COMPOSITE TRUSS DECK
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6 Claims. (Cl. 20—1)

This invention relates to a composite truss deck and, more particularly, to a truss deck wherein the top and bottom chords are formed of lumber and the web members are pre-formed of metal rods.

The primary object of the invention is to provide a continuous structural stress skin deck with wood chords that function as a double floor, or a floor and ceiling, or deck and ceiling when assembled with metal rod web members. A particular object is to utilize lumber, preferably with tongue and groove edge joints, pinned together and joined to the webs by steel rod shear developers integral with the web members.

These and other objects will be apparent from the following specification and drawings, in which:

FIG. 1 is a perspective view illustrating a portion of partly assembled composite truss deck, and showing the mode of assembly;

FIG. 2 is a vertical cross section through a portion of an assembled deck;

FIG. 3 is a transverse cross section along the line 3—3 of FIG. 2;

FIGS. 4 to 7, inclusive, are diagrammatic illustrations of some of the possible applications of the invention;

FIG. 8 is a perspective view corresponding to FIG. 1, but illustrating a portion of a partly assembled composite truss deck utilizing a modified form of webbing;

FIG. 9 is an end elevation showing one of the webbing elements with a shear pin in place; and

FIG. 10 is a side elevation of the element shown in FIG. 9, and showing the shear pin in cross section.

Referring now to the drawings in which like reference numerals denote similar elements, the preferred form of the invention is illustrated in FIGS. 1 to 7, inclusive, wherein the composite truss deck 2 consists of a top chord 6 and bottom chord 10, the top and bottom chords being formed of pre-bent boards and wherein the webbing 20b has been bent according to the curve of the arch. In FIG. 6, the webbing 20c is illustrated as applied to a three-hinge arch deck 2c and in FIG. 7 the structure 2d utilizing webbing 20d is essentially that illustrated in FIGS. 1 to 3, inclusive, but disposed vertically to provide either a bearing or non-bearing wall of partition.

In the form of the invention shown in FIGS. 8 to 10, the composite truss deck 2e is generally similar to that shown in FIGS. 1 to 3 in that tongue and groove boards, such as those designated 6e and 14e are used to build the top and bottom chords denoted generally 4e and 12e, respectively. In the modified embodiment, however, webbing 20e is an assembly of similar steel rods 21 having flattened opposite ends 23. Transverse shear pins 24e engage in holes 25e formed in the flattened ends 23 of rods 21 and engage in the sockets in the form of pre-drilled transverse holes 26e extending transversely of the lengths of boards 6e and 14e. The edges of the boards are preferably routed out, as shown at 27, to accommodate the rod ends 23.

The assembly of the modified form of the invention is similar to the first embodiment previously detailed except that the webbing 20e may be supplied in a smaller package, consisting of separate rods 21 and transverse shear pins 24e, and assembled on the job.

It will be apparent to those skilled in the art that angles A may be formed of 45° bends in rods 22 so as to provide a saw-tooth configuration, or bends at other angles may be used to meet the stress requirements of the particular structure to which the invention may be adapted. In all forms of the invention, the resultant structure is characterized by its great strength, lightness and economy of construction.

The invention is not limited to the details illustrated and described herein, but is intended to cover all substitutions, modifications and equivalents within the scope of the following claims.

I claim:
1. A composite truss deck structure, comprising a pair of spaced chord members each comprising at least one pair of co-planar wooden boards having contiguous longitudinal edges and having transverse bores in the material thereof extending inwardly therein from the contiguous edges thereof, the bores of one board being aligned with the bores of the other board of the pair, metal shear pins having opposite ends portions respectively disposed in the aligned bores and forming metallic connections between the pairs of boards, said pins having intermediate portions disposed between the contiguous edges of the boards, metal webbing of zigzag configuration connecting the chord members, said webbing defining a series of reverse angles with the apaxes of the angles respectively disposed between the contiguous edges of the pairs of boards, and means connecting the webbing at the apaxes of the angles thereof to said shear pins, the contiguous edge of at least one board in each pair having indentation means adjacent the outer ends of the bores for accommodating said webbing in the regions of the angle apaxes.

2. The combination claimed in claim 1, and means continuously joining said pairs of boards along their contiguous edges between the boards.

3. The combination claimed in claim 2, the last-named means comprising tongue-and-groove joints.

4. The combination claimed in claim 2, said metal webbing comprising a series of straight metal rods disposed in said zigzag configuration with the ends of one rod overlapping adjacent ends of adjacent rods, the means connecting said webbing to said pins comprising eyes in
3. The overlapping ends of rods, said eyes engaging around the pins.

5. A composite truss deck structure comprising, in combination, a pair of spaced panels each formed of at least one pair of boards disposed edge-to-edge, and a webbing comprising an elongate metal rod having a series of reverse bends along the length thereof and a plurality of transverse rods respectively welded to said elongate rod at the outer sides of the reverse bends thereof and extending transversely to the length thereof, said boards having a series of sockets spaced along the length thereof comprising bores extending inwardly from the edges of the boards, said transverse rods respectively engaging in said sockets, at least one of said boards having indentations adjacent said sockets for accommodating said elongate rods in the regions of the transverse bends.

6. The combination claimed in claim 5, said boards having tongue and groove joints continuously joining adjacent edges thereof.