April 28, 1953 J. O. JACKSON 2,636,225

STEEL DECK GRANDSTAND

Filed Feb. 24, 1950 2 SHEETS—SHEET 1

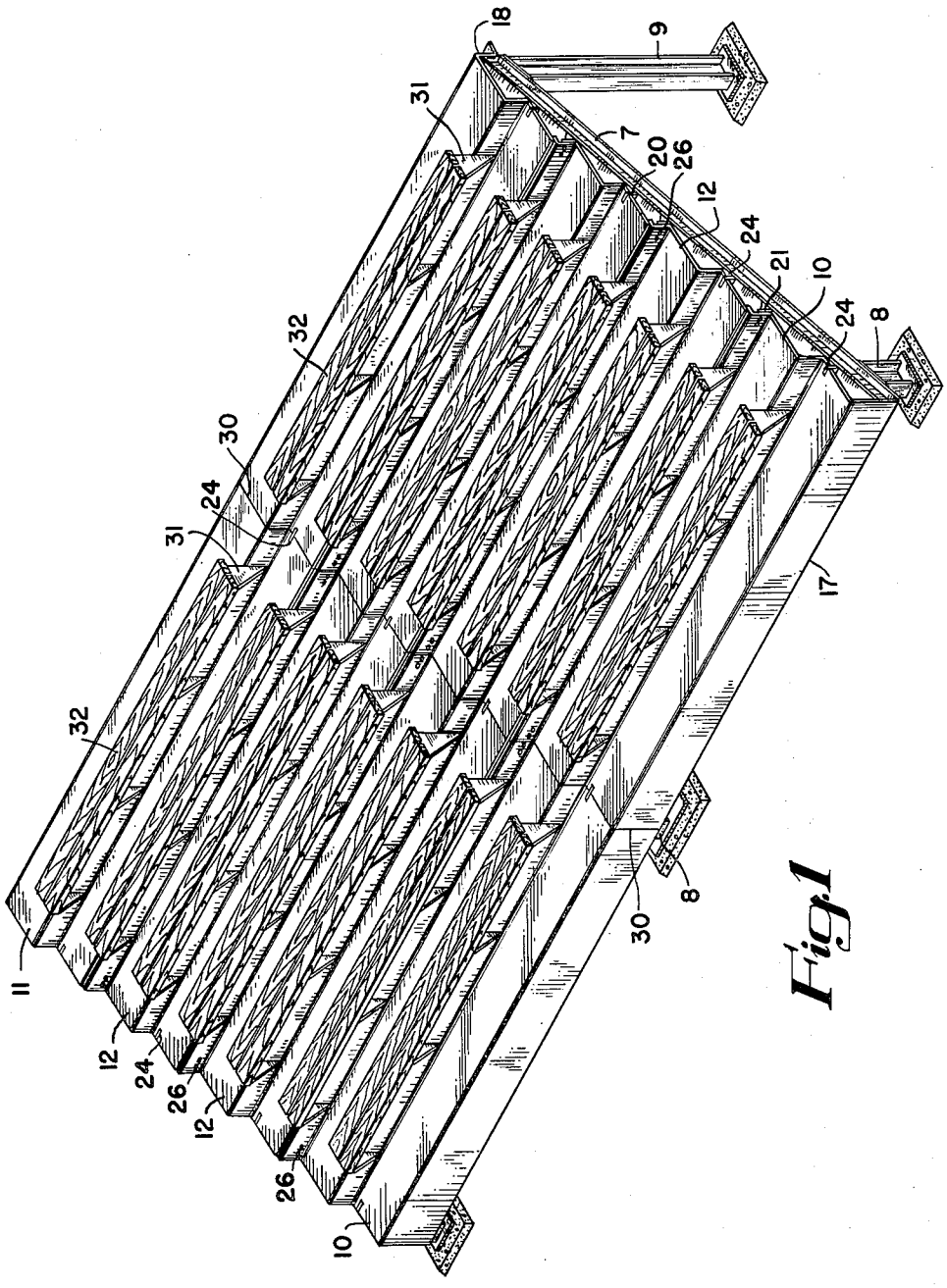


Fig. 1

INVENTOR.
James O. Jackson
BY
FOR Green, McCallister & Miller
HIS ATTORNEYS

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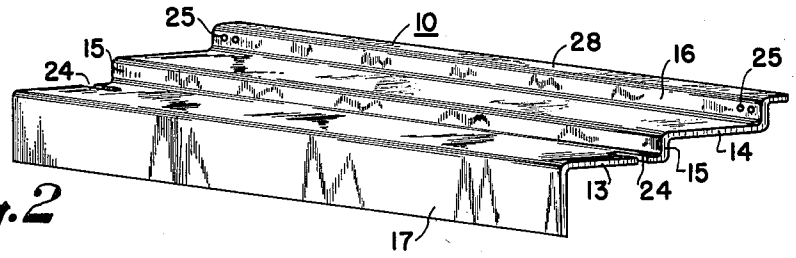


Fig. 2

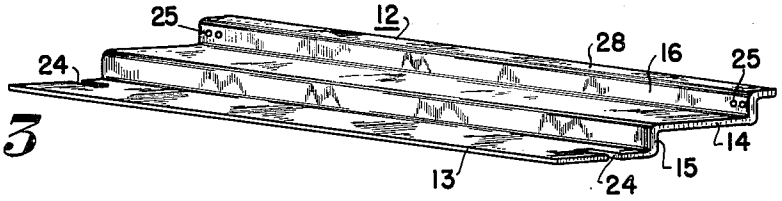


Fig. 3

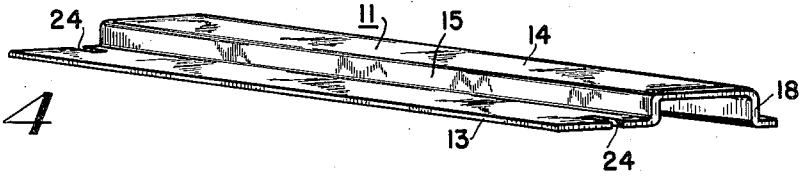


Fig. 4

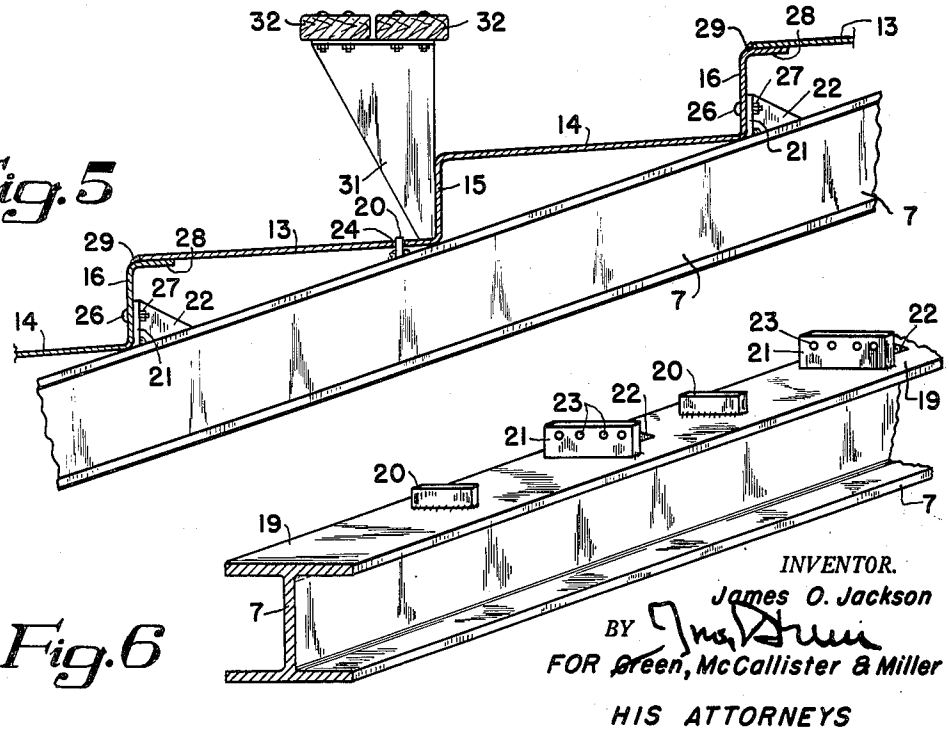


Fig. 5

Fig. 6

INVENTOR.
James O. Jackson
BY
FOR Green, McCallister & Miller
HIS ATTORNEYS

Patented Apr. 28, 1953

2,636,225

UNITED STATES PATENT OFFICE

2,636,225

STEEL DECK GRANDSTAND

James O. Jackson, Crafton, Pa., assignor to Pittsburgh-Des Moines Company, Pittsburgh, Pa., a corporation of Pennsylvania

Application February 24, 1950, Serial No. 146,128

6 Claims. (Cl. 20—1.126)

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This invention relates to steel deck grandstands and particularly to such grandstands in which the deck is formed of sections of steel plate material which is supported by spaced inclined girders.

Heretofore, in constructing grandstands of this type, it was either necessary to have men above and below the structure on temporary scaffolding in order to erect and attach the deck plate sections or it was necessary to use complicated and relatively costly interlocking members which required expensive handling equipment and relatively many workmen.

An object of this invention is to produce an improved steel deck grandstand.

Another object is to produce a steel deck grandstand in which the deck sections can be assembled without the use of temporary scaffolding, without the use of expensive equipment and without the necessity of having workmen below the deck during its installation.

Another object is to produce a steel deck grandstand in which each deck section, after being erected or installed can be used as a working platform for the next succeeding higher deck or floor section.

These and other objects I attain by means of the structure described in the specification and illustrated in the drawings accompanying and forming part of this application.

In the drawings:

Figure 1 is a view in perspective of a steel grandstand embodying this invention;

Fig. 2 is a view in perspective of one of the front or bottom sections of the deck of the grandstand of Fig. 1;

Fig. 3 is a perspective view of one of the intermediate deck sections of such grandstand;

Fig. 4 is a rear or top section of the deck of such grandstand;

Fig. 5 is a fragmentary view partially in elevation and partially in section and includes a portion of one of the support girders in side elevation, a portion of the deck in section, one of the seat supports in side elevation, and a seat in end elevation; and

Fig. 6 is a perspective view of a portion of one of the support girders equipped with devices for facilitating my novel method of erecting the deck structure.

In Figure 1 of the drawings, I have shown a simple grandstand embodying this invention. This comprises but two bays each having but seven rows of seats. It of course will be understood that a grandstand embodying my invention

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may comprise any number of bays and that each bay may have any practical number of rows of seats even up to 30 or more.

The deck of each bay is supported on suitable girders 7 and these girders are supported by columns 8 and 9 which in turn are supported by suitable foundations, as is now common.

Each bay deck comprises a front deck (bottom) section such as shown in Fig. 2 and which as an entirety is numbered 10, a rear deck section (top) such as shown in Fig. 4 and which as an entirety is numbered 11 and several intermediate deck sections one of which is shown in Fig. 3, and numbered 12 as an entirety.

Each of the deck sections extends throughout the length of the bay as disclosed in Fig. 1 and each comprises two substantially horizontally extending tread-like portions 13 and 14. Sections 10 and 12 have two substantially vertically extending riser-like portions 15 and 16. Front section 10 has a depending apron-like portion 17 which extends down in front of the ends of girders 7 while top section 11 at its rear has a depending finish lip 18 which extends down behind the upper end of girders 7 and is securely attached thereto as by welding.

The upper flange 19 of each girder has secured thereto, preferably by welding, a number of upstanding positioning members or bars 20 and a number of upstanding attachment plates or members 21. Plates or members 21 are braced by gusset plates 22 and are provided with a series of bolt openings 23.

Adjacent each end of the lower horizontal portion 13 of each deck section, such section is provided with a slot-like opening 24. These openings are adapted to receive, with a loose fit, upstanding positioning members or bars 20 when the deck sections are in proper position on girders 7.

Adjacent each end of the upper vertically extending portion 16 of each deck section 10 and 12 such section is provided with multiple openings 25 adapted to be brought into register with openings 23 of upstanding members 21 secured to the upper flange 19 of girders 7.

After the support girders and the columns have been erected, the deck sections are erected from front to back (bottom to top). That is, deck section 10 is erected first, and this is followed by erection of the lower and then the next higher intermediate section 12, ending with erection of the top section 11.

Two men, one man at each end of front (bottom) section 10 so manipulate or guide such sec-

tion that its openings 24 register with or fit over upstanding positioning members 20 on the support girders 7. Each of these two men, one at each supporting girder then inserts a spud bar or drift pin into one of the holes or openings 25 in one of the vertically extending portions 16 and then inserts such spud bar or drift pin into and through the correspondingly located hole or opening 23 in one of the attachment plates or members 21 so as to line up such holes 25 and 23. Each man then inserts a bolt 26 through one of the other pair of aligned holes 25 and 23 and by reaching over riser-like portion 16 and down behind attachment plate 21, places a nut such as nut 27 on bolt 26 and tightens the same. After such nuts are tightened, the spud bars or drift pins are removed and bolts for the remaining holes 25 are then inserted and tightened.

The next deck section (an intermediate section such as section 12) is then placed on girders 7 and slid or manipulated into place so that its slots or openings 24 register with or fit over its locating or positioning members or bars 20. Its holes 25 in riser-like portions 16 are then lined up with holes 23 in members 21 by means of spud bars or drift pins, and riser-like members 16 are bolted to plate members 21. The forward end of the lower horizontal portion 13 of such intermediate deck section now rests on the backwardly bent portion or lip 28 of front deck section 10— as clearly shown in Fig. 5—to which it is subsequently welded as at 29. This assembling or erecting procedure continues until all of the deck sections have been located and bolted in place.

As soon as one deck section has been bolted in place it is used as the working platform for or from which to erect the next succeeding or higher deck section. In other words, after the front or bottom deck section is located and bolted in place, it serves as the working platform for the first intermediate section and the first intermediate section serves as the working platform for the second intermediate section and so on.

After the floor plates have all been secured in position, one or more welding operators weld around positioning bars 20 to permanently connect such bars to the deck plate around openings 24 in the lower horizontal portions of each deck section. The joints between the upper flanges 28 and the forward edges of the lower horizontal portions 13 of the deck sections are welded as shown at 29 in Fig. 5, thus closing the longitudinal seams. The transverse seams such as seam 30 between the bays are also closed by welding. Thus those portions of locating bars or members 20 which extend above the upper surface of horizontal portions 13 of the deck plates are burned off during the welding operation which connects such bars to such horizontal portions.

After the welding has been completed, the brackets 31 for the seat boards 32 are secured, preferably by welding, to risers 15 and 16.

What I claim is:

1. In combination in a grandstand structure including at least one bay, spaced inclined girders each having spaced positioning members extending upwardly from the upper surface thereof and alternating with attachment members also extending upwardly from such surface and which are provided with substantially horizontal bolt holes extending therethrough, a deck structure supported by such girders and comprising front, rear and intermediate deck sections formed of metal plate material, each deck section extending throughout the length of such bay and each of the front and intermediate deck sections including at least two substantially horizontal tread portions on different levels, and at least two substantially vertically extending riser portions alternating with such tread portions and also located on different levels, each deck section in opposite ends of one of its tread portions having slots for receiving two of such upstanding positioning members, and the upper riser portion of each front and each intermediate deck section having bolt holes adjacent its opposite ends for alignment with the bolt holes of two such attachment members, the upper riser portion of each front and each intermediate deck section being located above the upper tread portion of such deck section.

2. A structure as defined in claim 1 in which the front deck section includes an apron-like portion which covers the forward ends of the girders.

3. A structure as defined in claim 1 in which the rear deck section includes a portion which extends downwardly in the rear of the upper ends of the girders.

4. A structure as defined in claim 1, in which the slots in one of the tread portions of each deck section extend through the end edges of such tread-like portion for receiving the upstanding positioning members.

5. A structure as defined in claim 1, in which the lower tread portion of each deck section has slots extending through the edges of opposite ends thereof for receiving the upstanding positioning members.

6. A structure as defined in claim 1, in which the upper riser-like portion of each front and each intermediate deck section is provided with a backwardly bent portion or lip for supporting the front edge of the lower tread portion of the next higher deck section.

JAMES O. JACKSON.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,171,374	Ryan et al.	Aug. 29, 1939
2,180,986	Lambert	Nov. 21, 1939