

UNITED STATES PATENT OFFICE

2,540,408

ERECTION SEAT FOR BUILDING ELEMENTS

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3 Claims. (Cl. 189—36)

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The invention relates to erection seats for metallic building structures, and has for its object to provide an erection seat and connection comprising a yoke carried by one building element, and having the inner sides of its arms downwardly and inwardly inclined for the reception of an angularly disposed flange carried by another building element having downwardly and inwardly inclined opposite edges, terminating in parallel edges, below the yoke for engagement with the arms of the yoke, and preventing tilting of the flange after it is seated in the yoke.

A further object is to provide the building element flange below its tapered portion with a straight portion cooperating with the yoke arms for preventing tilting of the yoke or flange in relation to each other when the flange is seated in the yoke.

A further object is to provide the inner side of the flange, adjacent its outer end, with a projection adapted to engage an inclined surface on the connecting member of the yoke between shoulders for reducing the frictional engagement of the parts and guiding the flange over biting shoulders carried by the transverse portion of the yoke.

A further object is to curve downwardly and inwardly the flange guiding portion of the yoke between the biting shoulders for guiding the flange to position and finally jamming the flange against the building element to which the yoke is connected.

A further object is to bevel outwardly and downwardly the outer face of the flange, as well as bevel downwardly and inwardly the lower end of the flange, to facilitate the seating of the flange in the yoke when the girder or I-beam is being swung to position between columns.

With the above and other object in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:

Figure 1 is a detail perspective view of the yoke and flange, showing the same in position to be received one within the other.

Figure 2 is a vertical transverse sectional view taken on line 2—2 of Figure 4.

Figure 3 is a vertical transverse sectional view through the yoke, showing the flange in position and the outer bevelled face of the flange.

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Figure 4 is a vertical transverse sectional view taken on line 4—4 of Figure 2, but showing one of the building elements in side elevation.

The present invention is an improvement on my prior patents issued to me, numbered 1,824,631 and 2,188,445.

Referring to the drawing, the numeral 1 designates a portion of a column of a building, which column is vertically disposed, and 2 a beam. The ends of the beam 2 have welded thereto, at 3, angles 4, in a manner whereby their flanges 5 are downwardly disposed. In the following description, only one flange and connection is described, however it is to be understood they are to be used wherever a connection is desired and particularly on opposite ends of a beam to be supported between vertical columns.

Secured to the building element 1 is a U-shaped yoke 6 having its arms 7 welded at 8 to the building element. The inner sides of the arms 7 of the yoke incline downwardly and inwardly as at 9, and are engaged by similarly inclined side edges 10 of the flange 5, as clearly shown in Figure 3, therefore there is a positive bevelled guiding interengaging of the flange and yoke during a seating operation, and a slight clearance at final seating to insure a positive biting as hereinafter set forth.

It has been found that there is a tendency for the flange 5 to tilt in the plane thereof in the yoke, where connectors are used at both ends of a building element. To overcome this objection the lower end of the flange terminates in a straight portion 11, the opposite sides 12 of which engage the yoke arms at 13 and positively prevent any tilting action, therefore all of the advantages of the straight side flange is obtained along with the bevelled engagement at 10 and 9, which guide the flange to position when the building elements are forced to final seated position preparatory to the welding operation at 14 or at 14a when the weld at 14 is not used.

The inner side of the connecting portion 16 of the yoke is provided with a downwardly and inwardly curved surface 17, which is engaged by the bulge 18 carried by the inner side of the flange 5 for gradually forcing the flange 5 towards the building element 1, and at the same time incident to the point bearing of bulge 18 with the yoke reducing the area of frictional engagement of the parts, allowing the building element 2 to be easily rocked from side to side for the final seating operation, and at the same time guiding and positioning the inner surface of the flange 5 over the jamming and biting shoulders 19 of the connecting portion 16 of the yoke.

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It has been found that when the beam 2 is hoisted to position in a sling, for connecting spaced columns, that the opposite sides of the flange 5, as well as the lower end thereof, will jam against the columns, and to overcome this difficulty the opposite sides of the flange 5 are provided with outwardly bevelled surfaces 20, and the lower end with a downwardly bevelled surface 21, therefore it will be seen that the restricted zone 22 of the flange will be positively guided into engagement with the face of the column. Another difficulty has been overcome in the present device, by downwardly and inwardly inclining the lower end of the flange 5, as at 22, so this flange will not bite into the outer sides of the yoke arms at 23, and interfere with the horizontal swinging of the beam 2 to a position where the flange 5 will be received within the yoke.

Shoulders 19 are preferably provided or formed from deformable ribs 23a, which will bite into and also be deformed in the curved portion 24 of the angle 4.

From the above it will be seen that an erection seat and connection is provided which is simple in construction, and one wherein the flange is positively held against rocking displacement after it is once seated in the yoke, and the rocking to seated position is facilitated by the bearing of the bulge 18 on substantially a single point in the vertical center of the flange and yoke.

The invention having been set forth what is claimed as new and useful is:

1. A connector between adjacent building elements at angles to each other, said connector comprising a U-shaped yoke connected to one of the elements, a downwardly and inwardly tapered seat in said yoke, a tapered flange carried by the other building element and seated in the yoke, opposite sides of said flange taper-

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ing downwardly and inwardly at the same angle as the seat in the yoke, the lower end of said flange extending below the yoke, the opposite sides of said lower end of the flange being parallel to each other and at an obtuse angle to the seat angle and forming means cooperating with the lower edge of the yoke seat for preventing transverse tilting of the flange in the yoke, after the flange is forced to seated position in the yoke.

2. A device as set forth in claim 1 wherein the flange is of the same thickness as the depth of the yoke seat at its lower side, said flange having its opposite sides on its outer face bevelled and its lower end on its outer face bevelled thereby forming means whereby the flange can be easily swung to a position to be received within the yoke during the assembling of the flange within the yoke.

3. A device as set forth in claim 1 wherein the connecting portion of the yoke is provided with an inwardly and downwardly curved surface and a bulge carried by the outer side of the flange and adapted to engage and ride over said downwardly and inwardly curved surface on a one point bearing thereby allowing rocking of the flange as it is moved to seated position within the yoke.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
605,286	Brand	June 7, 1898
1,077,995	Olsen	Nov. 11, 1913
1,824,631	Saxe	Sept. 22, 1931
2,231,297	Saxe	Feb. 11, 1941
2,374,550	McIntosh	Apr. 24, 1945