March 13, 1928. 1,662,768

W. WAIT

INTERLOCKING JOINT FOR METALLIC FRAMES

Filed March 31, 1927

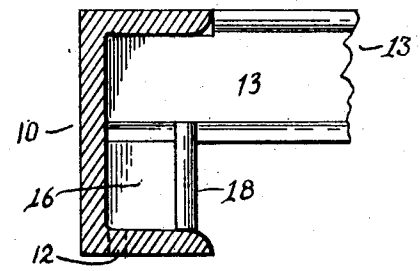


Fig. 1.

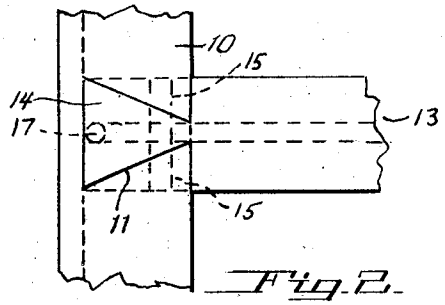


Fig. 2.

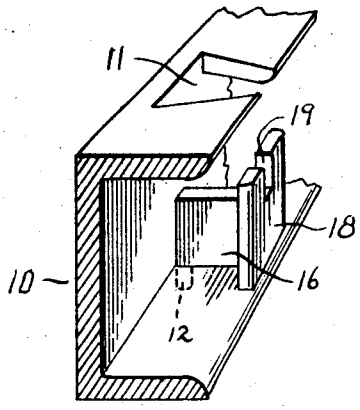


Fig. 3.

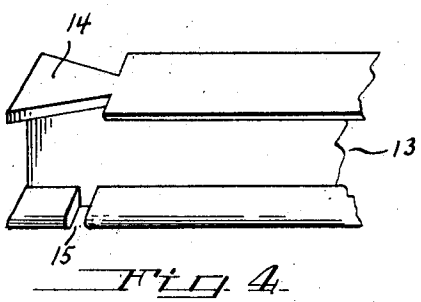


Fig. 4.

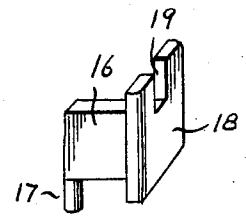


Fig. 5.

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UNITED STATES PATENT OFFICE.

WESLEY WAIT, OF NEWBURGH, NEW YORK.

INTERLOCKING JOINT FOR METALLIC FRAMES.

Application filed March 31, 1927. Serial No. 180,011.

This invention relates to improvements in interlocking joints for metallic frames used in the construction of buildings. More particularly, it relates to a joint whereby a heavy girder and a lighter beam are joined together without the use of bolts or rivets. The invention consists in the novel construction, combination and arrangement of parts hereinafter described, defined in the appended claim and illustrated by the accompanying drawings.

In the drawings, in which similar reference characters designate corresponding parts,

Figure 1 is a view showing the end of a girder in section and the end of a beam in side elevation, connected by the interlocking joint.

Fig. 2 is a plan view of the same.

Fig 3 is perspective view showing one end of the girder, with the chair in place.

Fig. 4 is a similar view, showing the end formation of the beam.

Fig. 5 is a perspective view of the detached chair.

Referring to the drawings in detail, 10 designates a horizontal girder of comparatively heavy channel iron, such as may form a component part of a frame of massive construction. As shown in the drawing, the girder comprises a web with upper and lower flanges on the same side of the web. In the upper flange of the girder is formed a mortise 11 with receding sides extending to the web. Extending through the lower flange of the girder, adjacent the web thereof, is the socket 12 directly below the median part of the mortise 11.

The beam 13 is flanged on both sides at its top and bottom and at the end its flanged upper part is shaped to form a flaring tenon 14 to fit the mortise 11 of the girder. In the opposite flanges at the lower part of the beam are the slots 15 extending to the web of the beam. These slots are located below the inner part of the tenon 14. In assembled relation, the end of the beam abuts the web of the girder and the tenon registers with the mortise, with the upper surfaces of the beam and girder flush with each other. As the vertical dimension of the beam is considerably less than the like dimension of the girder, means are provided for supporting the end of the beam on the lower flange of the girder.

The means for supporting the end of the beam on the lower flange of the girder comprises a chair formed of a body part 16 to fit the space between the girder flange and the under side of the beam. Projecting from the under side of the body 16 is a lug 17 to fit the socket 12 in the lower flange of the girder. Integral with the body part 16 is the face plate 18 normal to the body part and extending above the same. In the upper part of the face plate is a vertical slot 19 in the same plane as the body part 16 and with the inner end of the slot even with the top of the body part. This slot has a width to fit the web of the beam and the bifurcated upper part of the face plate fits the slots 15 of the beam.

With the several parts in assembled relation, the chair is seated on the lower flange of the girder and abutting the web of the latter. It is held against longitudinal displacement by the lug 17 entering the socket 12 in the girder flange. The end of the beam is seated on the chair with its web registering with the slot 19 and seated on the top of the body part 16. The bifurcated upper part of the face plate 18 extends through the slots 15 in the opposite lower flanges of the beam and projects upwardly on opposite sides of the web of the beam. The considerable width of the face plate 18 provides a lateral extension for the seat of the chair on the girder flange and thereby prevents sidewise tilting of the chair. The flared tenon 14 at the end of the beam engages the flared mortise 11 in the upper flange of the girder and holds the beam against longitudinal displacement. By connecting the parts in this manner the girder and beam of different vertical dimensions are firmly locked together with their upper surfaces flush with each other. In this interlock so formed the use of rivets or bolts is avoided, the parts can be easily assembled and the completed joint can be readily inspected to ascertain faulty work.

I claim as my invention:

The combination with a horizontal channeled girder having a mortise notched in its upper flange and also having a socket in its lower flange opposite to the mortise, of a horizontal beam entering at one end the channeled side of the girder to abut the web thereof, said beam having upper and lower flanges on both sides with the upper flanges flush with the upper flange of the girder, said upper flanges of the beam being oppo-

sitely notched to form a tenon engaging the mortise, the lower flanges of the beam being transversely slotted adjacent the end of the beam, and a chair interposed between the end of the beam and the lower flange of the girder comprising a body part having a lug engaging the socket in the lower flange of the girder and a face part extending above the body part, said face part being vertically bifurcated to extend through the transverse slots in the lower flanges of the beam and on opposite sides of the web of the beam.

In testimony whereof I affix my signature.

WESLEY WAIT.