Nov. 28, 1933. A. B. VILLADSEN ET AL 1,937,177

MEANS FOR SECURING BOARDS TO METAL FRAMEWORK

Filed Jan. 3, 1931

Fig. 1.

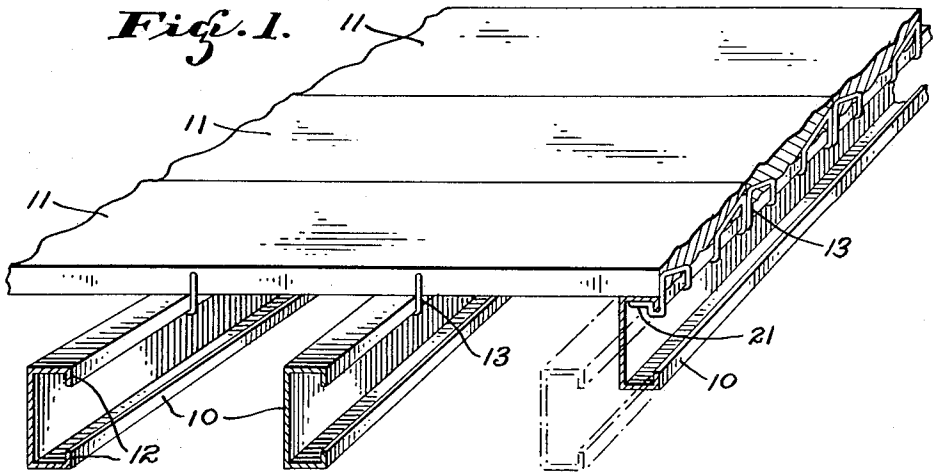
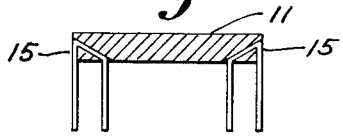


Fig. 2



Fig. 3.



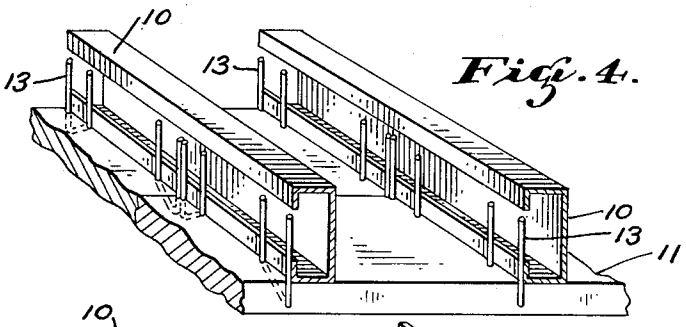
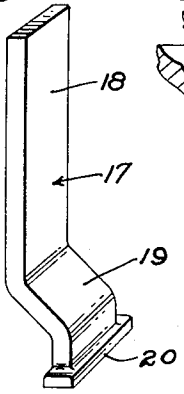


Fig. 4.

Fig. 5.



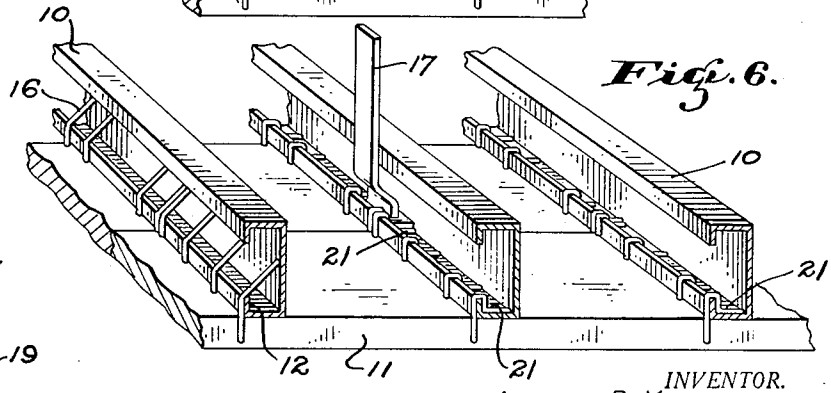


Fig. 6.

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MEANS FOR SECURING BOARDS TO METAL FRAMEWORK

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6 Claims. (Cl. 189—35)

This invention pertains to means for securing boards to metal framework.

Many structures such as bridges, factories, warehouses, loading platforms, truck bodies and the like are composed of steel framework overlaid with wooden boards to form floors and walls. The problem of fastening the wood to the steel framework has been met with many solutions, the most satisfactory of which have involved considerable expense. In many instances, such as where the boards are used for flooring or for truck and wagon beds, it is highly desirable that the exposed or wearing surface of the boards be free from metal bolts, nails, screws, or other such obstacles that would be liable to mar or injure articles being conveyed over them.

It is, therefore, the object of the present invention to provide means for the purpose described that will be inexpensive to manufacture, capable of being expeditiously applied, durable in use and so formed as to leave the wearing surface of the boards clear of all obstructions.

One form of our invention is shown by way of illustration in the accompanying drawing and described in the following specification in which further objects and advantages thereof are set forth.

In the drawing—

Fig. 1 is a perspective view of a portion of a board floor laid upon channel iron joists and secured thereto in a manner which is embodied in the present invention.

Fig. 2 is a section of a board showing the securing means inserted therein.

Fig. 3 is a similar section showing the position assumed by the securing means before the board is placed upon the joists.

Fig. 4 is a perspective view showing the relative position of the portions and joists before the securing means are clamped to the joists.

Fig. 5 is a perspective view of a crimping tool employed in connection with this invention.

Fig. 6 is a perspective view showing the manner in which the crimping tool is used.

Referring more particularly to the drawing and first to Fig. 1, we show channel iron joists 10 arranged in parallelism and supported by any suitable means such as girders, not shown, adapted to support boards such as indicated at 11. The channel irons 10 are C-shaped in cross section, being provided with inwardly extending flanges 12 which lend strength to the joists and afford means which are used in connecting the boards thereto. Wire hooks or securing brackets 13 are employed in the manner to be described. The hooks 13 before being applied are V-shaped, as shown in Fig. 2, and are inserted in holes which are drilled diagonally through the boards 11 from their edges to points in their back. In applying the brackets 13, the boards are first placed upon the joists to which they are to be secured and marked to indicate the position of the edge of the joists on the board. The boards are next removed and the holes 14 are drilled therein. When the holes have been drilled the brackets 13 are inserted in the manner shown in Fig. 2. Each bracket is then struck with a hammer at the point indicated at 15 in Fig. 3 so that its outer leg is sunken or embedded into the edge of the board as shown. The inner leg of the bracket is then bent downwardly to assume a position parallel with its outer leg.

After all of the boards have been provided with brackets in this manner, they are placed against the joists to assume the position shown in Fig. 4. In this figure, it will be noted that the joists and boards are inverted. This position has been found most suitable where small work is being done, such as on the beds of trucks and wagons, as the boards may be laid upon the floor and then the truck or wagon bed with its joists 10 placed upon them as shown.

It is also of advantage to lay the boards upon the floor in the manner shown owing to the fact that hammering is necessary to bend the brackets 13 into the channel irons as will be described. However, where it is impossible to place the parts in this position, such as would be the case in buildings, bridges, or the like, the boards may be laid upon the joists in the usual manner followed by carpenters and a suitable weight held against their opposite side if necessary to receive the shock of the hammering on the brackets.

When the boards and joists have been put in the position shown in Fig. 4, the brackets 13 are each struck with a hammer or other suitable tool until they are bent to the position shown at 16 in Fig. 6. A crimping tool 17 designed especially for this purpose and clearly shown in Fig. 5 as having a handle portion 18, an offset 19, and a foot 20, is then placed against the brackets and forced downwardly by a blow of a hammer or a sledge to the position shown at 21 in Fig. 6. It will be seen from this figure that the brackets after having been crimped in this manner, fit closely about the flange 12 of the channel shaped joists with their ends lying against the inner side of the channel. In this position they prevent both lateral and vertical movement of the boards 11 with relation to the joists.

As the holes 14 are drilled through the edges of the boards and are sufficiently spaced from the tops, it will be understood that a smooth wearing surface is provided on the boards which is not only neater in appearance but more satisfactory where articles are being rolled, dragged or trucked across the floor. As the boards become worn, it is possible to replace either one or any number of them by merely cutting the brackets 13 from the inside with a chisel or the like and inserting a new board in the manner described above. The size of the wire used for the brackets 13 may be such as conditions demand, heavier wire being necessary for thicker boards subjected to heavy duty. It has been found that number 12 gauge wire inserted through one-eighth holes in the boards may be satisfactorily used for the beds of heavy duty trucks.

While I have shown the preferred form of my invention, it should be understood that various changes may be resorted to in the arrangement of its various parts within the spirit and scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A floor of the character described comprising spaced metal joists, boards overlying said joists and having holes formed therein, said holes extending from abutting edges of the boards to the sides thereof adjacent the joists, and pieces of wire extending through said holes and bent so as to engage the joists and secure the boards thereto.

2. A floor of the character described comprising spaced metal joists, boards overlying said joists, and having holes formed therein, said holes being formed at an angle to the perpendicular and extending from points on the edges of the boards to the sides of the boards engaging the joists and being spaced apart to correspond with the spacing of the joists, and wire members extending through said holes and engaging the joists to secure the boards thereagainst.

3. A floor of the character described comprising spaced metal joists, boards overlying said joists and having holes formed therein, said holes extending from points on the edges of the boards to the sides of the boards engaging the joists, wire members extending through said holes and bent down at one end against the edges of the boards, said wire members being adapted to be pressed into the boards flush with the edges thereof and being bent against the joists to secure the boards thereto.

4. The method of securing boards to metal framework which consists in drilling holes through the boards from their edges to points on the sides of the boards engaging the framework, passing pieces of wire through said holes, and bending the ends of the wire into engagement with the metal framework.

5. The method of securing boards to metal framework which consists in drilling holes through the boards from their edges to points on the sides of the boards engaging the framework, passing pieces of wire through said holes, bending one end of the wire against the edge of the board, pressing the wire into the edge of the board to lie flush therewith and bending the ends of the wire into engagement with the metal framework.

6. A floor of the character described comprising spaced joists, boards overlying the joists and having holes formed therein at an angle between abutting edges and the sides engaging the joists, and flexible members extending through said holes and bent so as to engage the joists and secure the boards thereto.

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