

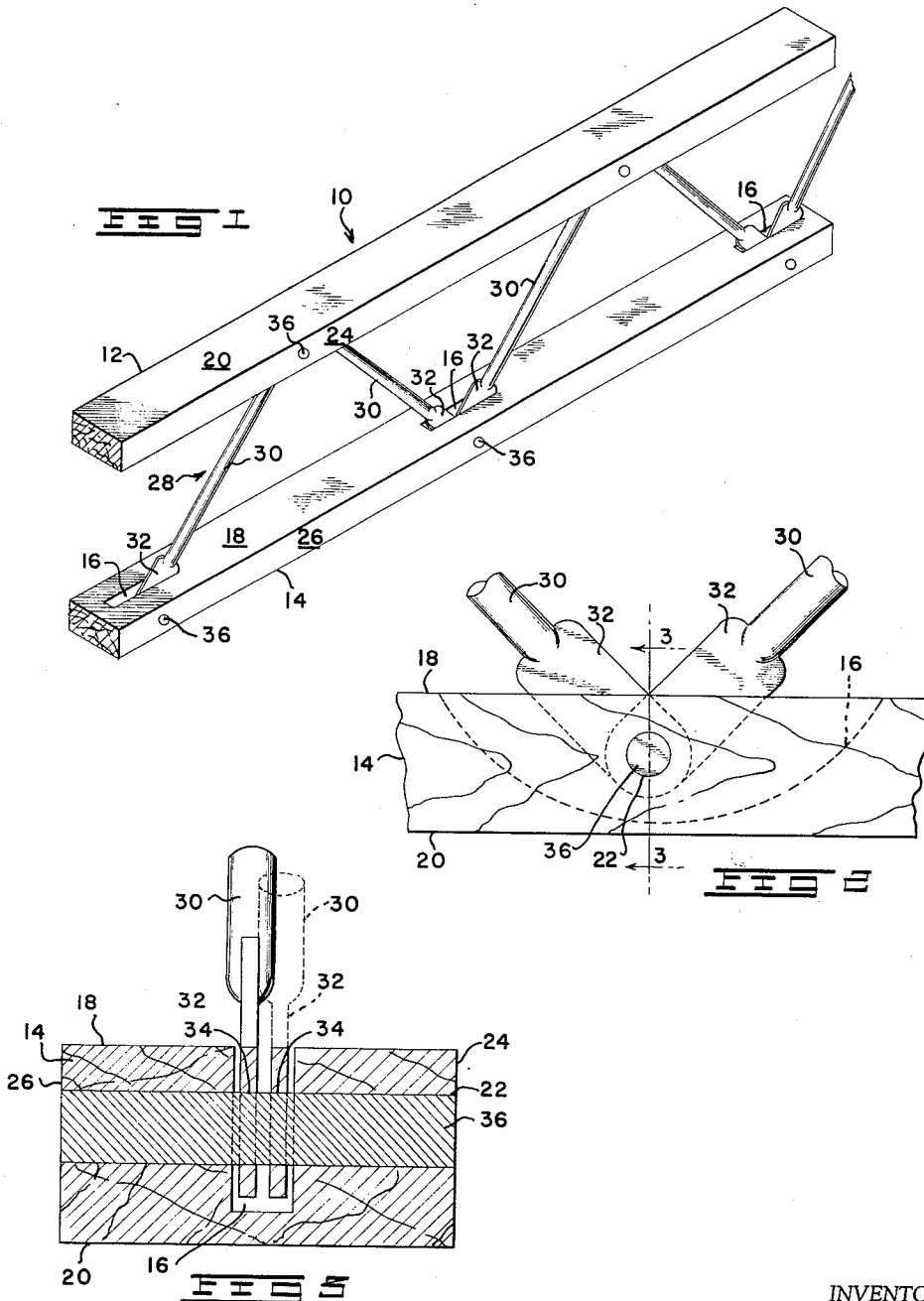
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COMPOSITE TRUSS

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COMPOSITE TRUSS

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1 Claim. (Cl. 20—.5)

This invention relates to a composite truss joist and, in particular, to a truss having wooden chords and metal webbing.

The primary object is to provide a structural member usable as a joist, beam, or similar building member, wherein spaced chords are formed of readily available sizes of lumber, such as "2 x 4's" and wherein the webbing is formed of a series of relatively short metal rods having eyes at each end. Among the desired properties of the composite member is that it is extremely light, considering its rigidity and strength; its top and bottom chords are nailable; it can be cut to length with carpenter's tools; and tapers of various configuration may be formed. A further object is to provide a composite truss formed of wooden chords with metal links connected by metal pins engaging through cross bores in the chords and eyes in the ends of the links. By providing driving fits for the pins in the cross bores and snug fits for the pins in the link eyes, the pins are held tightly against rotation in the cross bores so that they will not turn in the wood while slight pivotal movements between the link eyes and the pins, which have cylindrical metal-to-metal contact with one another, are permitted.

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

FIG. 1 is an isometric view showing the composite truss;

FIG. 2 is a side elevation of a portion of the lower chord, showing a typical junction of the chord and webbing; and,

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

Referring now to the drawing, in which like reference numerals denote similar elements, the composite truss 10 is formed of upper and lower wooden chords 12 and 14, respectively, preferably of lengths of standard lumber such as 2 x 4's, although they may be of various width and thickness. Spaced at regular intervals (assuming the chords are to be maintained parallel as shown) along the lengths of the chords are slots 16, preferably routed out of one flat face 18 of each length of the lumber forming the chords so that the opposite faces 20 are uninterrupted. Cross bores 22 extending through the chords from one side 24 into and preferably through the opposite side 26 so as to intercept slots 16.

The truss webbing denoted generally at 28 is of zigzag configuration and consists of metal links 30 having flat opposite ends 32 formed with eyes 34. The flat rod ends 32 are sufficiently thin so that two of them may freely engage, side by side, in slots 16 wherein they are retained by metal cross-pins 36 which have driving fits through cross bores 22 and snug fits through eyes 34. A snug fit is in the class of locational or clearance fits intended for parts which are normally stationary, but which can be freely assembled or disassembled by hand. A driving fit of a shaft, i.e., the metal pins, is said to be one when the blows of a hammer are required to send it into the hole, or cross bore, bored for its reception. It must not

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be so much as to burst the material around the cross bore, nor so slight that the pins will wear or work loose in time. The driving fit of cross pins 36 in the cross bores holds the cross pins tightly against rotation, whereas the snug fit of the cross pins through the link eyes permits pivotal movement of the links about the cross pins when loads are imposed upon the truss. Because of the snug fit of the link eyes around the cross pins and the metal-to-metal engagement of the cylindrical surfaces of the link eyes around the metal cross pins, as compared with the driving fit of the cross pins against the wood surrounding the cross bores, the links will pivot about the cross pins, but the cross pins will not rotate in the cross bores. Hence, wear is taken by the metal surfaces of the cross pins and link eyes, rather than between the cross pins and the wooden chords, thereby preventing distortion and enlargement of the cross bores with consequent loosening of the cross pins, and the cross pins thus remain rigid with the wooden chords at all times. Links 30 may be shaped by various metal-working processes, it being preferred that they be formed of steel tubing, the ends 32 being pressed flat and punched on a punch press. The parts which form the composite truss are easily assembled, for example, by laying out the chords 20 and 26, inserting the link ends 32 into the slots 16 and driving cross pins 36 through cross bores 22. The bottoms of slots 16 provide proximate locating surfaces for the link ends, which cannot project all the way through the slots. Ordinarily the trusses are assembled at a factory and transported to the site of use, but if desired, special units may be assembled on the job by unskilled workmen.

Truss 10, as illustrated, has parallel chords 12 and 14. Various tapering configurations may be obtained, either by varying the lengths of links 30 or the spacing between slots 16, or both. Standard truss joists constructed with 2 x 4's in accordance with the foregoing specification are characterized by remarkable lightness, approximately 3 lbs. per lineal foot, with spans up to fifty feet constructed with wooden chords scarfed and glued, end-to-end, to desired length.

The invention is not limited to the details described and disclosed hereinbefore, but is intended to cover all substitutions, modifications and equivalents within the scope of the following claim.

I claim:

A composite wood and metal truss comprising upper and lower elongate wooden chord members each having substantially flat upper and lower faces extending between side edges thereof, said upper chord member having slots spaced along the length thereof and extending upwardly through the lower face thereof and terminating short of the upper face thereof and said lower chord member having slots spaced along the length thereof and extending downwardly through the upper face thereof and terminating short of the lower face thereof, whereby the upper and lower faces of said upper and lower chord members are uninterrupted by the aforesaid slots and integral wood portions of said chord members are disposed between the upper termini of the aforesaid slots in the upper chord member and the upper face thereof and between the lower termini of the aforesaid slots in the lower chord member and lower face thereof, said slots comprising routings from the wood of the chord members and being disposed substantially mid-way between said side edges and the

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portions of the wood of said chord members between the side edges thereof and the slots being solid and integral with the remainder of the wood thereof save for cylindrical cross bores extending therethrough from side edge to side edge thereof and intercepting the slots, the slots in the upper chord member being staggered with respect to the slots in the lower chord members, webbing comprising a zigzag series of metal links having flat ends with circular eyes therethrough, the flat ends of the links being loosely disposed in said slots with the eyes thereof registering with respective cross bores, and means pivotally connecting the flat ends of said links with said chord members, said means comprising cylindrical metal pins extending from side to side edge of said chord members through said cross bores and eyes, said pins having driving fits in said cross bores and snug fits in said eyes.

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