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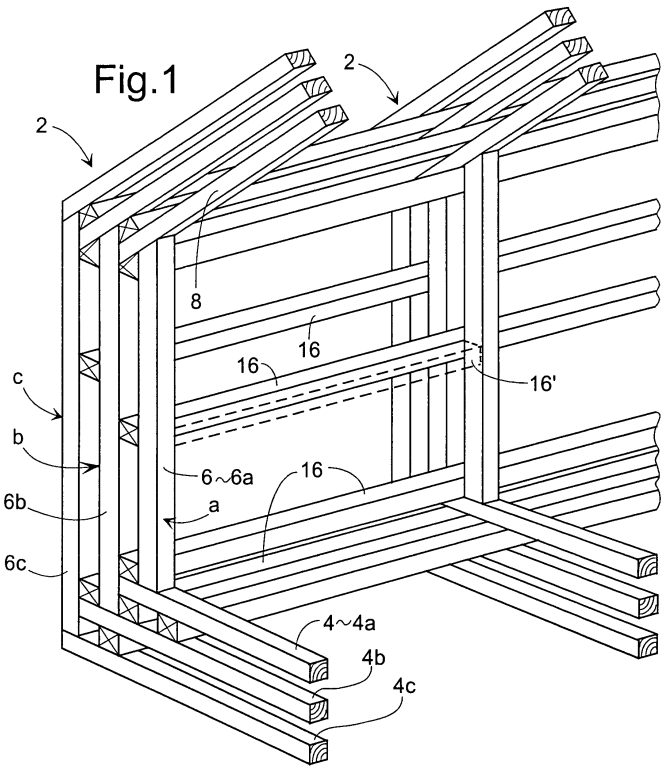
(54) Building construction

(57) A building construction of wood is based on a framework of wooden battens which are arranged in several layers with mutually intersecting battens, and which are displaced from each other in such a manner that places at which there is through-going wood in the transverse direction do not generally arise at the intersecting areas. In corner areas between adjoining framework planes, the ends of the battens are adapted to form part of a labyrinth assembly. In places where a high filling with wooden parts in the transverse direction arises, the formation of cold conductors is, however, counteracted by the intersection of heat-insulation layers between two or more of the wooden parts.

Fig.1



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Description

[0001] The present invention concerns a building construction with a framework in the form of a lattice construction, preferably of wood, as a support for suitable cladding parts.

[0002] With such lattice constructions, it is generally a problem to avoid the formation of cold conductors throughout the construction, also when this consists of wood, in that work is gradually being carried out with such high standards for insulation that the wood itself must be considered to contribute towards the forming of cold conductors.

[0003] The invention is based on the consideration that a relevant lattice construction does not need to display direct through-going parts of wood or corresponding material, in that each of the"framework surfaces"or sections (floorwall-, gable-and roof-surfaces) can be built up of a system of mutually parallel wooden battens with crossing wooden lists appearing in between. This will immediately complicate the meeting between the sections in the relevant corner joints, but according to the invention this is turned to advantage, in that in the corner joints there is arranged a labyrinth assembly where the two outermost battens are assembled end-against-end side, while the innermost or next outermost battens are arranged in such a manner that the end of the one batten is brought to abut up against the side of the outermost adjoining batten, while the end of the second batten is brought to abut up against the side of the relevant one or first batten in the next outermost batten layer, and thus continuing in the cases of additional layers of battens.

[0004] Precisely hereby, a labyrinth assembly pattern will arise which to a high degree will counteract the formation of cold conductors, and trials have shown that when use is made of wooden battens, it will not be required to arrange any further thermal insulation between the assembled elements, be cause the length of the"cold conductor"will be appreciably increased via this assembly. Moreover, it has been found that the joints can be fixed by direct screw assembly, so that neither will any metallic bracket plates be necessary in the area, which in themselves could form cold conductors. However, it will be a further possibility for relatively thin layers of firm or semi-firm layers of a typical insulation material such as styrofoam to be inserted between the adjoining wooden parts.

[0005] With the overall application of this system according to the invention, relevant angle connections can be established at all appearing corners, i. e. at corners between floor and walls, between walls and roof surfaces and between adjoining surfaces of upwardly-angled roofs.

[0006] The invention can already be realised with a construction where the said lattice structure consists of "frames" of parallel wooden battens with horizontal lists lying in between, but the invention distinguishes itself mostly in a construction precisely where concentrated frames do not appear, but where the parallel frame battens are spread out in a horizontal direction, so that each of the framework surfaces is formed by a system of several layers of crossing battens in the formation of a lattice or girder plate structure in which the crossing points between the battens are mutually displaced in such a manner that places where there is"throughgoing wood"do not generally arise. The said labyrinth assembly will thus appear not only in the lateral plane of the construction, but also in the longitudinal direction.

[0007] The invention will naturally not be limited to the framework on all sides having to have the central construction, in that the basic idea of the invention will be realised already in the building up of and the meeting between two neighbouring sections of the relevant surfaces.

[0008] In the following, the invention is explained in more detail with reference to the drawing, in which

fig. 1 is a perspective view of a construction framework executed in accordance with the invention,
fig. 2 is an end view of a ridge part of same,
fig. 3 is an end view of a storey joint,
fig. 4 is an end view of a modified corner assembly between floor and wall segments of a frame element,
fig. 5 is a perspective view for the illustration of a preferred form of embodiment for the invention.

[0009] The framework shown in fig. 1 is built up of a number of batten frames 2, each consisting of an inner frame a, an intermediate frame b and an outer frame c. Each of these frame pieces is composed of a floor piece 4, two wall pieces 6 and two roof pieces 8, all consisting of ordinary wooden battens.

[0010] In each frame 2, these battens are held mutually separated by intermediate layers of longitudinal lists 16, so that each of the part sections in each batten frame is built up in a girder-like manner.

[0011] In the corners of each batten frame 2, the relevant wooden battens in the adjoining part sections are assembled by a kind of interweaving, where e. g.-for the lowermost left comer-the innermost wall batten 6a stands on the uppermost floor batten 4a, which extends further outwards to adjoin with the side of the centremost wall batten 6b, which in turn extends down to the top of the centremost floor batten 4b. The same interweaving sequence is repeated outwards and downwards for the outer corner between the battens 4c and 6c, where precisely at this place it can, however, be chosen to let the outer wall batten or wall post 6c be supported directly on the building foundation together with the floor batten 4c.

[0012] The lists 16 can be placed wherever they are found to be useful.Structurally, it can be expedient that they appear as filling-out parts precisely in the angle assembly itself, e. g. as shown, and where a supporting of the respective floor-, wall-and roof-surfaces is found to be required. It must be mentioned, however, that out of consideration for cold conduction, the lists must not be

placed abutting directly up against the angle assemblies, whereby it becomes more obvious that the remaining cold conduction will arise with labyrinth construction in the corner assemblies. It will be a possibility for insulation plate parts e. g. of styrofoam, to be inserted in the adjoining assemblies, whereby also the said remaining cold conduction will be broken.

[0013] As shown on the wall side of the framework cf. fig. 1, the inserted lists 16 are displaced in height from each other, so that through-going cold conductors will not arise at the places where intersections arise.

[0014] In principle, the remaining corners can be configured in quite the same way, also where they are more or less inclined, such as will appear directly from the roof corner uppermost in fig. 1 and the ridge of the roof shown in fig. 2.

[0015] The lists 16 will constitute active elements in connection with the indicated screw assemblies, and for this reason they must be profiled for the necessary fitting at oblique angles.

[0016] The wall posts 6a and 6c can be used as supports respectively for inner and outer wall elements of any relevant type. As additional support for such elements, filling-out lists 16'can possibly be arranged between the batten frames 2, which will naturally also apply with regard both to floor and roof sections.

[0017] The storey branching shown in fig. 3 will hereafter speak for itself, as will also fig. 4, which illustrates the following conditions:

1) The wooden battens in the individual batten frame structures do not need to have the same cross sectional dimensions.

2) A relevant assembly shall not necessarily display the same number of battens on the two sides of the assembly.

3) The distance between the battens shall not necessar ily be identical, neither in the individual frame section nor on the two sides of the assembly.

[0018] Fig. 4 shows the system which is discussed in brief above, and which in practice is the preferred system, where the battens on all of the surfaces of the structure are "spread out"in the building's axial direction. Seen from the gable end, the picture will be unchanged, cf. fig. 2, but the "frame view"cf. fig. 1 will completely disappear. The segments will appear as plate girders with good strength and generally with effective breaks in all potential cold conducting connections. The segments will expediently be able to be manufactured in a special production, where the battens are cut to length, laid up and joined together in a more or less automatic manner, after which the segments are assembled together at the building site.

[0019] For the construction of long, straight walls and other sections, these can be assembled using prefabricated modules which can be"woven together"end against end, quite like the corner assemblies, but here with the possibility of a greater overlapping length. A wall can well be produced with a projection, e. g. for a tambour, possibly with sloping outstanding sides as a tapering bay.

[0020] With sensible selection of insulation and cladding materials, a construction according to the invention can be particularly suitable where there are high demands concerning the indoor climate, e. g. in connection with allergy arising in the household. As insulation materials, it can be advanta geous to select cellulose fibres which are blown in under pressure, whereby in addition to good insulation a good moisture absorption and emission characteristic is ensured. A good sound-absorbing effect will also be obtained.

[0021] Here, focus is placed on the manufactured modules being used in building constructions, but with the invention the reservation is made that corresponding modules (fig. 5) can with advantage find application also in other connections.

[0022] In a given construction, it can arise that out of regard for strength it can be desirable that use can be made at one or more places of a batten with through-going thickness, i. e. with full wall thickness. According to the invention, it will hereby be a relevant possibility that such a batten is built up of two or more single battens which are joined together with one or more insulation layers lying between them. Quite the same principle will more generally be able to be used for the improvement of the insulation ability of wooden elements such as profiles for sills and frames in window and door constructions, posts in the walls of cold-storage room etc. Such elements can be divided up into two or even more part-profiles which are assembled with intermediate insulation plates, preferably of natural materials such as cork, in between the inner and outer side of the assembled element. The assembly can be fixed by using glue, screws, dowels or other suitable means. Even an intermediate layer thickness of only 3-4 mm will be sufficient for the"wood cold conductor"to be broken to an appreciable degree, without the construction element being weakened in an unacceptable manner.

[0023] The use of a heat-insulation intermediate layer between the batten elements in their transverse or longitudinal direction will thus also be an additional and important characteristic of the invention. An example of the use of such an intermediate layer is shown at 18 in fig. 3.

Claims

1. Building construction comprising a wooden framework which includes a wooden batten which is built up of two or more single battens which are joined together with one or more insulation layers lying between them, or which includes wooden elements which are divided into two or more partprofiles which are assembled with intermediate insulation plates.

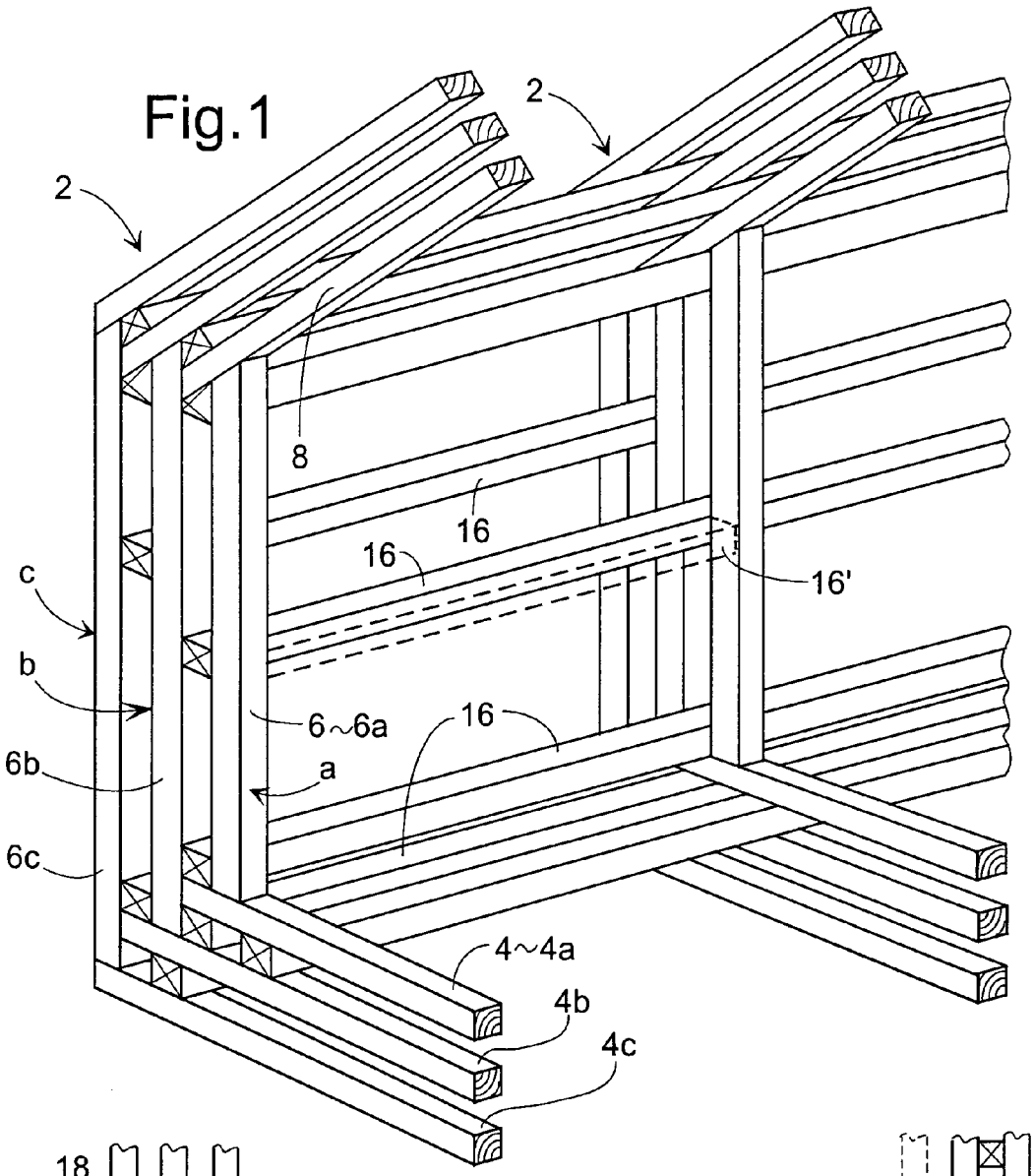
2. Building construction according to claim 1, wherein wooden elements divided into two or more partprofiles form part of e.g. sills and frames in window and door constructions and posts in the walls of a cold-storage room.

3. Building construction according to claim 1 or 2, wherein the insulation layers or insulation plates between the inner and outer side of assembled batten or element are of natural materials such as cork.

4. Building construction according to claim 3, wherein the thickness of the insulation layers or insulation plates is 3-4 mm.

5. Building construction according to any preceding claim, wherein the insulation layers or insulation plates between the assembled single wooden battens or partprofiles of wooden elements are joined by using glue, screws or dowels.

Fig.1



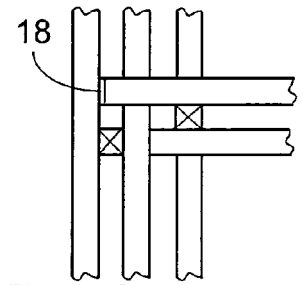


Fig.3

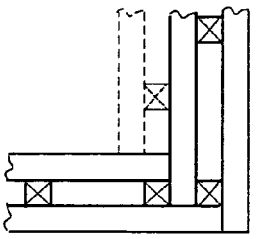


Fig.4

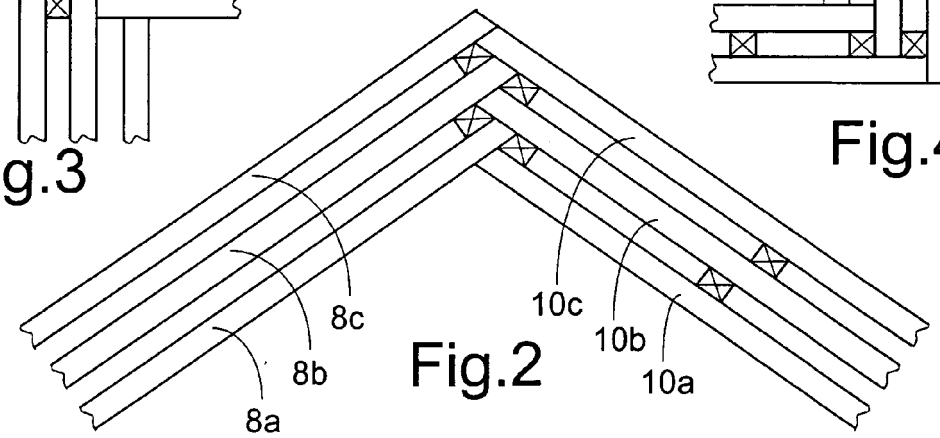


Fig.2

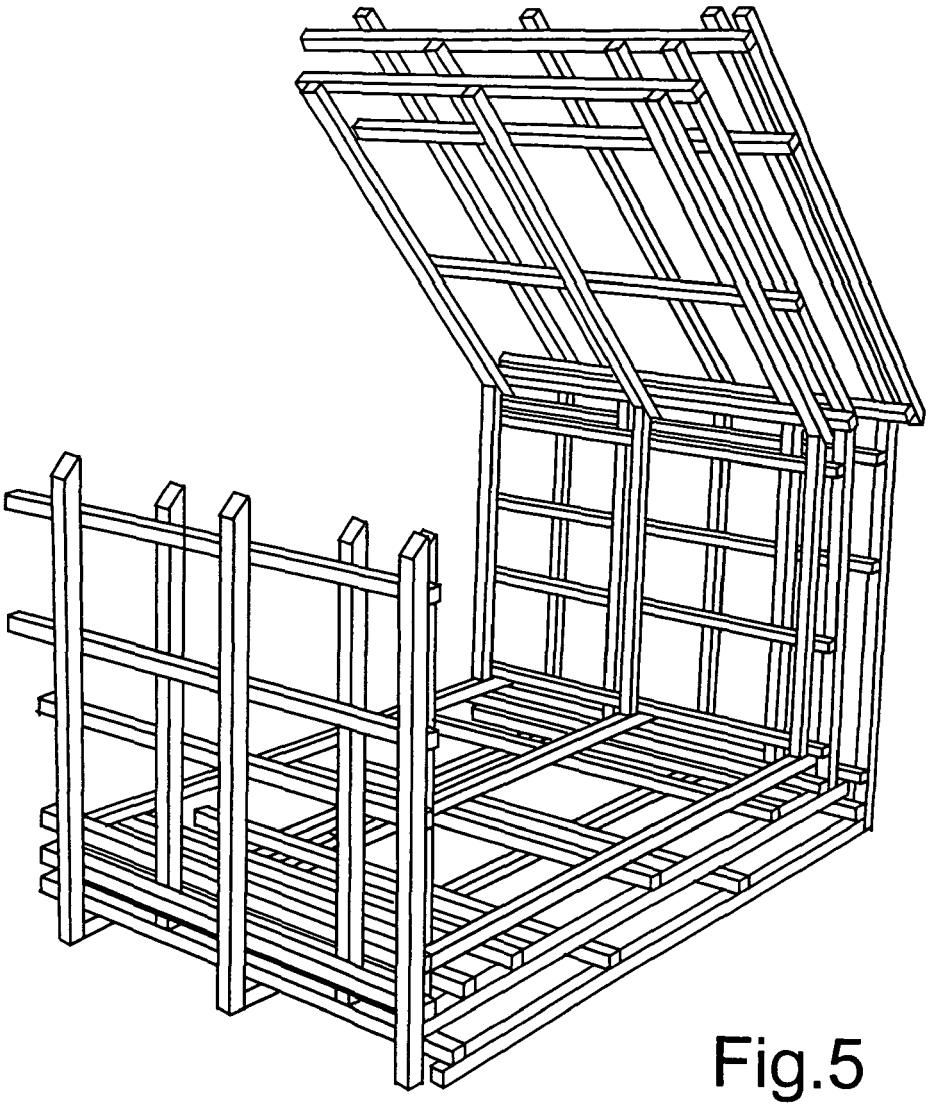


Fig.5