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(54) **A hook means for locking a picture back protection panel to the body of a picture frame.**

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(73) Proprietor: **GINDOR OVERSEAS S.A.**
(PA)

(72) Inventor: **Espino, Javier Pablo**
Calle 53, Urbanizacion obarrio Torre
Swiss Bank, Piso 16 (PA)

(74) Representative: **Pizzoli, Pasquale Vincenzo et al**
c/o Società Italiana Brevetti
Via G. Carducci 8
I-20123 Milano (IT)

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Description

This invention concerns a hook means suitable to provide a locking connection between a back protection panel for a picture, like for instance a photograph or the like, and a picture frame body.

Hook means of the above type are known and in general they comprise a resiliently deformable metal plate provided, in general at the ends thereof, with suitable extensions adapted to become engaged into corresponding seats of said back protection panel and of the picture frame body. They get slightly deformed while being set in place and the hook means resiliency, which tends to bring it back to the undeformed condition, is such that it provides forces which, owing to the hook means shape and to the way said hook means is connected to the panel and to the picture frame, cause mutual locking of these two members together.

Several types of hook means have been provided which, although they fulfill at a sufficient extent the function they are designed for, have a remarkable drawback in that their action is limited only to the lockingly connecting function while, as it is well known, the above mentioned lockingly connecting forces alone are not satisfactory for obtaining valuable results in providing stability to the assembly comprising the picture frame, the back panel, the front panel and the contents thereof. For instance, it is necessary that the hook means subjects to a stress action the assembly comprised of the back panel, the picture and the front transparent panel in order to keep said members in mutual contact and pressed against the picture frame body.

In order to meet the above requirement, various approaches have been taken which may be substantially grouped into two main classes, as it is pointed out in the following.

A first approach was to provide the hook means with an additional member, as for instance a tab or the like, with the purpose of keeping said members pressed against the picture frame body.

However, this type of hook means have drawbacks mainly in that manufacturing thereof is complicated and furthermore said additional member loses its effectiveness in time since its resilient pressure action on the back panel gradually vanishes.

A second type of approach was to provide two different kinds of hook means the first of which lockingly connects the back panel to the picture frame body, while the second keeps the panels and the picture mutually contacting, and the assembly thereof in contact with the picture frame.

However, this type of approach has serious drawbacks both because of the large number of

pieces to be used which eventually make the picture frame particularly expensive, and because setting said pieces into position or removing the same becomes especially time consuming and uncomfortable for the user.

A third type of approach is known from DE-U-8525427 which discloses a hook means for connecting with a single piece the back panel to the body of the picture frame. Also this type of approach has serious drawbacks because it requires relatively large holes through the back panel and because a portion thereof directly contacts the framed picture with consequent deformation or even laceration of the picture.

The main object of the present invention is to provide a hook means of the above-mentioned third type, but free from the said drawbacks. This object is achieved with a hook means having the features defined in claim 1.

The hook means of the present invention offer the further advantage that they do not require a strict positioning during the assembling operation and even allow easy adjustments of their position for balancing the frame assembly after the assembling operation.

These as well as other advantages of the inventive hook means will become apparent from the following detailed description of a non limiting embodiment thereof, which refers to the attached figures, wherein:

Figure 1 is a perspective view showing the hook means according to this invention;

Figure 2 is a cross-section showing the hook means set in place on a picture frame.

Referring now to the above Figures, the hook means of this invention has an essentially U-shaped substantially central portion, shown in general at 10, comprised between ends 18 and 34.

On the longer side 12 of the said portion 10 there is a substantially triangular cutout 14 providing a means for hanging the picture frame on a wall.

One of the two arms of the U-shaped portion 10, shown at 16, extends into a bent-over first end portion 18 which provides an extension suitable to be inserted into a suitable seat carved on the back protection panel 20. Said first end portion 18 extends further into a tab 22 which remains slightly raised above back panel 20 when the hook means has been set into place.

Said tab 22 is used to make the removal of the hook means easier, concerning in particular end portion 18 moving out of its seat in panel 20.

In Figure 2 the picture, for instance a photograph or the like, is shown at 24, while at 26 there is shown the front transparent panel, made for instance of glass. The second arm 28 of the central portion 10 ends in 34 and extends thereafter into a

substantially U-shaped second end portion, shown in general at 30, comprising an inclined arm 32 and an end arm 36.

According to a first feature of said second end portion 30, the inclined arm 32 blends through the curved end 34 into arm 28 of the U-shaped portion 10. In particular said curved end 34 is to abut against the back panel 20 with its convex side.

The end arm 36 is substantially parallel to arm 28 and engages into a recess 38 of an inner cavity 40 of the frame body 42. As it is apparent in particular on Figure 2, end arm 36 engages against a protruding lip 44 of the cavity 40. In addition, the side edges of transparent panel 26 engage into a part 46 of the frame body 42 adapted to locate said panel 26, picture 24 and back panel 20 which are pushed against it by the hook means of this invention.

Figure 2 still shows in particular that the inclined arm 32 lies at an acute angle towards back panel 20, whereby it supports and enhances the hook means pressure action against panel 20, as it is pointed out in the following.

When the hook means is set into position, the U-shaped central portion 10 thereof is slightly spread out whereby two forces, shown by the arrows F and G, are generated, the second being the force which cooperates to raise said hook means pressure action against panel 20. In fact, said force, using end arm 36 engaged within recess 38 as a fulcrum, subjects the hook means to a pushing action towards panel 20, which pushing action is transmitted to said panel by curved end portion 34 in contact therewith. As it was stated above, said action is supported by the unique inclination of the inclined arm 32.

From the above description it is apparent that the hook means performs a triple action relative to the picture frame and to the members held therein. In fact, it lockingly connects the frame body 42 to the back panel 20, subjects to a stress action the assembly comprising the two panels 20, 26 with interposed picture 24 and urges the frame body 42 against said assembly. That triple action is performed without any contact of the hook means with the most sensitive parts of the said assembly, i.e. the picture 24 and the transparent panel 26 which are subject to be damaged when assembling or disassembling the frame.

Claims

1. Hook means for lockingly connecting the back panel (20) to the frame body (42) of a picture frame, having a first end portion (18) suitable to catch into a suitable seat carved on said back panel (20) and a second end portion (30) comprising an end arm (36) suitable to be

inserted in an inner cavity (40) of the frame body (42), characterized in that between the first and second end portions (18, 30) it comprises a substantially U-shaped portion (10) having one end coinciding with said first end portion (18), the end arm (36) being substantially parallel to the arm (28) of the U-shaped portion (10) which comprises the other end, the arm (28) and the end arm (36) being joined by an inclined arm (32) extending from said other end to the back panel facing end of said end arm (36) and meeting with an acute angle the said arm (28) through a convex curved portion (34) and with an obtuse angle the said end arm (36), the convex curved portion (34) being suitable to abut against the back panel (20) when the end arm (36) is inserted into a recess (38) of the inner cavity (40) and the first end portion (18) is caught into the seat.

2. The hook means of claim 1, characterized in that the first end portion (18) outwardly extends into a tab (22) for moving the first end portion (18) out of the seat carved on the back panel (20).

Patentansprüche

1. Hakenmittel zum verriegelnden Verbinden der Rückwand (20) mit dem Rahmenkörper (42) eines Bilderrahmens, mit einem ersten Endbereich (18), der dazu geeignet ist, in einen geeigneten, in der Rückwand (20) ausgeschnittenen Sitz einzugreifen und mit einem zweiten Endbereich (30), der einen Endarm (36) aufweist, der dazu geeignet ist, in einen inneren Hohlraum (40) des Rahmenkörpers (42) einzugreifen, dadurch gekennzeichnet, daß zwischen den ersten und zweiten Endbereichen (18, 30) ein im wesentlichen U-förmiger Bereich (10) angeordnet ist, der ein Ende aufweist, das mit dem ersten Endbereich (18) zusammenfällt, wobei der Endarm (36) im wesentlichen parallel zu dem Arm (28) des U-förmigen Bereichs (10) angeordnet ist, der das andere Ende umfaßt, wobei weiter der Arm (28) und der Endarm (36) mittels eines geeigneten (angestellten) Arms (32) verbunden sind, der sich von dem genannten anderen Ende zu dem der Rückwand zugewandten Ende des Endarms (36) erstreckt und der in einem spitzen Winkel auf den genannten Arm (28) auftrifft, wobei er durch einen konvex gekrümmten Bereich (34) verläuft und in einem stumpfen Winkel auf den Endarm (36) trifft, wobei der konvexe Bereich (34) dazu geeignet ist, an der Rückwand (20) anzuliegen, wenn der Endarm (36) in eine Nut (38) des inneren Hohlraums

(40) eingesetzt wird und der erste Endbereich (18) in dem genannten Sitz liegt.

2. Hakenmittel gemäß Anspruch 1, dadurch gekennzeichnet, daß der erste Endbereich (18) sich nach außen bis in einen Vorsprung (22) erstreckt, der dann geeignet ist, den ersten Endbereich (18) aus dem in der Rückwand (20) eingelassenen Sitz zu heben.

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Revendications

1. Moyen à crochet pour assembler par verrouillage le panneau arrière (20) au corps du cadre (42) d'un cadre d'image, ayant une première partie d'extrémité (18) susceptible de s'accrocher dans un siège approprié ménagé sur ledit panneau arrière (20) et une seconde partie d'extrémité (30) comprenant une patte d'extrémité (36) apte à être insérée dans une cavité interne (40) du corps du cadre (42), caractérisé en ce que, entre la première partie d'extrémité (18) et la seconde (30), ce moyen à crochet comprend une partie sensiblement en forme de U (10), ayant une extrémité en coïncidence avec ladite première partie d'extrémité (18), la patte d'extrémité (36) étant sensiblement parallèle à la patte (28) de la partie en forme de U (10), laquelle constitue l'autre extrémité, la patte (28) et la patte d'extrémité (36) étant assemblées par une patte inclinée. (32) s'étendant depuis ladite autre extrémité en direction de l'extrémité de ladite patte d'extrémité (36) orientée en direction du panneau arrière et en rejoignant par un angle aigu ladite patte (28) par l'intermédiaire d'une partie cintrée convexe (34) et avec un angle obtus, ladite patte d'extrémité (36), la partie cintrée convexe (34) étant apte à venir en butée contre le panneau arrière (20) quand la patte d'extrémité (36) est insérée dans un évidement (38) de la cavité intérieure (40) et quand la première partie d'extrémité (18) est accrochée dans le siège.
2. Moyen à crochet selon la revendication 1, caractérisé en ce que la première partie d'extrémité (18) se prolonge vers l'extérieur par une languette (22) qui permet de dégager la première partie d'extrémité (18) du siège ménagé sur le panneau arrière (20).

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Fig. 1

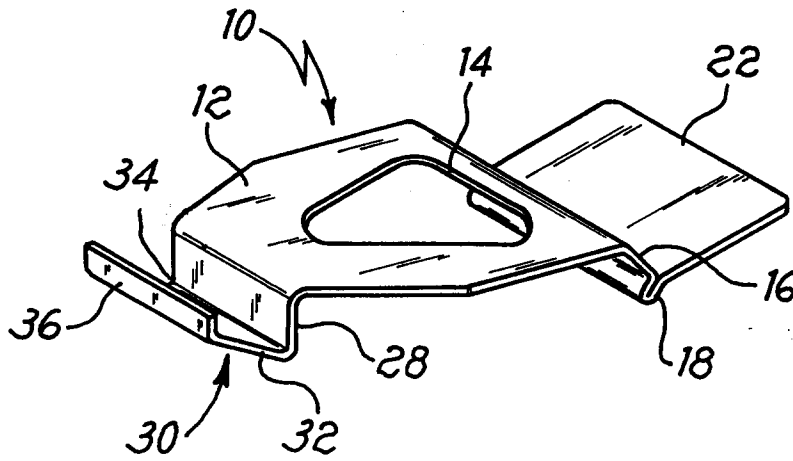


Fig. 2

