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(54) Tensioning device for tables

(57) A tensioning device (14) for tables (10) comprises a tensioner (16) and at least one tie-rod (15), of which one end is connected to said tensioner whereas the op-

posite end is connected to an end-connection (17) which can be fixed to the end of a longitudinal transom (11) of said table (10).

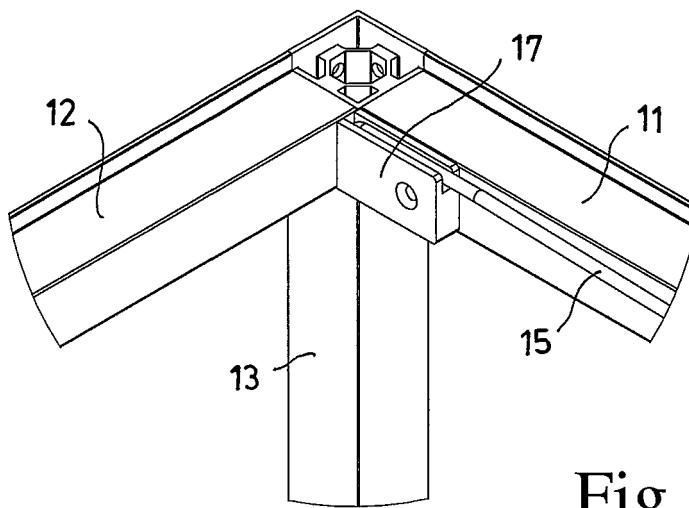


Fig. 2

Description

[0001] The present invention relates to a tensioning device for tables and a table which incorporates said tensioning device.

[0002] In particular, the invention relates to the field of four-legged tables having exceptional lengths with variable additional loads.

[0003] As is known, four-legged tables can have varying lengths of longitudinal transoms depending on the materials used and dimensions of the sections.

[0004] In the tables of the known art, whether for aesthetical or functional purposes, limited sections of longitudinal transoms are adopted and it is consequently very difficult to exceed lengths greater than 2.40-2.60 metres, over which the transom bends as a result of its weight.

[0005] With the addition of tops and loads, the weights that the transom has to sustain obviously increase causing a deterioration in the flexural situation.

[0006] Furthermore, a change in life- and work-styles is currently underway which tends to require the use of tables having ever-increasing dimensions or lengths; consider for example the dimensional requirements for team-working tables, or also for the growing use of portable computers which the user positions on tables not appropriate and dimensioned for this type of use.

[0007] The higher demands for overall table lengths and consequently longitudinal transoms, together with the ever-increasing loads that said tables must support, consequently require the production of longitudinal transoms with ever-increasing transversal sections, or tables with six or eight legs, a necessity however which is not in line with the above-mentioned aesthetical requirements. As a result of this, longitudinal table transoms are frequently subjected to flexures.

[0008] A general objective of the present invention is to solve the above drawbacks of the known art in an extremely simple, economical and particularly functional way.

[0009] A further objective is to provide a solution which can be incorporated in tables during their manufacturing but which can also be applied to pre-existing tables, to avoid problems of load due to unforeseen uses of the tables themselves.

[0010] In view of the above objectives, according to the present invention, a tensioning device for tables has been conceived, having the characteristics specified in the enclosed claims.

[0011] The structural and functional characteristics of the present invention and its advantages with respect to the known art will appear even more evident from the following description, referring to the enclosed drawings which illustrate a tensioning device for tables produced according to the innovative principles of the invention itself.

[0012] In the drawings:

- figure 1 shows a perspective view of the structure of

a table on which the tensioning device of the present invention is applied;

- figure 2 is a detailed view of an end-connection of the tensioning device shown in figure 1; and
- figure 3 is a detailed view of a detail of the tensioning device shown in figure 1.

[0013] With reference to the drawings, the structure of a table to which the tensioning device in question has been applied, is indicated as a whole with 10, and in the example illustrated, according to the present invention, comprises a pair of opposite longitudinal transoms 11, alternating with a pair of opposite transversal transoms 12, which define a rectangular structure, which rests on four legs 13 positioned in correspondence with its angles and which acts as support for a top (not shown).

[0014] In correspondence with each longitudinal transom 11, there is a tensioning device 14, for the whole of its length, suitable for correcting the downward curvature (bending of the longitudinal transoms 11) due to the weight of the structure of the table. Two tensioning devices 14 are therefore applied to the table 10.

[0015] In the embodiment illustrated with reference to the enclosed figures, each tensioning device 14 consists of three main elements: a pair of tie-rods 15, connected centrally by means of a rotating tensioner 16 and connected at the opposite ends to corresponding end-connections 17.

[0016] In particular, the tie-rods 15 consist of steels bars with a hook-shaped end and the opposite end right-hand or left-hand threaded depending on the positioning side with respect to the central rotating tensioner 16.

[0017] As far as the end-connections 17 are concerned, these consist of supports which are integrally fixed to the structure of the table and in particular to the opposite ends of the longitudinal transoms 11. The end of the respective tie-rod 15 is hooked to each end-connection, preventing its disengagement and in particular its axial rotation.

[0018] The specific characteristic of the connections 17 is that the tie-rod itself 15 can start from an extremely high tangential position optimizing to the utmost the curvature arrow of the tensioning device 14 and consequently its performance. In particular, figure 1 shows how, close to the central part of the structure of the table 10, between the two longitudinal transoms 11, two additional transversal transoms 18 are transversally positioned, under which the tensioning device 14 is passed.

[0019] The central rotating tensioner 16 consists of an elongated body equipped with axial holes on the two opposite bases, said holes being respectively equipped with left-hand and right-hand threading. Consequently, if the central rotating tensioner 16 operates in rotation, after the engagement of the tie-rods 15 in the respective holes, it causes the tensioning of the whole device 14, with the consequent curvature/straightening of the whole structure of the tables to which it is applied.

[0020] More specifically, the central rotating tensioner

16 can consist of an element obtained from a square or hexagonal bar, in order to activate its rotation and regulation with the help of common tools, such as simple spanners for example. Alternatively, the central rotating tensioner 16 can consist of a cylindrical element equipped with radial holes suitable for receiving simple tools for its regulation, such as screwdrivers or bars.

[0021] In an alternative embodiment, again included in the protection scope of the invention, each tensioning device still consists of the same three main elements, i.e. a pair of tie-rods, each equipped with end-connections for fixing to the longitudinal transoms and a tensioner which connects the tie-rods, the tensioner however is different from the rotating tensioners referred to in the previous part of the description, for example, it can be of the ratchet type, in this case the tie-rods can consist of marked steel cords with pressure-die-cast heads (as threading is not necessary for engagement with the tensioner and tensioning through its rotation).

[0022] From what is described above with reference to the figures, it is evident how a tensioning device for tables according to the invention is particularly useful and advantageous. The objective mentioned in the preamble of the description is therefore achieved.

[0023] A particular advantage of the tensioning devices of the present invention is the possibility of regulating the tensioning degree required, which allows a perfect planarity of the table 10 regardless of the weight of the top (wood, glass, marble) and possible additional loads on the table itself.

[0024] Finally, the tensioning devices according to the present invention are particularly functional and can be completely hidden from sight, considering their reduced vertical encumbrance (about 30 or 40 mm).

[0025] The forms, as also the materials, of the tensioning device for tables of the invention can obviously differ from that shown for purely illustrative and non-limiting purposes in the drawings.

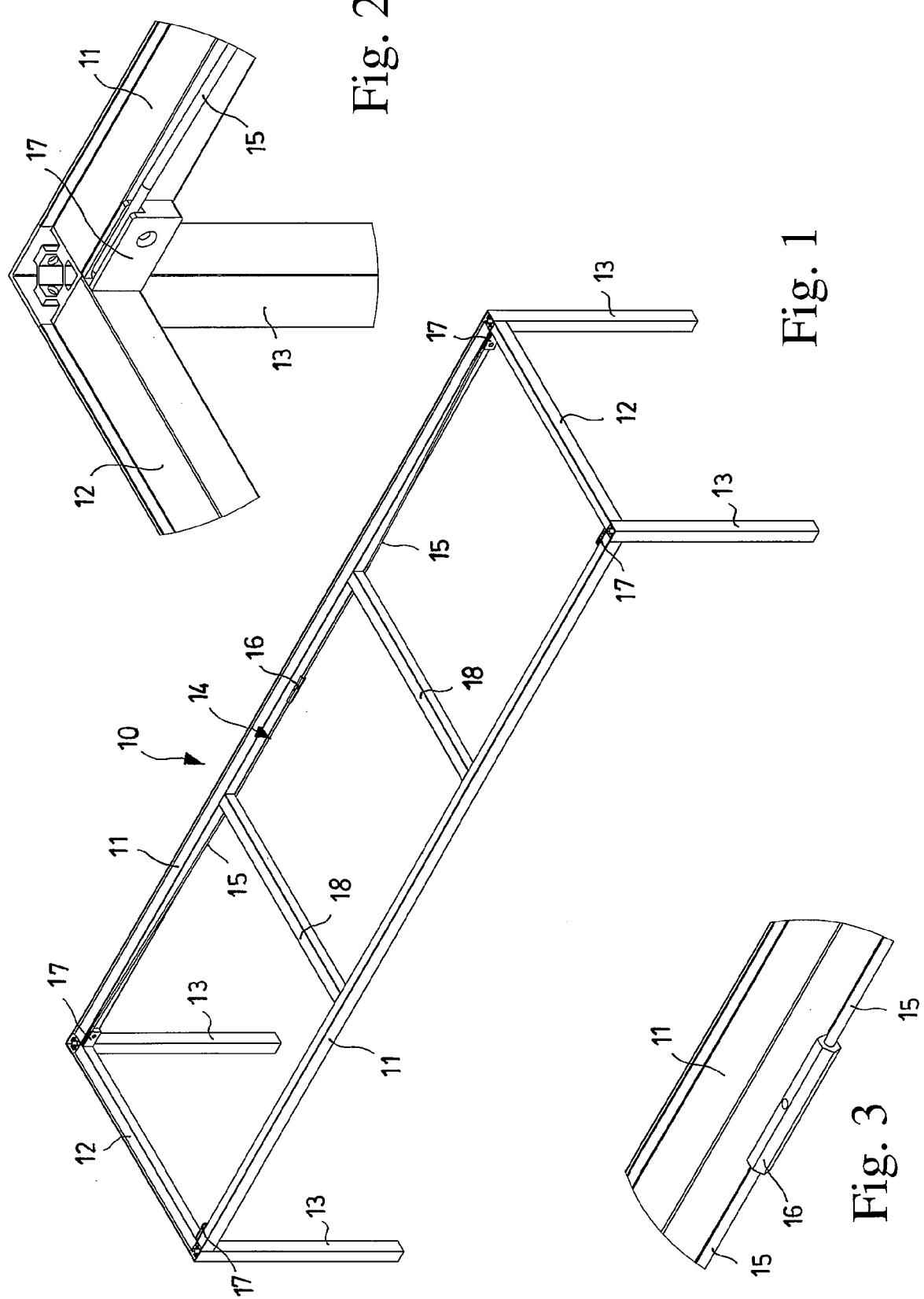
[0026] The protection scope of the invention is therefore delimited by the enclosed claims.

Claims

1. A tensioning device (14) for tables (10) **characterized in that** it comprises a tensioner (16) and at least one tie-rod (15), of which one end is connected to said tensioner, whereas the opposite end is connected to an end-connection (17) which can be fixed to the end of a longitudinal transom (11) of said table (10).
2. The tensioning device (14) for tables (10) according to claim 1, **characterized in that** it comprises a tensioner (16) and two tie-rods (15), on two opposite sides of said tensioner.
3. The tensioning device (14) for tables (10) according

5 to claim 2, **characterized in that** said tensioner (16) is of the rotating type and consists of a body equipped with opposite axial holes, respectively having left-hand and right-hand threading, for the screwing of corresponding threaded portions of said tie-rods (15).

4. The tensioning device (14) for tables (10) according to claim 3, **characterized in that** the transversal section of the body of said tensioner (16) has a polygonal form, in particular square or hexagonal, for coupling with a spanner, for rotating said tensioner (16) around its longitudinal axis.
- 10 5. The tensioning device for tables according to claim 3, **characterized in that** said tensioner (16) is equipped with radial holes through which it is possible to operate, through an elongated element, such as for example a screwdriver or bar, for rotating said tensioner (16) around its longitudinal axis.
- 15 6. The tensioning device for tables according to claim 3, **characterized in that** said tie-rods (15) consist of a bar made of a metallic material with a shaped end for coupling with said end-connections (17) and with the opposite end threaded for screwing with said tensioner (16).
- 20 7. The tensioning device for tables according to claim 1 or 2, **characterized in that** said tensioner (16) is of the ratchet type or the like.
- 25 8. The tensioning device for tables according to claim 7, **characterized in that** said tie-rods (15) each consist of a cord made of a metallic material with a pressure-die-cast head for coupling with said end-connections (17).
- 30 9. A table **characterized in that** it incorporates at least one tensioning device as defined according to claims 1-8.
- 35 10. The table according to claim 9, **characterized in that** it incorporates two tensioning devices, one for each of the two longitudinal transoms of said table.





DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
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A	US 3 604 370 A (SHERWOOD JOHN C) 14 September 1971 (1971-09-14) * abstract; figures *	1-10	
A	DE 26 38 278 A1 (WATANABE) 2 June 1977 (1977-06-02) * figures 1,2 * -----	1-10	TECHNICAL FIELDS SEARCHED (IPC)
			A47B F16B A63D
The present search report has been drawn up for all claims			
4	Place of search	Date of completion of the search	Examiner
	Munich	20 June 2007	MacCormick, Duncan
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-06-2007

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