Sept. 2, 1924. 1,506,987

R. P. MILLER

BUILDING CONSTRUCTION

Filed March 3, 1924

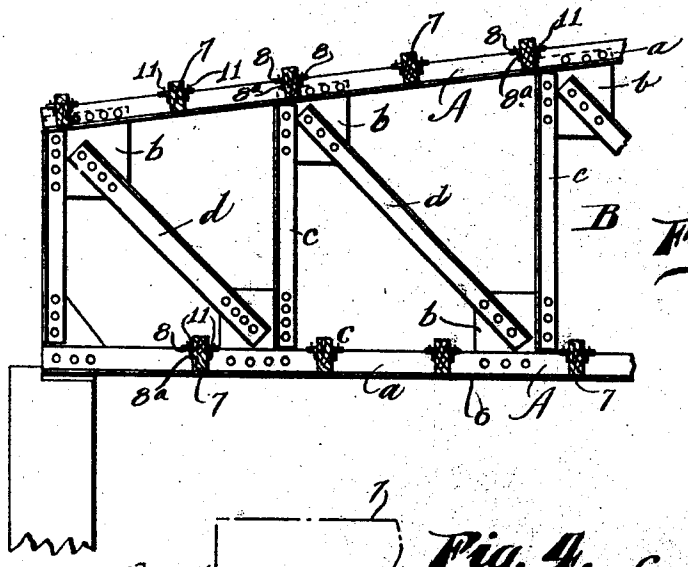


Fig. 1.

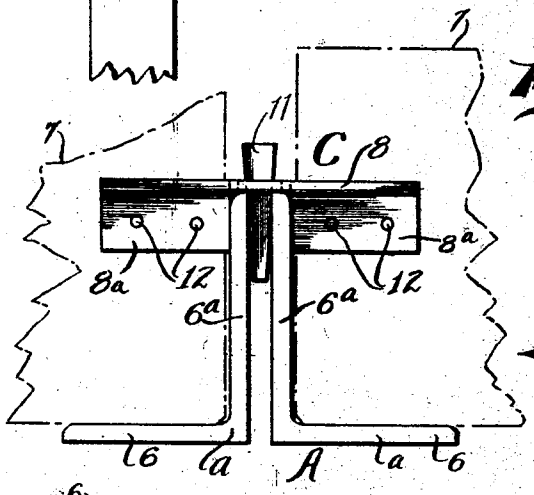


Fig. 4.

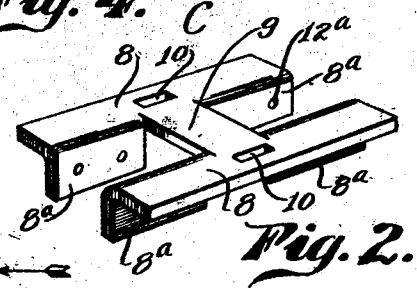


Fig. 2.

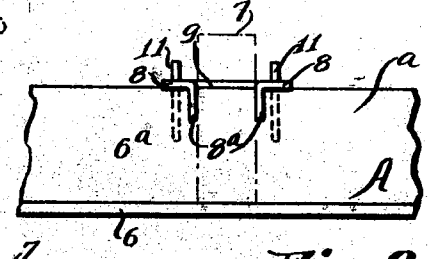


Fig. 3.

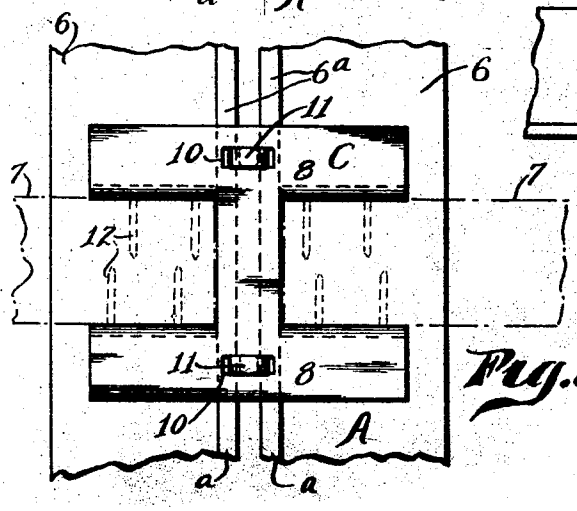


Fig. 5.

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# UNITED STATES PATENT OFFICE.

ROBERT P. MILLER, OF LOS ANGELES, CALIFORNIA.

## BUILDING CONSTRUCTION.

Application filed March 3, 1924. Serial No. 696,476.

*To all whom it may concern:*

Be it known that I, ROBERT P. MILLER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Building Construction, of which the following is a specification.

This invention relates to improvements in building construction, and more particularly to means or devices to be used in association with girders, trusses and the structural members thereof for holding in position beams, purlins, rafters, joists and other members of the building construction. The invention has for its object the provision of improved means and devices of the nature stated which will be relatively simple and inexpensive in construction and convenient in application and use, compact in form and highly efficient and reliable in service.

With the above and other objects in view the invention consists in the novel and useful provision, formation, construction, combination, association, mode of application and inter-relation of parts, members and features, all as hereinafter described, shown in the drawing, and finally pointed out in claims.

Particular objects of the invention consist in providing a means or device which when associated with other frame members constituting a building construction will readily resist stresses, permit a ready substitution of the various members included in the building construction, which will provide a building construction that will positively resist stresses due to disturbing causes such as earthquakes, explosions or the like, and which means or device is readily adaptable to steel structures and wooden structures, or a combination of the two. In practice, such device is quickly and readily applied and tends to hold the further structural features, rafters or beams or the like, in positions of service.

In the drawing:

Figure 1 is a fragmentary side elevation of structural elements associated together for service, the same illustrating application of the means constituting the invention in conjunction with further structural elements associated with those first named;

Figure 2 is a perspective view upon an enlarged scale of a means or device utilized in practicing the invention in one form, the same being shown in detached position;

Figure 3 is a fragmentary view looking in the direction of the arrow at the right-hand side of Figure 4, and upon a diminished scale, a beam or joist or purlin being shown as held in position in accordance with the invention and associated with another structural element, the beam being shown in dotted lines;

Figure 4 is an enlarged end view of angled structural members such as shown in Figure 1 and Figure 3, showing a means or device for holding beams or joists or purlins in association with such angled structural members, as in Figure 3, the beams being shown in dotted lines; and,

Fig. 5 is a top plan view of the showing in Figure 4.

Corresponding parts in all the figures are designated by the same reference characters.

Referring with particularity to the drawing, A designates structural members for building, bridge or other construction purposes, each of the same including two oppositely facing angled members *a*, such angled structural members being slightly spaced apart and disposed back to back, other structural members or plates *b* being riveted between such angled members *a*, and still further structural members *c*. Further structural members *d* are illustrated,—all of such structural members being united as desired, in the formation of a girder, truss or other built-up structural unit. The angled members *a* include each a lower substantially horizontal portion 6 adapted to support one end of a wooden floor or other beam 7 or purlin or joist, which beam it will be understood spans the space between two of the built-up units shown in Figure 1 and generally designated by the reference character B.

In accordance with the present invention, each of the means or devices C which is organized to practice the invention, is disposed in position to retain one end of a beam 7 or adjacent ends of beams 7 in position upon the flanges or ledges or portions 6 of angled members *a*. Each such means or device C comprises one or more members 8, two of such being shown in the drawing, and each adapted to extend laterally of the associated angled members *a* to abut against the ends of opposed beams 7, at correspond-

ing sides of such beams, and at opposite sides of the structural member A. When two such members 8 are employed, the beams 7 are engaged at both sides of their end portions, as illustrated in the drawing, each such means or device C thus engaging the end portions of two beams at both sides of such beams. Where two such members 8 are employed they are preferably connected by a connection member or web 9, and specifically each such means or device C may be formed or blanked out of sheet metal, to provide the members 8 and connecting web 9, the members 8 having depending opposed flanges $8^a$ at opposite sides of the web 9, and which are directly engaged with the beam end portions at the sides thereof.

Openings 10 are formed through the members 8, to receive securing means and consisting of wedges 11 which are driven between the opposed portions $6^a$ of the angled members *a*, securely but removably holding such means or devices C in position straddling the upper edges of the angled portions $6^a$, with the members 8 and web 9 resting upon the upper edges of such portions $6^a$. The depending flanges $8^a$ are disposed so as to embrace the portions $6^a$, preventing displacement of the means or device C in a direction transversely of such angled members *a*, such embracing relation likewise preventing the means or device C from tilting or canting or rocking or twisting, the wedges 11 preventing the means or device C from moving lengthwise of the angled members *a* or being displaced in a vertical direction. The wedges 11 force the portion $6^a$ against the flanges $8^a$, thus frictionally holding the means C and wedges 11 against displacement. The wooden or other beams 7 resting upon the portions 6 of the angled members *a*, and the means or device C applied to the end portions thereof, uniting with the outer faces of the portion $6^a$ of the angled members *a*, effectively and positively prevent displacement of movement of the beam laterally or endwise, in each case. Bolts or nails 12 may be driven through the flanges $8^a$ or suitable openings $12^a$ therein, and entered into the beams 7 or passed through suitable openings in such beams, thus more effectively tying the beams to the means or device C and very positively preventing any displacement of the beam end in a vertical direction.

Each means or device C is simple and inexpensive in construction and durable and positive in use and service, and readily applied or detached, and enables quick and effective assemblage of beams or other structural members such as 7 with still other structural members of the organization, effectively holding all such members in their true relative and proper positions of service and opposing the stresses of any disturbing factors due to the application of forces of vibration or other displacing tendencies.

It is obvious that the invention may be practiced in many forms and within a wide range of variation and modification and substitution and alteration, without departing from the true spirit of the invention.

Having thus disclosed my invention, I claim and desire to secure by Letters Patent:

1. A device adapted to be applied to a structural element, comprising a web, spaced members connected by a web and adapted to rest upon such structural element and to receive further structural elements between such members to prevent displacement thereof, and means for preventing displacement of such device; said first named structural element comprising spaced members adapted to receive a wedge constituting such means.

2. A device adapted to be applied over the top portions of spaced structural elements and to be engaged with further structural elements associated therewith, such first named structural elements being relatively spaced, and means being provided for introduction between such first named structural elements to prevent displacement of such device.

3. A device adapted to be applied over the top portions of spaced structural elements and to be engaged with further structural elements associated therewith, and means being provided for introduction between such first named structural elements to prevent displacement of such device; such device including spaced members each adapted to embrace the end portion of a further structural element.

4. The combination, with a structural element provided with a portion adapted to receive and support the end portion of a further structural element; of means above said supporting portion of said first named structural element for opposing displacement of said second named structural element; said means being disposed so as to be presented to said second named structural element in a limited zone between the top and bottom thereof and approximately at the top of said first named structural element; said means including a part for detachably holding the entire means in position of service.

5. The combination, with a structural element having spaced portions; of means adapted to be applied to said spaced portions to prevent displacement of a further structural element; and means for introduction between said spaced portions to cause frictional binding of said first named means with said spaced portions to prevent displacement of said first named means.

6. The combination, with a structural element having spaced portions; of means adapted to be applied to said spaced por-

tions to prevent displacement of a further structural element; and means for introduction between said spaced portions to cause frictional binding of said first named means with said spaced portions to prevent displacement of said first named means; said second named means consisting of a wedge.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT P. MILLER.

Witnesses:
EDNA TURNER,
JAMES SHUTT.