June 19, 1951 J. W. CRICHTON 2,557,413

BLEACHER SEAT SPLICE

Filed Aug. 30, 1949

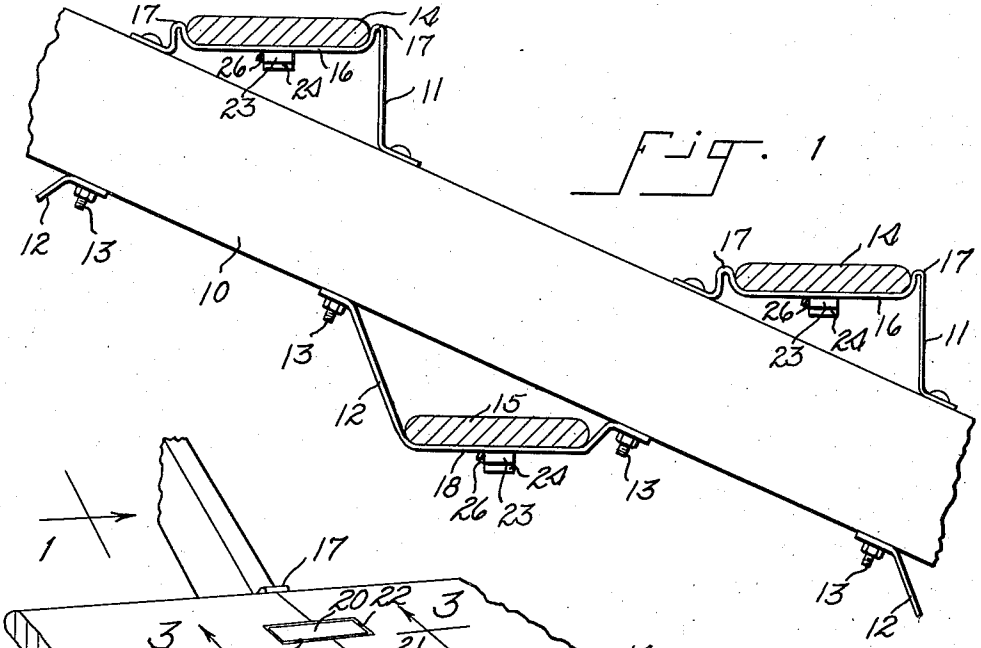


Fig. 1

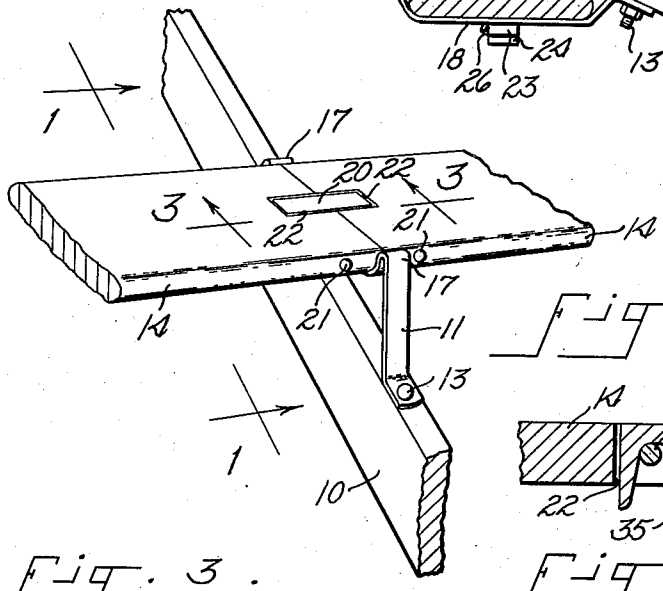


Fig. 2

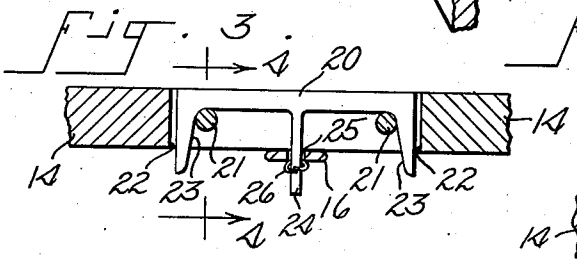


Fig. 3

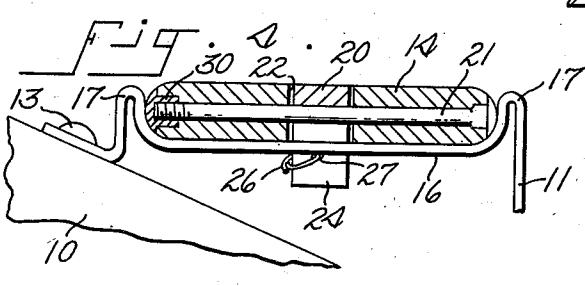


Fig. 4

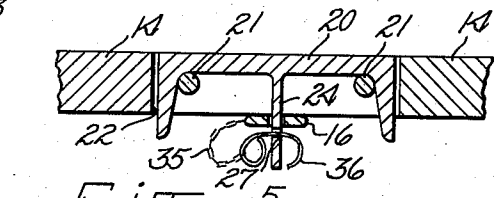


Fig. 5

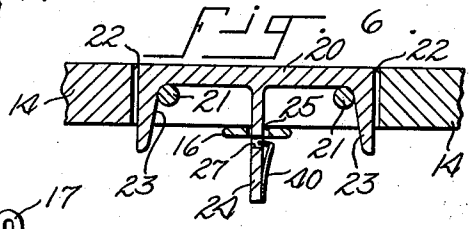


Fig. 6

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BLEACHER SEAT SPLICE

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8 Claims. (Cl. 155—130)

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The present invention comprises an improvement in seating structures such as temporary bleachers used to seat spectators at games, parades and other spectacles. The principal purpose of the present invention is to provide a sturdy knockdown structure of this type which is absolutely safe when in use, such purpose being achieved by interlocking means holding the bleacher seat boards or equivalent members in place on the inclined beams or equivalent members which provide the framework for the structure.

A further object of the present invention is to provide a structure of the foregoing type in which seat boards extending between adjacent sections need not be overlapped as in prior structures. Overlapped seat boards are dangerous in that someone might stumble over the projecting end of the upper board and, in any event, are annoying and decrease the available seating area in many cases. By the use of the present invention a bleacher comprising as many sections as are desired may be provided, in which the ends of all seat boards in all sections are abutted so as to provide continuous seats with all portions thereof at the same levels.

A further object of the present invention is to provide bleacher seat board splicing means which absolutely prevent longitudinal separation of abutted seat boards maintained in horizontal alignment with each other. Such longitudinal separation of the seat boards and subsequent shifting of the boards to bring their ends tightly together again have resulted in serious damage claims, which is not possible with the present invention.

A further object of the present invention is to provide a bleacher seat construction in which the ends of each of the seat boards are prevented from longitudinal splitting, thereby eliminating one cause of maintenance expense.

A further object of the present invention is to provide a seat board splicing construction which need not be assembled to exactly close tolerances since a portion of the construction comprises splicing means having a wedging effect tending to maintain the abutted ends of boards in contact at all times.

The foregoing and other objects and advantages of the present invention may be more readily ascertained from inspection of the following specification taken in connection with the accompanying drawings wherein like numerals refer to like parts throughout, while the features of novelty will be more distinctly pointed out in the appended claims.

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In the drawings,

Fig. 1 is a vertical section through a portion of a bleacher using the present invention, the view being taken substantially along the line 1—1 of Fig. 2;

Fig. 2 is an isometric view of a portion of a bleacher showing the present invention in use;

Fig. 3 is a vertical section taken substantially along the line 3—3 of Fig. 2;

Fig. 4 is a vertical section taken substantially along the line 4—4 of Fig. 3;

Fig. 5 is a vertical section taken in a plane closely adjacent the plane of Fig. 3, showing a modified form of latching means for the splice; and

Fig. 6 is a view similar to Fig. 5 showing another modified form of latching means for the splice.

A bleacher formed in accordance with the present invention comprises a plurality of inclined beams 10 included in the framework of the bleacher. A plurality of seat board supports 11 are maintained on top of each beam and a plurality of depending footboard supports 12 are maintained below each beam, the upper and lower supports being held in position by bolts 13 extending through feet on the ends of a pair of upper and lower supports. As seen clearly in Fig. 1, the bolts 13 may extend normal to the longitudinal axes of the beams 10 and the shape of the supports 11 and 12 may be such as to maintain the forward edges of seat boards 14 vertically above the rearward edge of floor boards 15, supported on the supports 11 and 12 respectively. Each of the supports 11 preferably comprises a strap including a saddle portion having a horizontal part 16 terminating in upwardly extending bights 17 extending at least partially around the side edges of the boards 14 to prevent lateral shifting of boards placed on the saddle portions. Each of the supports 12 comprises a saddle portion 18 of the same width as the floor boards 15 and the upwardly extending leg portions which partially embrace the side edges of the boards to prevent lateral shifting thereof.

As seen most clearly in Fig. 2, a pair of seat boards 14 may be disposed upon the saddle portion of one of the supports 11 with their ends in abutting relation to each other. In order to maintain the seat boards in such position, means are provided to prevent longitudinal separation of the abutted ends thereof and vertical separation of the abutted ends of the boards from the saddle portion of the support, such means preferably comprising a T-shaped splice 20 adapted

to cooperate with the boards and support as follows. The splice **20** has its arms embracing cooperating means on the ends of the seat boards, such means preferably comprising stitch bolts **21** spanning the ends of the boards inwardly from the end edges thereof with a central portion of the bolts being exposed in central, longitudinally extending slots **22** (Fig. 3). Each arm of the splice includes a depending wedge tip portion **23** preferably including an inwardly facing cam surface. The slots **22** extend far enough beyond the bolts **21** to permit free insertion of the wedge tips of the arms and the stitch bolts **21** are positioned far enough from the end edges of the boards so that the cam surfaces of the tip portions **23** draw the end edges of the boards firmly together. The ends of the boards thus are provided with inwardly extending depressions terminating in openings through the boards. The arrangement is preferably such that the top of the splice rests flush with the top of the boards, but in new constructions the stitch bolts **21** may be spaced far enough from the end edges of the boards to prevent flush seating of the splice, which may be corrected by driving the splice downwardly with a maul, or the splice may project a slight distance above the seat board without being uncomfortable. The leg **24** of the splice projects downwardly through a central opening **25** in the horizontally disposed portion **16** of the support **11**, the leg of the splice thus preventing longitudinal displacement of the boards from the support. In order to prevent vertical separation of the boards from the support, displaceable means are provided to latch the leg **24** against being lifted through the opening **25**, in Figs. 3 and 4 the same comprising a split ring **26** which is inserted through an opening **27** in the leg **24** and projects laterally beyond the surface of the leg **24** to a greater distance than the width of the opening **25**.

The stitch bolt comprises a bar spanning the end of each seat board for cooperative engagement with the arms of the splice. As seen in Fig. 4, the stitch bolt is preferably of the carriage bolt type having its head flush with the rounded surface of one edge of the board **14**, and is preferably locked in position by a sleeve nut **30** seated in a countersunk opening in the opposite edge of the board so as to lie flush with the rounded surface thereof.

The floor boards conceivably could be overlapped at their ends since it is not necessary that the ends thereof should lie flush with each other, but in order to eliminate the possibility of someone's tripping over a projected end, and in order to provide floor boards which may be interchangeably used as seat boards and thus reduce to a further extent the different types of boards used in a temporary seating arrangement, the boards **15** are preferably identical to the boards **14** and are preferably placed in abutting relationship to each other on the horizontal portion **18** of the depending support **12**, their ends being maintained in such position by an identical splice of which an end of a leg **24** and the displaceable split ring **26** therefor are illustrated.

In Fig. 5 there is illustrated a modified form of displaceable latching means which eliminates the necessity for providing the assemblers of the seating arrangement with a supply of separate displaceable means such as the split ring **26**. This form of latching means comprises a

short chain fixed at one end to the horizontal portion **16** of the support, and carrying at its other end a wire hook **36** adapted to pass through the opening **27** in the leg **24**.

A further modification is disclosed in Fig. 6 wherein the displaceable latching member comprises a leaf spring **40** having its lower end welded or otherwise affixed to the lower end of the leg **24** and its upper end bent laterally and projecting into the opening **27** in the leg. The leaf spring is permanently biased outwardly so as to engage the strap **16** at one side of the opening **25**, but may be manually depressed so as to permit withdrawal of the leg from the opening, and will be automatically depressed upon forcing the leg downwardly through the opening.

It is to be appreciated that the present invention may be utilized in assembling other temporary structures and that the seat boards and floor boards herein illustrated are representative of elongated members which are to be maintained in horizontal alignment with their ends in firm abutting relationship.

Having illustrated and described preferred embodiments of the present invention, it should be apparent to those skilled in the art that the invention permits of modification in details and arrangement. I claim as my invention all such modifications as come within the true spirit and scope of the appended claims.

I claim:

1. Means for holding a pair of elongated members such as bleacher seat boards horizontally in alignment with their ends maintained firmly in abutting relation to each other, comprising a support upon which the ends of a pair of end-abutted, elongated members may rest, said support having an opening therethrough, each of said boards having a slot extending longitudinally from its end, means spanning each of said slots and cooperating with the sides and inner end thereof to define an opening, and a T-shaped splice spanning the joint between said members, said splice having depending portions on its arms engaged in said openings for anchoring said members against longitudinal separation and having its leg passing through said opening for anchoring said members against longitudinal displacement from said support.

2. A portable bleacher construction comprising an inclined beam, a pair of boards extending horizontally in alignment with each other in a direction normal to said beam with their ends abutted, and means to maintain said boards in position comprising a support mounted upon said beam and including a saddle portion underlying the abutted ends of said boards and at least partially embracing the side edges thereof, said saddle portion having a central opening therethrough, stitch bolts spanning the ends of said boards inwardly from the end edges thereof, the ends of said boards being longitudinally slotted to expose central portions of said stitch bolts, and a T-shaped splice having its arms engaged with the exposed central portions of said bolts to maintain the boards from spreading apart and its leg depending through the opening in said saddle portion to prevent longitudinal shifting of the ends of said boards from said saddle portion, and means cooperating with the leg of said splice to prevent lifting of said boards from said saddle portion.

3. A portable bleacher construction comprising a beam, a pair of seat boards extending horizontally in alignment with each other in a direction

normal to said beam with their ends abutted, and means to maintain said boards in position comprising a support mounted upon said beam and including a portion underlying the abutted ends of said boards, said portion having an opening therethrough, stitch bolts spanning the ends of said boards inwardly from the end edges thereof, the ends of said boards being longitudinally slotted to expose portions of said stitch bolts, and a T-shaped splice having its arm engaged with the exposed portions of said bolts to maintain the boards from spreading apart and its leg depending through the opening in said portion to prevent shifting of the ends of said boards from said portion, and means cooperating with the leg of said splice to prevent lifting of said boards from said portion comprising a displaceable latch member which, when in position, projects from said leg and is engageable with the underside of said portion.

4. A seating structure comprising means for supporting seat boards including a horizontally disposed strap having an opening therethrough, a pair of seat boards having their ends resting on said strap, each of said seat boards having a slot extending longitudinally of its end portion and a transverse bar spanning said slot, a T-shaped splice having a depending wedge tip on each arm disposed with its arms in the slots of said boards, the depending wedge tips of said arms embracing said bars and its leg passing through said opening, and displaceable means cooperating with the leg of said splice below said strap to prevent accidental displacement of said splice from said strap.

5. A knockdown structure comprising a supporting strap, a pair of elongated members having their ends abutted and resting upon said strap, each of said elongated members having a longitudinal slot therein and a bar spanning said slot, a splice comprising a T-shaped member having depending tips on its arms, said tips having inwardly disposed cam surfaces adapted to embrace said bars and wedge the ends of said elongated members firmly together, and means for latching said splice to said strap to prevent displacement of the ends of said elongated members from said strap.

6. A portable bleacher comprising a supporting strap, a pair of boards having their ends abutted and resting upon said strap, each of said boards having a longitudinal slot therein and a bar spanning said slot, a splice comprising a T-shaped member having depending tips on its arms, said tips having inwardly disposed cam surfaces adapted to embrace said bars and wedge the ends of said boards firmly together, and means for latching said splice to said strap to prevent displacement of the ends of said boards from said strap.

7. A seating structure comprising a horizontal saddle, a pair of boards having their ends abutted and resting upon said saddle, each of said boards having a longitudinal slot extending inwardly from its end edge, means spanning each of said slots to define therewith a terminal opening, a splice comprising a T-shaped member having depending wedge tips on its arms disposed with its arms in said slots and the tips thereof depending through said terminal openings, said tips having inwardly disposed cam surfaces adapted to wedge the ends of said boards firmly together, and means for latching said splice to said saddle to prevent displacement of the ends of said boards from said saddle.

8. A seating structure comprising a metal strap defining a horizontal saddle, a pair of elongated flat members having their ends abutted and resting upon said saddle, each of said members having a longitudinal slot extending from its abutted end edge, means spanning each of said slots at a distance below the upper surface of the member and cooperating with the end and sides of said slot to define an opening, a splice comprising a T-shaped metal member having a depending portion on each arm, the arms of said splice being seated in said slots and resting on said means with their depending portions engaged in said openings, the upper surface of said splice being substantially flush with the upper surfaces of said members, said strap having an opening therethrough and the leg of said splice depending through said opening in the strap, and displaceable latch means cooperating with said leg and said strap to prevent separation of said members from said saddle.

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

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