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(54) **Picture frame with adjustable table support**

(57) A picture frame includes a back (B) and a rear support (T) slidable along a pair of slots (A) formed in the back (B), the connection between the support (T) and the back (B) being achieved through a first member provided with hookings (G) and fixed at the top of the support (T), and a second member provided with longitudinal toothings (S) and fixed to the back (B) astride the slots (A), the hookings (G) and the toothings (S) being shaped to engage so as to achieve both the hinging and locking function for the support (T). In this way it is possible to adjust in a precise and repeatable way the position of the support (T) according to the different widths which the frame may have and/or to change the angle of inclination of the picture frame, and furthermore the support (T) can be easily removed to hang the frame on the wall and then subsequently reapplied to use it as a table frame.

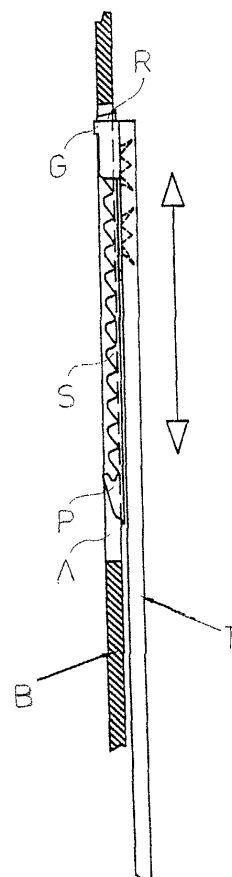


Fig. 4

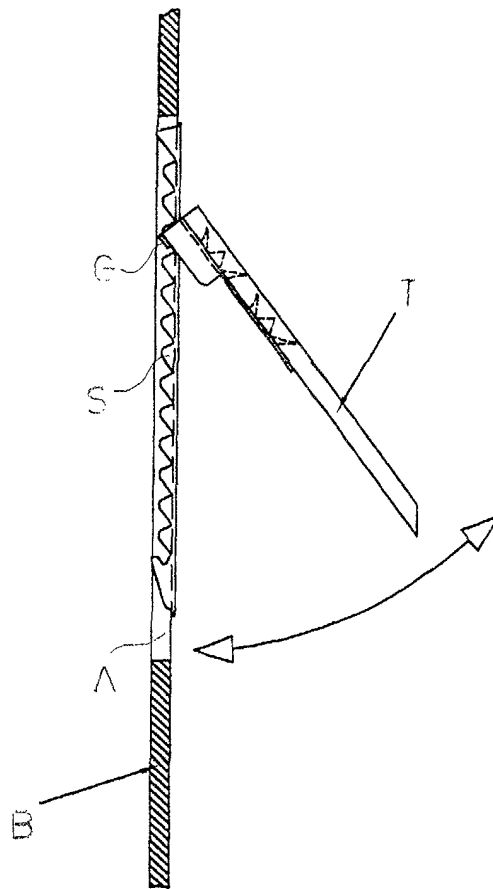


Fig. 5

Description

[0001] The present invention relates to picture frames, and in particular to a picture frame provided with an adjustable and removable support to have it free-stand on a table.

[0002] It is known that in table picture frames it is necessary to adjust the position of the rear support (called "tie" for its shape) according to the different widths which the frame material may have and/or to change the angle of inclination of the picture frame, e.g. depending on the illumination.

[0003] To this purpose, in the back of the picture frame there are formed one or two diagonal slots along which the tie can slide to change its position and therefore the angle of inclination of the picture frame. The sliding connection between the tie and the back can be achieved in various ways depending on the cost of the picture frame, i.e. on the material used and the structure adopted.

[0004] FR-A-2.615.718 discloses a cheap picture frame with tie and back of thin fiberboard. In the latter there are formed two parallel slots which slidably retain two rivets, fixed at the top of the tie above a fold line which acts as an integral hinge of the tie. Such a light and unstable structure requires the tie to be locked in position through a fold-out tab integral with the back and engaged at its free end into a transverse opening formed in the bottom portion of the tie.

[0005] GB-A-2.279.248 discloses in a first embodiment a similar picture frame with thin fiberboard back but provided with a single sliding slot, as well as a second embodiment of MDF (Medium Density Fiberboard). In this second case the tie hinge is a real hinge made up of two parts connected by a pin, a first part being press-fixed to the top of the tie and the other part being provided with two aligned rivets for the sliding connection into the slot.

[0006] EP-A-986.981 discloses a picture frame which is quite similar to the above-mentioned second embodiment of GB-A-2.279.248 from which it differs for the presence of two slots, as in FR-A-2.615.718, and for the use of two flaps instead of the rivets to slidably secure the tie to the back.

[0007] In all these types of known picture frames the sliding constraint between the tie and the back is provided only by the friction between the rivets or flaps and the slots in which they slide. This is a drawback in that such a constraint is neither safe nor precise, in particular in the case of picture frames with heavy frames and/or glasses. Moreover the rubbing between the metallic member and the seat of thin fiberboard or MDF may lead to a wear of the latter resulting in a further decrease of the restraint.

[0008] Another drawback still stems from the poor strength of the back material, in that if the tie is forced upon opening beyond the design angle of its hinge it easily occurs that the slots are damaged and/or the tie

comes off the back.

[0009] It may also happen that the user wishes to remove the tie to use the picture frame as a wall frame rather than a table frame, by eliminating the tie thickness so as to hang the picture frame on the wall through a suitable wall hook applied to the back. However in such an instance the tie can not be reapplied once it has been removed, because the original connection requires an irreversible mechanical working such as the expansion of the rivet heads or the plastic opening out of the flaps.

[0010] Therefore the object of the present invention is to provide a picture frame which is free from said drawbacks. This object is achieved by means of a picture frame in which the sliding connection between the tie and the back is achieved through two distinct metallic members respectively fixed to the tie and to the back and suitable to carry out the tie hinging and position locking functions. Other advantageous features of the present picture frame are disclosed in the subsequent claims.

[0011] A first significant advantage of the present picture frame is provided by the safe and repeatable locking of the tie, since it does not rely on the friction between the coupled members but on the engagement between two shaped members. Moreover since both members are metallic there is no problem of wear of one of them.

[0012] A second advantage coming from the use of two metallic members is the greater strength of the structure, which can resist also unintentional forcing of the tie beyond its normal hinge angle.

[0013] A further advantage of this picture frame is that it can be used as a table frame or a wall frame without any damage in the removal of the tie, in that the connection of the latter to the back is reversible. In other words, the user can repeatedly remove and then reapply the tie without damaging the coupling seats.

[0014] Still another advantage of the separability between tie and back comes out in the manufacturing and storing phases, since the mechanical coupling step is dispensed with and the two parts can be separately stored and/or sold. This is an advantage also to the user who can reuse a tie on another picture frame, in that the product is "modular".

[0015] Also advantageous during the manufacturing phase is the fact that the slots do not require strict tolerances when formed since the tie locking does not depend from the friction in the slots, as mentioned above.

[0016] Further advantages and characteristics of the picture frame according to the present invention will be clear to those skilled in the art from the following detailed description of an embodiment thereof, with reference to the annexed drawings wherein:

Fig.1 shows three orthogonal views of the coupling member to be fixed to the top of the tie;

Fig.2 shows three orthogonal views of the coupling member to be fixed to the back;

Fig.3 is a rear see-through view of the tie coupled

to the back and positioned at the top of the sliding slots;

Fig.4 is a partially sectional longitudinal view referring to the position of fig.3; and

Fig.5 is a view similar to the preceding one referring to the tie positioned and engaged to support the picture frame at a desired inclination.

[0017] With reference to figs.1 and 2 the two coupling members fixed to the tie and back are first described in detail.

[0018] A first member C is a rectangular plate L in which there are formed two crown holes F longitudinally aligned for the press-fixing to the tie. In its top portion, plate L is provided with two side extensions M bent through 90° which in turn are provided at their top end with a tooth G bent inward through 90° so as to be parallel to plate L. In other words, as it can be seen in the bottom view of member C, the top of plate L has a C-shaped section for engagement with the other coupling member.

[0019] This second member D also consists of a rectangular plate E, longer than plate F, in which there are formed three crown holes F longitudinally aligned for press-fixing to the back. Along the long sides, bent through 90° like extensions M of member C, there are two toothings S substantially sawtooth-shaped and oriented toward the top of plate E. Each toothing S has at its top end a raised tooth R acting as a stop, and at its bottom end an elongated tooth P acting as a draft for the introduction of teeth G.

[0020] In practice, as shown in figs.3 and 4, member C is fixed at the top of tie T and member D is fixed to back B, astride two slots A which extend slightly beyond the bottom end of member D. In order to connect tie T to back B it is sufficient to introduce the extensions M of member C in the space between the bottom end of slots A and the bottom end of member D and then, while keeping the tie flat against the back, push forward so that teeth G climb over the draft teeth P of toothings S.

[0021] In this way the top end of member C is slidably coupled to member D, as indicated by the arrow in fig. 4, and it is free to move along slots A. To lock tie T at a precise position it is sufficient to rotate it outward, as indicated by the arrow in fig.5, so that teeth G engage one of the valleys of toothing S.

[0022] Therefore it is clear that the two members C and D carry out both the hinging and locking function for tie T, in a perfectly safe and repeatable way. Moreover, to disengage the tie from the back it is sufficient to carry out the reverse operation with respect to the coupling one described above, so that teeth G climb over the elongated teeth P.

[0023] It should be noted that toothing S preferably has such a height as to remain in slot A within the thickness of back B, and that the width of teeth G is smaller than the width of slots A. As a result, the overall size of the two coupling members is given only by the thickness

of plates L and E, so as to minimize the thickness of the assembly back B+tie T.

[0024] It is clear that the above-described and illustrated embodiment of the picture frame according to the invention is just an example susceptible of various modifications. In particular, the means for fixing members C and D to the tie and back, respectively, may be other means equivalent to the crown holes F, F' such as riveting, stapling or gluing. Similarly, the exact shape of toothing S and of hookings M/G may be somewhat changed as long as members C and D provide a sliding connection with tie hinging and locking functions.

[0025] Finally it is obvious that the materials used may be different according to the manufacturing needs, e.g. thin fiberboard, MDF, plastic or wood for the back and tie and metal or plastic for the coupling members.

Claims

1. Picture frame including a back (B) and a rear support (T) hinged to said back (B) and slidable along a pair of slots (A) formed in the back (B), **characterized in that** the connection between said support (T) and the back (B) is achieved through a first member (C) provided with hooking means (M, G) and fixed at the top of the support (T), and a second member (D) provided with longitudinal toothings (S) and fixed to the back (B) astride said slots (A) slightly spaced from the bottom end thereof, said hooking means (M, G) of said first member (C) and said toothings (S) of said second member (D) being shaped to engage so as to achieve both the hinging and locking function for the support (T).
2. Picture frame according to claim 1, **characterized in that** in the first member (C) and/or in the second member (D) there are formed crown holes (F, F') for fixing it to the support (T) and to the back (B) respectively.
3. Picture frame according to claim 1 or 2, **characterized in that** the toothings (S) have a substantially sawtooth-shaped profile oriented toward the top of the second member (D).
4. Picture frame according to one or more of the preceding claims, **characterized in that** the toothings (S) have at their top end a raised tooth (R) acting as a stop, and at their bottom end an elongated tooth (P) acting as a draft for the introduction of the hooking means (M, G).
5. Picture frame according to one or more of the preceding claims, **characterized in that** the toothings (S) have a height not greater than the thickness of the back (B).

6. Picture frame according to one or more of the preceding claims, **characterized in that** the two connecting members (C, D) are shaped so that the coupling operation between the support (T) and the back (B) is reversible.

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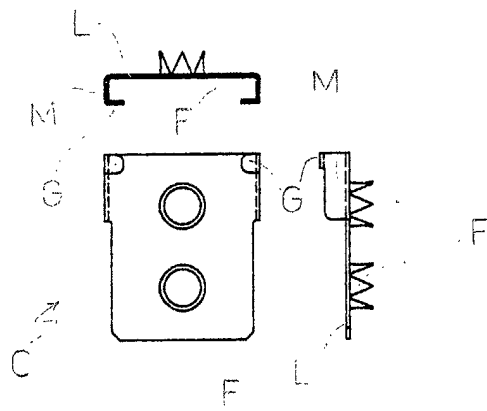


Fig. 1

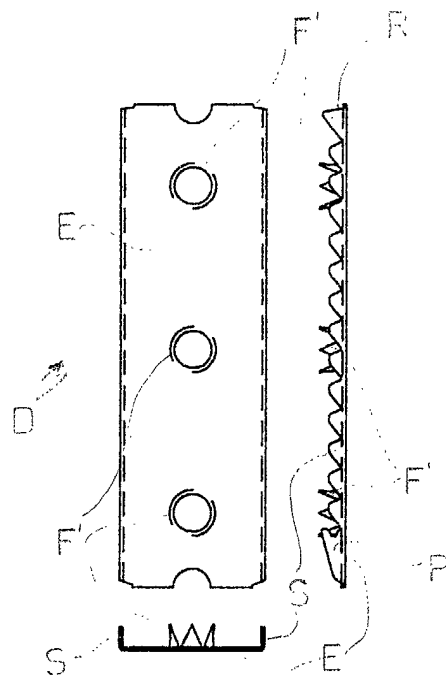


Fig. 2

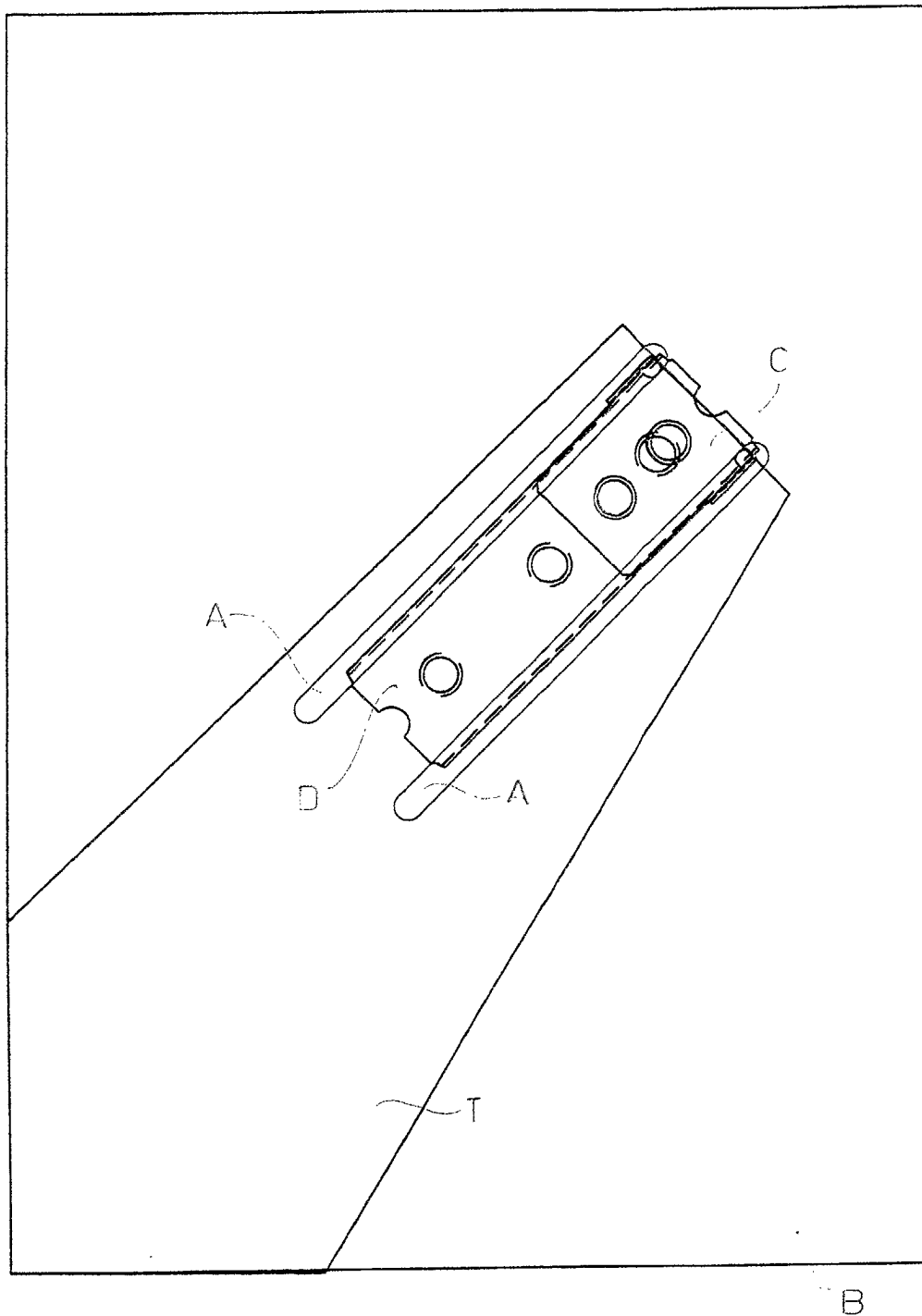


Fig. 3

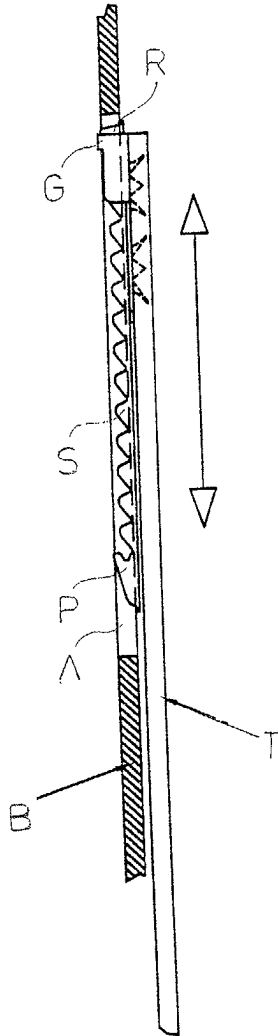


Fig. 4

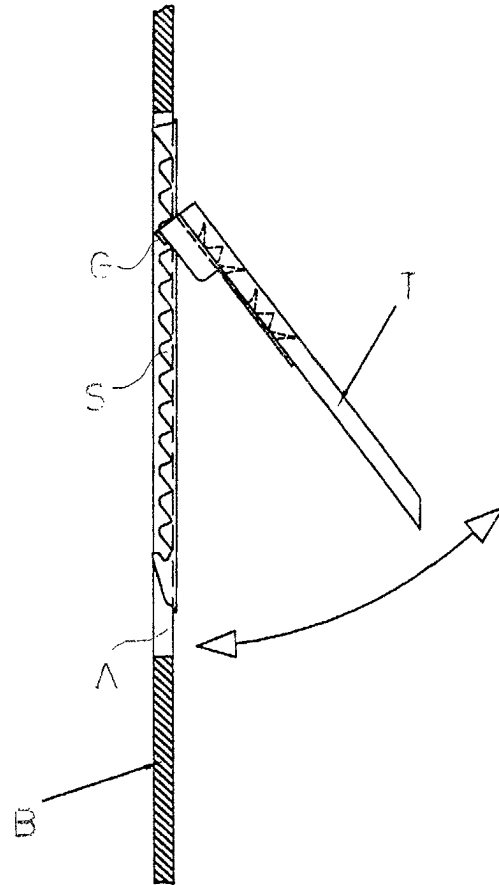


Fig. 5



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EUROPEAN SEARCH REPORT

Application Number
EP 01 83 0532

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	FR 2 731 141 A (NEMBRINI) 6 September 1996 (1996-09-06) * figures *	1	A47G1/14
A,D	EP 0 986 981 A (FEDRE' CORNICI S.N.C.) 22 March 2000 (2000-03-22) * figures *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 7 January 2002	Examiner Beugeling, G.L.H.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 01 83 0532

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
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07-01-2002

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