June 13, 1939. C. L. LAMBERT 2,162,559

JOIST STRUCTURE

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Fig. 1.

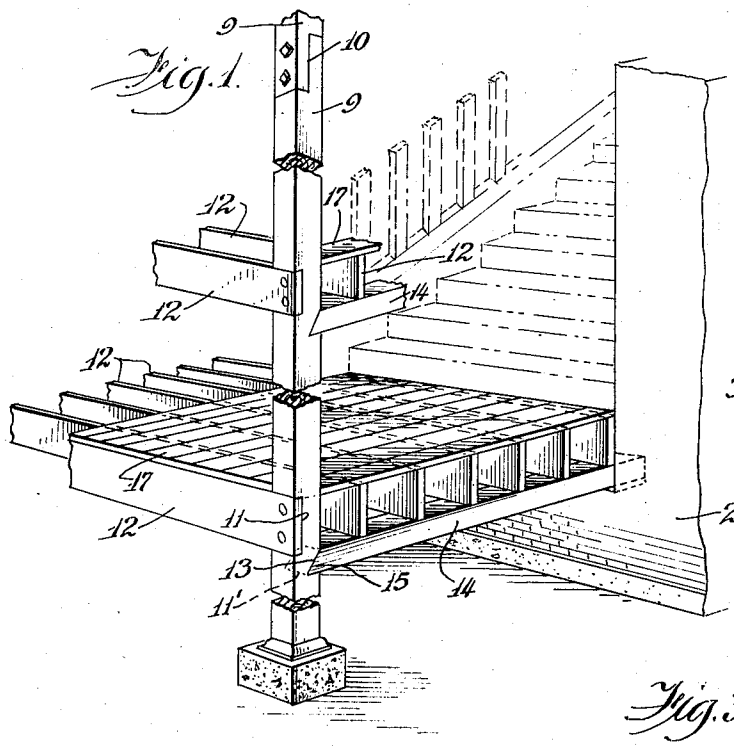


Fig. 5.

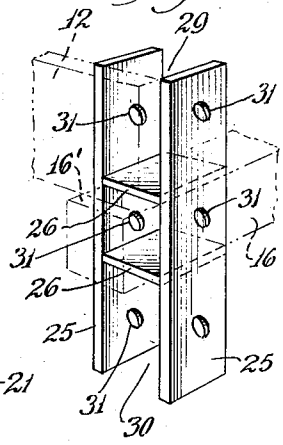


Fig. 2.

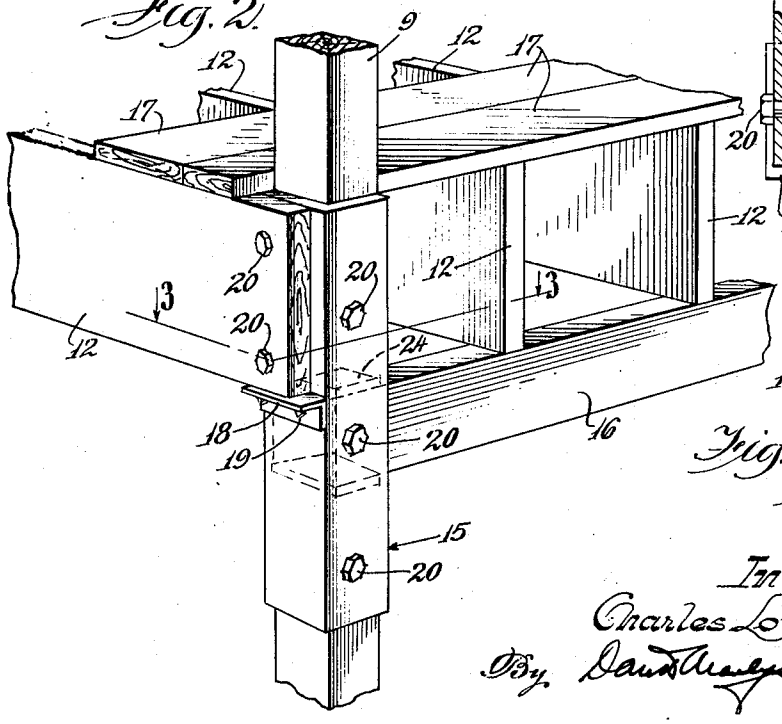


Fig. 3.

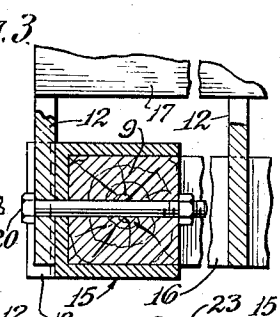
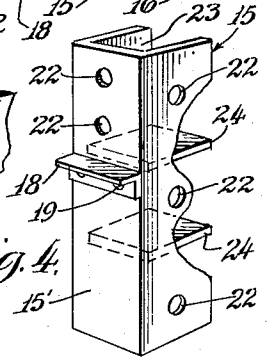


Fig. 4.



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Fig. 6.

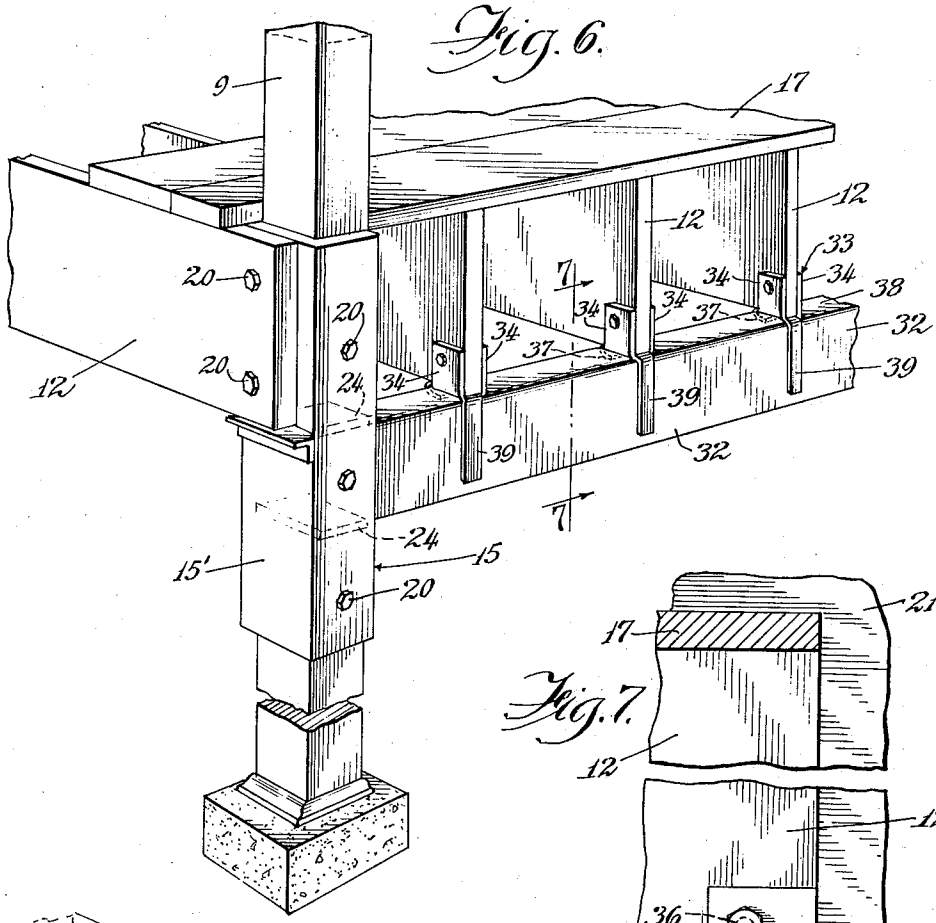
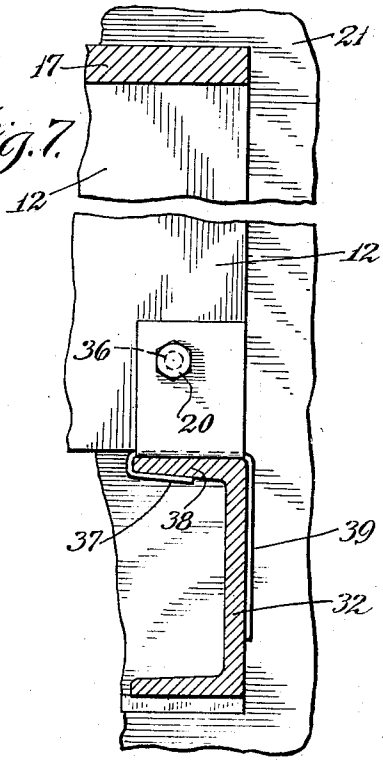


Fig. 7.



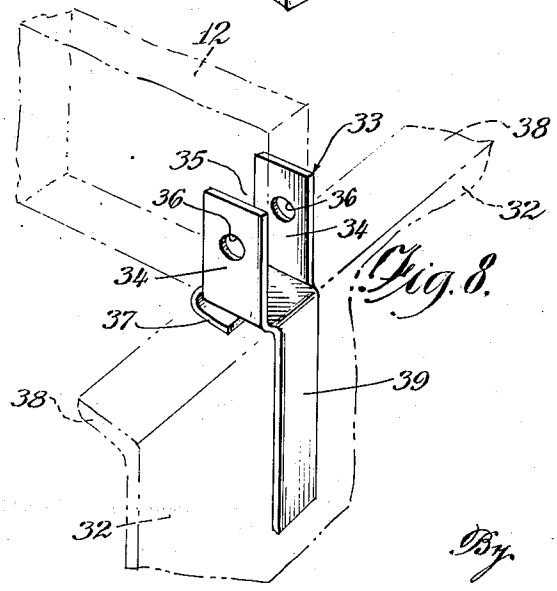


Fig. 8.

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Patented June 13, 1939 2,162,559

UNITED STATES PATENT OFFICE

2,162,559

JOIST STRUCTURE

Charles Louis Lambert, Chicago, Ill.

Application May 7, 1938, Serial No. 206,611

1 Claim. (Cl. 20—94)

This invention relates to joist structures especially the type used in building construction for supporting floors or porches.

One object of my invention is the provision of a simple joist structure which is rigid, strong, durable, and which provides advantages in strength over the common structure used at the present time.

Another object of my invention is the provision of a joist structure which simplifies matters when it is necessary to replace the worn joist which has been attacked by the elements and which may need repair or reconstruction.

Another object of my invention is the saving of labor thru using the type of structure I have provided, and thereby preserving the original cross-sectional strength of the joist member.

A still further object of my invention is the provision of a clamping support for flooring material used in connection with the joist structure I have provided.

Other objects and advantages may become apparent from the accompanying drawings and the ensuing description, in which like characters are used to designate like parts and in which;

Fig. 1 is an isometric view showing a joist structure as used at present to support a porch connected to a building or any other similar structure.

Fig. 2 shows an isometric view of my invention in conjunction with the supporting member and means of attachment.

Fig. 3 is a transversal cross-sectional view on the line 3—3 of Figure 2.

Fig. 4 is an isometric view of my invention isolated from any structure and other parts which do not comprise my invention.

Fig. 5 is an isometric view of a modified form of my invention.

Fig. 6 is an isometric view of a modified form of my invention as used in connection with joist and flooring material.

Fig. 7 is a longitudinal cross-sectional view on the line 7—7 of Figure 6.

Fig. 8 is an isometric view of my clamp invention used in connection with flooring material, showing the structural material in phantom.

Referring to Figure 1, I show the customary manner, in which joists are usually secured, and which has been the established practice, in order to aid in better distinguishing my invention from the type of joist structure that I have improved. It will be noticed that the joist members 9 are spliced and bolted together by a lap joint indicated at 10, in order to provide the proper height necessary dependent on the number of stories a structure is to be built.

It will be noticed that the joist member 9 at the base portion where the porch is to be constructed, is notched out as at 11 in order to receive a flooring member 12, which is bolted to the joist member 9. Slightly below this notched portion 11 is an angularly notched portion 13 to receive a cross supporting joist member indicated by the numeral 14 and bevelled to a suitable angle 15 to fit into the aforementioned notch 13.

The opposite end of this joist 14 is anchored or moored into the building designated by 21. The joist 14 supports a number of flooring cross beams designated by 12, over which the flooring proper designated by 17 is laid. It will be noticed particularly at the portion of the joist 9 where it is notched out at 11 and at 13 that it is subject to attack by the elements and considerable weakness is the result of this common method of construction, in addition to which the joist itself becomes subjected to more serious deterioration than it would ordinarily receive. The remaining weakened flank 11' does not only weaken the original cross-sectional breaking factor of safety of the joist member 9, but it also invites moisture and such other damaging elements to accumulate thereby eventually snapping or breaking the supporting joist 9.

So much for the common method of construction that is being employed at this time, and now I will attempt to point out the advantages to be derived by the use of my construction as exemplified in Figure 2 and more particularly in Figure 4.

By referring to Figure 4, I provide a channel member of suitable length designated at 15, having a U shaped portion 23 and bolt holes 22. It is provided at convenient points within the space 23 with suitable supporting ledges 24 which may be welded or otherwise secured to the inner channel of the member 15. At the outer portion or surface 15' is attached a piece of angle iron designated by the numeral 18 and secured by bolts or rivets 19 to the aforesaid member 15.

As will be noticed at Figure 2 the outer beam 12 is supported on this angle iron member 18, and bolted by bolts 20. The upper joist member 9 is supported on the upper ledge 24 and the lower joist 9 abuts its top end against the under portion of the lower ledge 24 whereas the cross member 16 is supported in between the two ledges designated at 24 thereby making a compact arrangement requiring no cutting, cham-

fering or weakening of the joist members to any extent whatsoever. By virtue of the U shaped cross-section of the member **15**, a flashing or protection is provided against rain, sleet, ice etc., which have a tendency to get in thru the end grain of joists thereby causing rotting and such other decomposition as is usually attributable, from the exposure of wood or similar material, to the elements.

In Figure 5 I have a modified form of my invention which is primarily made up of two rectangular metal pieces designated by **25** and connected by welding or some other suitable process with the ledges **26** spaced as indicated at **29** and **30** on the view. The holes **31** are provided for bolting the respective joist members **16** and **9**. It will be noticed that in this particular construction, the joist member **16** protrudes or projects beyond the front portion of my invention, and extends as indicated at **16'** in order to support the first cross beam **12**, thereby eliminating the use of the angle iron construction which is necessary in the embodiment shown in Figure 4.

Referring to Figure 6 I show once again the use of my invention the preferred form shown in Figure 4, except that instead of using a wooden joist member **16** I use a standard channel construction designated by **32**. Because I am using this channel member **32** it becomes imperative that I provide the additional structure **33** shown in Figure 8 for supporting the cross beam members designated by **12**. This structure comprises a general U shaped member designated **33** having a U shaped opening **35** with holes **36** for attaching and bolting therethru the member **12**. It is also provided with a bent extension as shown at **37** in order to fit over one of the sides of the channel **38**. The members **34** are provided to house snugly the beam **12** to which they are bolted. An additional extension is shown at **39** which lodges firmly against the bottom of the U portion of the channel to stabilize the clamp and provide a uniform mounting and rigid structure.

Altho I have illustrated preferred forms of the invention it will be apparent to those skilled in the art that this invention is not limited to such forms, and that I reserve the right to all modifications and alterations which may be made without departing from the spirit of the invention or from the scope of the subjoined claim.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

A porch structure comprising in combination, a U shaped tie-member having at least two ledges and adapted to receive and hold securely two joist members in collinear and spaced relationship, also adapted to receive a channel supporting beam intermediately between the ends of the said collinearly spaced joists, a ledge secured to said U shaped tie-member for supporting, endwise, a flooring beam, a number of beam supporting members, each such member comprising a U shaped beam holding portion adapted to hold securely a flooring beam, said U shaped beam supporting member adapted to fit slidably on the said channel supporting beam by virtue of a curved lip portion engaging one side of the said channel supporting beam, said U shaped beam supporting member provided with a steadying lug portion disposed oppositely to said curved lip portion, and bearing snugly against the bottom portion of the said channel supporting beam, and a number of flooring beams secured to said U shaped beam supporting members.

CHARLES LOUIS LAMBERT.