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(54) Wall member.

(57) Wall member for construction of houses. The wall member can be used both as a lower wall member and as wall members for flats positioned thereabove. The wall member comprises an upper flange (3), a depending web (4) and a lower foot portion (5) and several essentially vertical pillar beams (7) extending from the flange (3) to the foot portion (5). The load from building members (1') positioned thereabove is transmitted to the flange (3) and further to the building member (2) positioned therebelow via the reinforcernents (7) without any essential loading of the foot portion (5) and the front web (4). The upper flange (3) is divided into a support portion (11) at the inside portion of the flange for supporting ceiling members (10) and an abutment portion (14) which is the outside portion of the flange and is adapted to support a wall member (1') positioned thereabove. The abutment portion (14) is recessed in relation to the support portion (11) (Fig. 1).

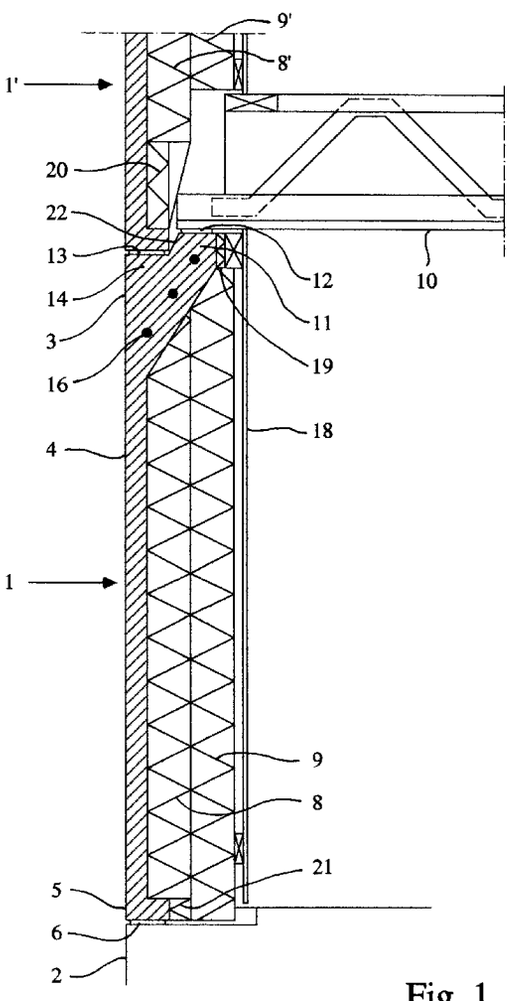

Fig. 1

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AREA OF INVENTION

The present invention relates to a new construction of a wall member for building of houses in one or several flats.

PRIOR ART

A wall member of the general type, which the present invention relates to, appears from e.g. Swedish Patent Specification No. 8902760-1 disclosing a wall member having essentially C-shaped cross-section, with an upper flange and a lower flange and a web extending therebetween. Pillar beams extend between the upper and lower flanges and support the load between the flanges. In such a construction, the web can be made thinner and, thus, a better insulation of the wall member can be obtained. Such insulation is placed in the free spaces between the flanges and the pillar beams.

A similar load carrying construction appears from Swedish Patent Specification No. 8701767-9. In this specification, the pillar beams are cast in one piece with a foundation plate. A number of edge blocks are adapted along the foundation. Each edge block is provided with an outer plastered surface and the remaining portion is made of cellular plastics comprising vertical grooves in which the concrete flows at the casting of the foundation plate for forming load carrying "legs". An upper beam or flange transmits load from brick walls or similar positioned thereabove through the "legs" to the the foundation plate.

Further similar constructions appear from e.g. US-A-2,202,745, DE-A1-24 22 586 and WO 84/01976.

SUMMARY OF THE INVENTION

The object of the present invention is to provide a wall member for buildings comprising an upper flange, a bottom foot portion, a depending front web extending between the upper flange and the foot portion, and several essentially vertical pillar beams extending from the upper flange to the foot portion. According to the invention, said foot portion has a smaller dimension in the transversal direction compared to said upper flange and is essentially without reinforcements whereby the load from a wall member positioned thereabove is transmitted to the flange and thence to the building member therebelow via the pillar beams without any essential loading of the foot portion and the front web. Preferably, the upper flange is provided with an uppwardly and inwardly extending support portion which forms an inside portion of the flange, and an abutment surface which forms an outside portion, whereby the abutment surface is recessed in relation to the support portion.

Moreover, there may be provided a guiding surface between said support portion and said abutment portion for cooperation with a foot portion of an upper wall member for guiding it to its correct position at the abutment surface. Said pillar beams may be chamfered at the bottom portion for decreasing the transveral dimension to essentially the same dimension as said foot portion.

In an alternative embodiment, the pillar beams extend down to the bottom level of the foot portion with the same uninterrupted cross-section for forming bottom pillar abutment surfaces for cooperation with a corresponding abutment portion of a lower wall member, which abutment portion is provided with recesses with a shape corresponding to said bottom pillar abutment surfaces for load transmitting cooperation therebetween.

SHORT DESCRIPTION OF THE DRAWINGS

The invention is described below in more details with reference to preferred embodiments shown in the appended drawings, in which:

Fig. 1 is a cross-sectional view of a first embodiment of the wall member according to the invention.

Fig. 2 is a perspective view of a part of the first embodiment of the wall member shown in Fig. 1.

Fig. 3 is a perspective view similar to Fig. 2 of a second embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 shows a cross-section of the wall member 1 according to the invention supported by a foundation plate 2 or a foundation beam, e.g. of the type ERGE.

The wall member 1 comprises an upper flange 3, a depending front web 4 and a lower foot portion 5. The foot portion 5 stands on a support such as said foundation plate 2 usually via a sealing 6, which can be a rubber sealing, asphaltic board or plastics or other similar materials used today. The foot portion 5 only performs a sealing action against the foundation plate 2.

Several essentially vertical pillar beams 7 extend between the upper flange 3 and the foot portion 5, c.f. Fig. 2, for transmitting load from the upper flange to the support 2.

A perspective view of the wall member is shown in Fig. 2. The pillar beams 7 are positioned at suitable mutual distances in dependence of the expected load.

Between the pillar beams 7 are placed insulation materials parallel to the front web 4, in the nature of first insulation disks 8 which fill the space between the pillar beams 7 and abuts the front web 4 and extends from the upper flange 3 to the foot portion 6. Moreover, there are second cellular plastics disks 9 positioned along the entire inside of the wall member

and extending from the upper flange 3 and down to the support 2, or an inner floor, see the upper part of Fig. 1. Moreover, there are cellular plastics material for preventing cold bridges at the inside of the upper flange at 19 and at the inside of the foot portion at 20,21 as shown in Fig. 1.

Of course other materials than cellular plastics can be used, such as mineral wool and other equivalent materials.

As appears from Fig. 1, the upper flange 3 is provided with an inwardly and upwardly extending support portion 11 for supporting an ceiling member 10 or similar. A fillet 12 is positioned between the support portion 11 and the ceiling member 10.

The outside portion of the upper flange forms an abutment portion 14 for a second wall member 1' stacked on top of the first wall member via a rubber sealing 13. The abutment portion 14 is recessed in relation to the support portion 11 as appears from Fig. 1.

The pillar beams 7 have a substantially constant cross-section along the length thereof and are chamfered at the lower portion as shown at 15, Fig. 2, for adaption to the foot portion 5.

The upper flange 11 is provided with a tensile reinforcement 16 in a conventional way. The front web 4 can be provided with a net reinforcement (not shown) for preventing formation of cracks. The foot portion 5 is essentially without any reinforcement.

The wall member according to the invention is dimensioned and calculated so that the upper flange 16 and the pillar beams 7 transmit the prevailing loads from a building member positioned thereabove (wall member 1') to a building member positioned therebelow (the foundation plate 2 or an ERGE foundation beam or another wall member 1'). The pillar beams 7 support the load. As mentioned above, the foot portion 5 is constructed only to perform a sealing action against the support and transmits no load. Also the front web 4 is unloaded and can be constructed thin in order to let place for a great amount of insulation materials 8 and 9.

The outer side of the front web 4 is surface treated directly after the casting and looks like a plastered surface which makes the outside essentially free from maintenance.

By the construction of the upper flange 3 with a upwards extending support portion 11 and an outer abutment portion 14 which is lower in relation to the support portion 11, several advantages are obtained. Possible water condensating at the upper flange 3 flows downwards towards abutment portion 14 and further outwards to the outside of the wall member.

At building of houses having several flats, several wall members are stacked upon each other without requiring use of different types of wall members. A surface connecting said support portion 11 and said abutment portion 14 forms a guide surface 22 guiding the foot portion 5 of an upper wall member 1' to its correct position at the lower wall member 1, which makes the mounting work easier and safer.

The wall member is further provided with an inner lining 18 in the nature of plaster gypsum boards or any other conventional construction.

Fig. 3 shows a second embodiment of the wall member according to the invention. In this embodiment, the pillar beams 7" extend right down to the bottom level of the foot portion without any chamfer. Thus, the lower portion of the pillar beams form feet for cooperation with a lower building member. In this construction, the foot portion 5 of the wall member is still more unloaded. As appears from Fig. 3, the support portion 11 is provided with recesses 23 for enclosing the feet of the pillar beams of an upper wall member. Said recesses can be provided with guide surfaces parallel to guide surface 22 for guiding the feet of the pillar beams in the correct position.

It appears that the transversal dimension of the foot portion can be narrow, while the upper flange is wider, preferably double the witdth of the foot portion or more. The pillar beams have a width therebetween.

The wall member according to the invention can be used as a cellar wall member completely or partly positioned below the ground level, or as a wall member for flats thereabove in a house with several flats.

It is remarked that the wall members are interconnected in the side direction with conventional methods, such as grooves and pin connections etc. The same applies to the vertical stacking and connection to the ceiling members.

Hereinabove have been described several embodiments of the invention with reference the drawings. However, a skilled person realizes further possibilities to modify the constructions for achieving the object of the invention and such for a skilled person obvious modifications are intended to be encompassed within the scope of the invention. The invention is only limited by the patent claims below.

Claims

1. Wall member for buildings comprising an upper flange (3), a bottom foot portion (5), a depending front web (4) extending between the upper flange and the foot portion, and several essentially vertical pillar beams (7) extending from the upper flange (3) to the foot portion (5), **characterized** in that said foot portion (5) has a smaller dimension in the transversal direction compared to said upper flange (3) and is essentially without reinforcements whereby the load from a wall member (1') positioned thereabove is transmitted to the flange (3) and thence to the building member (2) therebelow via the pillar beams (7) without any

essential loading of the foot portion (5) and the front web (4).

2. Wall member according to claim 1, **characterized** in that the upper flange (3) is provided with an uppwardly and inwardly extending support portion (11) which forms an inside portion of the flange, and an abutment surface (14) which forms an outside portion, whereby the abutment surface (14) is recessed in relation to the support portion (11).

3. Wall member according to claim 2, **characterized** in that the support portion (11) is adapted to support horizontal members (10), and that the abutment portion (14) is adapted to support an wall member (1') positioned thereabove.

4. Wall member according to claim 1 or 2, **characterized** by a guiding surface between said support portion (11) and said abutment portion for cooperation with a foot portion of an upper wall member for guiding it to its correct position at the abutment surface.

5. Wall member according to anyone of the previous claims, **characterized** in that said pillar beams extend down to the bottom level of the foot portion with the same uninterrupted cross-section for forming bottom pillar abutment surfaces for cooperation with a corresponding abutment portion of a lower wall member.

6. Wall member according to claim 5, **characterized** in that said abutment portion (14) of the upper flange is provided with recesses with a shape corresponding to said bottom pillar abutment surfaces for load transmitting cooperation therebetween.

7. Wall member according to anyone of claims 1 - 4, **characterized** in that said pillar beams are chamfered at the bottom portion for decreasing the transveral dimension to essentially the same dimension as said foot portion.

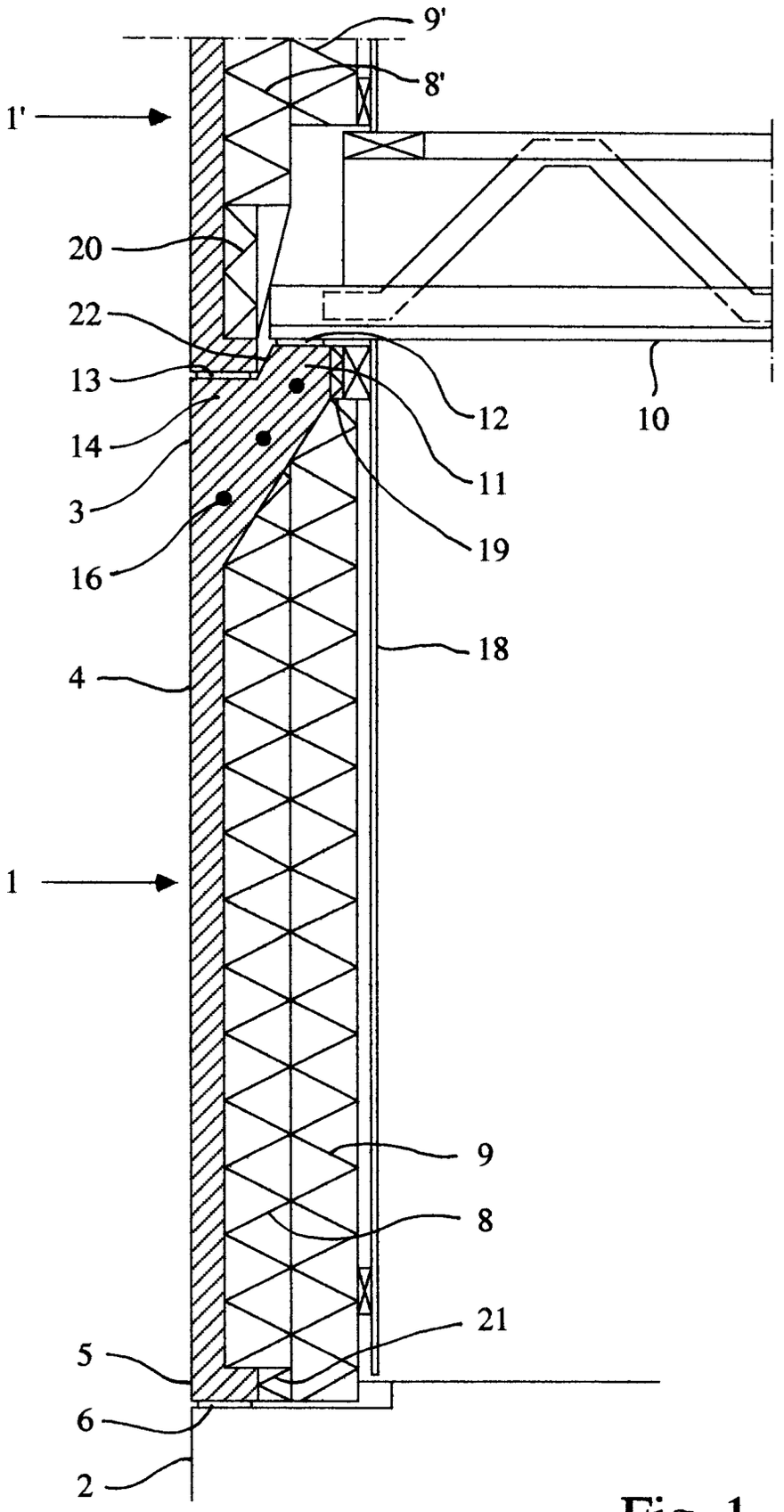

Fig. 1

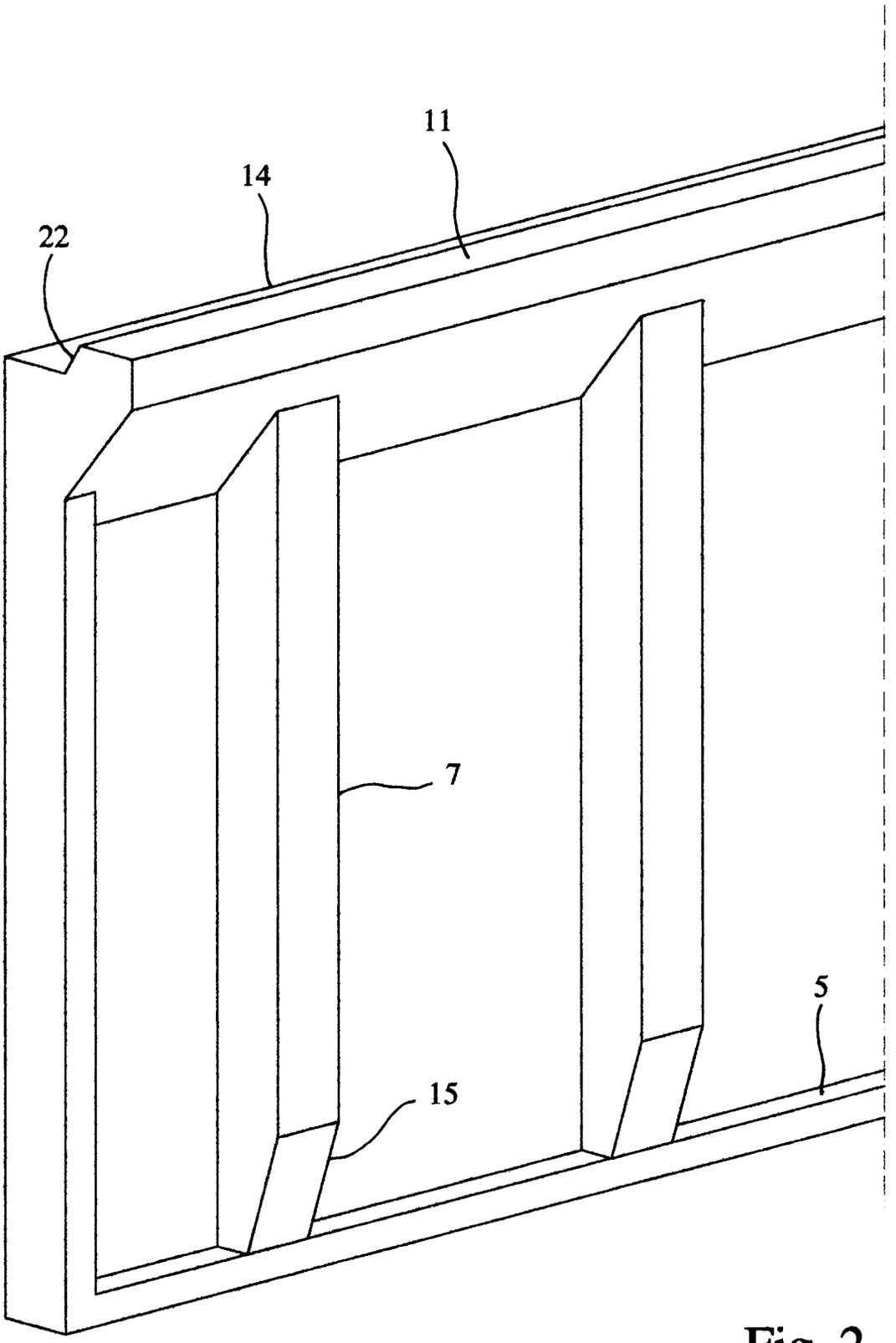

Fig. 2

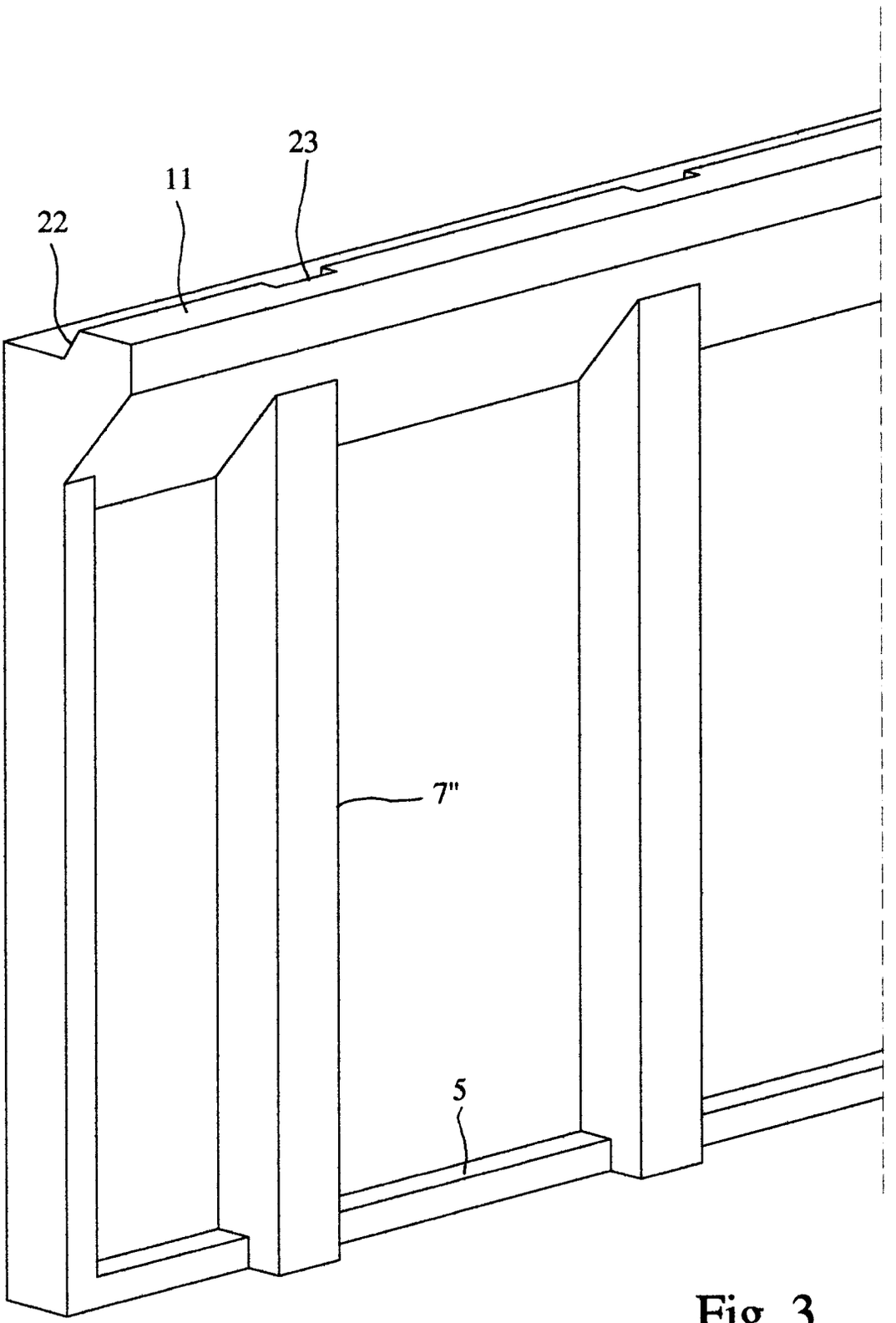

Fig. 3