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STRUCTURAL MEMBER

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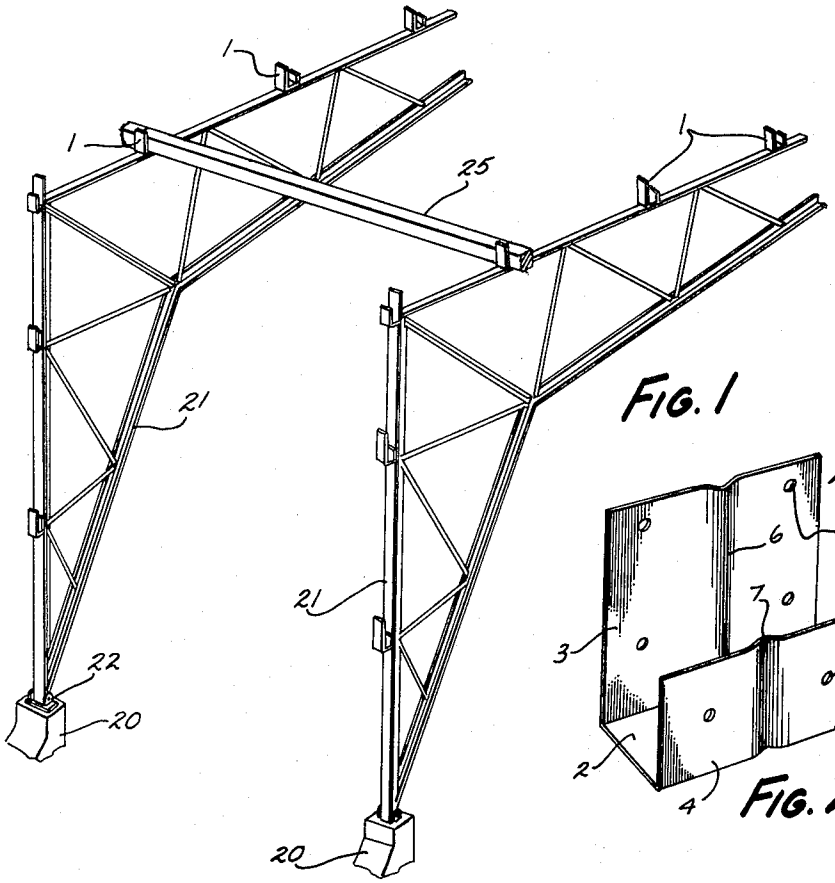


FIG. 1

FIG. 2

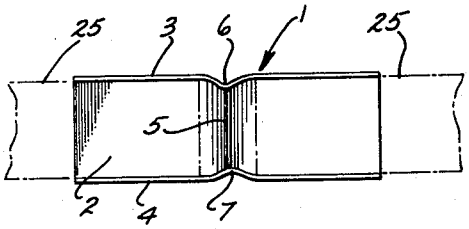


FIG. 4

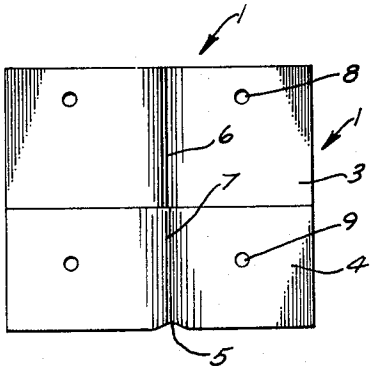


FIG. 3

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STRUCTURAL MEMBER

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This invention relates to a structural clip member. More particularly, this invention relates to a clip which pre-spaces and holds roof joists and the like in a building structure.

In the past, structural clip members provided for the reception of roof joists and the like have been of generally J-shape construction, each such member including a bight portion and a pair of upstanding legs extending from the sides of the bight portion. These members, hereinafter referred to as J-clips, are adapted to receive an end of two joists, such as a wooden two-by-six or the like, the ends of the joists abutting each other within the member.

The inherent structure of previous J-clips gives rise to two primary faults. First of all, the wooden joists tend to expand with time. Since it is difficult to provide an expansion joint between the ends of the joists, the ends frequently abut one another. Thus subsequent expansion causes the joists to warp or buckle, weakening and damaging the associated structure. Secondly, it is difficult to keep the legs of the J-clip from bending under heavy loads, such as when a carpenter walks on them, unless the members are fabricated from extremely heavy steel, which affects their cost. Therefore it is an object of this invention to provide an improved structural member or J-clip for receiving and spacing roof joists and the like in a building structure.

Another object of this invention is to provide such a structural clip member with means to pre-space the joists such that expansion thereof will not cause individual joists to warp or buckle.

Another object of this invention is to provide such a structural clip member which exhibits exceptional strength without excessive use of steel, the strength being obtained from the inherent structure of the member.

A still further object of this invention is to provide such a structural clip member which retains a simplicity of design, thereby being easy and inexpensive to manufacture.

These and other objects of this invention will become obvious to those skilled in the building art upon reading the following specification in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of a plurality of structural frame members having clips made in accordance with this invention, these clips shown mounted in position on the frames for receiving roof joists and the like;

FIG. 2 is a perspective view of the structural clip member of this invention;

FIG. 3 is a side view of the structural clip member shown in FIG. 2; and

FIG. 4 is a plan view of the structural clip member shown in FIG. 2, joists being shown in phantom positioned therein.

Briefly, this invention relates to a structural clip member for receiving roof joists and the like, comprising a generally U-shaped member, it being understood that by the term "U-shaped" is meant a shape having a profile comprising a bight portion and two upstanding spaced legs extending upwardly therefrom. The clip member of this invention preferably includes a bight portion and a pair of upstanding legs extending from the sides thereof, one leg being longer than the other thus forming a J. At least the junctures between the bight portion and the

legs each include an upstanding ridge located between its sides. In the preferred form both legs include a continuous inwardly extending ridge joined to the upstanding ridge of the bight portion and lying in the vertical plane of the upstanding ridge.

Referring more specifically to the drawings, the reference numeral 1 designates the structural clip member or clip of this invention. The clip 1 is of one-piece construction, and is preferably formed from steel. It includes a bight portion 2 and a pair of upstanding legs 3 and 4 extending from the sides of the bight portion 2, the leg 3 being of greater length than the leg 4 thereby forming a J-shape. A ridge 5 (FIG. 3) of generally inverted V-shape is formed in the bight portion 2, extending between its sides and positioned generally midway between its ends. Similarly shaped ridges 6 and 7 are formed in the legs 3 and 4 respectively (FIG. 4), the ridges 6 and 7 extending inwardly toward each other. The ridges 6 and 7 join the ends of the ridge 5 and lie in the vertical plane of the ridge 5. Apertures 8 and 9 (FIG. 2) are formed in the legs 3 and 4 respectively, the purpose of which will be explained hereinafter. It will be noted that the structural member 1 may be simply formed from a single piece of material.

The structural clip member 1 is especially adapted to be used in association with a frame construction as exemplified in FIG. 1. In the embodiment shown, the frame construction includes a plurality of base members 20 having truss supports 21 pivotally secured thereto at 22. The truss supports 21 are parallel to each other, being pivoted to engage similar truss supports (not shown) at their free ends. Thus, a plurality of such parallel truss supports form the framework of the building to be constructed. A plurality of the structural clip members 1 are secured to each truss support 21 by suitable means, preferably by welding, the clips 1 being similarly spaced one from the other one each of the individual truss supports 21. A roof joist 25 is shown mounted within a pair of corresponding clips 1 on adjacent truss supports 21. Similar roof joists and side girds are mounted in corresponding clips 1 on adjacent truss supports 21, completing the framework of the building structure.

The positioning of joist 25 in a clip 1 is shown more clearly in FIG. 4. Since the leg 4 is shorter than the leg 3, it will be noted that each joist 25 may be positioned against the top of legs 3 of corresponding clips 1 and dropped down between legs 3 and 4. The ridges 5, 6 and 7 automatically space and position each joist 25. Fastening means, such as nails, may be inserted through the openings 8 and 9 to secure the joists 25 within the members 1. It will be noted that the ridges 5, 6 and 7 prevent the ends of adjacent joists from abutting each other. Consequently, in the event the joists expand in time due to climate conditions and the like, each joist is permitted slight movement during expansion, this movement preventing warping or buckling of the joist. Due to the generally inverted V-shape of the ridges, the corners of the joists will deform slightly, permitting movement, before warping or buckling occurs. Further, by preventing warping or buckling of the joists, the breaking of roof bonds is also eliminated, thereby reducing the possibility of roof leaks. Thus, serious problems with respect to buildings of this general nature have been eliminated.

In addition, the ridges 5, 6 and 7 give exceptional rigidity to each of the structural members. The legs 3 and 4 will not tend to bend at the point of their connection to the bight portion 2 of each structural clip member 1. This also has been a serious problem in the past, since the workman applying roofing material to the joists 25 walks on them, the legs 3 commonly bending under such a weight. With the structure of the clips 1 as described, such bend-

ing cannot occur. With the structural clip members 1, one is always assured that the trusses 25 are in perfect alignment for proper support of roofing and side walls.

It will not be seen that these advantages have been gained through the provision of a structural clip member which has retained simplicity of design and fabrication. It may be possible to practice this invention through the utilization of certain other embodiments without departing from the spirit and scope thereof. Such other embodiments are to be included as a part of this invention unless the following claims specifically state otherwise.

I claim:

1. A means for enclosing portions of buildings, including: a plurality of parallel first supports; a plurality of generally U-shaped members of one-piece construction similarly spaced and secured to each of said first supports; each of said members including a bight portion and a pair of upstanding legs extending from the sides thereof, the junctures of said bight portion and sides each including an inwardly extending generally V-shaped ridge aligned in a vertical plane, each of said V-shaped ridges having legs spread at an angle of at least 90 degrees; and a plurality of wooden second supports mounted to lie perpendicularly to said first supports, the ends of each of said second supports lying between the legs of members mounted on adjacent first supports, said ends of said second supports abutting said ridges of said members, whereby expansion of said second supports deforms the abutting end edges of said second supports slightly as said second supports expand toward abutment one against the other.

2. A means for enclosing portions of buildings, including: a plurality of parallel first supports; a plurality of generally U-shaped members of one-piece construction similarly spaced and secured to each of said first supports; each of said members including a bight portion and a pair of upstanding legs extending from the sides thereof, said bight portion including an upstanding ridge formed to extend between said sides and at least one of said legs including an inwardly extending ridge joined to said upstanding ridge of said bight portion and lying in the vertical plane of said upstanding ridge; said ridges being generally V-shaped, each of said V-shaped ridges having legs spread at an angle of at least 90 degrees; and a plurality of wooden second supports mounted to lie perpendicularly to said first supports, the ends of each of said second supports lying between the legs of members mounted on adjacent first supports, said ends of said second supports abutting said ridges of said members, whereby expansion of said second supports deforms the abutting end edges of said second supports slightly as said second supports expand toward abutment one against the other.

3. A means for enclosing portions of buildings, including: a plurality of parallel first supports; a plurality of generally U-shaped members of one-piece construction similarly spaced and secured to each of said first supports; each of said members including a bight portion and a pair of upstanding legs extending from the sides thereof, said bight portion including an upstanding, generally inverted V-shaped ridge formed to extend between said sides and each of said legs including an inwardly extending ridge similarly shaped and joined to the ends of said upstanding ridge of said bight portion and lying in the vertical plane of said upstanding ridge; each of said V-shaped ridges having legs spread at an angle of at least 90 degrees; and a plurality of wooden second supports mounted to lie perpendicularly to said first supports, ends of each of said second supports lying between the legs of members mounted on adjacent first supports, said ends of said second supports abutting said ridges of said members, whereby expansion of said second supports deforms the abutting end edges of said second supports slightly as said second supports expand toward abutment one against the other.

4. A means for enclosing portions of buildings, comprising: a plurality of parallel steel first supports; a plurality of generally U-shaped steel members of one-piece construction similarly spaced and welded to each of said first supports; each of said members including a bight portion and a pair of upstanding legs extending from the sides thereof, said bight portion including an upstanding, generally inverted V-shaped ridge formed to extend between said sides and each of said legs including an inwardly extending ridge similarly shaped and joined to the ends of said upstanding ridge of said bight portion and lying in the vertical plane of said upstanding ridge; said V-shaped ridges having legs spread at an angle of at least 90 degrees; a plurality of wooden second supports mounted to lie perpendicularly to said first supports, ends of each of said second supports lying between the legs of members mounted on adjacent first supports, said ends of said second supports abutting said ridges of said members, whereby expansion of said second supports deforms the abutting end edges of said second supports slightly as said second supports expand toward abutment one against the other; and closure material secured to said second supports.

5. Structure as defined in claim 4, each of said members having one of said legs longer than the other.

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