Jan. 18, 1966 A. J. HILLESHEIM ETAL 3,229,333

BUILDING FRAME BRACKET

Filed Oct. 15, 1962

FIG. 1

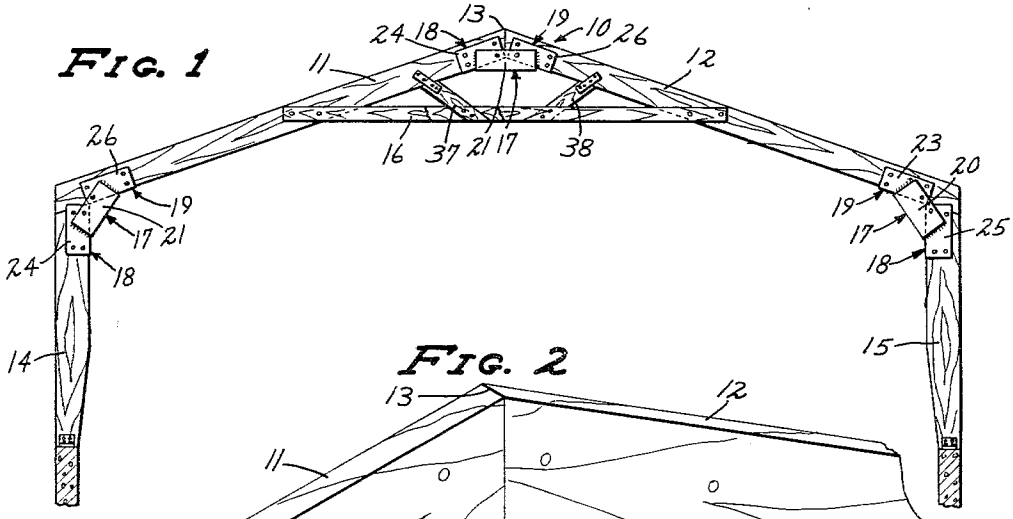


FIG. 2

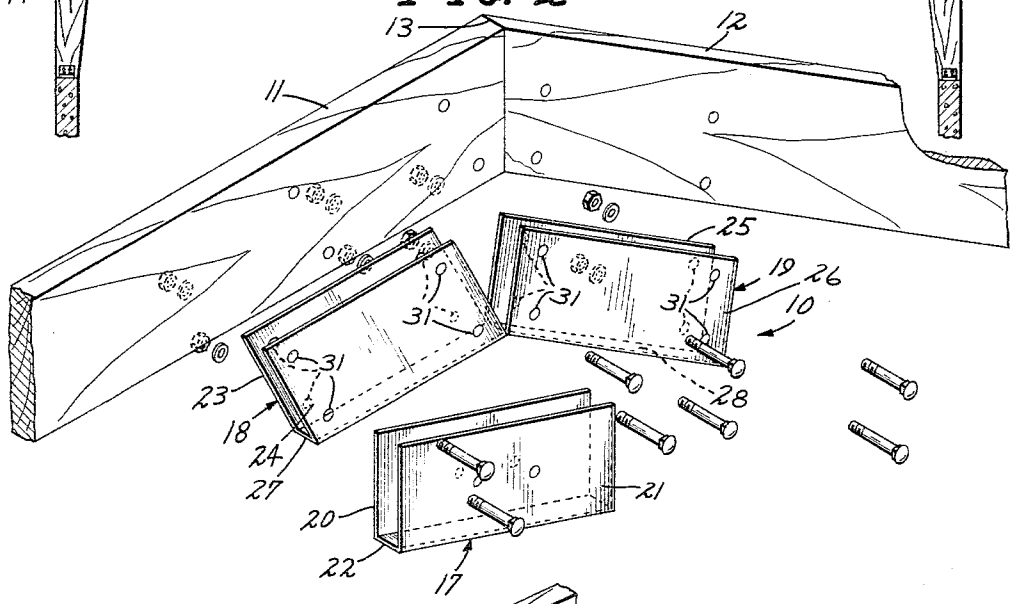
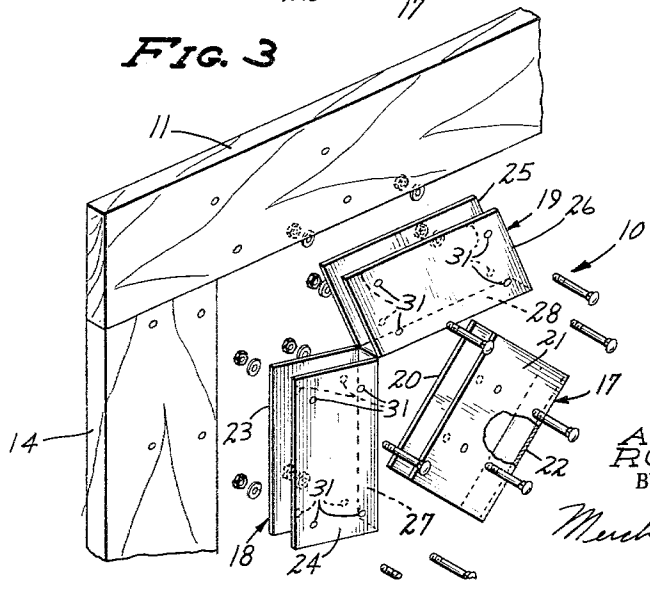


FIG. 3



INVENTORS.
ALBERT J. HILLESHEIM
ROY P. SOGAARD
BY
Merchant, Merchant & Gould
ATTORNEYS

United States Patent Office 3,229,333 Patented Jan. 18, 1966

3,229,333

BUILDING FRAME BRACKET

Albert J. Hillesheim and Roy P. Sogaard, Clements, Minn.

Filed Oct. 15, 1962, Ser. No. 230,558
1 Claim. (Cl. 20—92)

This invention relates to new and very useful building frame brackets.

More particularly, this invention relates to a building frame bracket adapted to hold a pair of supporting members of a building frame together at the corner where such members meet. The resulting assembly of bracket and supporting members has the capacity to resist very great stress or strain deformation forces. The bracket is particularly useful in wood frame construction.

It is a principal object of this invention to provide a simple building frame bracket construction adapted for holding together a pair of supporting members in a building frame against very great deforming stresses and strains.

It is another object of this invention to provide a bracket construction adapted for holding a pair of rafters together where the rafters meet to form the apex of a roof frame without regard to the pitch of the roof.

It is another object of this invention to provide a bracket which employs members which nest one within the other against the sides and edge of a pair of supporting members in a building frame adjacent the point where said supporting members meet.

It is another object of this invention to provide a building frame bracket formed from a pair of U-shaped members, the sides of one of which are vertically slit at a midpoint to permit bending along bottom wall to form an oblique angle, the member so slit and bent being receivable within the unslit straight member and secured thereto by fastening means.

It is a further object of this invention to provide a bracket having three elements—a pair of secondary bracket elements and a single primary bracket, the primary bracket being cross-sectionally U-shaped and having sides adapted to nest against the sides of the secondary bracket elements.

It is a still further object of this invention to provide a bracket which can be formed from two single lengths of sheet stock.

Other and further objects of this invention will become apparent to those skilled in the art from a reading of the attached specification taken together with the drawings in which:

FIG. 1 is a view in elevation of a building framework utilizing an embodiment of a building frame bracket of the invention.

FIG. 2 is an exploded perspective view of the apex of the roof frame of FIGURE 1 showing the manner in which the bracket embodiment of FIGURE 1 is employed to hold the rafters together at the roof apex.

FIG. 3 is an exploded view in perspective similar to that shown in FIGURE 2 but utilizing the bracket of FIGURE 1 to secure a joist to a stud in a building frame.

Turning to FIGURE 1 there is seen a bracket of the invention herein designated in its entirety by a numeral **10**. This bracket **10** is used to hold a pair of rafters **11** and **12** together where their ends meet to form the apex **13** of a roof frame. The bracket **10** is also used to secure the rafter **11** to stud **14** in one wall and to secure the rafter **12** to stud **15** in the opposite wall. As a part of the span, a horizontal brace **16** is positioned between the rafters at a distance below the apex in the manner shown in FIGURE 1. From a point between the position where brace **16** joins rafter **11** and the apex **13**, an angular brace **37** extends down from rafter **11** to brace **16**, and a corresponding angular brace **38** extends down from

rafter **12** to brace **16**, thereby producing a form of roof truss.

The bracket **10** can be considered to consist of three elements—a primary bracket element **17** and a pair of secondary bracket elements **18** and **19**.

The primary bracket element is an elongated, cross-sectionally U-shaped element having spaced parallel sides **20** and **21** and a connecting bottom wall **22**. Each secondary bracket element in the embodiment shown also consists of an elongated, U-shaped element, each of which has laterally spaced opposed side wall portions **23** and **24** (in the case of secondary bracket element **18**) and side wall portions **25** and **26** (in the case of secondary bracket element **19**). The connecting bottom wall of bracket element **18** is designated by the numeral **27** and that for secondary bracket element **19** by the numeral **28**. As those skilled in the art will appreciate, the functional portions of each respective secondary bracket element **18** and **19** are laterally spaced, opposed side wall portions **23**, **24**, **25** and **26**.

Each secondary bracket element in the embodiment shown is adapted to nestingly receive the adjacent ends of a pair of angularly displaced building frame members. Thus, in FIGURE 2, these frame members comprise the rafters **11** and **12**, while in FIGURE 3, they comprise stud **14** and rafter **11**. In the primary bracket element, both the sides and bottom walls are functionally used. This primary bracket element nestingly receives the adjacent end portions of each member of said pair of elongated, cross-sectionally U-shaped bracket elements **18** and **19**. The primary bracket element **17** is rigidly anchored to the adjacent end portions of the secondary bracket elements **18** and **19**.

The bracket **10** can be constructed of conventional materials; although, because of their strength and integrity, materials such as ferrous alloys are preferred.

The anchoring means used to secure the primary bracket element **17** to the secondary bracket element **18** can be any conventional means such as welding, riveting, bolting, or the like. However, in the embodiment shown, it is preferred to weld the primary bracket element to the secondary bracket elements.

The secondary bracket elements **18** and **19**, as mentioned, are angularly disposed with respect to each other and with respect to the longitudinal dimension of the primary bracket **17**. Thus, the secondary bracket elements **18** and **19** are adapted to be received between the adjacent angularly displaced end portions of a pair of cooperating building frame members. In FIGURE 2, secondary elements **18** and **19**, respectively, are received adjacent the end portions **29** and **30** of rafters **11** and **12**.

In the embodiment shown, the respective bottoms **27** and **28** of secondary bracket elements **18** and **19** are joined together at an end of each. This is an especially common construction for the secondary bracket elements **18** and **19** when these members are formed from a single length of sheet stock. In such event, the suitable sheet stock is formed into a cross-sectionally U-shaped element corresponding to the sides and bottom of secondary bracket elements **18** and **19**, and a cut or slice is made vertically through the mid-region of the so-called structure. The bottom is then bent to form bottom walls **27** and **28**, thereby providing the desired secondary bracket elements **18** and **19**.

The secondary bracket elements **18** and **19** are preferably bolted to supporting members in a building frame by means of bolts which pass through the building frame supporting member from one side of a secondary bracket element **18** or **19** to the other. Thus, for example, in assembling bracket **10** of the invention, the secondary bracket elements **18** and **19** are slid over the respective sides adjacent to point of contact of each of a pair of supporting

members in building frame which meet at an oblique angle. Then, holes are drilled through the supporting member. If the bolt holes **31** are prefabricated in the secondary bracket elements, then these holes serve as jigs for locating the bolt holes. Otherwise, the formation of bolt holes in the building supporting members is accomplished by simply drilling through the side walls **23** and **24** or **25** and **26**, respectively, of secondary bracket elements **18** and **19** as suggested in FIGURES 2 and 3. Usually, four bolts **32** located near opposite corners of the respective sides of the secondary bracket elements are employed. Optionally, additional bolt holes can be provided extending not only through the secondary bracket elements but also through the primary bracket element, thereby aiding in producing a rigid relationship between bracket **10** and building supporting members.

For some installations, it is sufficient if nails are driven through the sides of the primary and/or secondary bracket elements into the supporting members lying therebetween as in certain types of wood construction.

In summary, this invention relates to a bracket comprising an elongated, cross-sectionally U-shaped, primary bracket element having spaced parallel sides and a connecting bottom wall; a pair of elongated secondary bracket elements, each including a laterally spaced pair of opposed side wall portions rigidly anchored to adjacent walls of said primary bracket element; and said pair of secondary bracket elements being angularly disposed with respect to each other and the longitudinal dimension of said primary bracket element whereby to receive therebetween the adjacent, angularly displaced, end portions of a pair of cooperating building frame members and to be anchored thereto.

Usually, the secondary bracket elements are formed of cross-sectionally U-shaped material in which the side wall portions are connected together by a bottom wall. Commonly, the bottom walls of each such secondary bracket element are joined together at an end of each. Conveniently, the secondary bracket elements, and even the primary bracket element, are formed from single lengths of sheet stock.

Our invention has been thoroughly tested and found to be completely satisfactory for the accomplishment of the above objects, and while we have shown and described a preferred embodiment, we wish it to be specifically understood that the same is capable of modification without departure from the spirit and scope of the appended claim.

We claim:

A bracket securing and anchoring adjacent ends of a pair of angularly disposed frame members which lie in a common plane and define an apex comprising:

(a) an elongated cross-sectionally U-shaped primary bracket element, having laterally spaced opposed parallel side walls and a connecting bottom wall;

(b) a pair of elongated cross-sectionally U-shaped secondary bracket elements, each having laterally spaced opposed walls and a common connecting bottom wall;

(c) said primary bracket element having a longitudinal dimension less than the combined longitudinal dimensions of said secondary bracket elements;

(d) said secondary bracket elements being formed from a single length of flexible sheet metal stock, the side walls thereof being vertically cut midway of the ends thereof, and the bottom wall thereof being angularly disposed below said cut to define an apex corresponding to the apex of said frame members;

(e) means securing each of said secondary bracket elements to a different adjacent end portion of said frame members; and

(f) said primary bracket element nestingly receiving said angularly disposed pair of secondary bracket elements therein and rigidly anchored thereto in a manner whereby either end of the bottom wall of said primary bracket element butts against the bottom wall of one of said pairs of secondary bracket elements to form a truss therebetween.

References Cited by the Examiner

UNITED STATES PATENTS

1,392,070	9/1921	Maiers	20—92
1,957,362	5/1934	Smith	20—94
2,638,637	5/1953	Kump	20—92
2,638,643	5/1953	Olson	20—95
2,868,146	1/1959	Mackintosh	50—55
2,982,055	5/1961	Thompson	50—65
3,101,184	8/1963	Allen et al.	248—222

FOREIGN PATENTS

957,732	1949	France.

FRANK L. ABBOTT, *Primary Examiner.*

JACOB L. NACKENOFF, *Examiner.*