

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets

(11)

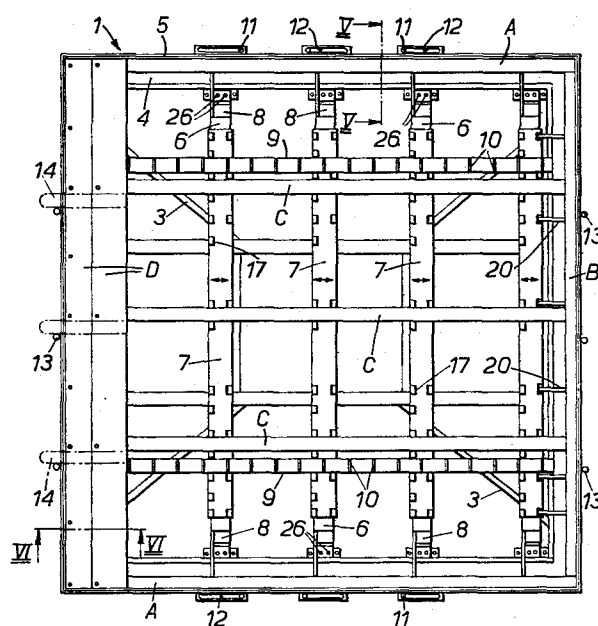
Publication number:

**0 130 685
A1**

(12)

EUROPEAN PATENT APPLICATION(21) Application number: **84303508.0**(51) Int. Cl.⁴: **B 27 M 3/00**(22) Date of filing: **24.05.84**(30) Priority: **26.05.83 GB 8314662**
14.12.83 GB 8333313(71) Applicant: **Bruno, Michael Roger, 19 Romilly Park Road,
Barry S. Glamorgan Wales (GB)**(43) Date of publication of application: **09.01.85**
Bulletin 85/2(72) Inventor: **Bruno, Michael Roger, 19 Romilly Park Road,
Barry S. Glamorgan Wales (GB)**(84) Designated Contracting States: **AT CH DE FR GB LI NL
SE**(74) Representative: **Lainé, Simon James et al, Wynne-Jones,
Lainé & James Morgan Arcade Chambers 33, St. Mary
Street, Cardiff CF1 2AB (GB)**(54) **A jig for framed wooden panels.**

(57) A jig for manufacturing wooden fencing or shed panels is adaptable to a range of sizes. A horizontal rectangular main frame (1) provides location for all the peripheral battens (A, B) of a maximum size panel and for some of the peripheral battens of lesser panels. Spanning the frame is an array of parallel beams (6) which can be adjusted transversely to their longitudinal direction. These carry batten locators (7) which can hold intermediate battens (C) in either orthogonal direction, each locator being a strip with lugs (17) in groups at set positions along its length. The beams are mounted at each end on carriages (24, 63) which have rolling engagement with tracks (23, 62) at points laterally offset from the beam. Adjustable 'signposts' (11, 13) outside the frame provide indicators for battens concealed below boarding, and can be used to locate guides (14, 44) which assist nailing and making up lesser sized panels. The peripheral location of a full panel is provided by flanges (5; 5a, 5b) higher than the batten thickness and which may have gaps or be adjustable to allow horizontal nailing into the edge battens.

**EP 0 130 685 A1**

- 1 -

A jig for framed wooden panels

This invention relates to a jig for fencing or other wooden panels and is a development of that described in any European Application No. 82306876.2 (Publication Number O 082 730).

5 The jig described there, although serviceable, has a number of drawbacks, notably in the carriage of the beams, in varying the locating lugs to suit different panel sizes, and in the peripheral location of the frame being constructed to allow horizontal nailing. The ease of nailing
10 the boards to the frame can also be improved.

All aspects of the present invention concern a jig of the kind comprising a rectangular frame spanned by an array of parallel intermediate members adjustable transversely to their longitudinal direction, and elements
15 carried by said members for locating panel battens extending in either orthogonal direction, the frame providing means for locating peripheral panel battens.

This jig will be referred to as "of the kind described".

20 According to one aspect of the present invention there is provided a jig of the kind described, wherein the locating elements are fixed to said members.

Preferably the locating elements associated with an intermediate are on a common strip secured longitudinally of that member. This strip may have an upward
25 central bow and be secured by central fastening means which flatten the bow. This ensures that the ends are kept firmly down against the member, and the single

-2-

fastener makes for easy replacement if a different strip has to be used.

According to another aspect of the present invention there is provided a jig of the kind described, wherein
5 the edge of the frame has means for indicating the position of intermediate panel battens after concealment by boards.

These may provide means for locating a bar or strip spanning the frame, which can serve as a physical guide for nailing through the boards into the intermediate battens
10 or as a locator for an edge of a panel being constructed of a size less than the full one possible on the jig. These indicating means will preferably be adjustable, and some may be carried by the intermediate members outside the frame. They will then follow any adjustment of
15 such members.

This enables all the boards to be laid up before nailing commences. Previously it was advisable to lay up and nail boards one by one, or in small groups, so that the operator could keep sight of the intermediate battens.

20 According to a further aspect of the present invention there is provided a jig of the kind described, wherein the peripheral locating means are of a height to exceed the thickness of an edge panel batten and provide gaps giving horizontal access to such battens.

25 These locating means are preferably adjustable to vary the size and position of said gaps.

-2-

-3-

This arrangement provides location not only for the edge battens, but also for the boards laid onto them, while still allowing horizontal nailing where necessary.

According to a yet further aspect of the invention
5 there is provided a jig of the kind described, wherein each intermediate member is mounted at its ends on carriages which run on tracks below the peripheral locating means.

Preferably, each carriage has rolling element engagement with its track at points laterally offset from the inter-
10 mediate member.

This arrangement gives a more substantial mounting for the intermediate members, and ensures easier transverse movement.

For a better understanding of the invention some
15 embodiments will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a side elevation of a jig for making fencing panels, with some parts omitted.

Figure 2 is a plan view of the jig of Figure 1.

20 Figure 3 is a perspective view of part of a movable beam of the jig.

Figure 4 is a perspective view of a locator which is carried by the beam of Figure 3.

Figure 5 is a cross section through the side of the
25 jig, on the line V-V of Figure 2.

Figure 6 is a cross section through another side of the jig, on the line VI-VI of Figure 2.

-3-

-4-

Figure 7 shows simplified side views of the jig with alternative locating flanges.

Figure 8 shows two forms of locating bar.

Figure 9 is a perspective view of part of a board
5 locator that can be fitted to the jig.

Figure 10 is a side elevation of another board locator.

Figure 11 shows an alternative batten locator in side and plan views, and

10 Figure 12 is a side view of an alternative beam carriage.

The jig of figures 1 and 2 has a square frame 1 supported from a smaller base 2, which is bolted to the floor. Struts 3 angle up from the base to the corners
15 of the frame. Generally, this support arrangement, and the structure beneath the frame, is similar to that described in my European Patent Application referred to above.

Figure 2 shows the jig with a full size fence panel
20 under construction. The jig itself is horizontal, but it will now be referred to in terms of the eventual attitude of the panels made on it. The parts of the panel are referenced by letters, there being an outer frame formed by horizontal battens A and vertical battens B,
25 and spanned by three horizontal intermediate battens C. To this are nailed vertical boards D in overlapping fashion, only two of which are shown in position. The jig is capable of locating intermediate battens extending in

-4-

-5-

the vertical direction, when of course the boards would be secured horizontally. Normally, a fence panel has a cap along the top, and this would be laid along and outside the upper batten A so that it can be nailed in place as part of the assembly in the jig. However, it is not shown in Figure 2.

The frame 1 has a periphery which forms a shelf 4 and an outer upstanding flange 5, and for a full size fence panel the battens A & B are located in the angle, supported by the shelf. This arrangement will be described in more detail later.

The frame is spanned in the vertical direction by five beams 6 which are adjustable transversely, as indicated by the double arrows. Each beam carries a batten locator 7 which can rigidly hold the horizontal battens C in the positions shown and in other positions, and which can also locate vertical battens in selected positions. At the ends of each beam there are edge batten locators 8, which can hold the horizontal battens A against the associated edge of the frame 1. The carriage of the beams and the locating devices will also be described in more detail later.

Spanning the frame 1 in the horizontal direction are two board locators 9. These are strips with upstanding lugs 10 at regular intervals, and when they are laid across the beams 6 (in fact resting on the locators 7) the lugs project just above the battens which form the fence panel frame. The boards D are abutted against corresponding

-5-

-6-

lugs 10 on each strip, and will thus be accurately positioned. Longitudinally, they will be confined between opposite flanges 5.

Outside the frame 1, the ends of each beam 6 carry
5 an adjustable guide or locator pin 11, each being settable to a desired position along a slot 12. When battens are located along the beams 6 and boarded over, they become concealed and these pins 11 provide guides for locating and nailing through into them. Equivalent pins 13 are
10 provided outside the other two edges of the frame 1, and these can also be adjusted. In practice the pins 11 and 13 are not all used at once and so there will just be a set of six which can be dropped into sockets as required. This removes obstructions that would otherwise interfere
15 with leaning over the jig and nailing into the intermediate battens.

At the left-hand side, where the boarding over has started, there are shown in outline guide strips 14, which are laid up against an opposed pair of pins 13
20 (or the pins 11 if the battens C are vertical) after all the boards have been positioned. Each strip 14 is then just clear of overlaying the respective batten C. A nail gun moved along the guide strips will then automatically fire nails through the boards correctly into the
25 battens. Alternatively, if the boards are to be sandwiched between frames, another batten is laid up against each guide strip 14 and then nailed. These pins and their mounting arrangements are not shown in Figure 1.

-6-

-7-

Figure 3 shows a detail of a beam 6 and batten locator 7. The beam is of box-section, and at each end its upper side is cut back as at 15. The lower side has two longitudinal slots 16 cut into it, these being for 5 bolts which secure it to a carriage to be described later.

The batten locator 7 is a strip of shallow channel section which is inverted to fit closely over the beam 6. At intervals along its length there are groups of three lugs 17 welded at the three corners of square. Their 10 spacing is such that a batten is held firmly between them whether it is laid horizontally as in Figure 2 or vertically, lying along the beam 6. The locator is secured to the beam by a single threaded stud 18 extending down from the centre of its underside through holes in the beam 6, and carrying 15 below that a hand nut 19. This is shown in ghost in Figure 3, and not in the correct longitudinal position. For convenience of illustration, it has been shown near one end. In order that the ends of the locator 7 should maintain firm engagement with the beam 6, the channel strip is formed with 20 an upward central bow so that it is sprung down in the middle as the nut 19 is tightened.

It will be seen from Figure 2 that the locators 7 on the three middle beams 6 follow this pattern, but that the right-hand locator has fingers 20 projecting laterally 25 from the lugs nearest from the edge of the frame. These fingers hold the edge batten B against the associated flange 5. The concealed locator below the boards D will be similarly equipped.

-7-

-8-

Referring to figure 4, the locator 8 is a rectangular member which has an easy sliding fit over the beam 6. It can be secured in a set position by a hand screw 21 engaged through its underside to clamp up against the bottom of the beam. Welded to its upper face is a finger 22 by which an edge batten is held against the adjacent flange 5. This finger is offset to one side so that there is clearance for a batten laid longitudinally of the beam.

Figure 5 shows how the ends of the beams 6 are carried. Parallel to and below each of an opposed pair of shelves 4, there extends a substantial beam 23, and for each beam a carriage 24 can slide freely along its length. The carriage is made up from an inverted L-shaped plate 25 whose longer, horizontal leg rests on the beam 23 and which is drilled near the angle to receive bolts 26 by which the beam 6 is secured. These bolts are not in fact visible in Figure 5 but their heads can be seen in Figure 2. The slots 16 allow a certain amount of adjustment longitudinally of the beam when setting up to ensure that the carriage 24 will run smoothly, even when urged transversely from one end only. Outside the ends of the beam 6 the horizontal flange of the plate 25 is drilled further to mount rollers 27 on bolts 28, these rollers engaging the vertical inside face of the beam 23. Extending outwardly from the lower edge of the shorter vertical flange of the plate 25, and strengthened by a welded web 28, is a flat plate 29 which provides the guide 12 on its outer edge beyond the frame 1.

-8-

-9-

The pin 11 is carried by an upright socket 30 which can be secured in a set position along the guide 12 by a nut 31 below the plate 29. The pin 11 can simply be lifted out or dropped in, as mentioned above. The plate 29 also carries a hand screw 32 which can be turned to clamp against underside of the beam 23 to hold the beam 6 in the set position.

It will be seen that the periphery of the frame 1 is of composite construction. There is a main angle section bar 33 whose horizontal flange is overlaid by a strip 34 whose upper surface is on a level with the upper surface of the locator 7. The vertical flange of the bar 33 has a longitudinal plate 35 bolted to it, with intermediate spacers 36. These do not extend the full length, but are only provided around the bolts 37 so that there are gaps for sawdust to fall through. This arrangement provides a slot into which the flange 5, which is removable, can be lowered. The flange 5 can take various configurations as described below.

Figure 5 shows part of a fence panel under construction, with boards D at their point of overlap, sandwiched between edge battens A. It also shows in outline a guide strip 14 as it would rest on the flange 5 and abut the pin 11.

Figure 6 shows the support arrangement for one of the pins 13. There is no need for a beam 23 along this side of the frame, but otherwise the construction is similar. Brackets 38 welded to the lower edge portion of

-9-

-10-

the vertical flange of the bar 33 carry a guide tube 39, and along this can slide a sleeve 40. This sleeve carries a socket 41 similar to the socket 30 and it can be clamped in position by a hand screw 42.

5 Figure 1 shows the flange 5 along one side as a continuous strip. This is not always satisfactory for it is sometimes necessary to nail horizontally through an edge batten, and if the capping is in the jig that will have to be nailed. To allow for this, the flange 5
10 may be modified as shown in Figure 7. In the version at (a) there are cut-outs 43 from the flange 5a, at regular intervals, where the intermediate and outer edge battens will be positioned. Alternatively, as at (b), the flange may be made up from a number of separate short plates 5b,
15 which can simply be dropped in and moved along to create gaps for nailing at any desired position. Although these flanges are simple drop-in plates, it could be arranged to have them retractable by a mechanical lever or screw system, or even power operated. It is convenient sometimes
20 to clear the flanges to ease removal of the panel from the jig.

The adjustability of the jig is provided so that less than full size fence panels can be made, the adjustment of the jig to suit being quick and easy. In Figure 2,
25 if it was desired to make the panel of less than full width, but still the full height, one of the battens B, say the right-hand one, would be fitted in the locator 7 on the right-hand beam. This would then be set to bring that

-10-

-11-

batten to the desired distance from the opposite vertical one which would still be held against the edge of the frame. The intermediate beams would then be adjusted to roughly even spacing between two vertical edges. If the panel
5 was to be substantially narrower it might not be necessary to use all the beams to support the intermediate battens.

Fence panels usually come in modular heights of six feet, five feet, four feet and three feet, and so fine graduation is not usually necessary in the vertical sense.

10 To make a panel of less than full height, therefore, it is simply arranged that the uppermost horizontal batten is set against a flange of the frame (with a cap interposed if desired) while the lowermost horizontal batten is located by the appropriate groups of lugs 17. For a
15 five foot panel, these intermediate battens are still advisable, and there will be appropriate groups of lugs 17 to accommodate them at even spacing. A four foot panel need only have two intermediate battens, and these will also require their own groups of lugs 17. A three foot
20 panel can use some of the lugs 17 for the six foot panel, and will only have one intermediate batten.

However, if for some reason an odd height is required, the jig can be used in the other orthogonal direction with the lower edge batten along one of the beams 6, or use may
25 be made of the pins 13 or their sockets 41. An opposed pair of these can be set at the desired distance from the horizontal edges of the frame and, instead of the pins 13,

-11-

-12-

a bar 44a is fitted by means of studs 45, as shown in Figure 8(a). Alternatively, the ends of the bar might have holes to be engaged by the pins 13, which would be left in the sockets. The bar 44 cranks downwardly a short distance from each end to clear the flange 5 and then lie close over the beams 6, as shown in outline in Figure 6, or else is thickened in depth as shown at 44b in Figure 8(b). The latter provides a full substitute for the flange 5. It serves not only to locate the lower edge batten, but also the ends of vertical boards.

Such a bar 44b can also span the frame in the vertical direction, using the pins 11 or their sockets. If the bar height does need to be raised, spacers 46 can be fitted over the studs 45.

The board locator 9 is shown in more detail in Figure 9. It is a shallow channel member 47 with a pad 48 at each end which rests on the inner edge portion of the horizontal flange of the bar 33, abutting the strip 34. The lugs 10 are welded transversely in the channel.

Different locators are used for horizontal boards, as shown in Figure 10. A beam 49 with stepped ends 50 can span the complete frame, resting on the inner edges of the shelf 4. For each modular height there is a corresponding strip 51 with lugs 52 on the upper side for abutment by the boards and pins 53 on the underside engaging holes in the beam. The lowermost horizontal frame batten passes over the beams 49, just beyond where the appropriate strips 51 terminate.

-12-

-13-

A universal locator could be provided, but it would be necessary to have some of the lugs removable to accommodate battens of less-than-full-size panels.

The fixed lugs 17 are satisfactory for most purposes, since it is unusual to change the size of battens. If there are different sizes to be used, different locators 7 could be fitted rapidly and easily. However, for more versatile performance, there may be a universal locator 54 as shown in Figure 11. This is a strip held to a beam 6 by bolts 55 and hand nuts 56 as shown. Its upper face has a lateral longitudinal dovetail or other undercut groove 57 and similarly shaped transverse grooves 58, these receiving and holding captive blocks 59 which can be clamped by bolts 60. They are disposed generally in the same way as the lugs 17 but can be set at finely adjusted spacings.

The strip also has a larger, central longitudinal undercut groove 61, which can locate stops or other devices, for example to substitute for the bar 44. There will also be larger blocks to serve the purpose of the fingers 20 and 22.

The beam 23 and carriage 24 may take different forms. For example the beam could be a circular section rod, as shown at 62 in Figure 12, with a casting 63 forming the carriage. For smooth movement, this has a roller or ball bearing 64 at each end, and a central hand screw 65 can be operated to clamp to the rod.

-13-

- 1 -

CLAIMS

1. A jig of the kind described, wherein the locating elements are fixed to said intermediate members.

2. A jig as claimed in claim 1, wherein the locating elements associated with an intermediate member are on
5 a common strip secured longitudinally of that member.

3. A jig as claimed in claim 2, wherein the strip has an upward central bow and is secured by central fastening means which flatten the bow.

4. A jig of the kind described, wherein the edge
10 of the frame has means for indicating the position of intermediate panel battens after concealment by boards.

5. A jig as claimed in claim 4, wherein the indicating means also provide means for locating a bar or strip spanning the frame.

15 6. A jig as claimed in claim 5, wherein said bar or strip serves as a physical guide for nailing through the boards into the intermediate battens.

7. A jig as claimed in claim 5, wherein said bar or strip serves as a locator for an edge of a panel being
20 constructed of a size less than the full one possible on the jig.

8. A jig as claimed in claim 5, 6 or 7, wherein the indicating means are adjustable.

9. A jig as claimed in claim 8, wherein such indicating
25 means are carried by the intermediate members outside the frame.

-2-

10. A jig of the kind described, wherein the peripheral locating means are of a height to exceed the thickness of an edge panel batten and provide gaps giving horizontal access to such battens.

5 11. A jig as claimed in claim 10, wherein the peripheral locating means are adjustable to vary the size and position of said gaps.

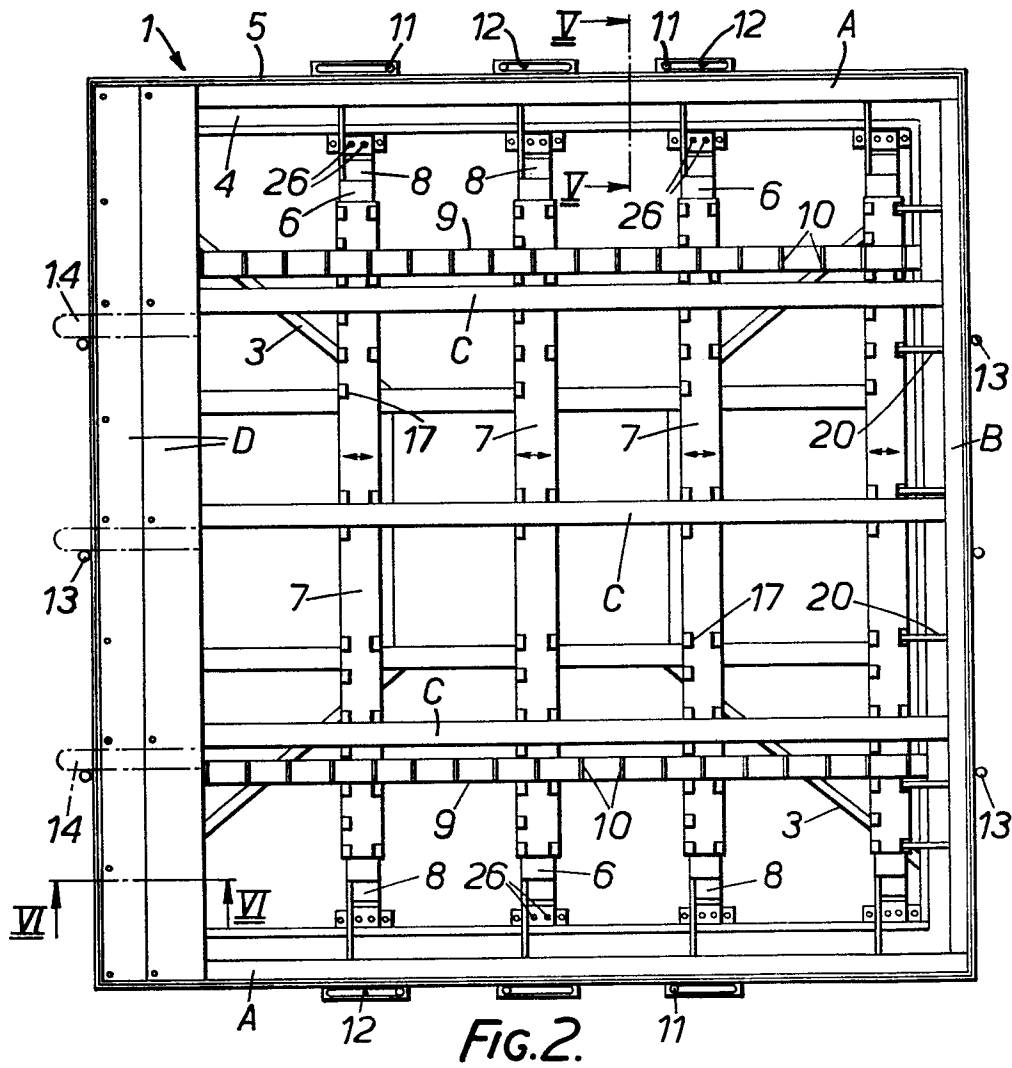
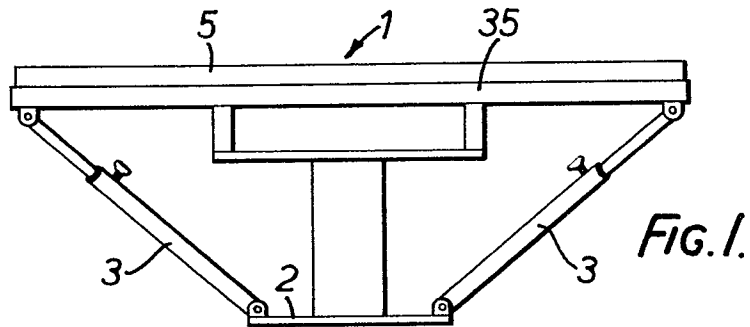
12. A jig of the kind described, wherein each intermediate member is mounted at its ends on carriages which
10 run on tracks below the peripheral locating means.

13. A jig as claimed in claim 12, wherein each carriage has rolling element engagement with its track at points laterally offset from the intermediate member.

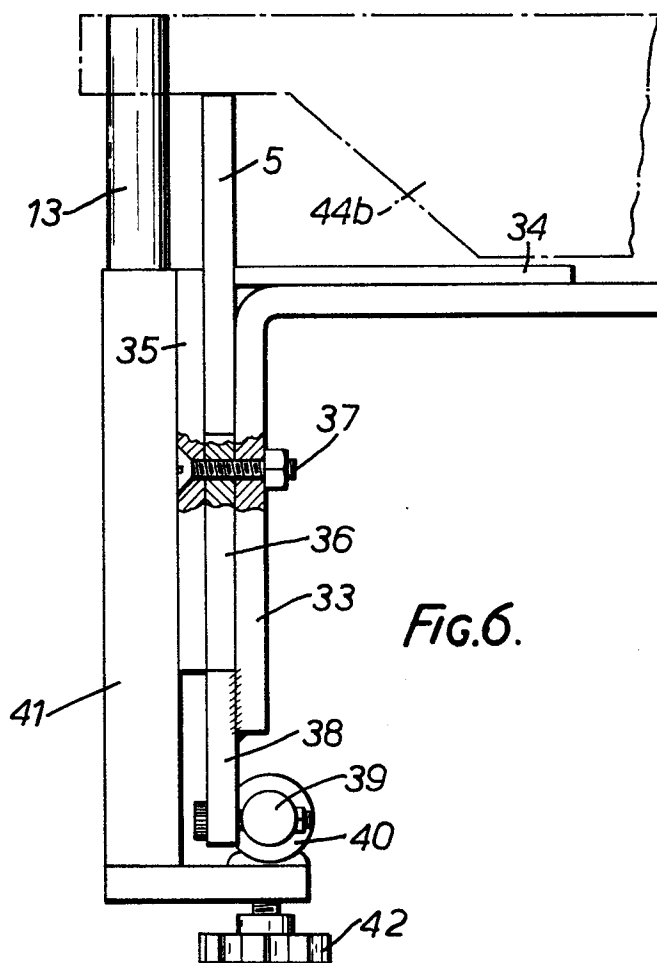
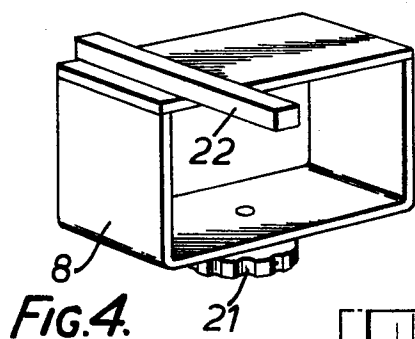
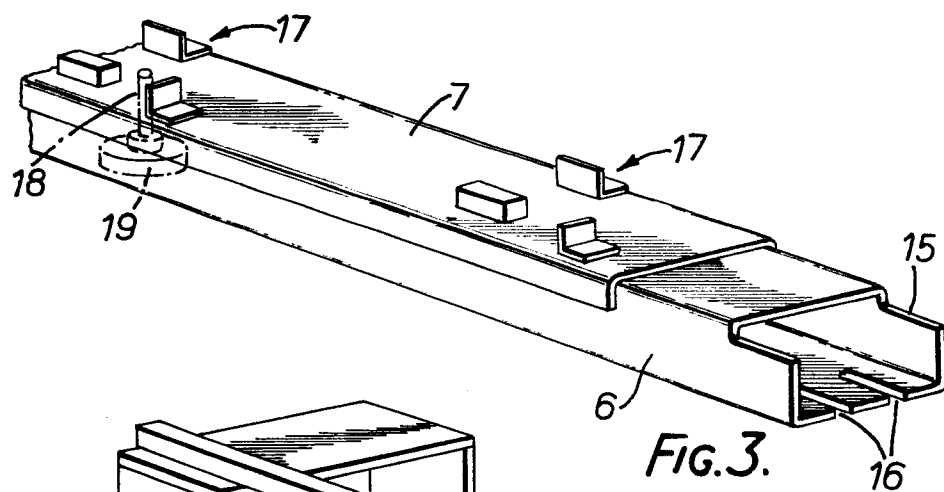
14. A jig of the kind described and as claimed in any
15 combination of at least one claim from at least two of the groups 1 to 3, 4 to 9, 10 and 11, and 12 and 13.

-2-

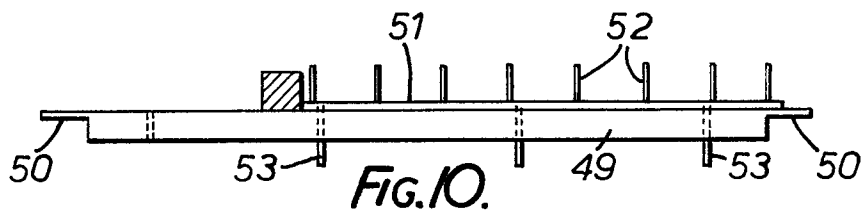
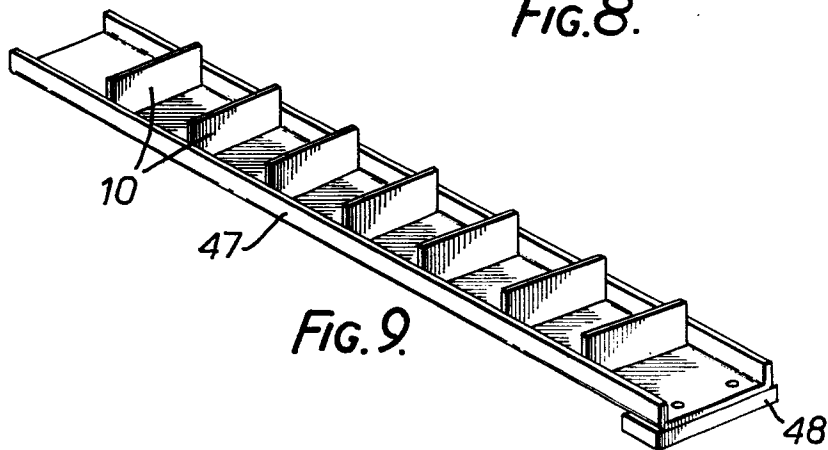
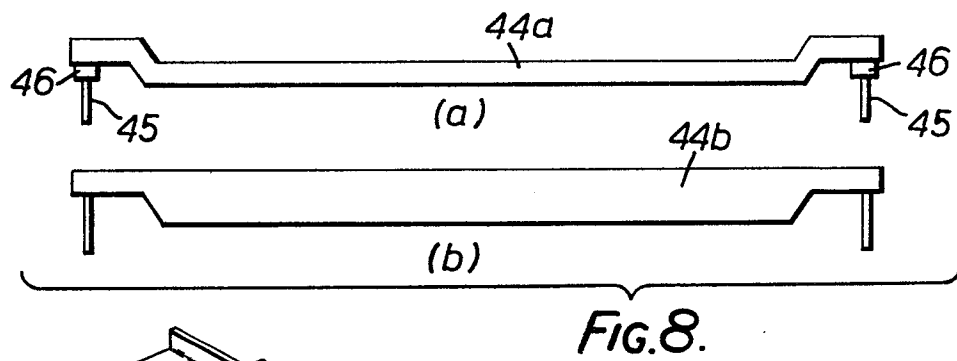
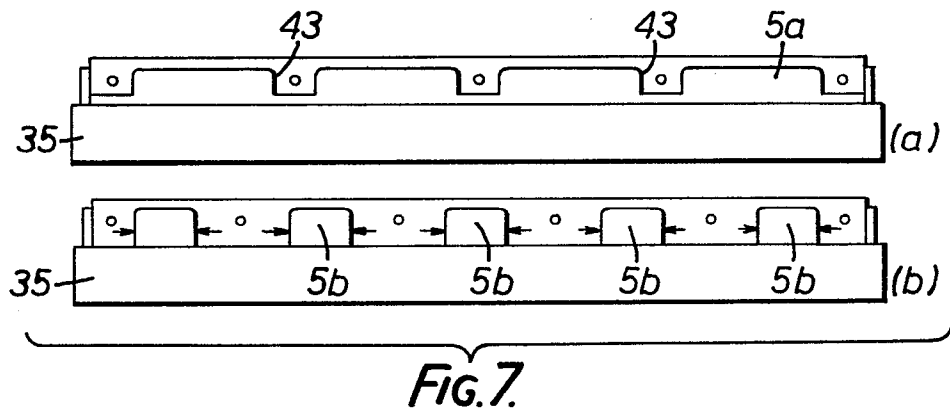
1/5



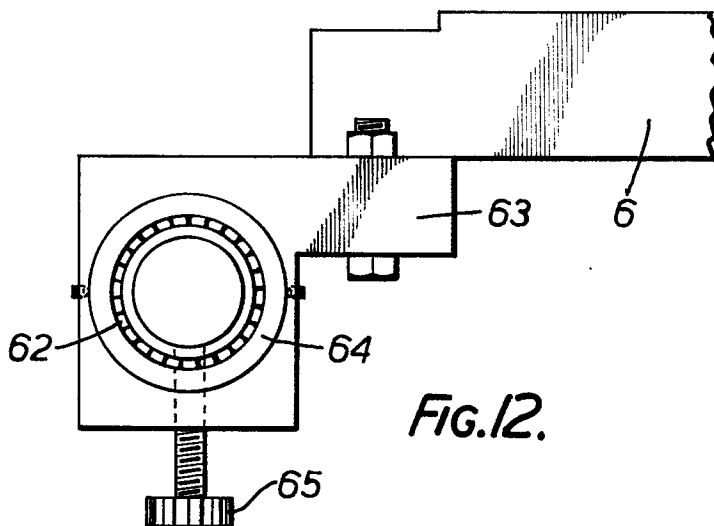
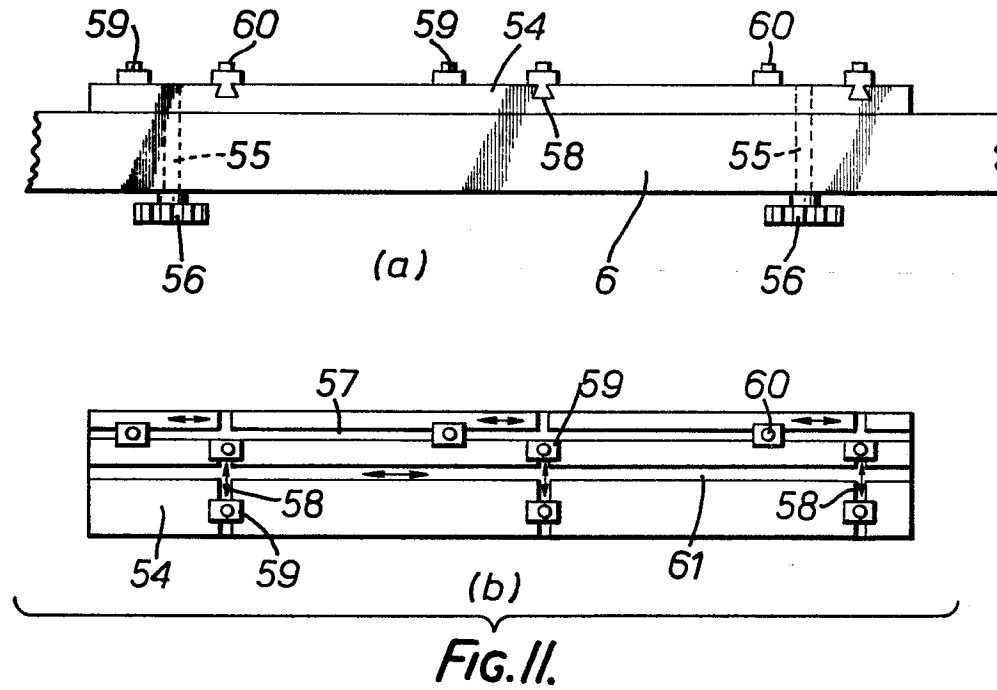
2/5



4/5



5/5



0130685



European Patent
Office

EUROPEAN SEARCH REPORT

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 84303508.0
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 7)
A, D	<u>EP - A1 - 0 082 730 (BRUNO)</u> * Totality * --	1	B 27 M 3/00
A	<u>US - A - 3 591 067 (GARYE)</u> * Totality * --		
A	<u>US - A - 2 811 186 (HONZA)</u> * Totality * ----		
			TECHNICAL FIELDS SEARCHED (Int. Cl. 7)
			B 27 M 3/00
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 27-09-1984	Examiner TRATTNER
CATEGORY OF CITED DOCUMENTS 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 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			