Dec. 8, 1959 J. P. REINHARDT 2,916,102

SCAFFOLD BRIDGE CONSTRUCTION

Filed Oct. 14, 1954 2 Sheets-Sheet 1

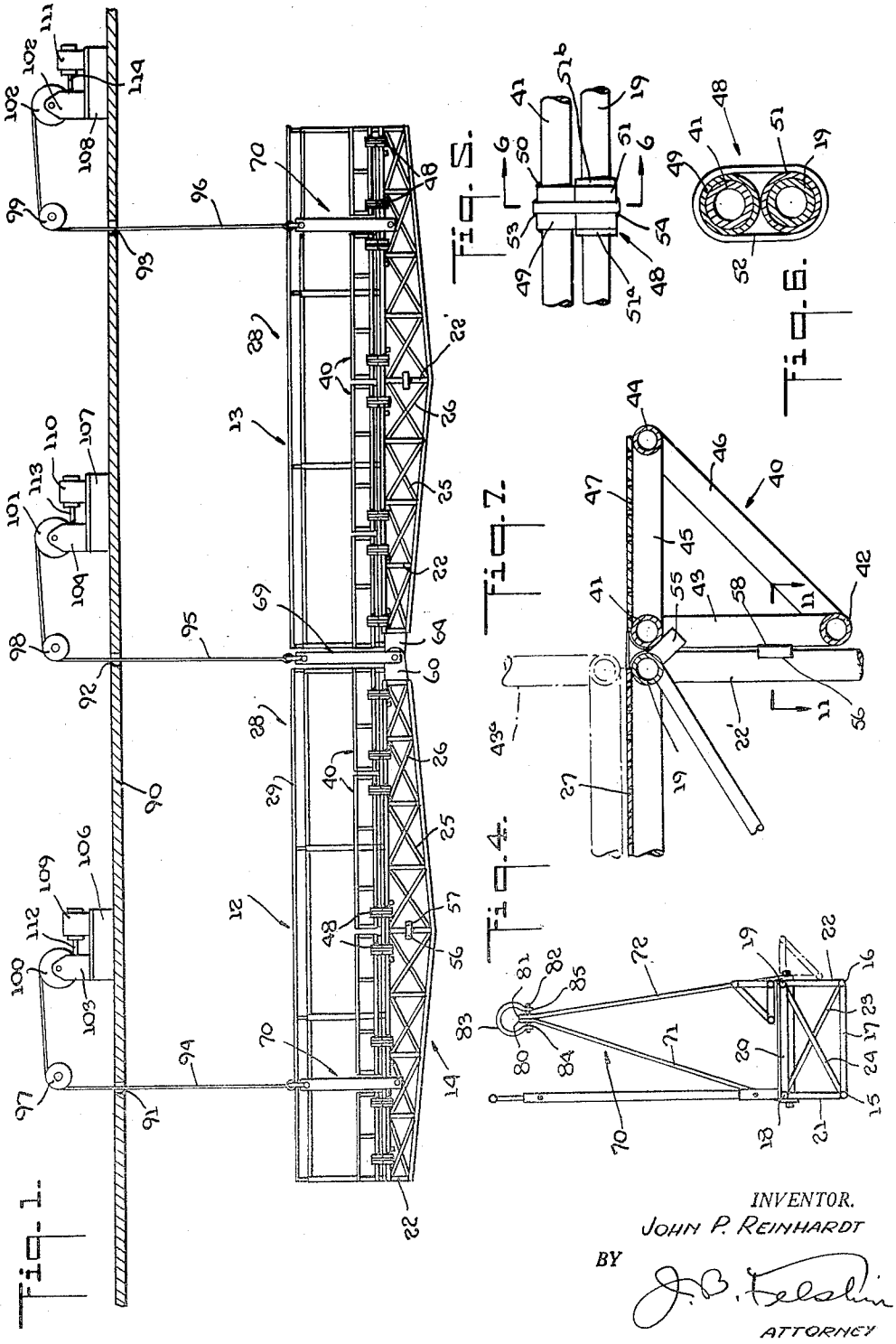


Fig. 1.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 4.

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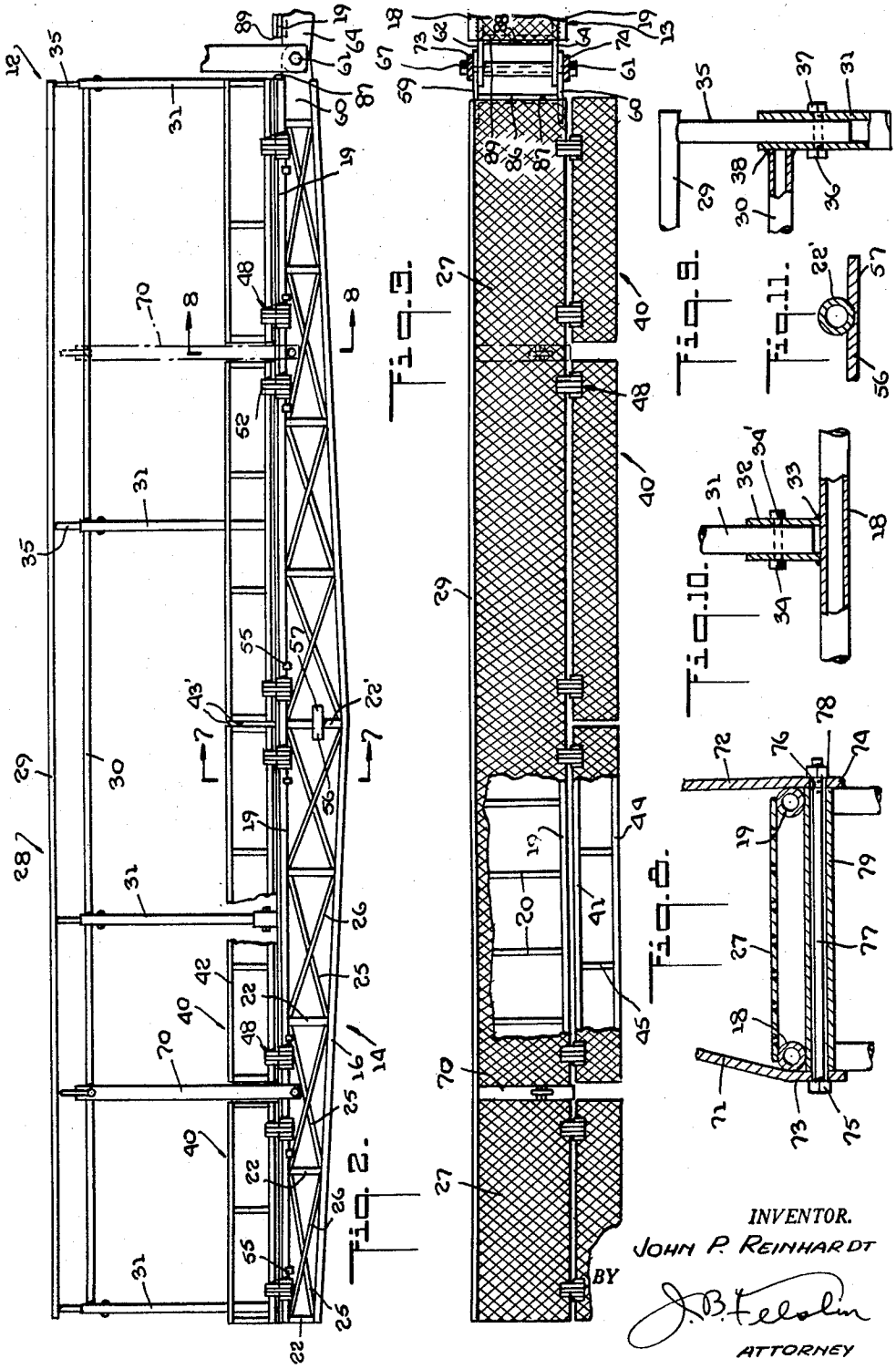


Fig. 2.

Fig. 3.

Fig. 5.

Fig. 11.

Fig. 10.

Fig. 6.

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SCAFFOLD BRIDGE CONSTRUCTION

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7 Claims. (Cl. 182—152)

This invention relates to a scaffold bridge construction for supporting workmen within the interior of a boiler or similar structure.

It is an object of the present invention to provide a bridge construction of the character described and comprising a plurality of attachable sections whereby the length of the bridge construction may be increased or decreased in accordance with the requirements of the particular maintenance job and the space limitations within the boiler. The illustrative embodiment of the invention disclosed herein comprises two separate bridges which may be used either singly or connected together in end-to-end relation to form a double bridge having twice the length of a single bridge.

Another object is to provide a bridge construction of the character described comprising a shelf platform member pivotally mounted to one edge of the bridge for movement from an inoperative retracted position to an outwardly projecting position in a common horizontal plane with the walk platform portion of the bridge so as to cooperate with the latter to provide a wider walk area upon which the workmen may move about. When the shelf member is in its retracted inoperative position, it does not project outwardly of the bridge and hence the latter is relatively narrow in the transverse direction so as to enable it to fit through an opening in the side wall of a boiler or similar structure.

Another object is to provide a novel hinge arrangement for pivotally mounting the shelf member to one edge of the bridge.

Still another object is to provide a scaffold bridge construction built up primarily of tubular elements, such as pipes, welded together in a novel arrangement.

Still another object is to provide a novel means for supporting the bridge, said means comprising stirrups connected to the bridge at their lower ends and having upper ends connected to wire ropes which extend upwardly through openings formed in an upper wall of the boiler. The latter is provided with winches mounted thereon and driven by electric motors, the upper ends of the wire ropes being wound upon the winches, whereby actuation of the electric motors serves to lower or raise the bridge to any desired height within the boiler.

A further object is to provide a novel guard rail structure along one side of the bridge.

Another object is to provide a bridge construction of the character described which is strong, rigid, durable, light, and yet inexpensive and highly efficient in use.

Other objects and advantages of the present invention are inherent in the structure as claimed and disclosed or will become apparent to those skilled in the art as the detailed description proceeds in connection with the accompanying drawings wherein:

Fig. 1 is a side elevational view of a double bridge construction in accordance with the present invention and shows the upper wall of the boiler in cross-section;

Fig. 2 is an enlarged side elevational view of a single bridge with a part of the second bridge shown connected thereto;

Fig. 3 is a top plan view of a single bridge but shows the shelf members in their outward operative positions rather than in the retracted inoperative positions shown in Figs. 1 and 2;

Fig. 4 is a side elevational view as seen from the left-hand end of Figs. 1 to 3;

Fig. 5 is an enlarged detail view showing one of the hinge joints for pivotally mounting the shelf members;

Fig. 6 is a vertical sectional view on line 6—6 of Fig. 5;

Fig. 7 is a transverse vertical sectional view on line 7—7 of Fig. 2 and shows a shelf member in its outward operative position, the retracted inoperative position being indicated in dash-dot lines;

Fig. 8 is a transverse vertical sectional view on line 8—8 of Fig. 2 and shows the manner of connecting the lower ends of the stirrups to the bridge frame;

Fig. 9 is an enlarged detail view, partly in section, showing the guard rails and their connections to the stanchions;

Fig. 10 is an enlarged detail view, partly in section, showing the lower end of the stanchion and its connection to the bridge frame; and

Fig. 11 is a horizontal sectional view on line 11—11 of Fig. 7.

Referring now to the drawings in more detail, and first to Fig. 1 thereof, the reference numeral 11 indicates generally a double bridge scaffold construction in accordance with the present invention and comprising a pair of single bridges 12, 13 connected together in end-to-end relation. As best seen in Figs. 2 and 4, each of the single bridges 12, 13 comprises a longitudinal horizontally extending frame 14 built up of tubular elements such as pipes. A pair of longitudinal tubular elements 15, 16 extend at a somewhat downwardly inclined angle from the left-hand end of frame 14 toward the center of frame 14 and then extend upwardly to the opposite right-hand end thereof.

Tubular elements 15, 16 are in horizontally spaced parallel relation to each other and are joined by a series of transverse horizontal tubular elements 17 extending therebetween and welded thereto. A second pair of longitudinal tubular elements 18, 19 extend in mutually spaced parallel relation from one end of frame 14 to the other end thereof and are interconnected by a series of horizontal transverse tubular elements 20 welded thereto. Transverse elements 20 are each located above a respective one of the lower transverse elements 17 and longitudinal elements 18, 19 are in vertical alignment with the lower longitudinal elements 15, 16 respectively.

The upper longitudinal element 18 is connected to the lower element 15 by a series of vertical tubular elements 21 and the other upper longitudinal element 19 is similarly connected to the lower longitudinal element 16 by another series of vertical tubular elements 22. Vertical elements 21, 22 are welded at their opposite ends to longitudinal elements 15, 16, 18, 19. It will be understood that vertical elements 21, 22 are of varying lengths along different portions of frame 14 in view of the fact that the lower longitudinal elements 15, 16 are inclined with respect to the upper longitudinal elements 18, 19.

The transverse elements 17, 20 and the vertical elements 21, 22 are arranged in a series of transverse vertical planes each having an element 17, 20, 21 and 22 forming a box-like rigidifying structure best seen in Fig. 4. A first series of diagonal tubular elements 23 are connected at their opposite ends to longitudinal elements 18 and 16 and a second a series of diagonal tubular elements 24 cross diagonal elements 23 and are connected by welding at their opposite ends to longitudinal ele-

ments 19 and 15. It will thus be seen that each box-like structure of said transverse plane is further rigidified by a pair of crossing diagonal elements 23, 24.

Referring again to Fig. 2, a first series of longitudinal diagonal elements 25 extend upwardly and to the right as viewed in said figure and are welded at their left-hand lower ends to the junctions of vertical elements 21, 22 with the lower longitudinal elements 15, 16. The upper right-hand ends of longitudinal diagonal elements 25 are welded to the junctions of vertical elements 21, 22 with the upper longitudinal elements 18, 19. It will be understood that there are two series of said diagonal elements 25, one series being located in a common vertical plane with longitudinal elements 16, 19 and the other series being located in the common vertical plane of longitudinal elements 15, 18. Another group of longitudinal diagonal elements 26 extend downwardly and to the right as viewed in Fig. 2 and cross the other longitudinal diagonal elements 25. There are two series of diagonal elements 26, one series being located in said common vertical plane of longitudinal elements 16, 19 and the other series being located in the other vertical plane including longitudinal elements 15, 18. The left-hand upper ends of diagonal elements 26 are secured by welding to the junctions of vertical elements 21, 22 with longitudinal elements 18, 19 and the right-hand lower ends thereof are welded to the junctions of vertical elements 21, 22 with the lower longitudinal elements 15, 16.

As best seen in Fig. 8, a main platform 27 of expanded metal construction is mounted on the upper surfaces of the upper longitudinal tubular elements 18, 19 and also on the upper surfaces of the upper transverse tubular elements 20. Expanded metal constructions are well-known and are usually formed by providing slits in sheet metal and then stretching the sheet until the slits form diamond-shaped openings, thus providing a lattice type structure. Platform 27 is preferably welded to elements 18, 19, 20 and provides a walkway on which the workmen may stand and walk.

Mounted along one side of each bridge 12, 13 is a guard rail means indicated generally by the reference numeral 28 and comprising an upper longitudinal horizontal rail 29, a lower rail 30 extending beneath the latter and parallel thereto, and a series of vertical stanchions 31 having their upper ends secured to rails 29, 30 and their lower ends secured to the upper longitudinal tubular element 18 of frame 14. As best seen in Fig. 10, each stanchion 31 is of hollow tubular construction, such as a pipe, and has its lower end extending within the cylindrical hollow interior of a tubular mounting member 32. The lower end of the latter is welded at 33 to the upper tubular element 18 of frame 14. Stanchion 31 and mounting member 32 are provided with registering apertures diametrically therethrough for receiving a bolt 34 which secures the lower end of stanchion 31 to mounting member 32. A nut 34' is screwed on the outer threaded end of bolt 34.

Referring now to Fig. 9, it will be seen that the upper and lower guard rails 29, 30 are also of hollow tubular configuration and may be made of pipes. Fixedly secured by welding to the lower surface of the upper guard rail 29 at spaced points therealong and extending downwardly therefrom are a series of vertical tubular elements 35 having lower portions telescoped within the upper open ends of stanchions 31 respectively. Vertical elements 35 and stanchions 31 are provided with suitable registering apertures extending diametrically therethrough for receiving a bolt 36 having a lock nut 37 screwed on the outer threaded end thereof, thereby maintaining vertical elements 35 secured within stanchions 31. The lower guard rail 30 is welded to the upper ends of stanchions 31 as at 38.

A series of four shelf members 40 are hingedly mounted along the side of frame 14 opposite guard rail means 28. As best seen in Fig. 7, each shelf member 40 comprises a triangular shaped structure including a longitudinal tubular element 41 extending parallel and adjacent to the upper tubular element 18 of frame 14 and hingedly mounted thereto in a manner to be described below. Another longitudinal tubular element 42 extends parallel to element 41 and is connected thereto by a series of tubular elements 43 extending therebetween and welded thereto. Another longitudinal tubular element 44 extends parallel to elements 41, 42 and is welded thereto by two series of tubular elements 45 and 46.

The elements 45 extend perpendicular to elements 43 and form therewith the shorter legs of said triangular structure whereas the elements 46 are longer than elements 43 and 45 and form the hypotenuse of said triangular structure. Extending between elements 41 and 44 and welded thereto is a platform extension 47 formed of the same expanded metal construction as the main platform 27 described above.

The hinge construction for pivotally mounting the longitudinal element 41 of each of the shelf members 40 to the longitudinal element 19 of frame 14 is best seen in Figs. 5 and 6. A pair of hinge means indicated generally at 48 are provided adjacent the opposite ends of each shelf member 40. Each hinge means 48 comprises a tubular sleeve 49 mounted on and receiving the tubular element 41 of shelf member 40 and preferably, although not necessarily, welded thereto at 50. Another tubular sleeve 51 is rotatably mounted on the tubular element 19 of frame 14 adjacent to and in alignment with sleeve 49. A continuous strap or band 52 extends around sleeves 49, 51 and is welded to both of the latter at 53 and 54. A pair of collars 51*a*, 51*b* are secured to element 19 and abut opposite ends of sleeve 51 to prevent axial displacement of the latter along element 19.

It will thus be seen that the entire structure comprising shelf member 40, sleeve 51, sleeve 49, and band 52 may pivot as an entire unit about the axis of the longitudinal tubular element 19 of frame 14, whereby each shelf member 40 may be swung about said axis to either an outwardly extending operative position as shown in solid lines in Fig. 7 or to an inwardly extending retracted or inoperative position as shown in dash-dot lines in said figure. When the shelf members 40 are in their outward operative positions, the platform extensions 47 thereof will be in a common horizontal plane with the main platform 27 of frame 14 and will cooperate therewith to provide a relatively wide walk area on which the workmen may stand and move about.

When the shelf members 40 are moved to their retracted inoperative positions, hinge means 48 will be swung upwardly so that the elongated strap 52 extends vertically and the axis of longitudinal element 41 of each shelf member 40 will be in vertical alignment with the axis of tubular element 19 of frame 14 as shown in Figs. 5 and 6. In this retracted position, platform extension 47 of each shelf member 40 will be in superimposed relation to and resting upon the platform 27 of frame 14 and the elements 43 of each shelf member 40 will extend upwardly as at 43*a* in Fig. 7 in vertical alignment with the vertical elements 22 of frame 14. It will thus be obvious that when the shelf members 40 are in their inoperative retracted positions, the width of each bridge 12, 13 is no wider than the width of frame 14 itself and hence the bridges 12, 13 may be easily inserted through relatively narrow openings in the wall of a furnace or similar structure into which the bridges 12, 13 are to be placed.

Secured to the upper longitudinal element 19 of frame 14 are a series of inclined stop members 55 extending downwardly and outwardly therefrom so as to engage the elements 41 of shelf members 40 when the latter are in their outward operative positions and thereby prevent continued downward pivotal movement of hinge means 48 about the axis of tubular element 19. The longitudinal element 42 of each shelf member 40 will abut against

the vertical elements 22 of frame 14 when the shelf member 40 is in its outward operative position. One of the vertical elements 22 is located directly in the center of frame 14 and is indicated in Figs. 2 and 7 as reference numeral 22'. Fixedly secured to intermediate portions of vertical element 22' are a pair of stop brackets 56, 57 projecting horizontally forwardly and rearwardly from said element 22'. As shown in Figs. 2 and 7, the outer surfaces 58 of stop brackets 56, 57 abut against a pair of elements 43' at the inner ends of the two intermediate shelf members 40 and thereby provide an additional supporting and abutting means tending to prevent continued downward movement of said two intermediate shelf members 40 about the axis of hinge means 48.

The manner of joining the two single bridges 12, 13 in end-to-end relation to form the double bridge shown in Fig. 1 will now be described. Referring also to Figs. 2 and 3, the right-hand ends of longitudinal elements 15, 18 of bridge 12 are slotted to receive the inner end of a plate 59 fixedly secured within the slots by welding. The other pair of longitudinal elements 19, 16 of bridge 12 are also slotted at their right-hand ends to receive another plate 60. The plates 59, 60 project outwardly from the right-hand ends of longitudinal elements 15, 16, 18, 19 and extend in parallel spaced relation to each other. The outer ends of plates 59, 60 are provided with suitable horizontally aligned apertures receiving a transversely extending bolt 61 therethrough.

The left-hand ends of the longitudinal elements 15, 18 of the other bridge 13 have a plate 62 welded to the inner sides thereof as at 63. Another plate 64 is welded to the inner sides of the left-hand ends of tubular elements 19 and 16 of said other brige 13, as at 65. The plates 62, 64 project outwardly from the left-hand ends of the tubular elements of bridge 13 and extend between the plates 59, 60 secured to the right-hand end of bridge 12. The outer ends of plates 62, 64 are provided with apertures in alignment with the apertures of plates 59, 60 and also receiving the transverse bolt 61. A spacer sleeve 66 surrounds the intermediate shank portion of bolt 61 and maintains plates 59, 62 in proper spaced relation to plates 60, 64. One outer end of bolt 61 is threaded to receive a nut 67. It will thus be seen that the right-hand end of bridge 12 is pivotally connected to the left-hand end of bridge 13 to form the double bridge construction 11 shown in Fig. 1.

A plurality of stirrups are provided for supporting bridges 12, 13 within a boiler or similar enclosure. When only a single bridge, such as either bridge 12 or bridge 13, is employed, a pair of stirrups are utilized adjacent opposite ends of the bridge. When a double bridge construction 11 including two bridges 12, 13 is desired, three stirrups are utilized as shown in solid lines in Figs. 1 to 3 inclusive. A central stirrup indicated generally at 69 is mounted to bolt 61 and another pair of stirrups 70 are provided adjacent the opposite outer ends of bridges 12, 13.

As best seen in Figs. 4 and 8, each of the end stirrups 70 comprises a pair of hanger members 71, 72. Hanger member 72 is slightly inclined to the vertical whereas hanger member 71 is at a greater inclination so as to provide that the upper portion of stirrup 70 be located directly over the center of gravity of the load supported by the latter, said load comprising both the weight of bridges 12, 13 and the workmen and tools supported thereon. The lower end of hanger member 71 is bent vertically downwardly at 73 and the lower end of hanger member 72 is similarly provided with a lower vertical end portion 74. The lower hanger ends 73, 74 are formed with horizontally aligned openings 75, 76 for receiving a bolt 77 extending therethrough. The outer end of bolt 77 is threaded to receive a nut 78. Mounted on the intermediate shank portion of bolt 77 is a transverse tubular spacer sleeve 79 having opposite ends abutting the inner lateral faces of hanger portions 73, 74 so as to maintain

the lower ends of hanger members 71, 72 in proper spaced relation.

Bolt 77 and sleeve 79 extend transversely below the upper longitudinal elements 18, 19 of frame 14, said longitudinal elements 18, 19 resting upon the outer ends of sleeve 79 whereby the weight of frame 14 is carried by hanger members 71, 72. The upper ends of the latter are provided with vertical portions 80, 81 in abutting relation and provided with horizontally aligned apertures receiving a pin 82 therethrough. The opposite ends of pin 82 project outwardly of portions 80, 81. An annular member 83 is provided with two downwardly projecting portions 84, 85 having apertures receiving the opposite ends of pin 82.

The center stirrup 69 is also provided with hanger members 71, 72 and annular member 83 connected to the upper ends thereof as described with respect to the end stirrups 70. However, the lower end portions 73, 74 of stirrup 69 are provided with apertures receiving the outer ends of bolt 61 as shown in Fig. 3. The lower end 73 of center stirrup 69 is located between the nut 67 and the plate 59 whereas the lower end 74 is located between plate 60 and the head of bolt 61.

A transverse tubular element 86 extends between intermediate portions of plates 59, 60 and is welded thereto. The right-hand edge 87 of the expanded metal platform 27 is secured to transverse element 86. Similarly, another transverse tubular element 88 extends between plates 62, 64 and is welded thereto and the left-hand edge 89 of the expanded metal platform 27 of bridge 13 is welded to transverse element 88. It will thus be seen that the space between the adjacent edges 86, 88 of main platforms 27 of interconnected bridges 12, 13 is relatively small so as to prevent workmen from accidentally falling through said space.

Referring now to Fig. 1, the reference numeral 90 indicated an upper wall of a furnace (not shown) or other similar structure in which the bridges 12, 13 are to be utilized. Wall 90 is provided with a plurality of openings therethrough at 91, 92, 93. Extending vertically through the latter are a series of wire ropes 94, 95, 96 having their lower ends secured to the annular members 83 of end stirrups 70 and center stirrup 69. Ropes 94, 95, 96 extend around three fairleads 97, 98, 99 respectively, and then are wound around a series of winches 100, 101, 102 rotatably mounted on supports 103, 104, 105 extending upwardly from a series of bases 106, 107, 108. The latter are mounted on the upper surface of wall 90 and each have mounted thereon an electric motor 109, 110, 111 having output spindles 112, 113, 114 drivingly connected to winches 100, 101, 102 respectively by any suitable transmission device (not shown). It will thus be seen that actuation of motors 109, 110, 111 will cause rotation of winches 100, 101, 102 and thereby either wind the upper ends of ropes 94, 95, 96 around the winches or unwind the ropes therefrom so as to raise or lower bridges 12, 13 suspended by stirrups 69, 70 on the lower ends of ropes 94, 95, 96. The entire bridge construction 11 comprising the interconnected bridges 12, 13 may thus be raised or lowered to any desired height within the furnace so as to enable the workmen on bridge construction 11 to reach various parts of the interior of the furnace with ease and convenience.

When it is desired to employ only a single bridge 12 or 13 within the furnace, the bridges 12, 13 are not interconnected, the bolt 61 being easily removed to separate bridge 12, from bridge 13. In this event, the center stirrup 69 is dispensed with and the two end stirrups 70 are mounted adjacent opposite ends of either bridge 12 or bridge 13. One of the end stirrups 7 is shown in solid lines in Figs. 2 and 3 whereas the other end stirrup 70 is indicated in dash-dot lines to make it clear that this latter stirrup 70 is in this position only when a single bridge 12 or 13 is employed individually without being connected to the other.

It is to be understood that the specific embodiment of the invention shown in the drawings and described above is merely illustrative of one of the many forms which the invention may take in practice without departing from the scope thereof as delineated in the appended claims and that the latter are to be interpreted as broadly as possible in view of the prior art without being unduly limited by said disclosure.

Having thus described the invention in some detail, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A scaffold bridge construction for supporting workmen and comprising a longitudinal horizontally extending frame, a main platform mounted on the frame and extending horizontally and longitudinally therealong, a shelf member having a platform extension disposed longitudinally of said frame, and hinge means mounting the shelf member to the frame along a longitudinal side thereof for pivotal movement of the shelf member about a longitudinal axis, either to a retracted inwardly-projecting position with the shelf member lying in superimposed relation to the frame between the longitudinal sides thereof, or to an extended operative position with said platform extension lying in a common horizontal plane with said main platform and extending horizontally outwardly therefrom at said longitudinal side, to form therewith a walkway having a width approximately equal to the combined widths of said main platform and platform extension, said frame being formed of a series of longitudinal tubular elements mutually spaced from each other and interconnected by a plurality of transverse tubular elements welded at their opposite ends to said longitudinal elements, said series of longitudinal tubular elements comprising an upper pair of spaced parallel longitudinal elements and a lower pair of spaced parallel longitudinal elements each located beneath a respective one of said upper elements, said plurality of transverse elements comprising a first series of horizontal elements interconnecting said upper pair of longitudinal elements, a second series of horizontal elements interconnecting said lower pair of longitudinal elements, and a plurality of vertical elements connecting said upper pair to said lower pair, and a plurality of diagonal elements interconnecting said longitudinal elements.

2. A scaffold bridge construction for supporting workmen and comprising a longitudinal horizontally extending frame, a main platform mounted on the frame and extending horizontally and longitudinally therealong, a shelf member having a platform extension disposed longitudinally of said frame, and hinge means mounting the shelf member to the frame along a longitudinal side thereof for pivotal movement of the shef member about a longitudinal axis, either to a retracted inwardly-projecting position with the shelf member lying in superimposed relation to the frame between the longitudinal sides thereof, or to an extended operative position with said platform extension lying in a common horizontal plane with said main platform and extending horizontally outwardly therefrom at said longitudinal side, to form therewith a walkway having a width approximately equal to the combined widths of said main platform and platform extension, said frame comprising a first longitudinal tubular element along said longitudinal side thereof, said shelf member comprising a second longitudinal tubular element extending parallel and adjacent to said first longitudinal element, said hinge means comprising a first sleeve rotatably mounted on said first longitudinal element, a second sleeve mounted on said second longitudinal element, and means fixedly securing said sleeves together, whereby said shelf member is pivotally mounted about the axis of said first longitudinal element of the frame.

3. A scaffold bridge construction for supporting workmen and comprising a longitudinal horizontally extending main frame, a main platform mounted on the main frame and extending horizontally and longitudinally therealong, a plurality of shelf members each having a platform extension, and hinge means mounting the shelf members to the main frame in end-to-end spaced relation along a longitudinal side of the main frame for pivotal movement of the shelf members about a longitudinal axis, either to a retracted inwardly-projecting position with the shelf members lying in superimposed relation to the main frame between the longitudinal sides thereof or to an extended operative position with said platform extensions lying in a common horizontal plane with said main platform and extending horizontally outwardly therefrom to form therewith a walkway having a width approximately equal to the combined width of said main platform and platform extensions, and means connected to a side of the main frame adjacent the shelf members extending upwardly therefrom, and disposed between an adjacent pair of shelf members, to support said frame.

4. A scaffold bridge construction for supporting workmen, comprising a longitudinal horizontally extending main truss frame, said main frame having a top portion and longitudinal portions extending downwardly from the top portion, a main platform on the top portion of the main frame and extending horizontally and longitudinally thereof, a shelf member comprising a truss frame having a top portion in the plane of the top portion of the main frame, and a longitudinal side portion extending downwardly from the top portion of said shelf member and contacting a longitudinal side portion of the main frame, means to hinge the upper end of a longitudinal side of the top portion of the main frame to the upper end of an adjacent side of the top portion of the frame of the shelf member, an auxiliary platform mounted on the top portion of the shelf member and forming an extension of the platform on the main frame to form therewith a horizontal walkway having width approximately equal to the combined widths of the main platform and the platform on said shelf member, said shelf member being swingable to a position overlying the platform on the main frame when not in use, said hinge means being disposed wholly below the plane of the upper surfaces of said main and auxiliary platforms when the auxiliary frame is extended.

5. A scaffold bridge construction for supporting workmen, comprising a plurality of scaffolds each comprising a longitudinal horizontally extending frame, detachable means interconnecting said frames in end to end relation, a main platform mounted on each frame and extending horizontally therealong, supporting means for the scaffold bridge construction and comprising a member connected to said interconnecting means and extending upwardly therefrom, and an additional supporting means connected to intermediate portions of said frames and extending upwardly therefrom, and shelf members hinged by hinge means to said main frame and disposed on opposite sides of each of said supporting means, said shelf members having platforms thereon disposed longitudinally of and in a horizontal plane with the main platforms, and said shelf members being swingable to positions overlying the main platforms.

6. The combination of claim 5, said main frames and the frames for said shelf members having mutually contacting adjacent side members extending downwardly from the top portions thereof when the shelf members are in position with the platform members in a common plane.

7. The combination of claim 6, said frames and shelf members having longitudinal tubular elements disposed side by side in a horizontal plane when said shelf members are extended, said hinge means comprising loops disposed about said tubular elements, and said loops being movable from horizontal to vertical position when said shelf members are swung to positions overlying the main platforms, in which position the tubular elements of the

shelf members are above the tubular elements of the frames.

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