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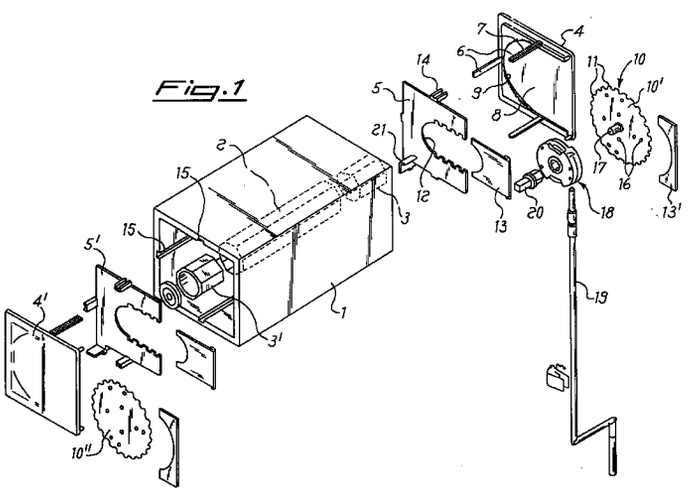
(54) Head-rail for roller blinds

(57) A head-rail for roller blinds comprising a containing envelope (1) of a parallelepipedal shape, provided with opposite closing plates (4, 4') forming the heads, and a roller (2) wherefrom there winds up and unwinds a roller blind located in said envelope (1). Said containing envelope (1) is provided, in correspondence of both heads, with a variable width seat for housing the manoeuvre means (18).

Said seat is defined by the closing plate (4, 4') and a flange (5, 5') located and fixed in the inside of container (1). Each plate (4, 4') is provided, on the internal front, with two or more extensions (7) which elastically engage in corresponding box-shaped extensions (14) obtained on a front of the corresponding flange (5, 5').

The couple of plate-like elements (22, 24), connectable to one another, fastens the containing envelope (1) to an underlying window (30); one of said plate-like elements (24) being fastened to the window (30) and the other element (22) being fastened to the base wall (28) of the container (1).

Fig.1



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Description

[0001] The present invention relates to a head-rail for roller blinds.

[0002] More particularly, the present invention relates to a head-rail for roller blinds, either external or internal, provided with means suitable to allow, on one or both heads, the creation of a space having a width variable according to the type of manoeuvre means it has to contain.

[0003] The head-rail of the present invention further has a structure that allows to house and fasten the heads of the roller carrying the roller blind in the position of greatest resistance, and is provided with means for its quick fastening to a window underneath.

[0004] As is known, the head-rails for roller blinds are positioned above windows and french windows, either fitted in the walls or protruding. They define a frame for supporting, containing and covering the elements that make up the roller-blind or the cloth and the related support and handling means, comprising a rotary roller or drum, handled by hand or electrically.

[0005] The head-rails may be from different materials, have generally a parallelepipedal shape and in their inside there is axially located a roller or drum on which the winding element winds up. The latter may be from wood, plastic material, metal or other suitable material. The roller, which may be of the telescopic type, is handled starting from one of its fronts by means of manoeuvre means such as, for instance, belt-pulleys, rod-winches, electric motors, etc.

[0006] Depending on the type of manoeuvre means to be installed and contained in the head-rail, it is necessary to create a housing room as small as possible. Such room is located against one of the heads of the roller and is externally closed by a closing plate which defines the head of the head-rail.

[0007] To obtain this result, a head-rail of the known art includes a plate-like element in the inside of the same head-rail, that can be axially handled to approach or to go away from the closing plate. Said plate-like element is provided with a support which couples with the roller head.

[0008] Even though this solution allows to create a room of a width variable depending on the type of manoeuvre means to be installed, it has a severe drawback. This drawback is connected to the fact that the supporting element has a poor resistance against the strains to which the roller is subject. Actually, the bending and shear action which the roller exercise on the plate-like element can lead to the formation of clearances that give rise to handling inaccuracies and in the boundary cases to a breakdown.

[0009] Another drawback of the head-rails for roller blinds of the known art lies in that their fastening to the related window is neither simple nor easy.

[0010] In fact, their fastening with connecting means like stirrups, screws and the like involves long and difficult operations, especially if one considers that such operations are performed at a high distance from the floor.

[0011] Object of this invention is to obviate the above drawbacks. More particularly, object of this invention is to realise a head-rail for roller blinds allowing to change easily the width of the seat for the manoeuvre means, ensuring at the same time an adequate resistance to the actions and strains which the roller support is subject to during the handling.

[0012] A further object of this invention is to realise a head-rail for roller blinds provided with means for the quick fastening to a window underneath, and to make the operations associated to its installation easy.

[0013] A further object of this invention is to realise a head-rail as defined above, suitable to ensure a high level of resistance and reliability in the time and such also as to be realisable easily and economically.

[0014] According to the invention, these and still other objects are achieved by a head-rail for roller blinds comprising:

- a containing envelope of parallelepipedal shape provided with opposite closing plates forming the heads;
- a roller wherefrom there winds up and unwinds a roller blind located in said envelope; and
- a variable width seat for housing the manoeuvre means in correspondence of at least one of the two heads, said seat being defined by the closing plate and a flange located parallel to the plate and fixed in the inside of the head-rail.

[0015] The plate is provided, on its internal front, with two or more extensions which elastically engage in corresponding seats formed on box-like extensions obtained on a front of each flange.

[0016] The head-rail for rolling blinds of the invention may be from plastic material or other suitable materials and comprises a containing envelope of a substantially parallelepidedal shape with box-section walls.

[0017] Besides, it may comprise a couple of plate-like locking elements for fastening said head-rail to a window underneath. Said plate-like elements are connectable to one another and at least one of them engages with the external surface of the base wall of said head-rail.

[0018] The construction and functional characteristics of the head-rail for roller blinds of the invention will be better understood from the following description, wherein reference is made to the figures of the attached drawings and which represent a preferred non limiting embodiment, wherein:

- Figure 1 shows the schematic exploded view of the head-rail for roller-blinds of the present invention;

- Figure 2 shows the schematic exploded view of the containing envelope and the related plate-like locking elements;

- Figure 3 shows the schematic view of the a cross-section of a detail of the locking system;

- Figure 4 shows a prospect schematic view of the external front of the head-rail applicable to the window underneath, with the plate-like means or element in stalled.

[0019] With special reference to Figure 1, the head-rail for roller blinds of the present invention comprises a containing envelope (1) of a substantially parallelepipedal shape, provided with opposite closing plates (4, 4') forming the heads or side lids of the envelope.

[0020] In the inside of the containing envelope (1) a roller or drum (2) is located, for instance of the telescopic type and having a preferably octagonal section, on which the winding element winds up.

[0021] In the inside of said containing envelope (1), in correspondence of at least one of the two fronts (3, 3') of roller (2), there is located a flange (5, 5') parallel to the corresponding closing plate (4, 4'). Each closing plate (4, 4') in association with the corresponding flange (5, 5'), determines a seat of variable width for housing the manoeuvre means. Each closing plate (4, 4'), which may have either a rectangular or square form, is provided with a plurality of extensions or tangs (6), preferably in number of three, located on different sides and having a rectangular section.

[0022] Said tongs (6) have at least on one side of the surface looking towards the outside, extended indentations (7), formed by a plurality of approached grooves extended in parallel and transversally. On the internal face of each closing plate (4, 4') a seat (8) is obtained having an at least partly circular shape, suitable to house a disk (10, 10") from steel or other materials, provided with indentations (11) all along the edge. On the circular edge of seat (8) indentations (9) are formed complementary to the indentations (11) obtained all along the edge of disk (10, 10").

[0023] Each flange (5, 5') located inside the head-rail is formed by a plate-like element obtained by moulding, preferably from thermoplastic material. Each flange (5, 5') has an external rectangular profile and a substantially V-shaped internal profile (12). On the external profile of each flange (5, 5') box-like extensions (14) are formed whose mouths are oriented towards the corresponding closing plates (4, 4') and in such a way as to align with the tongs or extensions (6) protruding from the internal front of the corresponding closing plate (4, 4'). Therefore, said box-like extensions (14) are complementary to tongs (6) integral with the closing plate (4, 4').

[0024] Besides, the box-like extensions have a dovetailed external profile, complementary to grooves (15) which the inside of the head-rail (1) is provided with, allowing in this way a fitting-fastening of each flange (5, 5') in the inside of the head-rail.

[0025] Flange (5, 5') is provided, on the front opposite to the corresponding closing plate (4, 4'), and near an apex, with an extension (21) for driving the roller blind.

[0026] Each disk (10, 10"), which is located in the corresponding circular seat (8) obtained on the internal face of each closing plate (4, 4'), is provided with indentations (11) all along the edge and a plurality of through-holes (16) suitable to house screws or equivalent means for fastening the manoeuvre means of a conventional and known type.

[0027] With the internal front (10') of disk (10) a centrally located pin (17) is integral, having an extension sufficient to engage in a corresponding seat of a manoeuvre means, such as a winch (18). From winch (18), which is driven through a conventional rod (19) a pin (20) protrudes which constitutes the support for one of heads (3, 3') of roller (2).

[0028] A closing plate (4'), a flange (5') and a steel disk (10") having characteristics like those described hereinabove, may be located in correspondence of the other head (3') of roller (2) on the side opposite to the side wherein the manoeuvre means (18, 19, 20) is housed.

[0029] As on the sides corresponding to the two heads (3, 3') elements are provided having like characteristics, it is possible to obtain the variable width seat for housing the manoeuvre means on either side or on both sides.

[0030] Anyhow, the variable width seat for housing the manoeuvre means is defined by each flange (5, 5') located in the inside of the head-rail and the corresponding closing plate (4, 4'). Flange (5, 5'), located in the head-rail (1) is fastened to the same head-rail by the dovetail-fitting of its box-like extensions (14) in grooves (15) in the inside of the head-rail.

[0031] The connection between the closing plate (4, 4') and flange (5, 5') is obtained by causing tangs (6) of the closing plate (4) to enter in the box-like extensions (14) of flange (5, 5').

[0032] The width of the seat that is obtained between the closing plate (4, 4') and flange (5, 5') depends on the penetration depth of tangs (6) of each closing plate (4, 4') in the corresponding extension (14) of each flange (5, 5'). Therefore, to obtain a seat for housing the manoeuvre means having the required with, is suffices to cause tangs (6) to enter extensions (14) to the extent desired. The steel disk (10), located in the circular seat (8) within each closing plate (4, 4') supplies, through its central pin (17) a strong support for roller (2). Besides, indentations (11) obtained all along the edge of disk (10), fitting in the complementary indentations (9) obtained on the edge of the circular seat (8), prevents any possible rotation movement of said disk.

[0033] The plurality of through-hole (16) obtained on the surface of disk (10, 10") allows, through screws, to fasten winch (18) to any other type of manoeuvre

means. Roller (2), possibly of a telescopic type known in itself, is easily assembleable and disassembleable.

[0034] The opening with a substantially U-shaped profile obtained on each flange (5, 5') may possibly be partly closed by a conventional element (13), having a semicircular front profile.

[0035] A like element (13') having a semicircular front profile, may possibly be located against each disk (10, 10") housed in seat (8) of plate (4,4').

[0036] Said elements (13, 13'), if present, are coupled to flange (5) and plate (4), with an elastic fit-in connection along the axial direction of the shaft or roller (2).

[0037] The head-rail for roller blinds according to the present invention allows to obtain, on one or both heads (3, 3') a variable width seat for housing two manoeuvre means. Besides, the head-rail of the invention allows to realise a structure that provides a support for the roller having an adequate resistance to the strain to which is it subject, being supported in correspondence of heads (4, 4') of the head-rail (1).

[0038] Tangs (6), integral with each closing plate (4, 4') and the box-like extensions (14) of each flange (5, 5') may be of any number, form and development, with regard to what has been illustrated by way of example. Besides, disk (10, 10") and the corresponding seat (8) placed on the internal face of each closing plate (4, 4') may have any shape, provided they are complementary and at least partly matching.

[0039] The manoeuvre means may be constituted, not only by a winch, but also by a belt-pulley, an electric motor or any other known handling type. In the same way, also the shaft or roller (2) may be of the telescopic type on both sides or on one only side.

[0040] Figures 2-4 show a preferred quick fastening means of the head-rail for roller blinds to a window underneath (30).

[0041] Said fastening means comprises a couple of plate-like elements (22, 24) coupleable with one another and to the external containing envelope (1) in correspondence of the external surface (28') of its base wall (28). The materials on which the plate-like elements (22, 24) are obtained may be of any type, even though the use of plastic materials is preferred.

[0042] According to the invention, wall (28) of the containing envelope (1) which has to come in touch with the bearing surface or window (30) has all along the external or lower surface (28'), a mixtilinear profile suitable to define seats or sectors of use for the plate-like elements (22, 24). In particular, said external surface (28') of wall (28) is provided, in correspondence of the end front portion, of a groove (31) having a section substantially shaped as a parallelogram, with the oblique sides parallel and inclined in the direction of front (34) of wall (28).

[0043] Near groove (32) and behind the same, on the external surface (28') a lowering (36) is located having an almost rectangular section, which defines opposite heads (38, 40) and a back wall (42), parallel to wall (28) and its external surface (28'). Heads (38, 40) are orthogonal to wall (28) and the external surface (28'). Said external surface (28') extends into the lowering (36), defining a tang (44). The longitudinal development of said tang (44) is almost equal to half the extension of lowering (36).

[0044] The first one (22) of said plate-like elements (22, 24) is constituted by a section having a substantially flattened-S-shaped section, suitable to engage with wall (28) of container (1) in correspondence of its external surface (28') along which there are formed the lowering (26) and tang (44).

[0045] Said plate-like element (22), obtained preferably from thermoplastic material, defines along its development, two opposite upper (22') and lower (22") seats, in correspondence of the upper and lower bendings. Said seats (22', 22") develop in opposite directions and materialise as a whole a flattened-S profile. The height of said seats (22', 22") corresponds substantially to the thickness of tang (44) formed by the extension of the external surface (28'), as well as to the thickness of a part of the second plate-like element (24), as will be specified later on. The depth of seat (22') is advantageously greater than the longitudinal extension of tang (44), while the global height of the plate-like element (22) in the wall along which there is obtained the upper seat (22') is greater than the depth of lowering (36).

[0046] The second plate-like element (24), also obtained preferably from plastic material, is constituted by a section having a substantially rectangular section which, near its front head (24') has an extension (46) which develops upwards integrally with the upper front. Said extension (46) has a profile substantially shaped as an inverted-"L", whose branch protruding from said upper front is slightly inclined in the direction of head (24'). Extension (46) forms as a whole a hook-shaped portion, suitable to engage in groove (32 of wall (28).

[0047] In its back part, the second plate-like element (24) is provided, starting from its lower base, with a lowering which forms a step (35) and reduces the thickness of the latter; the portion that develops behind said step forms a tang (52) of a height substantially equivalent to that of seat (22") of the first plate-like element (22). The development of tang (52) is shorter than the longitudinal extension of said seat (22"). In the part (48) comprised between extension (46) and tang (52), the second plate-like element (24) is provided with one or more through-holes (54) for housing as many screws (56) or like means, suitable to fasten said element (24) to window (30).

[0048] Along said portion (48) provided with holes (54) the second plate-like element (24) is provided of longitudinally extended grooves, approached to one another and of limited depth, which form a surface roughening. Like grooves are preferably formed on the surface of the first plate-like element (22) along at least a part of its lower front which ends into seat (22").

[0049] The profile of the plate-like elements (22, 24) may involve, without solution of continuity, the whole

longitudinal development of said elements, or be limited only to sectors not connected with one another.

[0050] The fastening of envelope (1) to window (30) underneath is realisable in an easy and quick way. The second plate-like element (24) provided with through-holes (54) is preliminarily positioned on the upper surface of window (30) and fastened to the same with screws (56). Afterwards, the first plate-like element (22) is coupled to the external surface (28') of wall (28) of envelope (1) by introducing tang (44) into seat (22') of said first plate-like element (22). Envelope (1) is hooked starting from front (34) by inserting extension (42) into groove (32). The first plate-like element (22) is caused to move in the direction of said front (34, to cause tang (52) to insert into seat (22'). In this way, the coupling is obtained between the first plate-like element (22) and the second plate-like element (24), the latter being already fastened to window (30). The length of movement of the first plate-like element (22) with respect to the second element (24) is easily realisable, as seats (21', 22") have a longitudinal extension greater with respect to tangs (44, 52).

[0051] The longitudinally extended grooves obtained on portion (48) of the second plate-like element (24) and possibly on the lower front of the first plate-like element (22) form superficial friction-fixing portions that stabilise said elements (22, 24), coupled to one another.

[0052] Said plate-like elements (22, 24) may be provided with lower strike extensions (58, 60) on window (30). Said extensions may have any configuration and/or development, both in the vertical and the longitudinal direction.

[0053] As can be inferred from the above specification, the fastening of the head-rail of the present invention to the window underneath may be realised in a simple, easy and direct manner, limiting the use of tools, for instance screw-drivers, to the preliminary operation of positioning and fastening of one of the plate-like elements to the upper front of the window.

[0054] Even though the present invention has been described with reference to a specific embodiment, it is obvious that many alternatives and variants may be introduced by those skilled in the art, in the light of the above description. Therefore, the present application intends to cover all the alternatives and modifications that may be inferred from the teaching of the present invention, and which fall within the spirit and protection scope of the following claims.

Claims

1. A head-rail for roller blinds comprising:

   - a containing envelope (1) of a parallelepipedal shape, provided with closing plates (4, 4') forming the heads;

   - a roller (2) from which there winds up and unwinds the roller blind, located in the inside of said containing envelope (1);

   - handling means (18) for said roller (2); and

   - possibly means for fastening the containing envelope (1) to a window underneath (30);

   characterised in that said heal-rail is provided with a variable width seat in correspondence of at least one of the opposite heads; said seat being defined by one of the closing plates (4, 4') and a flange (5, 5') placed parallel to said plate and fixed in the inside of the containing envelope (1): said flange (5, 5') being provided with a front of box-like extensions (14) which define seats, and said plate (4, 4') having, on the internal front, at least two extensions (7) which elastically engage in said seats.

2. The head-rail according to claim 1, wherein said extensions (7) protrude from three sides of plate (4, 4'), orthogonally to the same and near the edge, and have a quandrangular section.

3. The head-rail according to claim 1 or 2, wherein at least one of said extensions (7) is provided, near at least a side of the surface oriented outsidewards, with indentations (11) formed by a plurality of approached parallel, transversally extended grooves.

4. The head-rail according to any of the preceding claims, wherein said box-like extensions (14) protrude from three sides of the edge of flange (5, 5'), orthogonally to the same and in the direction of extensions (7) of plate (4, 4').

5. The head-rail according to any of the preceding claims, wherein the seat defined in each box-like extension (14) has a configuration complementary to that of extensions (7).

6. The head-rail according to any of the preceding claims, wherein the internal face of each plate (4, 4') is provided with a shaped seat (8) with peripheral indentations (9), and a supporting means (10, 10"), having centrally a pin (17) for the support of the manoeuvre means (18), is located in said shaped seat.

7. The head-rail according to any of the preceding claims, wherein the supporting means (10, 10") is constituted by a metal disk provided with peripheral indentations (11) and a plurality of through-holes (16) along its surface and wherein the peripheral indentations (9) of the shaped seat (8) are complementary to those (11) of the metal disk (10, 10").

8. The head-rail according to any of the preceding claims, wherein the means for fastening the containing envelope (1) to a window (30 underneath comprise a first (22) and a second (24) plate-like elements connectable to one another, and one of which is fastened to the surface of window (30), and the other one (22) is connected by fitting into the external surface (28') of wall (28) of envelope (1) in touch with window (30).

9. The head-rail according to claim 8, wherein the external surface (28') of wall (28) of envelope (1) is provided, in correspondence of the end front portion, with a groove (32) having a section substantially configured as a parallelogram, with the oblique sides oriented in the direction of front (36) of said wall (28), a lowering (36) being obtained behind said groove, in which lowering the external front (28') extends, defining a tang (44).

10. The head-rail according to claim 8 or 9, wherein the second plate-like element (24) is constituted by a section whole front head (24') has an extension (46) developed upwards and integrally with its upper front, with a substantially L-shaped profile; the branch of extension (46) protruding from said upper front being inclined in the direction of head (24')' said second plate-like element (24) being provided, behind and starting from the lower base, with a lowering (50) wherefrom there develops a reduced thickness portion forming a tang (52), and in portion (48) comprised between extension (46) and tang (52) with one or more through-holes (54) for housing as many screws (56).

11. The head-rail according to any of the preceding claims 8-10, wherein the first plate-like element (22) is constituted by a section substantially configured as a flattened-S, having two opposite upper (22') and lower (22") seats developed in opposite directions relatively to one another; said upper (22') and lower (22") seats having a height substantially equal to that of tangs (44, 52) and a longitudinal extension greater with respect to the same.

12. The head-rail according to any of the preceding claims 8-11, wherein portion (48) of the second plate-like element (24) is provided with longitudinally extended grooves.

13. The head-rail according to any of the preceding claims 8-12, wherein at least a part of the lower front of the plate-like element (22) is provided with longitudinally extended grooves.

14. The head-rail according to any of the preceding claims 8-13, wherein the basis of the fore front of the second plate-like element (24) and the base of the fore front of the first plate-like elements (22) are provided with extensions (58, 60) of strike on window (30).

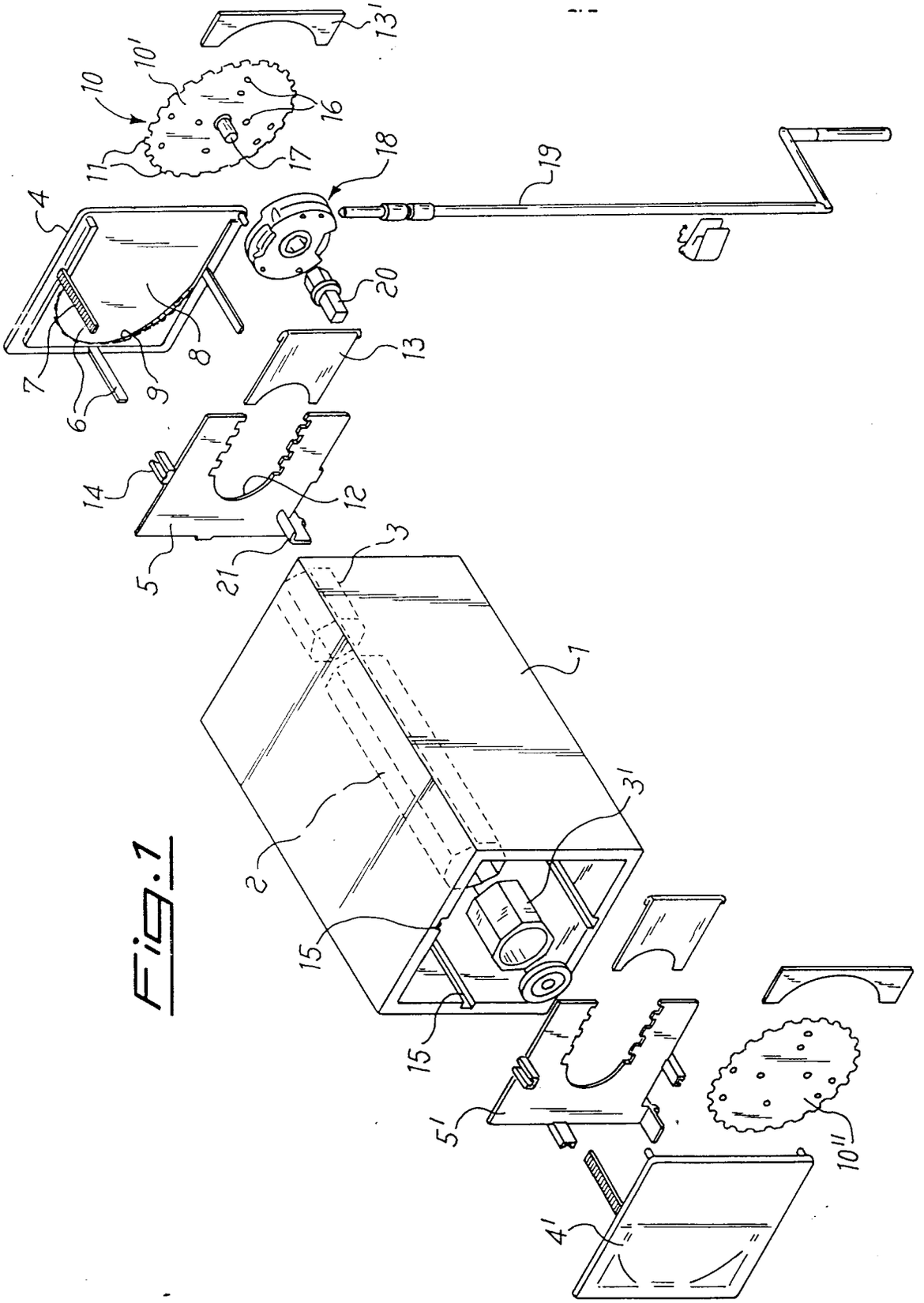
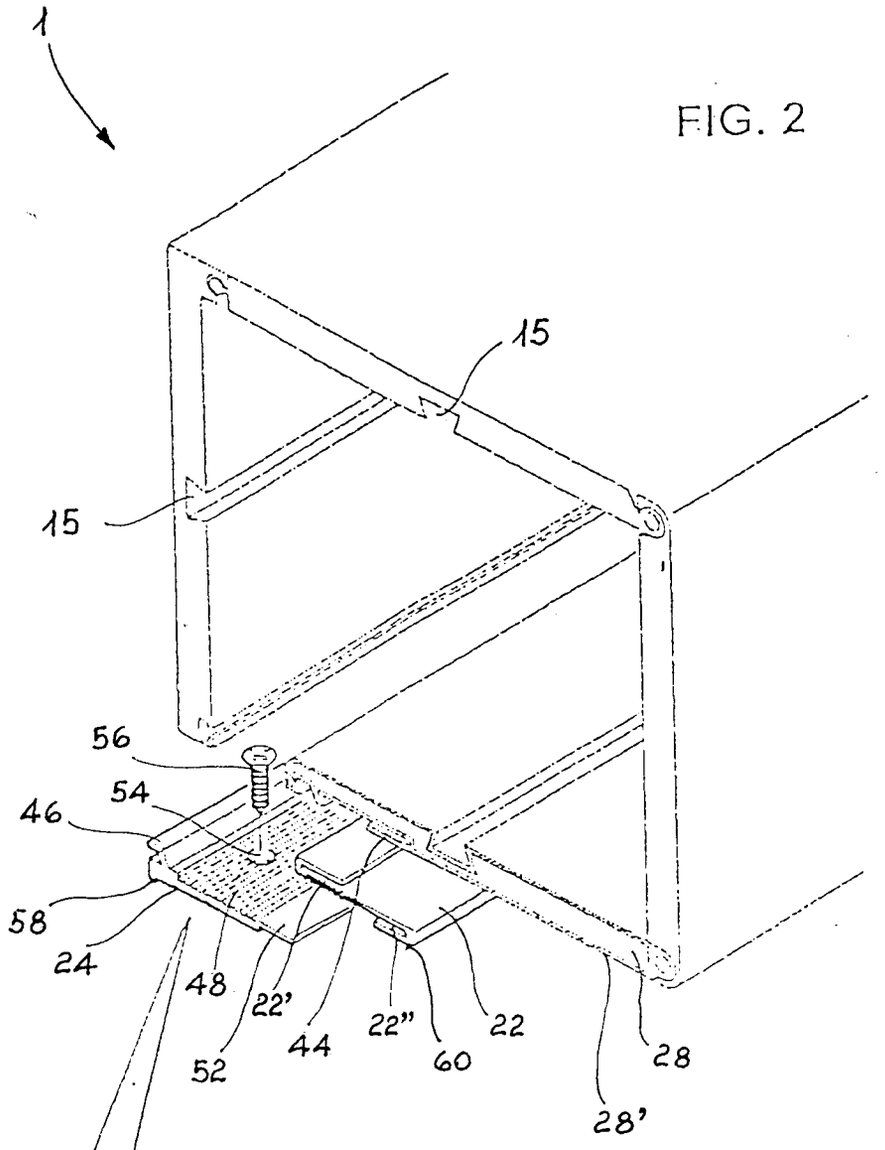


Fig.1

FIG. 2



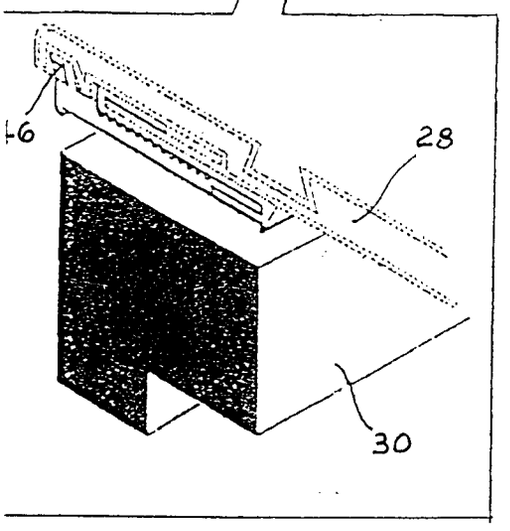


FIG. 3

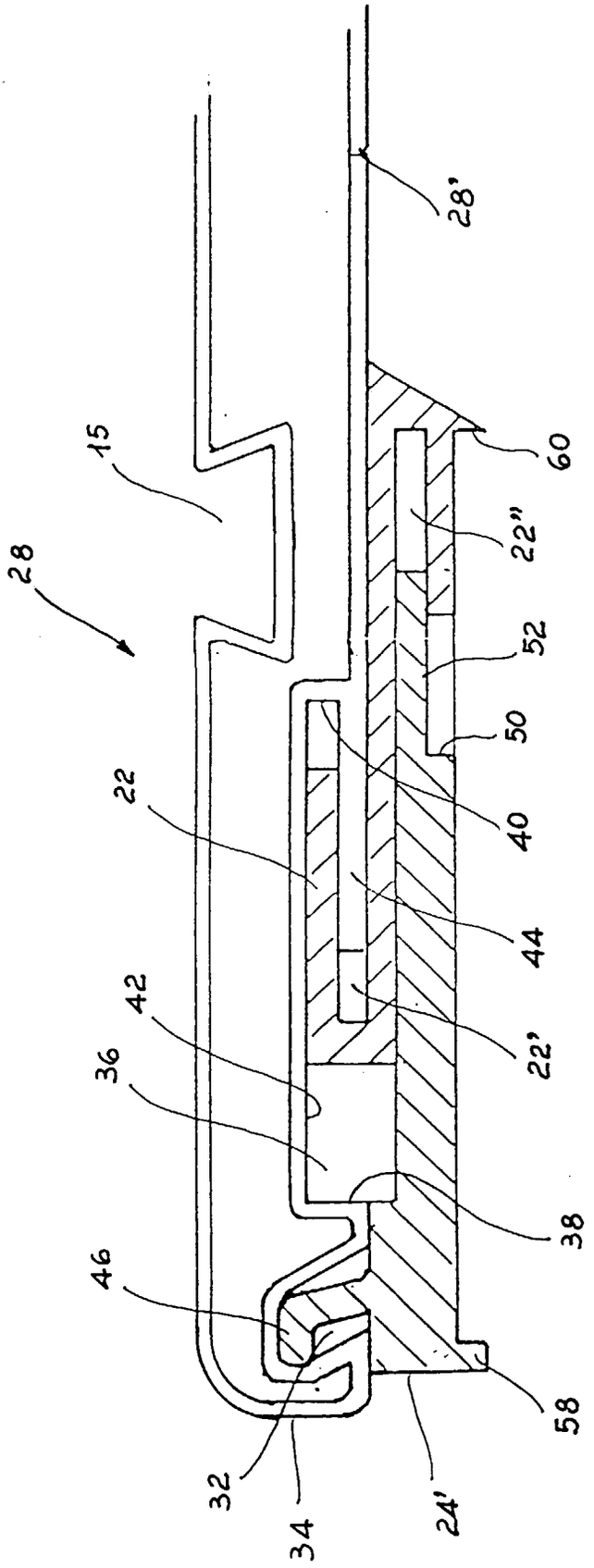


FIG. 4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 10 3402

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.6)
A	EP 0 764 759 A (I.M.B.A.C. S.P.A.) 26 March 1997 * the whole document *	1	E06B9/17 E06B9/50
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TECHNICAL FIELDS SEARCHED (Int.Cl.6)

E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	7 July 1998	Knerr, G

CATEGORY OF CITED DOCUMENTS

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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
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