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2,638,643

BUILDING BRACKET

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Fig. 1.

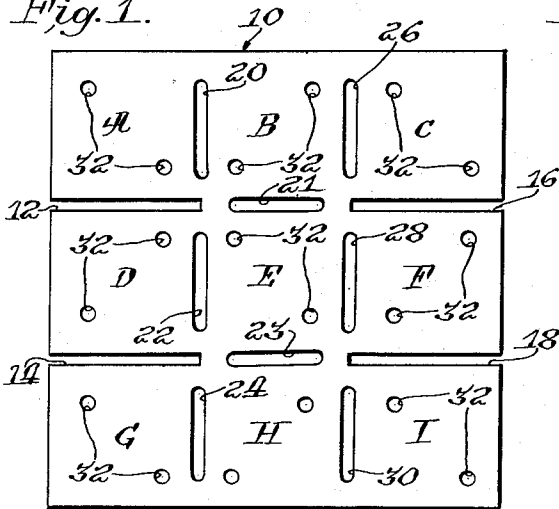


Fig. 2.

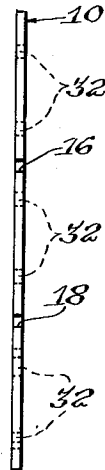


Fig. 4.

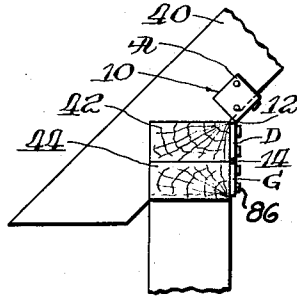


Fig. 5.

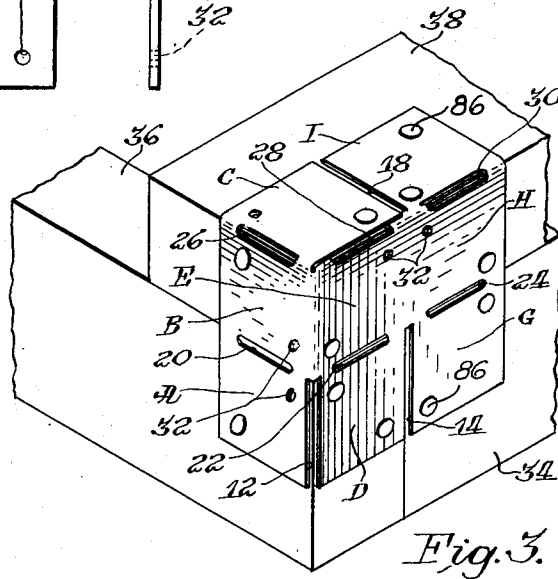
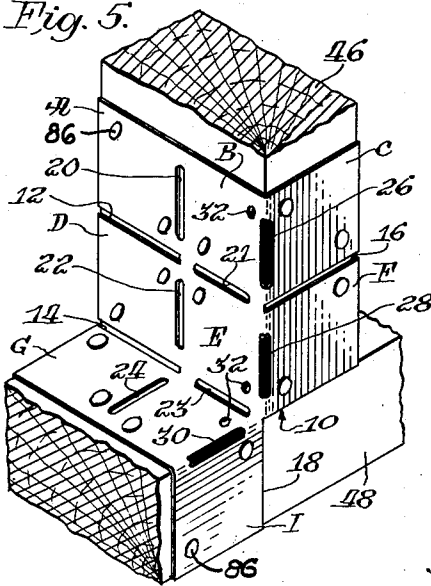


Fig. 3.

Fig. 8.



Fig. 9.

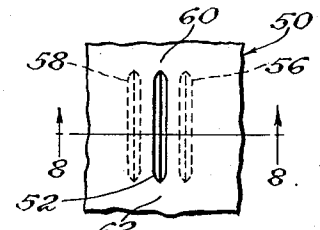
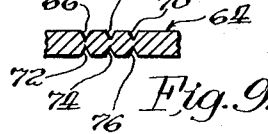


Fig. 6.

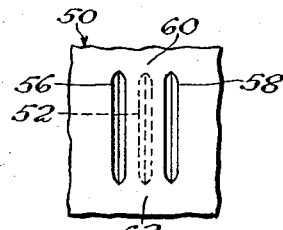
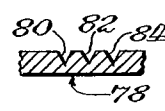


Fig. 7.

Fig. 10.



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UNITED STATES PATENT OFFICE

2,638,643

BUILDING BRACKET

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4 Claims. (Cl. 20—92)

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This invention relates to a new and improved building bracket.

At the present time in building trades there is a marked lack of standardization. Further, it is especially true of carpenters that there is a lack of ready made devices with which to carry on their trade. In other words, carpenters must improvise and manufacture their various work tools and such devices as reinforcing members as the building proceeds. When several planks or boards are joined together, or when they meet to be attached one to the other, merely nailing of the boards together would be insufficient to give the joint adequate strength and wooden reinforcing members such as braces have to be made and applied to and between the adjoining planks in order to supply the juncture with adequate strength.

It is an important object of this invention to provide a building bracket capable of universal adaptability in the reinforcing of the joining or attaching of various pieces of wooden boards.

Another important object of this invention is the provision of a simply formed bracket plate capable of being bent in various manners in order to adequately reinforce the juncture of two or more adjoining pieces of lumber.

Still another important object of this invention is to supply a building bracket formed of flat sheet materials and equipped with a plurality of strategically placed slots and notches to form reinforcement for a plurality of pieces of joined wooden boards.

A still further important object of this invention is to provide a substantially square bracket divided into a plurality of smaller squares of substantially equal size by a plurality of open end slots running in one direction of the bracket and a plurality of notches running in a direction at right angles to the open end slots, whereupon the several smaller squares can be bent about the slot and notches to form any desired shape for reinforcing a plurality of joined pieces of lumber.

Another and still further important object of this invention is the provision of a substantially rectangular building bracket capable of assuming various desired shapes for the reinforcement of lumber joints and having a plurality of nail holes therethrough, arranged in such a manner that when portions of the rectangular bracket are bent one upon another, the nail holes are in alignment.

Other and further important objects of this invention will become apparent from the dis-

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closures in the following specification and accompanying drawing.

In the drawing:

Figure 1 is a top plan view of the building bracket of this invention.

Figure 2 is an end view of the building bracket as shown in Figure 1.

Figure 3 is a perspective view of a plurality of pieces of joined lumber and having the building bracket of this invention attached thereto for reinforcing the lumber joint.

Figure 4 is an elevational view of a roof eave joint showing the bracket of this invention thereon.

Figure 5 is a perspective view of a wooden joint reinforced with the bracket of this invention.

Figure 6 is a top plan view of a portion of a modified building bracket.

Figure 7 is a bottom plan view of the bracket of Figure 6.

Figure 8 is a sectional view taken on the line 8—8 of Figure 6.

Figure 9 is a sectional view similar to the sectional view of Figure 8 and showing a modified form of bracket.

Figure 10 is a sectional view similar to Figures 8 and 9 and shows a further modified form of bracket.

As shown in the drawings:

The reference numeral 10 indicates generally a square or rectangular piece of flat sheet metal plate which is equipped with vertically spaced open sided or ended slots 12, 14, 16 and 18. It will be noted that the slots 12 and 16 are in horizontal alignment having their inner ends spaced one from the other. Similarly the open ended slots 14 and 18 are in alignment with a central space provided therebetween. The open end slots 12—16, and 14—18, divide the square bracket member 10 into three layers defined by the letters A, B, C and D, E, F and G, H, I.

The bracket is further equipped with elongated notches or slots 20, 22, 24, 26, 28, and 30, which are disposed at right angles or perpendicularly to the open end slots just described. The elongated notches 20, 22 and 24 are in vertical alignment one with the other as are the elongated notches 26, 28 and 30. Similarly to the open end slots, the elongated notches 20, 22, 24, 26, 28 and 30 divide the square bracket 10 into three layers in the opposite direction, comprising the strips A, D, G and B, E, H, and C, F, I. Elongated notches 21 and 23 similar to notches 20, 22, 24, 26, 28, and 30 but at right angles thereto are

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placed between the open end slots 12 and 16, and 14 and 18, respectively. Thus the slots 12, 21, and 16 are in straight line alignment as are the slots 14, 23, and 18.

The open end slots and the elongated notches or slits combine to define nine small relatively even squares within the bracket 10. These smaller squares are denoted by the letters A, B, C, D, E, F, G, H, and I. When a carpenter or the like is joining several boards and it is his desire to reinforce the joint, he takes the bracket 10, places it upon the joint and bends the several small squares denoted by the letters to follow the contour of the joint and thus have metal reinforcing at the wooden joint. For example, the small square A is sided by the open end slot 12 and the elongated notch 20. The square A can thus be bent upwardly about the elongated notch 20. Similarly the squares D, G, C, F, and I can likewise be bent upwardly or downwardly about their adjacent respective elongated slots or notches 22, 24, 26, 28 and 30. Should it be desirable to bend the squares A, B, and C upwardly or downwardly, this may be accomplished by reason of the open end slots 12 and 16 and the intermediate elongated slot 21. Similarly the squares G, H, and I may be bent upwardly or downwardly about the hinge line defined by the open end slots 14 and 18 and the intermediate elongated slot 23. All of the elongated slots have substantial width for purposes hereinafter explained.

It will thus be seen that the building bracket of this invention has relatively universal bending ability to form and follow the shape of any wooden joint without the deleterious scoring which has ordinarily accompanied brackets of this type. The bending is accomplished by slots and notches so arranged that when the small squares defining the composition of the entire bracket are not bent, they have substantially the full strength of the material of which the bracket is made.

It will be noted that each of the small squares has been equipped with nail holes designated by the numeral 32. These nail holes are arranged in a relatively V-shape so that when one of the squares is bent upon or over another of the squares the nail holes will be in alignment so that nails may be driven through the bracket to the wooden joint it is being used to reinforce and protect. For example, if the square A were bent over upon the square B about the elongated notch 20, the nail holes 32 would coincide in both of the squares A and B, and thus the effective use of the bracket is not limited when the squares are bent upon one another.

Figure 3 shows the juncture of a plurality of pieces of lumber designated by the numerals 34, 36 and 38. There are numerous ways of applying the bracket 10 to the joint of wood as shown in Figure 3. However, as the bracket is used the square A is fastened to the board 36, and the square B is nailed to the piece of lumber 38 on the end thereof. The square C has been bent down about the elongated slot 26 and lies on up of the plank 38. The remainder of the squares, namely, F, I, E, H, D and G have been bent at right angles about the line defined by the open end slots 12 and 16, so that the squares E, H, D and G, lie flat against the pieces of lumber 36, 34 and 38. The square D is fastened to the end of the board 36 by means of nails, and the square G is fastened to the board 34 in a like manner. The squares E and H are fastened to the side of

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the board 38, and the squares F and I are bent down about their respective elongated notches 28 and 30, so that they lie upon the top of the board 38. The square F lies directly over the square C and as previously stated, inasmuch as the nail holes 32 are in alignment regardless of how the squares are bent, the bracket may be readily attached by means of nails passing through the nail holes to the boards upon which or against which the several squares constituting this bracket lie.

In the brackets of this invention it is desirable to have the length and width of the individual squares coinciding with the width or thickness of the lumber to which the bracket is to be applied. The bracket of this invention is designed to be used with some standard size of lumber such as but not limited to planks commonly known as 2 x 4's. The 2 designates the thickness of the board and although it is intended to mean inches it is as a rule only $1\frac{1}{2}$ " thick. However, various mills cut the lumber at slightly different thicknesses so in 2 x 4's it is possible to find planks having the 2 x 4 designation which actually vary from $1\frac{1}{2}$ " thick to $1\frac{3}{4}$ " thick. The function of the width of the elongated slots 20, 21, 22, 23, 24, 26, 28, and 30 is to compensate for variations in plank thicknesses. The width of the elongated slots between bracket sections permits bending about greater or lesser radii as the need arises.

Figures 4 and 5 show further adaptations of the bracket of this invention to particular joints such as found in building construction. Figure 4 shows the bracket reinforcing a roof eave joint where the one plank 40 meets the other horizontally disposed planks 42 and 44 at some angle less than a right angle. Figure 5 shows a plank joint including a vertical plank 46 and a horizontal plank 48. Ordinarily this type of joint is accomplished only by "toe nailing." "Toe nailing" is not conducive to strength and the application of the bracket of this invention to such a joint is very advantageous.

It should be understood that in lieu of slots and notches which are cut entirely through the material surface indentations, scoring, or the like may be used to permit bending of the material in the same manner as the slots. Figures 6, 7, and 8 of the drawings each shows a modified form of metal surface weakening to facilitate bending. In each case, however, as with the slots, certain portions of the metal are left untouched and thus at these portions the metal has its full strength.

Figure 6 shows the top surface of a portion of a bracket 50 such as the bracket 10. A V-shaped notch or surface indentation 52 is shown in the metal and corresponds to any one of the many slots or notches as shown in the bracket 10. Figure 7 shows the underface 54 of that portion of the bracket 50 as shown in Figure 6. The underface is provided with spaced V-shaped impressions or notches 56 and 58 which lie parallel to the V notch 52 on either side thereof as best shown in the sectional view of Figure 8. The V notches 56 and 58 are thus offset from the V notch 52 and the lateral spacing thereof corresponds to the width of the open slots or notches of the bracket 10 so that the squares may be bent at various positions depending on the particular variation of thickness of the lumber employed. The metal adjacent the ends of the notches designated by the numerals 60 and 62 is not weakened in any manner and thus if that

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square of the metal bracket is not bent it will be relatively strong in its unbent position.

Figure 9 shows a modified form of bracket surface indentation to facilitate bending thereof. The bracket is referred to as numeral 64 and has a series of V indentations 66, 68, and 70 on the top side of the metal and an aligned series of V indentations 72, 74, and 76 on the underside of the metal. Thus the bracket may be bent about any pair of aligned notches or indentations and variations in lumber thickness may be compensated for by bending at the pair of opposed notches most closely corresponding to plank thickness.

Figure 10 shows a further modified bracket plate 78 having merely three closely spaced indentations 80, 82, and 84 on one side or surface of the plate to accommodate bending along any one or more indentations as desired or necessary. Use of any one of the metal weakening means as shown in Figures 1, 6, 9, and 10 for the purpose of permitting bending will depend considerably upon the gauge or thickness of metal being used for the brackets. In any event it is the intention of this applicant to include any metal weakening means whether it be slots or indentations and for the purpose of convenience the term "notches" shall be used in a generic sense as covering any type of metal weakening means.

In each of the joint illustrations of the drawing the bracket of this invention has been shown to be attached by means of nails or the like 86.

Numerous details of construction of this joint may be varied throughout a wide range without departing from the principles disclosed herein, and I therefore do not propose limiting the patent granted hereon otherwise than as necessitated by the appended claims.

What is claimed is:

1. A building bracket comprising a substantially flat square metal plate, said plate having a first pair of spaced apart parallel elongated slots dividing said plate in one direction in equal thirds, said slots having their outer ends open

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to a first edge of said flat square metal plate and their inner ends terminating at a position on said plate one-third the width of the plate, said plate having a second pair of spaced apart parallel elongated slots in alignment with the first pair of elongated slots and having their outer ends open to a second edge of said flat square metal plate opposite the first edge of said plate and their inner ends terminating at a position on said plate one-third the width of the plate, said plate having metal weakening means in alignment with and intermediate the open end elongated slots and substantially covering the central one-third of said plate, and said plate having elongated metal weakening means disposed perpendicularly to said open end slots and said first mentioned intermediately disposed metal weakening means and located in such a manner that there are three pair of aligned metal weakening means dividing said plate in the other direction into equal thirds and one metal weakening means of each pair substantially covering one-third of the distance across the plate whereby the flat square plate is divided by slots and metal weakening means into nine equal size squares.

2. A device as set forth in claim 1 in which each of the nine squares is provided with two nail holes disposed on a diagonal line and the diagonal line of adjacent squares being oppositely disposed.

3. A device as set forth in claim 1 in which the metal weakening means are slots.

4. A device as set forth in claim 1 in which the metal weakening means are surface indentations.

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