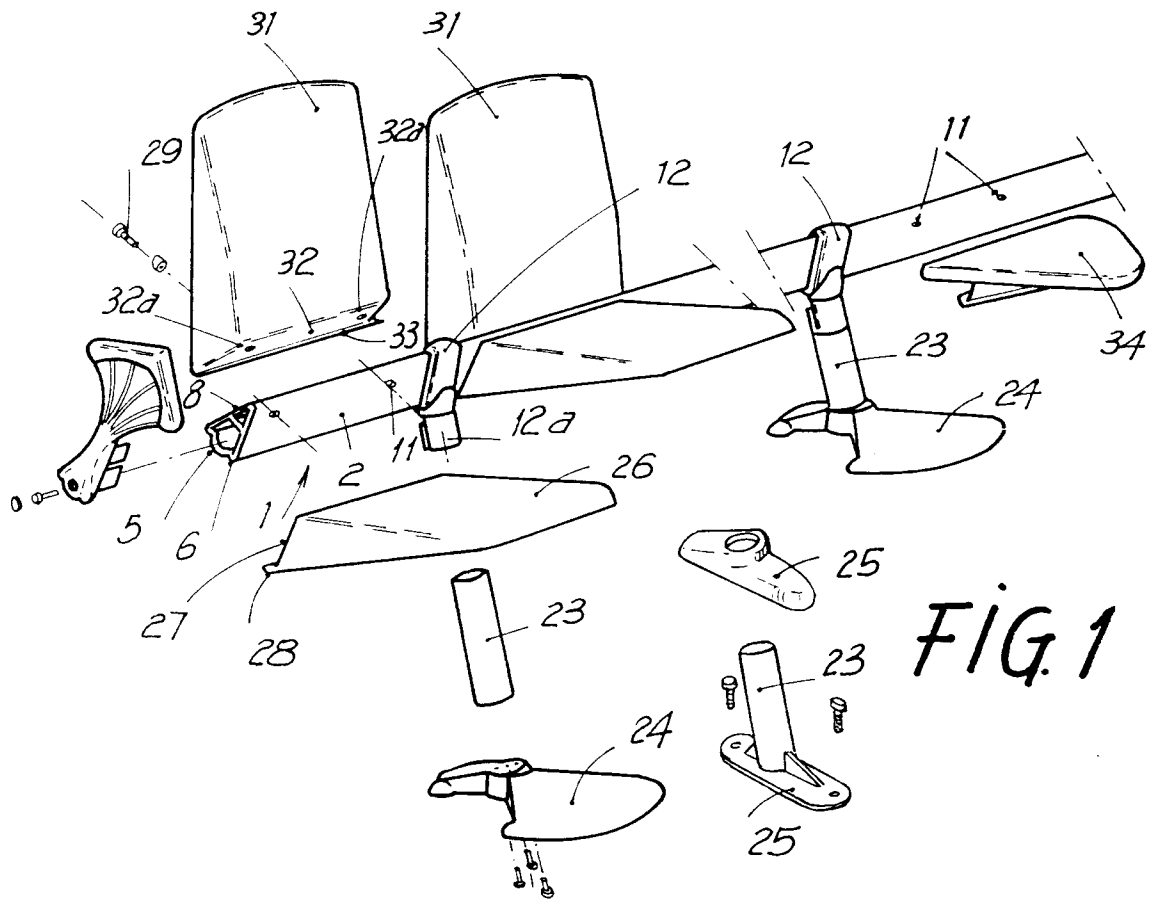
1. Struktur zur Bildung von Sitzreihen, bestehend aus einem rohrförmigen länglichen Balken (1), an zwei Seiten von dem der Sitz (26) und die Rückenlehne (31) jeweils befestigt sind, wobei der Sitz (26) und die Rückenlehne (31) mit einer ebenen und einer geneigten Fläche (27, 32) versehen sind, die dazu bestimmt sind, an den entsprechenden Seiten des länglichen Balkens nebeneinander angeordnet und durch Bolzen befestigt zu werden, Platten die kleine Tische (34) bilden, die mit dem länglichen Balken vereinigt sind, der durch Beine getragen ist, die mit einer Klammer (12, 13) versehen sind, die um den länglichen Balken herum befestigt ist, dadurch gekennzeichnet, daß der Querschnitt des länglichen Balkens zwei ebene

- Seiten (2, 3) umfaßt, die zwischen sich einen spitzen Winkel bilden, wobei die ebenen Flächen (27, 37) des Sitzes (26) und der Rückenlehne (31) auf den ebenen Seiten (2, 3) des Balkens nebeneinandergestellt sind, und eine dritte Rückseite (5), die Rippen (6) nahe den Verbindungen mit den beiden ebenen Seiten (2, 3) und Mulden (7) benachbart zu den Rippen (6) haben, während die Sitze (26) und die Klammern (31) auf ihren Flächen (27, 32), die an den ebenen Seiten (2, 3) des länglichen Balkens nebeneinander angeordnet sind, mit Schultern (38, 33) versehen sind, deren Kontur derjenigen der Rippen (6) des länglichen Balkens derart entspricht, daß sie in der montierten Position daran befestigt werden können.
2. Struktur nach Anspruch 1, dadurch gekennzeichnet, daß die dritte Rückseite (5) des Querschnitts des länglichen Balkens außerdem einen nach außen ausbauchenden Bereich umfaßt, der zwischen den Mulden (7) angeordnet ist, und eine innere Verstärkungstrennwand (8), die zwischen den beiden ebenen Seiten (2, 3) angeordnet ist.
3. Struktur nach Anspruch 1, dadurch gekennzeichnet, daß die Platten (34), welche die kleinen Tische bilden, mit einer Klammer und einem Montageteil (35) an dem länglichen Balken verbunden sind, welches Montageteil zumindest einen starren Flügel (36) umfaßt, der von der Platte nach unten vorspringt und mit einer Befestigungseinrichtung an einer der Seiten des länglichen Balkens versehen ist, welcher Flügel mit einer Schulter (36a) versehen ist, die in den Rippen (6) des länglichen Balkens entsprechendes Profil zu seiner Verbindung mit einer von ihnen in der Montageposition hat.
4. Struktur nach Anspruch 1 und 3, dadurch gekennzeichnet, daß der vorspringende Flügel (36) des Trageteils der Platten (34), welche den kleinen Tisch bilden, einige Öffnungen (37) hat, deren Positionen mit denjenigen der Öffnungen (30) zusammenfallen, mit denen die Flächen (27, 32) der Sitze und Rückenlehnen, die an den Seiten (2, 3) des länglichen Balkens nebeneinander angeordnet sind, versehen sind, und die ihrerseits mit weiteren Öffnungen (11) zusammenfallen, die entlang einer der Seiten des länglichen Balkens vorgesehen sind, um den Durchgang von Befestigungsbolzen (29) für die Sitze und kleinen Tische zu ermöglichen.
5. Struktur nach Anspruch 1, dadurch gekennzeichnet, daß der längliche Balken (1) mit beabstandeten Öffnungen (10) versehen ist, in die eine der Halbkammern (12) eingreifen, welche die Befestigungsklammer jedes der Beine bilden, die den länglichen Balken tragen, gegenüber von welchen Öffnungen der längliche Balken mit einer inneren Trennwand (8) ausgestattet ist, die mit einer Öffnung (9) versehen ist, die einer weiteren Öffnung (15) auf der gegenüberliegenden Seite des länglichen Balkens selbst gegenüberliegt, wobei die Öffnungen den Durchgang eines gemeinsamen Bolzens für die beiden Halbkammern zulassen.
6. Struktur nach Anspruch 1 und 2, dadurch gekennzeichnet, daß eine der Halbkammern (13) die Fläche zum Verbinden des länglichen Balkens mit einem Profil bildet, das komplementär zu demjenigen der schalenförmigen Fläche (5) des länglichen Balkens und seiner Rippen und Mulden ist.
7. Struktur nach Anspruch 1, 2 und 6, dadurch gekennzeichnet, daß die Halbkammern durch komplementäre Flächen (16, 17) gegenseitig nebeneinander angeordnet sind, von denen lediglich eine eine Verlängerung in der Form eines Stumpfes (12a) hat, an dem ein drittes Teil (19) mit einer Einrichtung zur Führung in bezug auf diese Verlängerung angebracht ist, das mit Bolzen (22) angebracht ist, die von außen zugänglich sind, um eine Aufweitung oder Annäherung dieses Teils in bezug auf die Verlängerung der Halbkammer zu erreichen, wobei beide Teile in dem oberen Ende des rohrförmigen Beins (23) untergebracht sind, in dem die Klammer zur Befestigung des länglichen Balkens eingesetzt ist.
8. Mit der Struktur nach einem der vorangehenden Ansprüche ausgebildeter Sitz.

Revendications

1. Structure pour la formation de rangées de sièges, formée d'une poutre (1) longitudinale tubulaire, l'assise (26) et le dossier (31) étant fixés respectivement sur deux côtés de cette poutre, l'assise (26) et le dossier (31) étant chacun munis d'une face (27,32) plate et inclinée destinée à être juxtaposée et attachée au moyen de boulons sur des côtés correspondants de la poutre longitudinale, des panneaux formant de petites tables (34) étant incorporés dans la poutre longitudinale, et cette dernière étant supportée par des pieds munis d'une

- attache (12,13) fixée autour de la poutre longitudinale, caractérisée en ce que la section transversale de la poutre longitudinale comprend deux côtés plats (2,3) formant entre eux un angle aigu, les faces plates (27,37) de l'assise (26) et du dossier (31) étant juxtaposées aux côtés plats (2,3) de la poutre, et un troisième côté arrière (5) comportant des nervures (6) disposées près des jonctions avec les deux côtés plats (2,3) et les enfoncements (7) adjacents aux nervures (6), alors que les assises (26) et les dossiers (31) sont munis, sur leurs faces (27,32), qui sont juxtaposées aux côtés plats (2,3) de la poutre longitudinale, d'épaulements (28,33) dont le contour correspond à celui des nervures (6) de la poutre longitudinale, si bien qu'ils peuvent être accouplés sur celle-ci en position d'assemblage.
2. Structure selon la revendication 1, caractérisée en ce que le troisième côté arrière (5) de la section transversale de la poutre longitudinale comprend de plus une partie saillante vers l'extérieur, agencée entre les enfoncements (7), et une partie (8) de renfort interne agencée entre les deux côtés plats (2,3).
3. Structure selon la revendication 1, caractérisée en ce que les panneaux (34) formant des petites tables sont reliés à une pièce de support et d'assemblage (35) prévue sur la poutre longitudinale, la pièce comprenant, au moins, une aile rigide (36) faisant saillie à partir du bas par rapport aux panneaux, munie de moyens de serrage sur l'un des côtés de la poutre longitudinale, l'aile étant munie d'un épaulement (36a) comportant un profil correspondant à celui des nervures (6) de la poutre longitudinale, pour coupler celui-ci à l'une de celles-ci en position d'assemblage.
4. Structure selon les revendications 1 et 3, caractérisée en ce que l'aile saillante (36) de la pièce de support du panneau (34) formant des petites tables présente plusieurs orifices (37), les positions de ceux-ci coïncidant avec celles des orifices (30) dont sont munies les faces (27,32) des assises et dossiers juxtaposées aux faces (2,3) de la poutre longitudinale, et qui eux même coïncident avec d'autres orifices (11) prévus sur toute la longueur de l'une des faces de la poutre longitudinale de manière à permettre le passage de boulons de serrage (29) pour les assises et les petites tables.
5. Structure selon la revendication 1, caractérisée en ce que la poutre longitudinale (1) est munie d'ouvertures espacées dans lesquelles s'em-
- boîte l'une des demi-attaches (12) constituant l'attache de sécurité de chacun des pieds portant la poutre longitudinale, la poutre longitudinale étant munie, à l'opposé de ses ouvertures, d'une partie interne (8) munie d'un orifice (9) en vis à vis d'un autre orifice (15) ménagé sur le côté opposé de la poutre longitudinale elle même, les orifices permettant le passage d'un boulon d'assemblage des deux demi-attaches.
6. Structure selon la revendication 1 et 2, caractérisée en ce qu'une des demi-attaches (13) a sa face de couplage avec la poutre longitudinale qui comporte un profil complémentaire de celui de la face emboutie (5) de la poutre longitudinale et de celui de ses nervures et enfoncements.
7. Structure selon la revendication 1, 2 et 6, caractérisée en ce que les demi-attaches sont juxtaposées entre elles par des faces complémentaires (16,17), seule une de celles-ci présentant un prolongement en forme de queue (12a), sur laquelle est ajustée une troisième pièce (19) munie de moyens de guidage par rapport à ce prolongement, assujettie au moyen de boulons (22) accessibles de l'extérieur, de manière à réaliser une expansion ou une approche de cette pièce par rapport au prolongement de la demi-attache, les deux pièces étant logées dans l'extrémité supérieure du pied tubulaire (23) dans lequel l'attache est ajustée pour fixer la poutre longitudinale.
8. Siège formé à partir de la structure selon l'une quelconque des revendications précédentes.



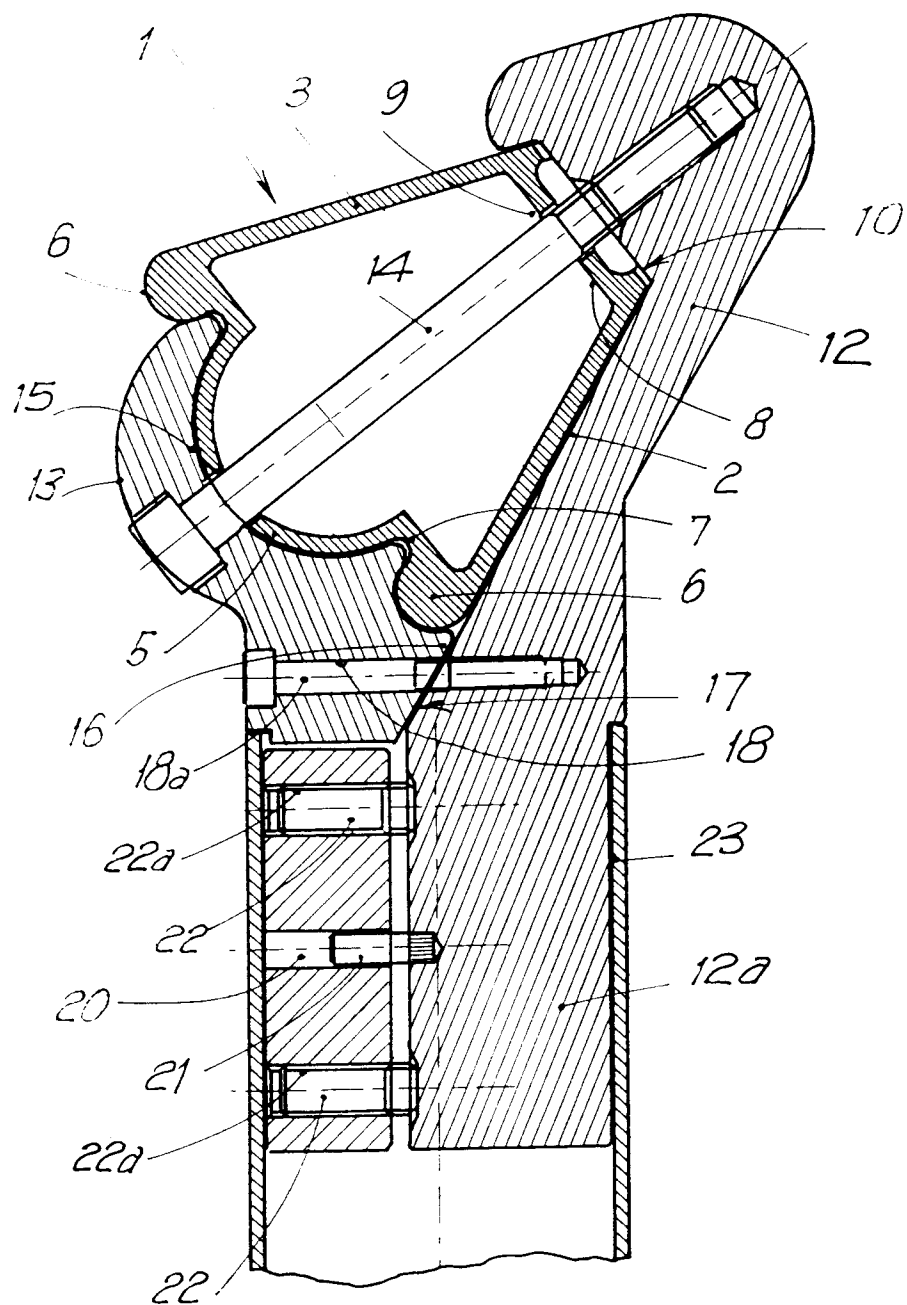


FIG 3

