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VAN RENSSELAER P. SAXE

2,231,297

ERECTION SEAT

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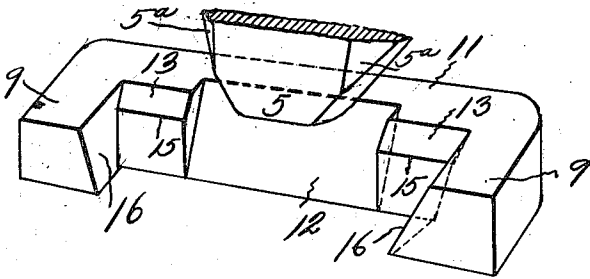


Fig. 3.

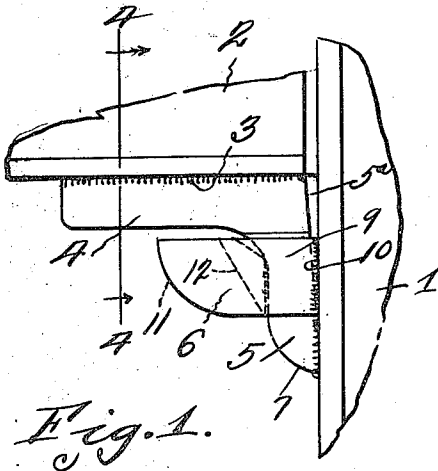


Fig. 1.

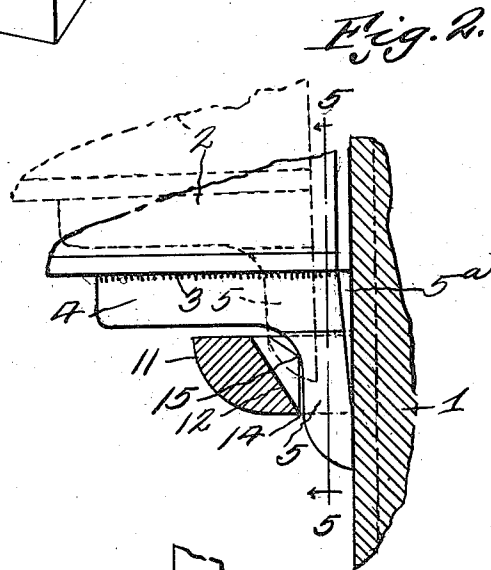


Fig. 2.

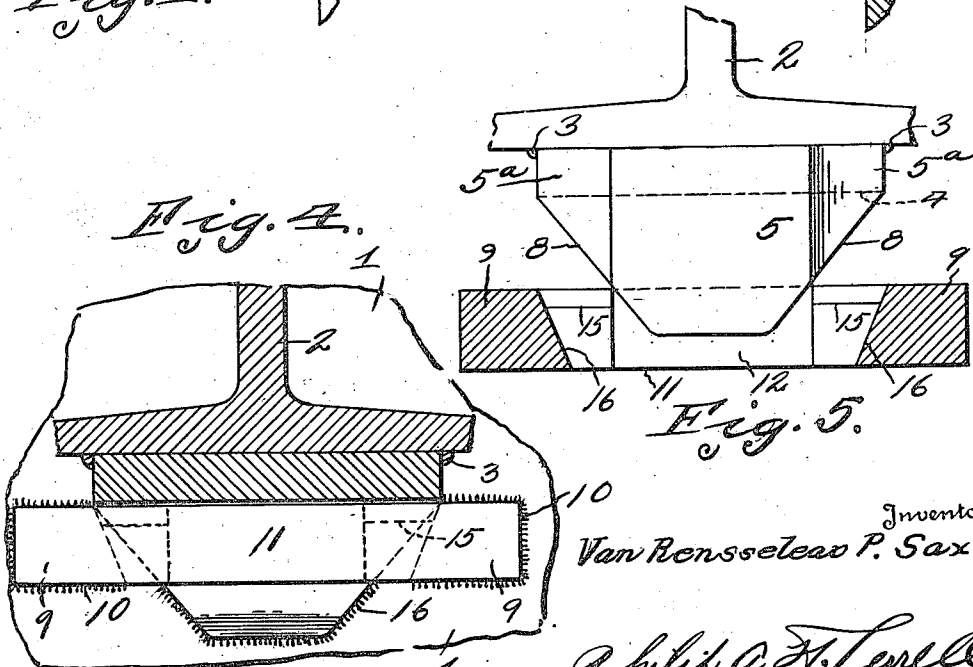


Fig. 4.

Fig. 5.

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## UNITED STATES PATENT OFFICE

2,231,297

## ERECTION SEAT

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Application January 29, 1940, Serial No. 316,235

8 Claims. (Cl. 189—36)

The invention relates to erection seats for metallic building structures, and has for its object to provide a device of this kind comprising a U-shaped member adapted to be welded or otherwise attached to a building element, and adapted to receive therein a flange carried by a second building element for connecting elements together.

A further object is to provide the inner faces of the seat with downwardly and inwardly bevelled surfaces for guiding the flange into seated position within the seat.

A further object is to restrict the outer end of the flange and to provide the connecting portion of the seat or yoke with a bevelled surface adapted to be engaged by the restricted end of the flange so that the flange will be drawn towards the building element as it is forced into the yoke and the inner side of the flange passed over and into engagement with gripping shoulders on opposite sides of the bevelled surface when the flange is in seated position and the building elements drawn together.

A further object is to provide an erection seat for the reception of a flange carried by a building element with bevelled surfaces for providing a flared flange receiving opening; said bevelled surfaces cooperating with the flange for guiding the same to accurate seating position.

A further object is to provide an erection seat or yoke constructed in a manner whereby the flange of one building element will be received in the yoke carried by the other building element in a relation other than a right angle during the assembling operation, and the elements finally drawn to accurate relation when the flange is finally forced downwardly into the yoke, thereby allowing the assembling of the elements rapidly and without positioning the elements in exact relation, and allowing the flange and yoke to draw the elements to a final position.

With the above and other objects 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 side elevation of portions of adjacent building elements showing the flange and erection seat in side elevation.

Figure 2 is a vertical transverse sectional view through the erection seat showing the building

elements as they are assembled in dotted and full lines.

Figure 3 is a perspective view of the seat.

Figure 4 is a vertical transverse sectional view taken on line 4—4 of Figure 1.

Figure 5 is a vertical transverse sectional view taken on line 5—5 of Figure 2, and viewing the dotted line position of beam 2 and angle 4 in Figure 2.

The present invention is an improvement on my Patent No. 1,824,631 issued September 22, 1931, and also an improvement on my Patent No. 2,188,445 issued January 30, 1940.

Referring to the drawing, the numeral 1 designates a portion of a column of a building which is vertically disposed and 2 a beam, the ends of which beam have welded thereto at 3 angles 4 in a manner whereby their flanges 5 are downwardly disposed.

It has been found in seats as set forth in my prior patents that it is necessary in lowering the beams 2 to position to lower the beams in substantially a horizontal position so the flanges will enter the seats. In the present construction this degree of accuracy is not necessary as the yokes 6 have flared openings at their upper sides against which the curved edge 7 of the flange 5 and the bevelled side edges 8 of said flange engage so that the beam is accurately drawn to position even if the building elements are not at a right angle to each other, therefore it will be seen it will only be necessary for the flanges to partially enter the seats and for the workmen to shake the beam, for instance by jumping on the same, to properly position the building elements in relation to each other and to force the flanges 5 to seated position.

The seats 6 are secured to the building element 1 by welding the arms 9 thereto as at 10, as in the prior patents referred to. The connecting portions 11 of the seats are provided with downwardly inclined surfaces 12 between bevelled surfaces 13. Referring to Figure 5 and Figure 2, it will be seen that the tapered flange 5 will engage the bevelled surface 12 as it enters the yoke, and the beam 2 will be drawn towards the building element 1. As the flange 5 reaches the lower end or biting shoulder 14 at the lower end of the bevelled surface 12, the upper wider portion of the flange 5 will be positioned over the biting shoulders 15 at opposite sides of the bevelled surface 12 and spaced from the upper and lower sides of the seat portion 11, and at which time the flange will be gripped by the shoulders 15 as shown in Figure 2 for holding the building ele-

ments in exact relation for finally welding the flange 5 to the building element 1.

To laterally guide the flange 5 into position the inner sides of the arms 9 are provided with inwardly and downwardly inclined bevelled surfaces 16, which surfaces are engaged by the bevelled surfaces 8 when the beam is lowered to position and as the seats are stationary the beam end is laterally moved to its predetermined position for proper seating as clearly shown in Figure 4, therefore it will be seen that the beam is accurately positioned and the parts can be easily and quickly assembled, and during the seating the parts drawn together for a close fit for a final welding operation.

In building frame structures the columns 1 are often not straight and as a matter of fact bow about three eighths of an inch in a twenty foot length. Under these conditions it is the practice to allow about one eighth inch clearance between the ends of the beams 2 and the columns, and then in the final securing operation to draw the parts together, therefore it will be seen that the wedging action of the flange 5 on the various inclined surfaces within the erection seat will accomplish this drawing operation. During the assembling of a building frame the beams 2 are hoisted to a position above the seats and then laterally swung inwardly to a position above the seats preparatory to the final seating operation. To facilitate this swinging operation the opposite sides of the outer face of the flanges 5 are bevelled as shown at 5a to eliminate the corners which would engage the columns as the beams are pivotally moved on a vertical transverse pivotal point.

From the above it will be seen that an erection seat is provided which is so constructed that a building frame or other metallic structure may be easily and quickly assembled, and by providing the seats with bevelled inner surfaces, the beam and column connections may be easily and quickly assembled without loss of time, incident to getting the building elements into exact right angular positions before the final seating of the parts.

The final lowering of the beam and the release of the weight thereof or shaking of the beam by the workmen will insure the proper and accurate seating of the flanges against the columns for the final welding operation.

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

1. The combination with adjacent building elements at angles to each other, of a connection between said elements, said connection comprising a U-shaped yoke, the arms of said U-shaped yoke being connected to one of said elements, a flange carried by one of said elements and adapted to be received within the yoke and to be forced against the first mentioned building element, spaced flange engaging shoulders carried by the inner side of the transverse portion of the yoke and an inclined flange end engaging surface between the shoulders and inclined from a position spaced outwardly from the shoulders and adapted to be engaged by the end of the flange for forcing said flange towards the first mentioned building element and guiding said flange onto said shoulders.

2. A device as set forth in claim 1 wherein the spaced shoulders are spaced downwardly from the upper side of the yoke.

3. A device as set forth in claim 1 wherein the spaced shoulders are formed by downwardly and inwardly bevelled surfaces.

4. A device as set forth in claim 1 wherein the lower end of the inclined surface between the shoulders terminates in the vertical plane of the spaced shoulders.

5. A device as set forth in claim 1 including downwardly and inwardly inclined bevelled surfaces carried by the inner sides of the arms of the yoke.

6. A device as set forth in claim 1 wherein the lower end of the flange is narrower than the upper end and said upper end is wider than the width of the inclined surface between the shoulders.

7. A device as set forth in claim 1 wherein the opposite vertical sides of the flange are bevelled.

8. The combination with a U-shaped erection seat adapted to have its arms welded to a building element and to receive a flange carried by a second building element, said erection seat having a bevelled flange engaging edge on the inner side of the transverse portion thereof, of a flange engaging bevelled surface intermediate the ends of the engaging edge, said surface inclining downwardly from a point to the outside of the bevelled surface forming the edge.

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