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(54) Wall

(57) The invention provides a stud 20 for a frame for a wall in the form of a channel member comprising a pair of opposed flanges 24 extending from a web 22, the stud being swaged over a middle portion 28 so that the spacing between the flanges is less than elsewhere on the stud. The invention also provides a noggin 30 for use with the stud, in the form of a channel member comprising a pair of opposed flanges 34 having extensions 40 the ends of the web for fitting over the swaged middle portion of the stud. The invention also includes a frame for a wall made from the studs and noggins and a method of constructing a wall using the studs and noggins.

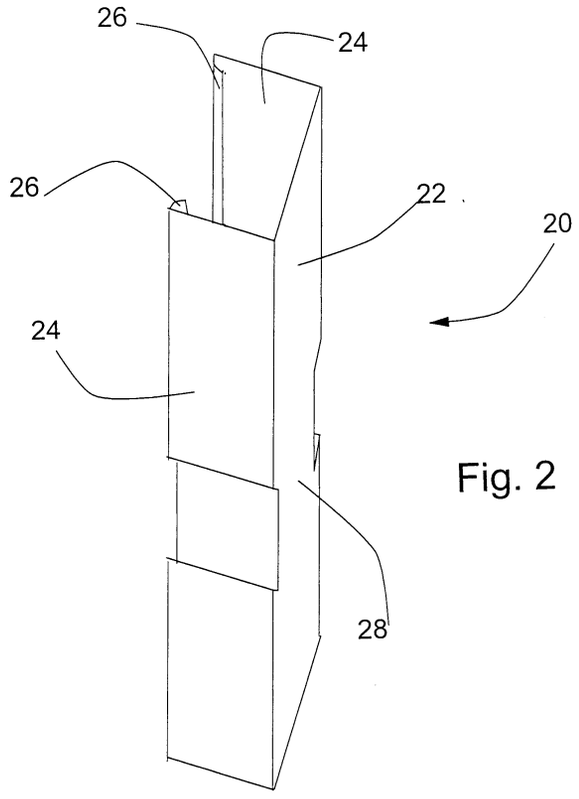

Fig. 2

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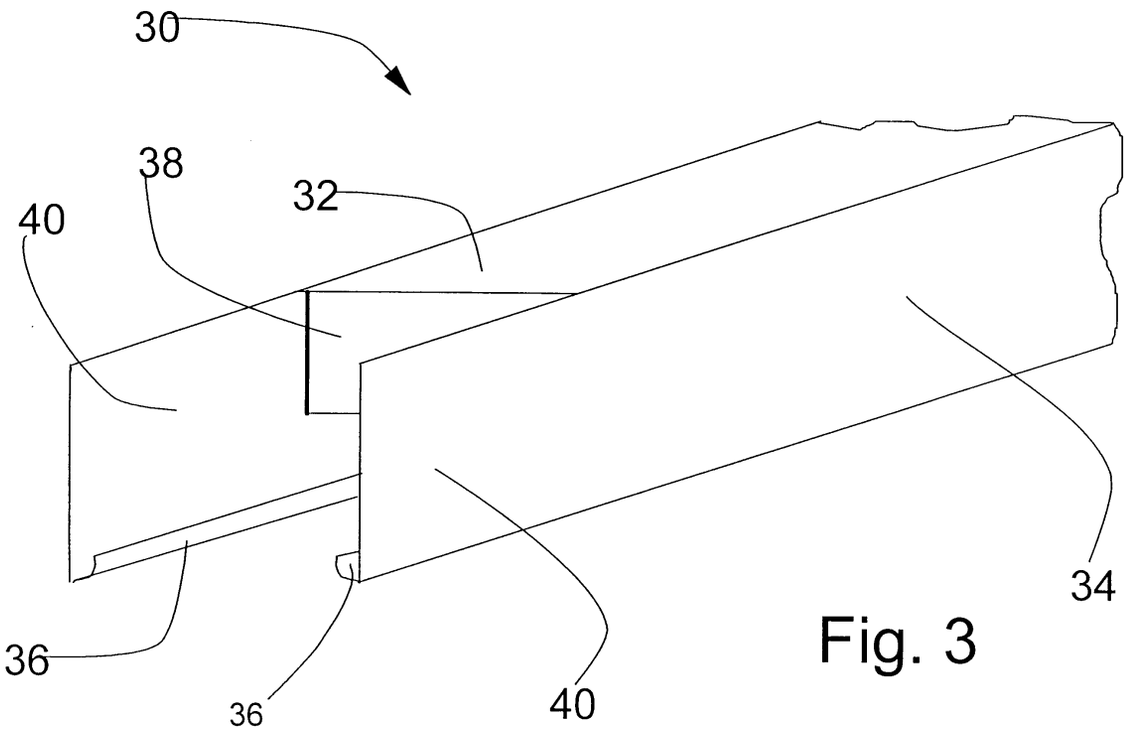

Fig. 3

Description

[0001] The present invention relates to a wall comprising wall panels, to a support frame for a wall and to elements of the support frame.

[0002] Walls comprising panels such as plasterboard attached to a frame are well known. Such walls may have panels on both faces to provide partition walls, or on one face only, when the frame abuts an existing wall. Wooden frames for supporting the panels comprise vertical studs extending between batons laid across the floor and ceiling. The frame is strengthened and made rigid by the inclusion of one or more horizontal noggins fixed between adjacent pairs of studs at about mid height. The wooden studs, noggins and batons are normally nailed together. The spacing of the studs conveniently corresponds to the width of a panel to be supported, and the panels are fixed to the frame by nailing or screwing. While wooden frames are satisfactory for most purposes, metal frames have been employed comprising metal studs usually of C section located in channels extending across the floor and ceiling. Metal support frames have a higher strength to weight ratio than do wooden frames, are more dimensionally stable and more dimensionally consistent.

[0003] Typically, metal frames are C section studs without noggins. Metal frames with noggins are also known; these use I section studs, the ends of the noggins, also of I section being swaged to fit in between the pairs of opposed flanges of the studs.

[0004] C section and noggins have some advantages over I section studs and noggins. C sections are easier to cut to length on site, as must be done if a panel of non standard width is used in the wall and to build walls of different heights. Exposed I section studs must be covered with C section channels to provide a satisfactory finish at doors and other openings. The swaging of cut noggin ends on site is troublesome.

[0005] It has been desired to provide a metal support frame for wall panels which is easier to adapt to different width panels and different height walls on site.

[0006] According to a first aspect of the invention there is provided a stud for a frame for a wall in the form of a channel member comprising a pair of opposed flanges extending from a web, the spacing between the said pair of flanges being less at a region along the stud than elsewhere on the stud.

[0007] In a second aspect, the invention provides a noggin for a frame for a wall in the form of a channel member comprising a pair of opposed flanges extending from a web, the said pair of flanges extending beyond the ends of the web.

[0008] Preferably, the channels members are of I section.

[0009] In a third aspect, the invention provides a system for constructing a frame for a wall comprising studs according to the first aspect of the invention and noggins according to the second aspect of the invention.

[0010] In a fourth aspect, the invention provides a frame for a wall comprising a system according to the third aspect of the invention, the flange extensions of the noggins being disposed outside the flanges of the studs at the narrow regions thereof to locate the noggins on the studs.

[0011] In a fifth aspect, the invention provides a wall comprising a frame according to the fourth aspect and panels fixed to the studs and/or to the noggins.

[0012] The invention also provides a method of constructing a frame for a wall comprising; erecting substantially vertical studs according to the first aspect of the invention; and locating between pairs of adjacent studs noggins according to the second aspect of the invention.

[0013] A stud according to the invention may have more than one region where the spacing between the flanges is reduced.

[0014] The invention will be further described with reference to the drawings in which:

Figure 1 shows diagrammatically part of a frame for a wall according to one aspect of the invention;

Figure 2 shows a stud according to another aspect of the invention;

Figure 3 shows part of a noggin according to yet another aspect of the invention; and

Figure 4 shows in perspective an enlargement of "A" in Figure 1.

[0015] The frame 10 of Figure 1 comprises floor 12a and ceiling 12b channels affixed, respectively, to the floor and the ceiling. The respective free ends of the substantially vertical studs 20 are located in the floor and ceiling channels. Noggins 30 extend between pairs of adjacent studs 20 to strengthen the frame 10 and abut one another over the studs. The noggins 30 are located on the studs in a manner which will be described hereafter. The wall panels (not shown) are affixed to the studs 20 and to the noggins 30 with screws. The studs will normally be spaced so that the edges of adjacent wall panels abut each other over a stud flange; in the case of conventional plaster board in the United Kingdom, the studs will usually be at 900mm centres. This may need to be varied, for example to accommodate doors and windows or for other sizes of wall panel, and intermediate studs may be required to provide more support for the wall panels.

[0016] The noggins and/or the studs are rigidised metal components of galvanised steel, such as the noggins and studs sold under the trade mark ULTRASTEEL. The webs and the flanges may incorporate strengthening ribs. The noggins and/or the studs have apertures for the passage of electrical cables and other services, which are not shown in the drawings.

[0017] A stud 20 is shown in Figure 2. The stud 20 is a C section channel, comprising a web 22 and two opposed flanges 24 extending from the long edges of the web. The free long edges 26 of the flanges are rolled. Toward the middle of the stud 20 a swaged region 28 is provided so that the web 22 is narrower and the space between the flanges 24 is smaller in the middle of the stud. The length of the swaged region 28 along the stud 20 is about three times the height of the flanges of the noggin 30. The width of the web 22 is reduced by about twice the thickness of the noggin flanges over the swaged region 28 of the stud.

[0018] Preferred studs have a rib or other sight line (not shown) along the centre line of each flange 24 parallel to the web 22 to assist in the alignment of wall panels on the frame.

[0019] As shown in Figure 3, a noggin 30 is of C section, comprising a web 32 and two opposed flanges 34 extending from the long edges of the web. The long free edges 36 of the flanges 34 are rolled. At each end of the noggin, the web 32 is cut from the flanges 34 to form a web flap 38 which is folded down between the thus formed flange extensions 40. The length of the cuts between the flanges 34 and the web 32; the web flap 38 can be cut short if desired. It is preferred that at least a short web flap is provided to assist in the location of the noggin on the stud.

[0020] The unswaged widths of the webs 22, 32 of the stud 20 and the noggin 30 are approximately the same, as are the heights of the flanges 24, 34 of the stud and the noggin. Currently preferred studs and noggins have 43 mm wide webs and 36 mm high flanges.

[0021] In preferred noggins and/or studs of the invention, apertures (not shown) for services such as electrical cabling are provided in the edge portions of the web adjacent one of the flanges. Preferably the rims of the apertures are swaged to avoid the need for grommets.

[0022] Figure 4 is an enlargement of "A" of Figure 1 and shows a joint between a stud 20 and two abutting noggins 30, 30". The flange extensions 40, 40' of the noggins 30, 30' slide over the swaged middle region 28 of the stud 20 and meet or nearly meet at the centre of the flanges 24 at the swaged region 28. The reduction in the spacing between the flanges 24 of the stud 20 over the swaged region 28 allow the flange extensions 40, 40' of the noggins 30, 30' to overlie the stud flanges 24. The noggins 30, 30' are prevented from downward movement on the stud by abutting against the flanges 24 of the stud 20 where the swaged region 28 gives way to the unswaged region of the stud. Since the widths of the webs of the studs and the noggins are the same and the flange extensions 40, 40 of which metal noggins and studs are currently formed.

Claims

1. A stud (20) for a frame for a wall in the form of a channel member comprising a pair of opposed flanges (24) extending from a web (22), the spacing between the said pair of flanges being less at a region (28) along the stud than elsewhere on the stud.

2. A stud (20) according to claim 1 in which the said region (28) is substantially mid way between the ends of the stud.

3. A stud (20) according to claim 1 or 2 in which there are at least two regions (28) in which the spacing between the said pair of flanges (24) is less than elsewhere on the stud.

4. A noggin (30) for a frame for a wall in the form of a channel member comprising a pair of opposed flanges (34) extending from a web (32), the said flanges each having a flange extension (40) extending beyond an end of the web.

5. A noggin (30) according to claim 4 in which the flange extensions (40) extend beyond both ends of the web (32).

6. A noggin (30) according to claim 4 or 5 in which a web flap (38) extends from one or both ends of the web (32) between the flanges (34) substantially perpendicular to the web.

7. A stud (20) according to claim 1, 2 or 3 or a noggin (30) according to claim 4, 5 or 6 in which the channel (22) (32) is of C section.

8. A stud (20) according to claim 1, 2, 3 or 7 or a noggin (30) according to claim 4, 5, 6 or 7 having an aperture disposed in an edge portion of the web (22) (32) abutting a flange.

9. A wall frame system comprising studs (20) according to claim 1, 2, 3, 7 or 8 and noggins (30) according to claim 4, 5, 6, 7 or 8, the height of the flanges (24) (34) of the studs and the noggins being substantially the same and the width of the flanges of the studs and the noggins being substantially the same.

10. A system according to claim 9 in which the length of the region (28) of the stud (20) at which the spacing between the said flanges (24) of the stud is less than elsewhere on the stud is about three times the height of a noggin flange (34).

11. A frame (10) for a wall comprising: a system according to claim 9 or 10, the flange extensions (40) of the noggins (30) being disposed outside the flanges (24) of the studs (20) at the regions (28) thereof where the spacing between the stud flanges (24) is less than elsewhere on the stud to locate the nog-

gins on the studs.

12. A wall comprising a frame (10) according to claim 11 and panels fixed to the studs (20) and/or to the noggins (30).

13. A method of constructing a frame for a wall comprising; erecting substantially vertical studs (20) according to any of claims 1, 2, 3, 7 or 8; and locating between pairs of adjacent studs noggins (30) according to any of claims 4, 5, 6, 7 or 8.

14. A method according to claim 13 in which the studs (20) are erected by locating their top and bottom ends respectively in top (12b) and bottom (12a) channels .

15. A method of constructing a wall comprising constructing a frame (10) by a method according to claim 13 or 14 and attaching wall panels to the studs (20) and/or to the noggins (30).

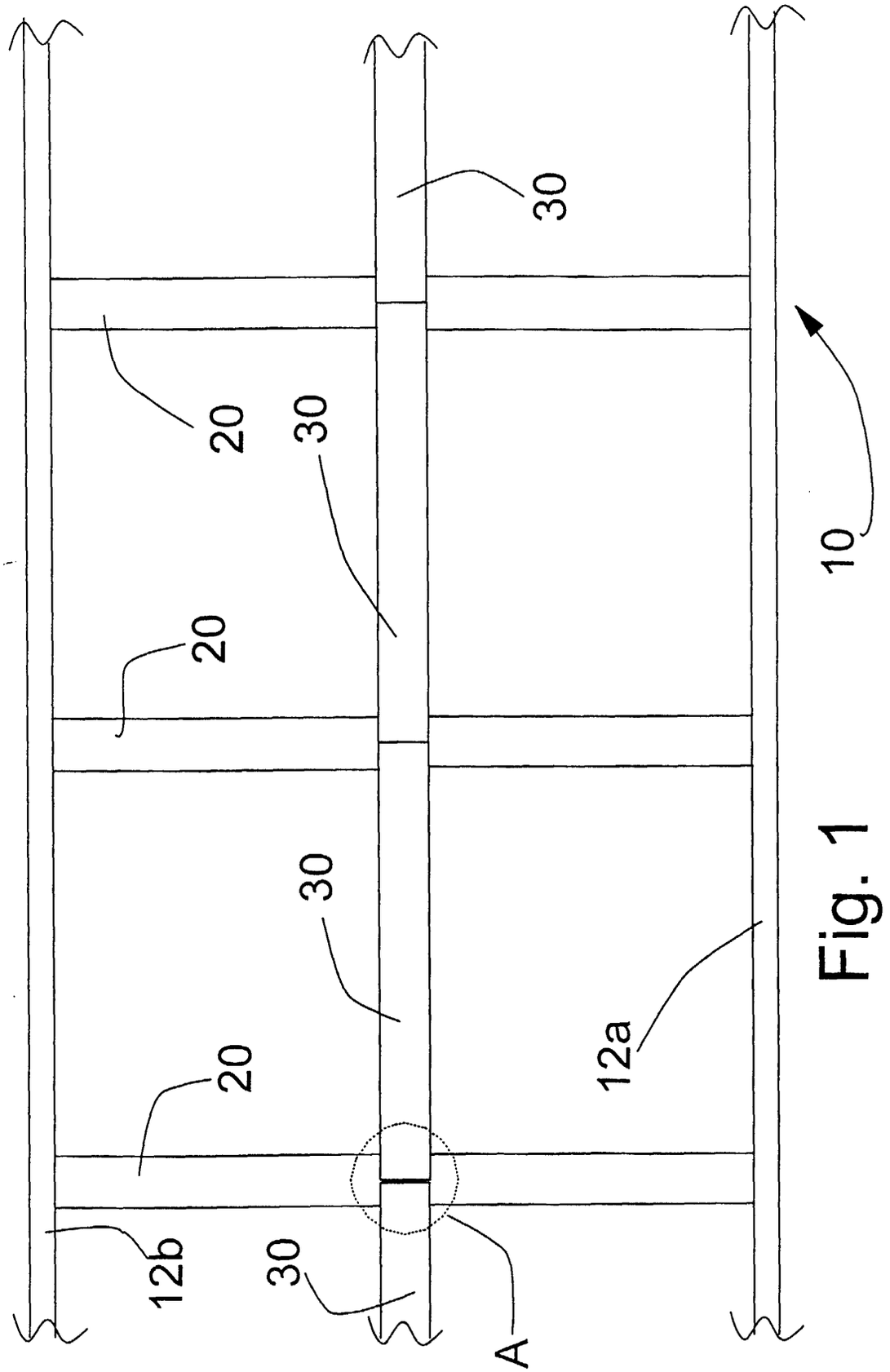

Fig. 1

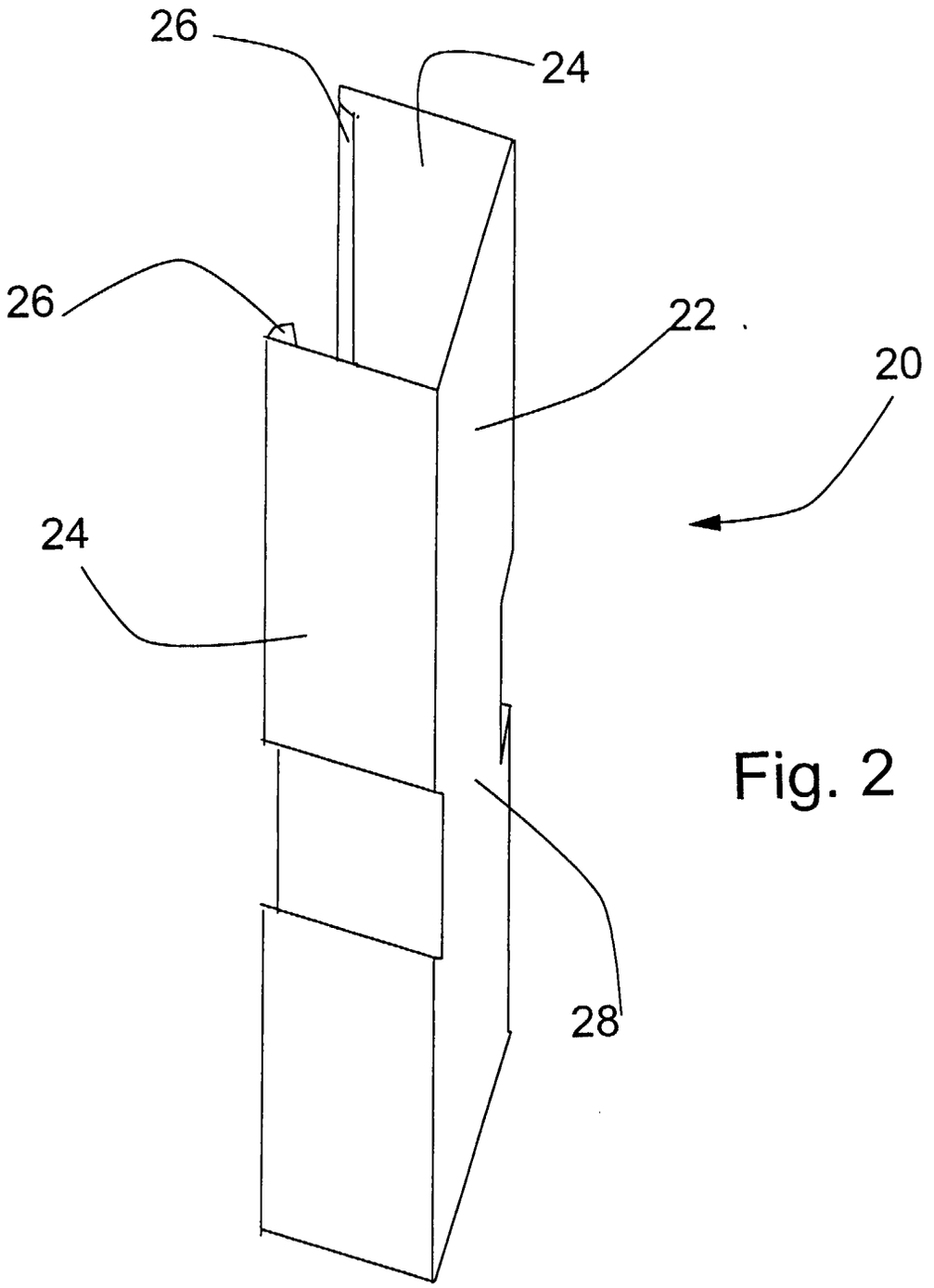

Fig. 2

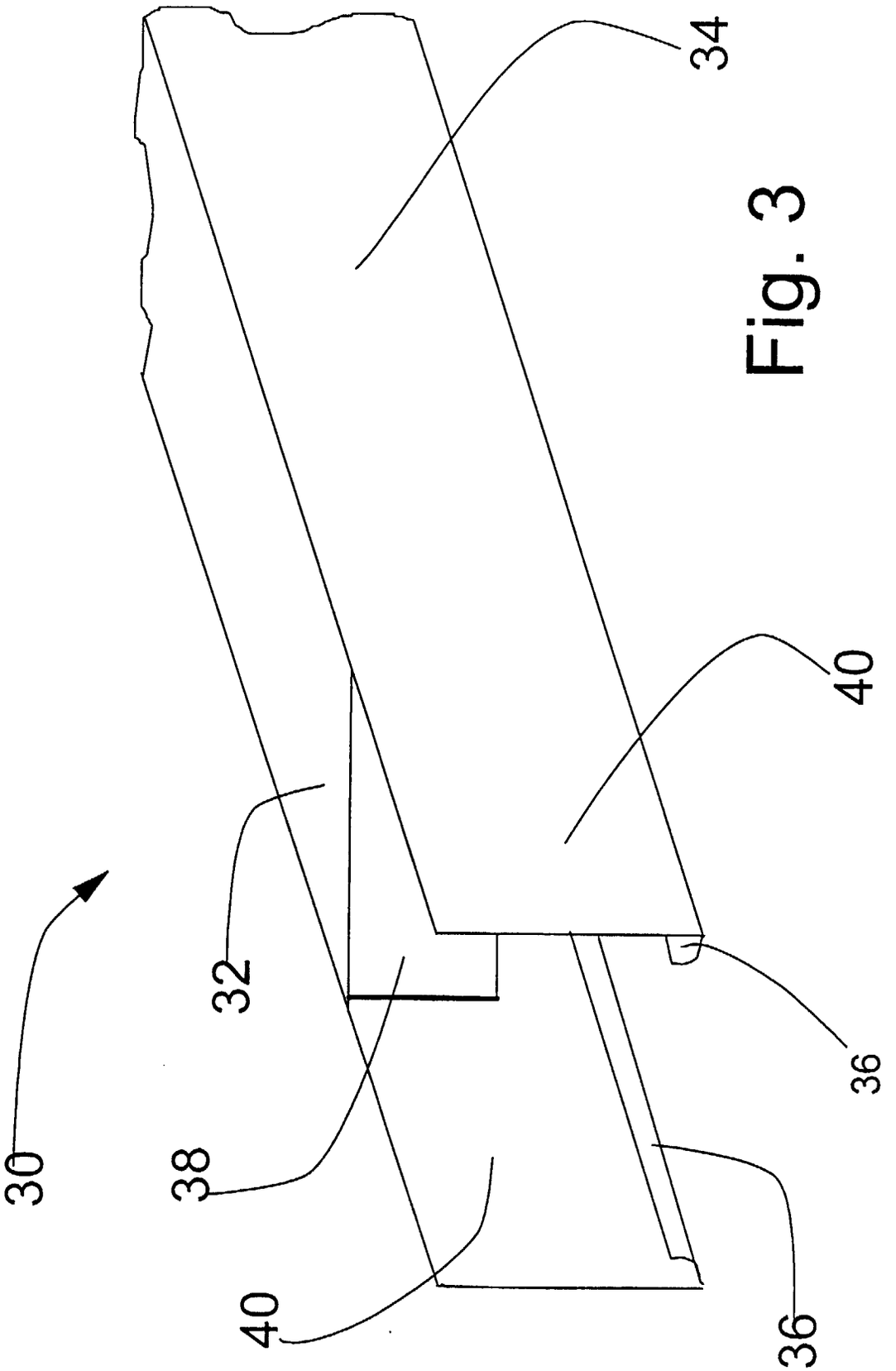

Fig. 3

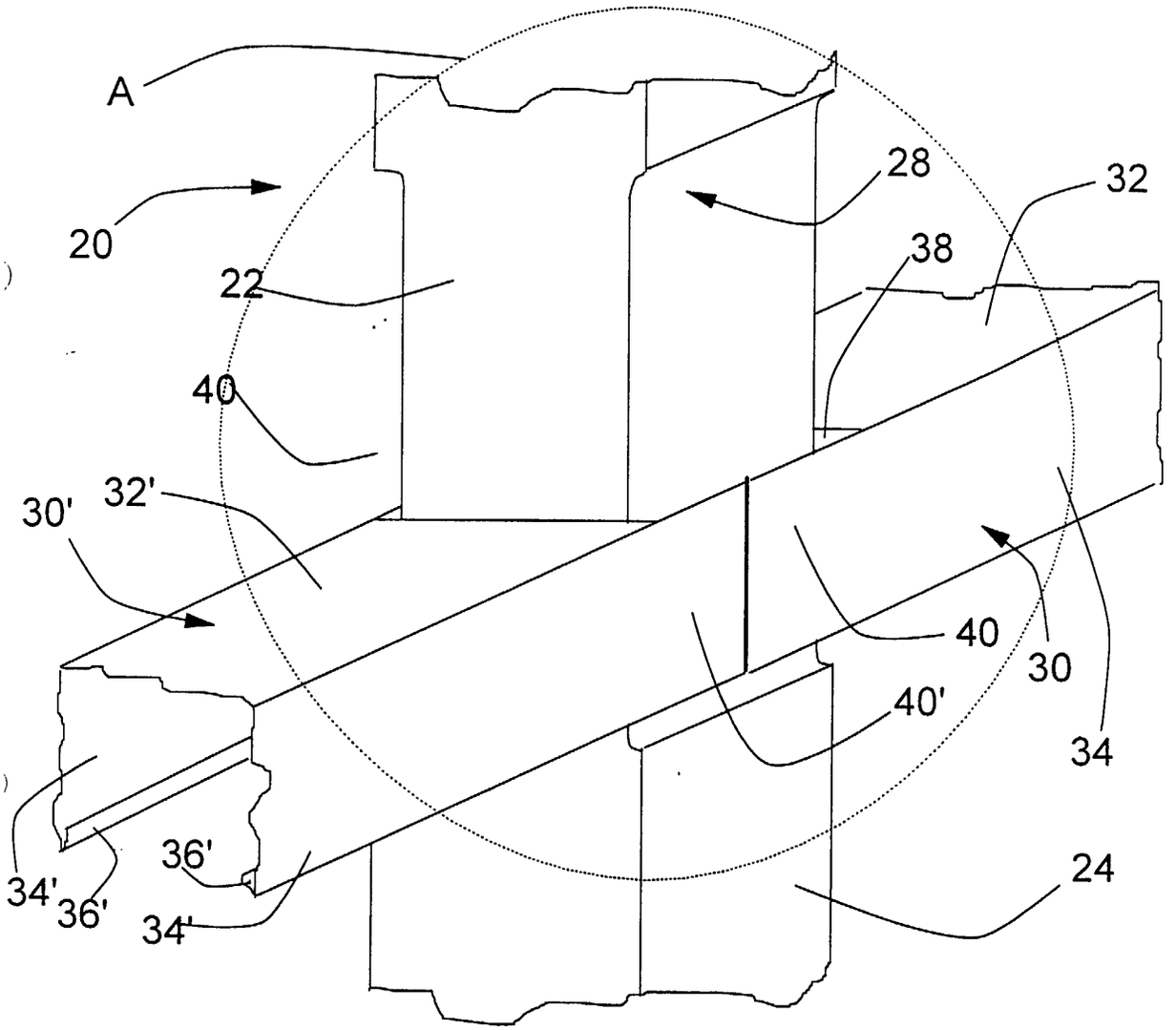

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 99 31 0335

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28 February 2000	Kriekoukis, S

CATEGORY OF CITED DOCUMENTS

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