Aug. 1, 1939. G. G. GREULICH 2,167,835

STRUCTURAL JOIST OR NAILER STUD

Filed Dec. 29, 1937

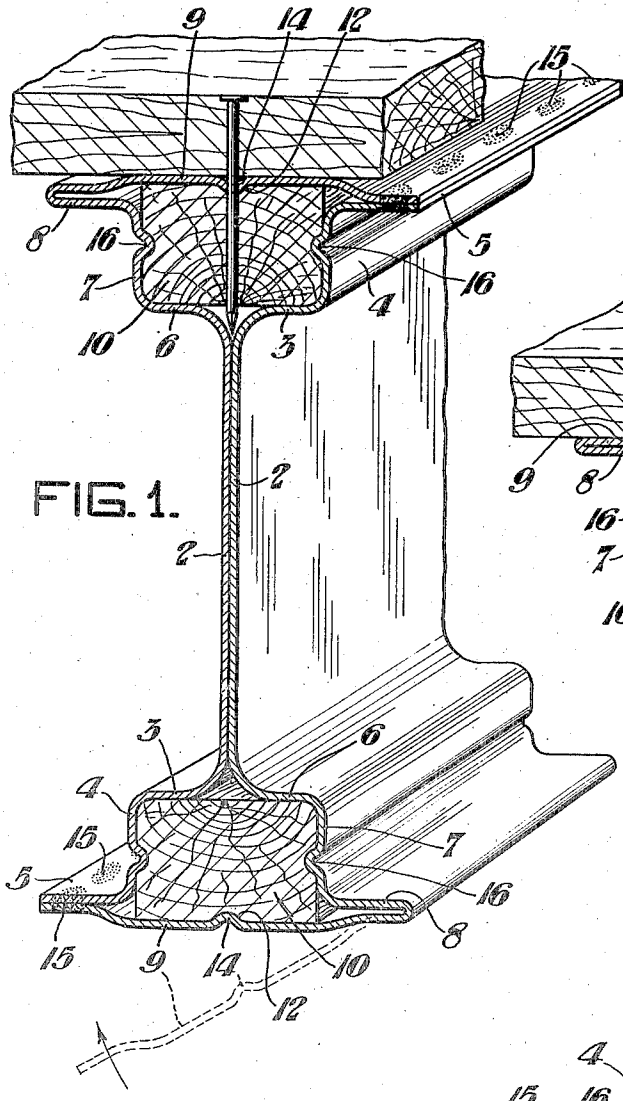
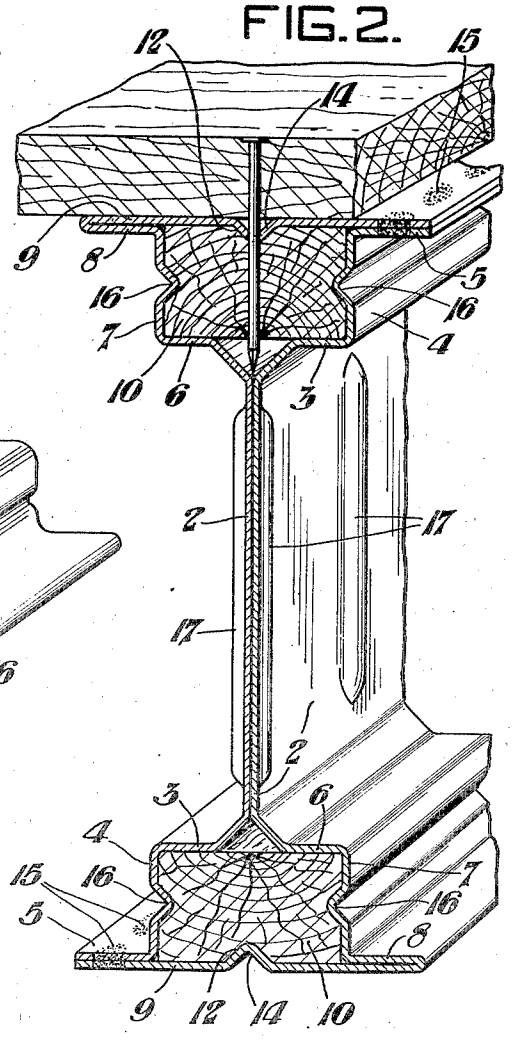


FIG. 1.

FIG. 2.



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Patented Aug. 1, 1939

2,167,835

UNITED STATES PATENT OFFICE

2,167,835

STRUCTURAL JOIST OR NAILER STUD

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Application December 29, 1937, Serial No. 182,352

2 Claims. (Cl. 189—40)

This invention relates to a structural member for building use and particularly to light weight nailer joists or studs.

One object of this invention is to increase the efficiency of beams so that relatively high load carrying capacity is possible in a light weight structural member.

Another object of the present invention is to provide a structural member having a nailer strip entirely surrounded by metal and subjected to constant spring pressure to hold it firmly in position.

Other objects and advantages will become apparent as the description proceeds, in which:

Figure 1 is a perspective of one form of the present invention; and

Figure 2 is a perspective of another form of construction of the present invention.

In the drawing, the I-shaped structural member is formed by joining two complemental symmetrically shaped strips of steel. These two metal sides or halves of the structural member are symmetrically formed from relatively light gage material by passing said material through relatively small sized cold forming machines.

Forming the I-shaped structural member from two symmetrical halves does not require the use of excessively wide material, as would be the case if the same were formed from a single piece of sheet strip.

A strip of relatively light gage metal is passed through a cold forming machine to preform one half of the structural member. In passing the strip material through the forming machine, the web portion 2 is bent or flared outwardly, as shown at 3, and upwardly, as shown at 4, with said portion 4 being bent outwardly at right angles to provide a flange portion 5, while the opposite end is bent outwardly, as shown at 6, and downwardly, as shown at 7, with said portion 7 being bent outwardly at right angles to provide a flange portion 8, said flange portion being bent back upon itself in spaced relation so as to form an outer flange portion 9, and said flange portion 9 extending across the plane of the web and coinciding with the flange portion 5 of the complemental member, thereby providing at each end of the structural member an enlarged head portion within which is positioned a nailer strip 10.

This nailer strip may be of wood or other suitable composition and is shaped to fit within the enlarged head portion formed by the metallic members by rounding the inner corners, as shown in Figure 1, or providing a square-cornered nailer strip, as shown in Figure 2. In either case, a groove 12 is formed in the outer surface of said nailer strip to accommodate the rib 14 in the outer flange portion 9.

In preforming the complemental members, the outer flange 9 extends at an angle, as shown in dotted lines in Figure 1, to give sufficient clearance to permit free insertion of the nailer strip. As pressure is applied to the outer flange portion 9 to contact the same with the flange portion 5 for welding along the edges of said flanges, a continuous spring pressure is exerted upon the nailer strip 10, thereby holding said nailer strip firmly positioned within the enlarged head portion formed at each end of the web by said complemental members when assembled. The enlarged head portion within which the nailer strip is positioned completely encloses said nailer strip and protects the same against fire.

In forming the I-shaped structural member, the flanges extend outwardly beyond the enlarged head portion within which the nailer strip is positioned. Under such a construction, the metallic flanges have a spring action and exert a constant pressure on the nailer strip and hold it tightly within the enlarged head portion.

Wooden nailer strips sometimes become loose and squeaky, due to shrinkage in drying out or possibly to swelling and later shrinking, and, to overcome this, the nailer strip is made of a height greater than the outer surface of the lower flange and, such being the case, it necessitates forcing the outer flange 9 down against the nailer strip under pressure and pinching the edges of the flanges together prior to welding. By providing the structural member with the flanges extending beyond the enlarged head, welding of the flanges is facilitated and it is possible to use a seam welder to make a series of closely spaced spot welds, as indicated at 15.

In the showing of Figure 2, the complemental members are substantially the same as in Figure 1 except that the flanges 8 and 9 are not spaced and the web is provided with vertical corrugations 17 to provide stiffness thereto. If desired, the web can be provided with suitable perforations of required size and spacing.

Under the present method of forming the I-shaped structural member, the relatively light gage sheets are passed through cold forming machines to preform the web and flange portions and produce an enlarged head portion at each end of said web, the nailer strips are positioned within the enlarged head portion and pressure is applied to the outer flanges of the complemental

members to bring them down to abut the flange of the other complemental member, after which the abutting flanges are welded together and, in so doing, continuous pressure is exerted upon the nailer strips to hold them in position. The metal being of a relatively light gage permits nails to be driven therethrough into the nailer strip. The formation of the web is such that there is a substantially V-shaped channelway provided at each end thereof to receive the nail after it has passed through the nailer strip. After the nailer strip has been positioned within the enlarged head, grooves 16 are simultaneously formed in the sides of the complementary members and said nailer strip by pressure pinch-rolls which hold and guide the structural member directly before it enters the welding electrodes for welding the edges of the flanges.

While I have shown and described specific embodiments of the present invention, it will be understood that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention, as defined by the following claims.

I claim:

1. A structural member comprising a solid web and an enlarged head portion at one end of said web, said enlarged head portion comprising a channel and a nailing strip positioned within said channel and extending above the channel sides, said nailing strip covered by a sheet metal member connected to the sides of said channel.

2. In a structural member including a solid web and enlarged head portions at each end of said web, said enlarged head portions comprising channels, a nailer strip positioned within each channel and extending above the channel sides and a cover member secured to said channels for enclosing said nailer strips within said enlarged head portions, said cover member adapted to exert a constant spring pressure upon said nailer strip when welded to said channel to maintain said nailer strip firmly in position.

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