May 26, 1942. J. E. MYER 2,283,943

PLATE TIMBER CONNECTOR AND JOINT

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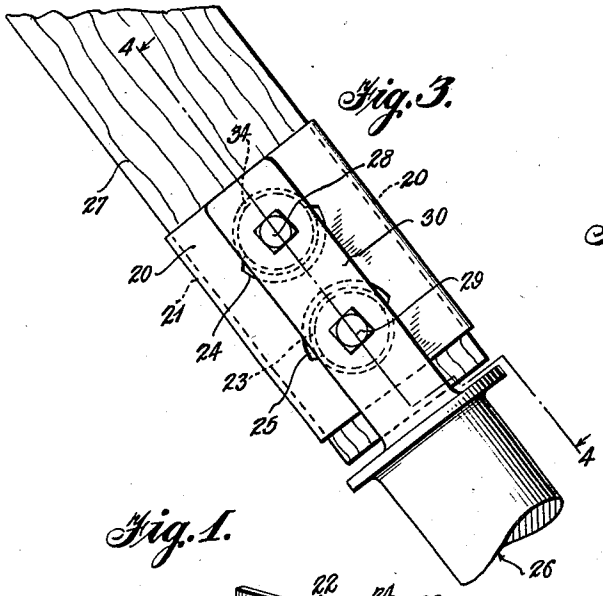


Fig. 3.

Fig. 1.

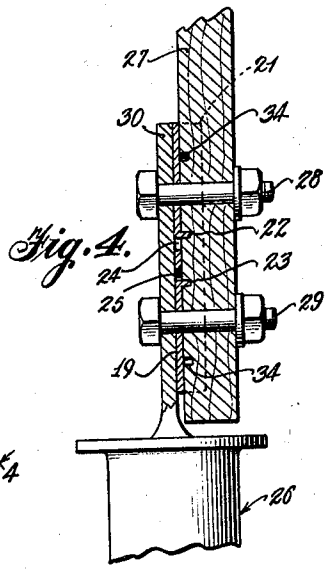
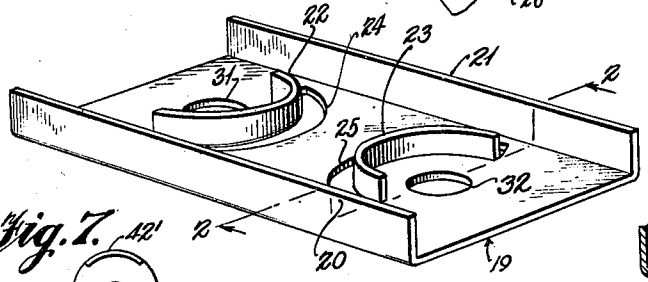


Fig. 4.



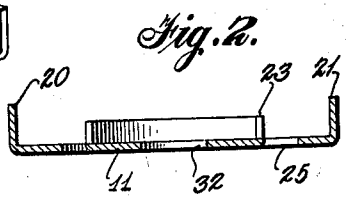


Fig. 2.

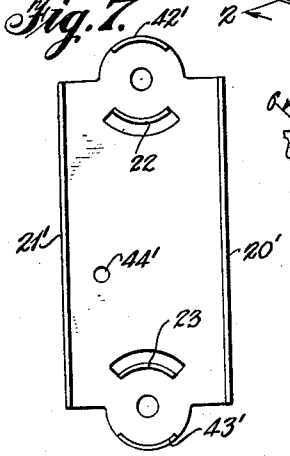


Fig. 7.

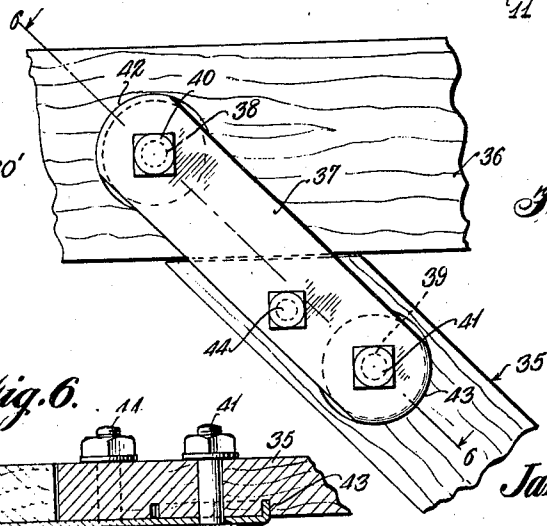


Fig. 5.

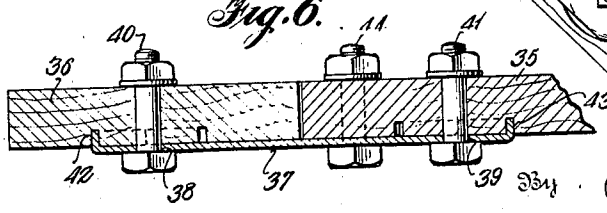


Fig. 6.

Inventor

James E. Myer

By Browne & Phelps

Attorneys

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Fig. 8.

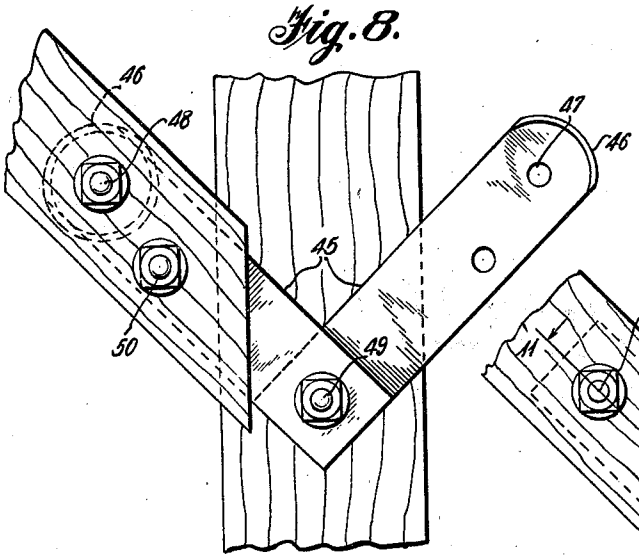


Fig. 10.

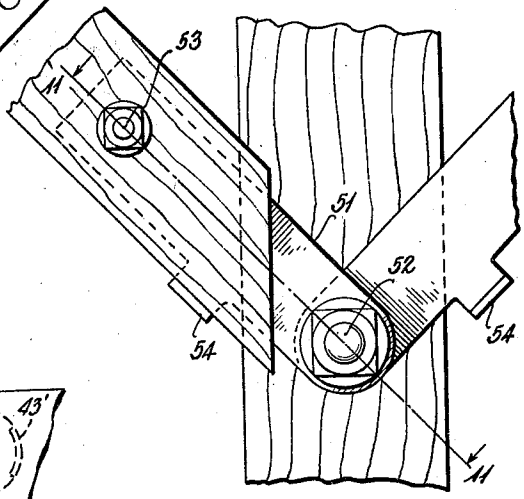


Fig. 9.

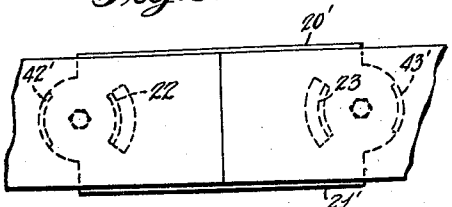


Fig. 12.

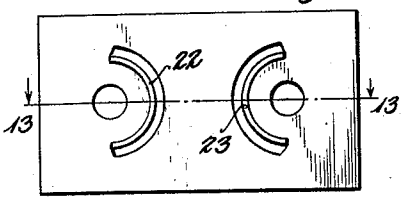


Fig. 11.

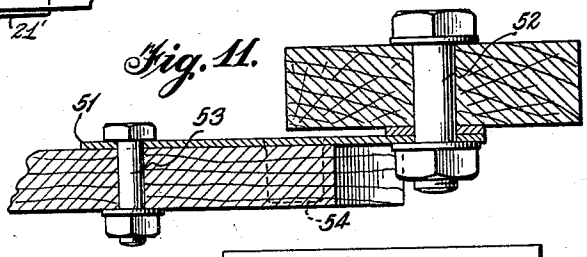


Fig. 13.

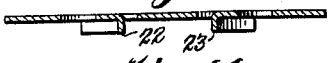


Fig. 16.

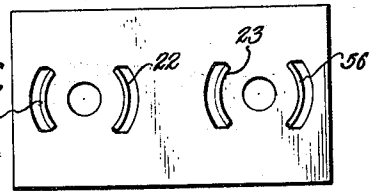


Fig. 14.

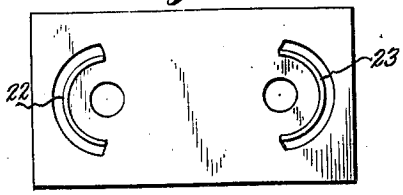
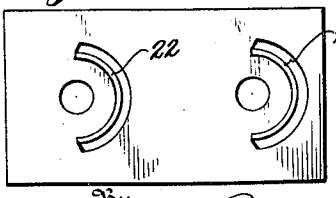


Fig. 15.



Inventor

James E. Myer

Browne & Phelps

Attorneys

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UNITED STATES PATENT OFFICE

2,283,943

PLATE TIMBER CONNECTOR AND JOINT

James E. Myer, Washington, D. C., assignor to Timber Engineering Company, Washington, D. C., a corporation of Delaware

Application October 2, 1939, Serial No. 297,617

4 Claims. (Cl. 20—92)

The invention relates to timber connectors and joints and has as an object the provision of a plate with or without marginal flanges, provided with bolt holes and carrying arcuate flanges upon its surface substantially concentric with said bolt holes. The flanges may be variously related to the holes and to the plate as prescribed below.

Illustrative embodiments of the invention are shown in the accompanying drawings wherein—

Figure 1 is a perspective view of one form of the device.

Figure 2 is a section on line 2—2 of Figure 1;

Figure 3 is a side elevation of a brace member secured to a land anchor with the form of plate shown in Figure 1 interposed;

Figure 4 is a transverse section on line 4—4 of Figure 3;

Figure 5 is a side elevation of a different form of the invention shown as applied to the connection between a timber and a brace;

Figure 6 is a section on line 6—6 of Figure 5;

Figure 7 is a plan view of a form of the invention embodying different forms of various features of the invention;

Figure 8 is a detail elevation of a still further form of the invention as applied to the brace-pole connection of a telegraph cross arm brace;

Figure 9 is a plan view of a joint between meeting timbers utilizing the plate of Figure 7;

Figure 10 is a view similar to Figure 8 of a still further form of the invention;

Figure 11 is a detail section on line 11—11 of Figure 10;

Figures 12, 14, 15 and 16 are plan views of still further forms of the invention respectively, and

Figure 13 is a section on line 13—13 of Figure 12.

As shown in Figures 1 and 2, the connector comprises a plate 19 having marginal flanges 20—21 projecting in the same direction from one surfaced thereof and arcuate flanges 22—23 projecting from the same face as flanges 20—21. The arcuate flanges are shown as struck up out of the metal of the plate with resultant openings 24—25 which have no function per se. It is obvious that the flanges 22—23 could be welded on to the surface of the plate and could be complete circles as desired or could take the form of "split ring" connectors such as shown in Patent No. 2,150,141 granted to me on March 7, 1939.

In Figures 3 and 4 the form of Figures 1 and 2 are shown used at the connection of a land anchor 26 to a timber 27, wherein bolts 28—29 are passed through the strap 30 forming a part of the anchor, through the holes 31—32 in the plate 20 and through the timber 27.

To receive flanges 22—23, the timber 27 is prepared by cutting a groove substantially concentric with each of the holes 31—32. Since these grooves are formed with a rotating tool it necessarily follows that the grooves or "daps" 34 formed in the timber will comprise complete circles. This being the case, the preparation of a timber would receive the form of the invention shown in Figure 3, or any of the forms of Figures 12 to 16, so long as the spacing of the holes is correct.

In the form of the invention shown in Figures 5 and 6 as applied to the connection between a timber and the end of the brace, the brace is indicated at 35 and the timber at 36.

This form of the invention comprises a plate member 37 having a pair of bolt holes 38—39 to receive the bolts 40—41 and no flanges as 21—22, Figure 1. The arcuate flanges 42—43 as shown in this form of the invention are marginal of the ends of the plate. To prevent pivoting about either of the bolts 40—41 by stresses generally longitudinal of member 35, shown as a brace, when 35 and 36 are fixed at their ends (not shown), a third bolt 44 is shown between and out of alinement with the bolts 40—41, an appropriate hole being provided in the plate 37 for the third bolt.

In Figure 7, there is shown a form of the invention embodying the flanges shown in the form of Figures 3, 4, 5, 6, and 12 to 16 inclusive numbered respectively 42', 43' and 55', 56', and also provided with the marginal flanges 20'—21', and the bolt hole 44' for a bolt corresponding to bolt 44 of Figure 5.

In Figure 8 is shown a modification of the form of the invention illustrated in Figures 5 and 6 applied to the connectoin between two braces and a timber which may be utilized at the lower end of the braces of a telegraph cross arm. As there shown, the device comprises a plate 45 having an arcuate marginal flange 46 at one end only, concentric with the bolt hole 47 for reception of the bolt 48. The remaining end of the plate 45 is shown plain and square and perforated for reception of the bolt 49 for passing through the timber or pole. In this form of the invention also there is provided a perforation for a bolt 50 to prevent pivoting of the plate about the bolt 48.

In Figures 10 and 11 there is shown a plain strap connection comprising a plate member 51 having two bolt holes, one for bolt 52 and a second for bolt 53. In this form of the invention the plate 50 is shown as provided with right angle extending lugs 54 to prevent pivoting of the plate about the bolts 53.

In Figures 12 and 13 arcuate flanges are shown as between the bolt holes. In Figure 14 the bolt holes are between the flanges. In Figure 15 one flange is between the bolt holes and the remaining is exterior of one of the bolt holes, while Figure 16 embodies the flanges of both forms of Figures 12 and 13, having flanges 55—56 in addition to the flanges 22—23.

The form of Figure 7 which embodies each of the various flanges as shown in the other forms of the invention and in which the flanges 42'—43' are marginal, may be used where two timbers are to be connected end to end, or it may be used for the service shown in Figure 1. By cutting away portions of the flanges 20'—21' of Figure 7, where the same would come against the surface of the cross arm 36 of Figure 5, the form of Figure 7 may be used for the service illustrated in Figures 5 and 6.

The connector of the invention is of value in a wide field, wherever two timbers are to abut either in alinement or at an angle, or where a joint of the nature of a strap connection is needed. The bosses surrounded by the daps into which the flanges 22—23 enter are faced with the metal of the plate 20, and also are connected with each other by the body of the plate. They therefore act together in perfect unison in resistance to movement relative to the timber.

The joint of Figure 5 may be between a timber and a brace, as for instance in a bill board structure such as shown in Patent No. 2,211,697, granted to Laurence P. Keith, August 13, 1940, or it may be any brace as that of the cross arm of electric service poles. Where the structure embodying the brace 35 is to be foldable, removal of bolt 44 will permit such folding, the flanges 42—43 revolving in their respective daps. By virtue of the fact that the brace 35 abuts the timber or cross arm 36 and their surfaces are flush, relative movement in one direction is resisted by the abutment and eccentricity of stresses is avoided.

Where two braces are provided between two timbers or between a pole and a cross arm, the surface of both braces and one timber are substantially flush providing maximum resistance to relative movement.

Minor changes may be made in the physical embodiments of the invention within the scope of the appended claims without departing from the spirit thereof.

I claim:

1. A timber connector comprising in combination: a plate member having a plurality of bolt holes; an arcuate flange projecting in one direction from a surface of said plate and substantially concentric with the axis of one of said bolt holes in spaced relation thereto, said plate member having a flange projecting from and coextensive with an edge thereof, said edge being one of those parallel with the axis of said bolt holes.

2. A timber connector comprising in combination: a plate member having at least two spaced bolt holes; respective arcuate flanges substantially concentric with each of two of said holes and projecting from a surface of said plate member in reverse relation relatively to said holes and to each other, and marginal flanges on said plate member parallel with a line connecting the axis of said holes, coextensive with the margins of the plate, and projecting in the same direction from said plate as do said arcuate flanges.

3. A joint between abutting timbers having flush surfaces, comprising in combination: a plate spanning the line of abutment, bolts passing through the plate and the respective timbers; arcuate connector flanges rising from the timber contacting surface of said plate substantially concentric with the respective bolts and penetrating the material of the respective timbers, said plate having marginal flanges projecting from the timber contacting surface of the plate and lapping with the edges of the timbers.

4. A joint between abutting timbers having flushed surfaces, comprising in combination: a plate spanning the line of abutment, bolts passing through the plate and the respective timbers; arcuate connector flanges rising from the timber contacting surface of said plate substantially concentric with the respective bolts and penetrating the material of the respective timbers, said plate having marginal flanges projecting from the timber contacting surface of the plate and lapping with the edges of the timbers, said arcuate marginal flanges positioned on rounded ends of said plate.

JAMES E. MYER.