Apr. 17, 1923. 1,452,467

B. J. LAMBERT

GRAND STAND CONSTRUCTION

Filed Sept. 7, 1922 2 Sheets-Sheet 1

Fig. 1.

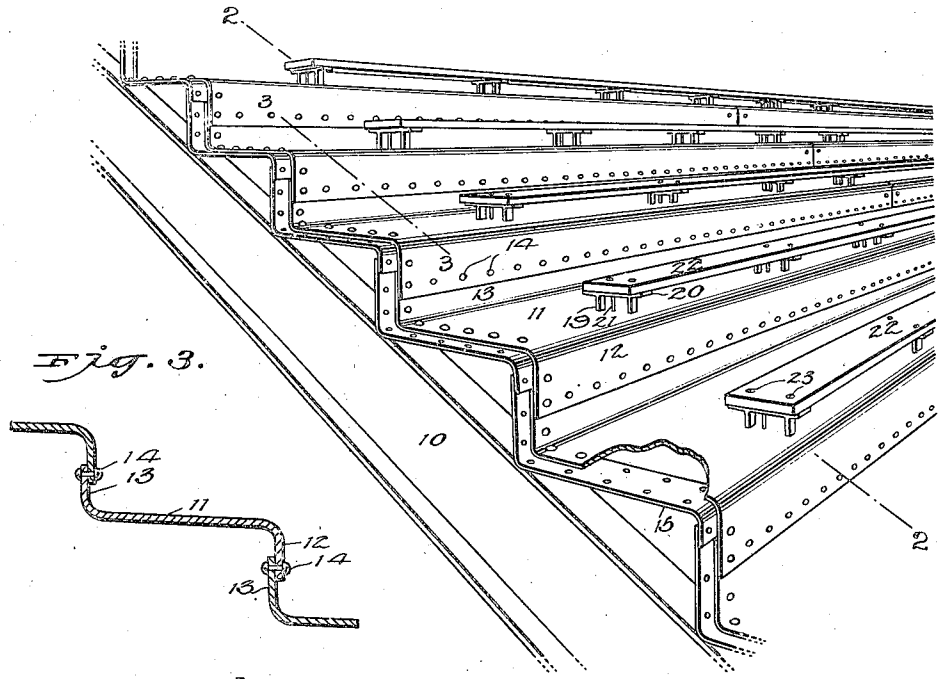
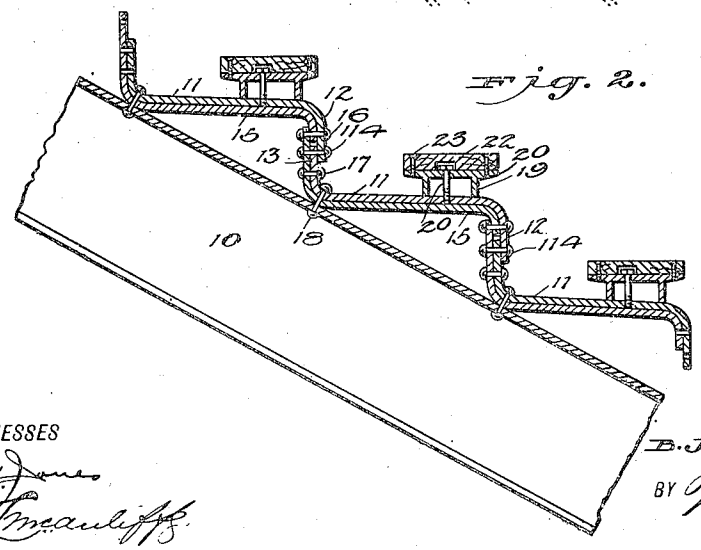


Fig. 3.

Fig. 2.



WITNESSES

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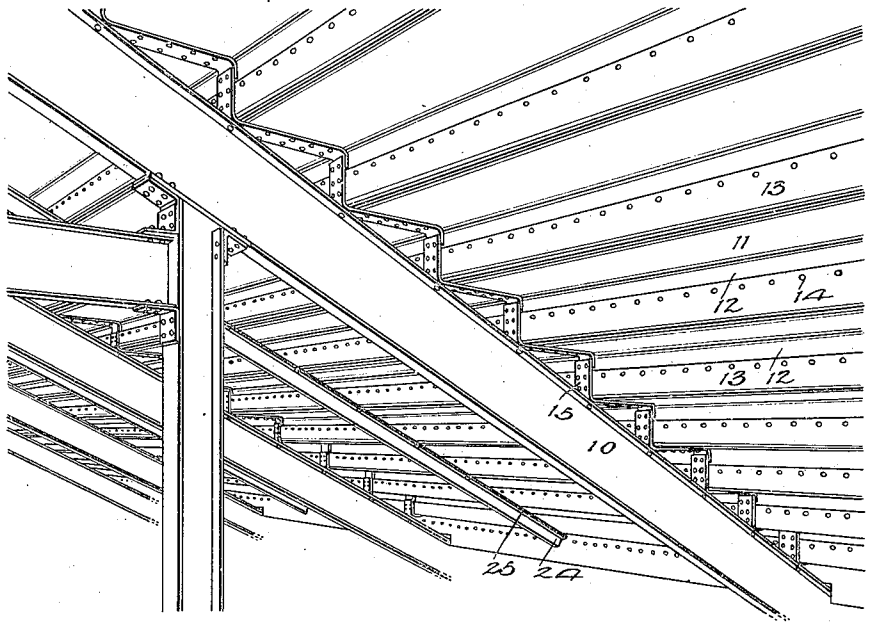
Fig. 4.



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UNITED STATES PATENT OFFICE.

BYRON JAMES LAMBERT, OF IOWA CITY, IOWA.

GRAND-STAND CONSTRUCTION.

Application filed September 7, 1922. Serial No. 586,712.

To all whom it may concern:

Be it known that I, BYRON J. LAMBERT, a citizen of the United States of America, and a resident of Iowa City, in the county of Johnson and State of Iowa, have invented a new and Improved Grand-Stand Construction, of which the following is a description.

My invention relates to grand stand construction and more particularly to a structure formed of steel plates in step form provided on the treads thereof with seats.

The general object of my invention is to provide a steel grand stand construction improved in various particulars and reflecting practical considerations with respect to strength and simplicity of construction in the form, arrangement and bracing of the steel plates and the character of the seats thereon.

The nature of the invention and its distinguishing features and advantages will clearly appear as the description proceeds.

Reference is to be had to the accompanying drawings forming a part of this specication, it being understood that the drawings are merely illustrative of one example of the invention.

Figure 1 is a sectional view showing a section of a grand stand constructed in accordance with my invention;

Figure 2 is a transverse vertical section of a portion thereof taken along line 2—2;

Figure 3 is a cross section taken on a line 3—3 between the ends of the seats and the adjacent plate joint;

Figure 4 is a perspective view of the under side of the stand.

In carrying out my invention in accordance with the illustrated example supports are provided in the form of beams 10, advantageously I-beams, disposed in inclined position at intervals transversely of the stand.

Steel plates 11 are provided running longitudinally of the stand. Each plate 11 is given a corresponding Z-shape to provide a depending front terminal portion 12 and a rear upstanding terminal portion 13 to enter into the formation of the risers of the step-like structure, the main area of the plates 11 constituting the treads of the structure.

The plates 11 are so laid that the upstanding rear terminal portion 13 of one plate will overlap at the back of the dependent front portion 12 of the next plate above. It will be observed that the overlapping of the terminal portions 12 and 13 of the Z-shaped plates is above the longitudinal base line of the risers, the purpose being to prevent the entrance of water at the overlapping joint, the overlapping portion 12 at the front of the upstanding portion 13 contributing to the shedding of water. The overlapped terminal portions 12, 13 are suitably fastened preferably and advantageously by a line of rivets 14.

The adjacent Z-shaped plates 11 are butt-spliced at the supports 10. At each joint are Z-shaped splice members 15 and the several splice members 15 at a joint are overlapped in a manner that the plates 11 overlap. It will be seen from Figure 2 that the depending portion of one Z-shaped splice plate 15 overlaps at the front of the next lowermost splice 15, the said depending portion of the splice alining with the upstanding portion 13 of the next lowermost plate 11. The riveting at the joints as shown may, with advantage, be as follows: The rivets 16 are passed through the overlapped ends of the adjacent splice plates 15 and through the depending portion 12 of a plate 11 and additional rivets 17 fasten the upstanding portion 13 of the next lowermost plate 11 to the upstanding portion of the splice plate 15 therebeneath while rivets 114 corresponding with the rivets 14 pass through the overlapped portions 12, 13 of adjacent plates and through the adjacent upstanding portions of the splice plate 15. At the angles formed between the treads and risers at the joint of the plates 11 additional rivets 18 are passed through a plate 11 and through the splice plate 15 therebeneath as well as through supporting beams 10, said rivets 18 being perpendicular to the supports 10 and passing obliquely through said plates 11 and 15 at said angle.

The tread portions of the plates 11 support seats constructed and arranged as follows: Cast metal stools or uprights 19 are provided comprising a pair of legs and a top plate 20 disposed transversely of the treads of plates 11. Bolts 21 are passed downwardly through the top plates 20 and tapped into the treads of plates 11 as clearly shown in Figure 2. On the top plates 20 are laid planks 22 recessed to receive the heads of the bolts 21 and secured by suitable fasteners such as bolts 23 passed downwardly through

said planks and through the plates 20 outside of the legs of the stools 19.

The described construction and arrangement of the plates 11 and their described butt-spliced joints as well as the construction and arrangement of the seats result in strength with simplicity and promote convenience in assemblage.

In practice I employ angles or tie strips 24 applied to the plates 11 at the under side as shown in Figure 4. Said angles 24 cross the bends presented by the plates 11 and are suitably fastened thereto at the salient angles presented by the juncture of the tread and riser portions of the plates, rivets 25 as shown being employed in practice for securing the plates 24.

I would state in conclusion that while the illustrated example constitutes a practical embodiment of my invention I do not limit myself strictly to the exact details herein illustrated, since, manifestly, the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim:

1. A stepped structure of the class described, including plates Z-shaped in cross section and joined to form treads and risers, and butt spliced joints at the end edges of said plates, said joints comprising splice members following generally the Z-shaped lines of said plates and disposed beneath the same to overlap adjacent plates.

2. A stepped structure of the class described including series of plates abutting at their side edges, and Z-shaped splice plates beneath the first-mentioned plates at the side joints and overlapping adjacent plates, and secured to the latter.

3. A stepped structure of the class described including a series of Z-shaped plates secured together longitudinally and forming treads and risers, said plates having depending terminal front portions and upstanding rear portions, the depending front portion of one plate overlapping at the front of the upstanding rear portion of the next plate below, Z-shaped splice elements beneath said plates at the side joints thereof and overlapping adjacent plates, and overlapping each other; together with rivets securing said splice elements to the said plates.

4. A stepped structure of the class described including plates presenting treads and risers, and seats on said treads, said seats comprising spaced stools presenting top members, bolts extending downwardly through said top members of the stools and tapped into said plates, and planks secured to said stools.

5. A stepped structure of the class described including plates presenting treads and risers, and seats on said treads, said seats comprising spaced stools presenting top members, bolts extending downwardly through said top members of the stools and tapped into said plates, planks laid on said stools over said bolts and recessed at their under sides to accommodate the bolt heads, and fasteners securing said planks to the top members of the stool.

BYRON JAMES LAMBERT.