Jan. 1, 1935. R. M. TONN 1,986,030

METAL CLEAT

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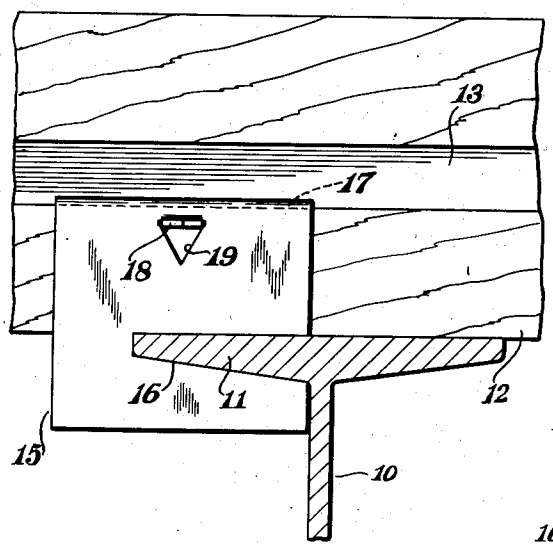


Fig. 2

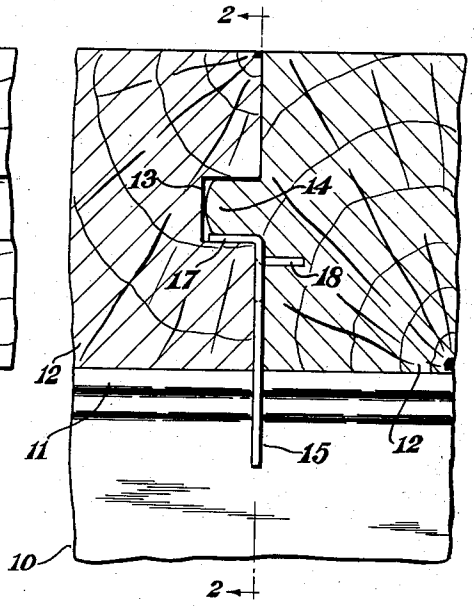


Fig. 1

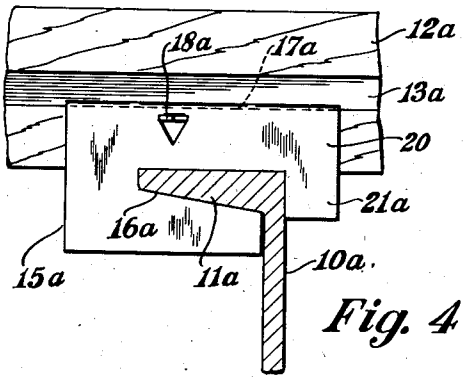


Fig. 4

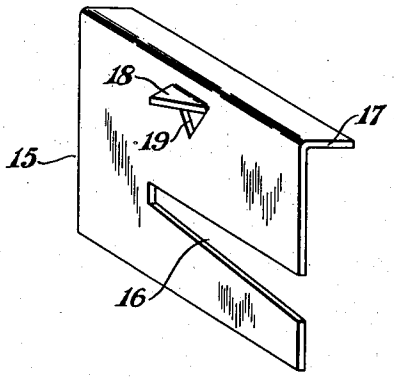


Fig. 3

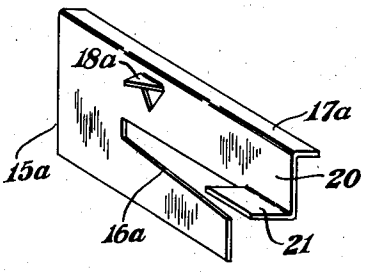


Fig. 5

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METAL CLEAT

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3 Claims. (Cl. 20—6)

The invention relates to metal cleats or clips for securing wood flooring or decking for bridge floors, roofs of buildings and the like to steel beams or purlins, and more particularly to a cleat or clip of this kind especially adapted for securing tongue and groove boards or sleepers to structural metal beams or purlins without the use of nails.

The object of the improvement is to provide a metal cleat or clip having a tapered recess to tightly fit upon one flange of the metal beam or purlin and provided at its upper edge with an angular flange arranged to be received into the groove of one of the tongue and groove sleepers or boards and having an integral sharpened prong adapted to be driven into the edge of the adjacent wooden sleeper or board just below the tongue therein.

A further object is to provide a metal cleat or clip of this character having an angular flange located at the end of the tapered recess and adapted to be bent downward to engage the side of the metal purlin when in use.

The above and other objects may be attained by constructing the improved metal cleat or clip in the manner illustrated in the accompanying drawing, in which

Figure 1 is a fragmentary sectional elevation of the upper portion of a structural metal I-beam and portions of two bridge floor boards or sleepers showing the improved metal clip or cleat mounted upon one flange of the I-beam for securing the floor boards thereto;

Fig. 2, a section taken as on the line 2—2, Fig. 1;

Fig. 3, a detached perspective view of the improved metal cleat or clip shown in Figs. 1 and 2;

Fig. 4, a view similar to Fig. 2 showing a modified form of cleat used for attaching tongue and groove roofing boards and the like to metal purlins of channel construction; and

Fig. 5, a detached perspective view of the form of metal cleat or clip shown in Fig. 4.

Similar numerals refer to similar parts throughout the drawing.

Referring first to Figs. 1, 2 and 3 of the drawing, a construction of the improved metal cleat or clip is illustrated especially adapted for attaching wooden sleepers or bridge flooring boards to I-beams or similar structural members indicated generally by the numeral 10 and provided at their upper ends with tapered flanges 11. The floor boards or sleepers are of the tongue and groove variety indicated generally by the numeral 12, each board having a usual groove 13 extending longitudinally through one side edge and a corresponding tongue 14 formed along the opposite side edge adapted to be received in the groove of the adjacent board, as best shown in Fig. 1.

The improved metal cleat or clip, which is indicated generally at 15, is formed from a heavy sheet or plate of metal substantially rectangular in shape and provided at a point spaced from its lower edge with a tapered recess 16 adapted to tightly fit over the tapered flange 11 of the I-beam or other structural member.

A right angle flange 17 is formed at the upper edge of the cleat or clip 15 and adapted to be received in the groove 13 of the adjacent floor board or sleeper 12, as shown in Figs. 1 and 2. Upon the opposite side of the cleat from the flange 17 is provided an integral sharpened prong 18 preferably of triangular shape as best shown in Fig. 3, this prong being formed by stamping the same from the body portion of the cleat just below the flange 17, leaving the substantially triangular opening 19 in the cleat. These cleats or clips are made both right-handed and left-handed, that is instead of forming the tapered recess 16 in the right-hand edge of the cleat as shown in Figs. 2 and 3, a left-hand cleat may be made by forming the tapered recess 16 in the left side of the cleat so that alternate cleats may be located upon opposite sides of the I-beams to prevent longitudinal movement of the floor boards across the I-beams.

In assembling the flooring, as each board is placed in position, a cleat or clip 15 is wedged upon one flange of the I-beam and driven against the tongue edge of the board, the sharpened prong 18 being driven into the board just beneath the tongue 14 thereof, with the angular flange 17 located against the underside of the tongue. The next board is then placed in position as shown in Fig. 1, the groove 13 thereof receiving the tongue 14 of the other board and the flange 17 of the cleat. With this construction no nails are required to securely attach the floor boards or sleepers to the beams and none of the attaching means is visible from the top of the flooring.

By forming the cleats or clips in lefts and rights so that they may engage opposite flanges of each I-beam and by providing a sufficient number of cleats throughout the flooring, it will be seen that the floor boards or sleepers are firmly attached to the beams so that both longitudinal and lateral movement of the floor boards upon the beams is prevented.

As will be obvious from the drawing, each clip

engages two adjacent floor boards or sleepers, the prong 18 engaging the tongue side of one board and the angular flange 17 engaging the groove of the next adjacent board so that both boards are firmly attached to the I-beam at this point.

In Figs. 4 and 5 is shown a form of the invention especially adapted for attaching tongue and groove roofing boards to structural channel purlins. In this case the roofing boards are of much lighter construction than the bridge flooring shown in Figs. 1 and 2 and the metal cleats or clips indicated generally at 15*a* may therefore be smaller and of lighter material.

Each of the cleats 15*a* is provided with a tapered recess 16*a* adapted to tightly fit upon the upper tapered flange 11*a* of one of the structural channel purlins 10*a* and is provided at its upper edge with the right angle flange 17*a* adapted to be received within the groove 13*a* of one of the roofing boards 12*a* and has the sharpened prong 18*a* stamped from the body portion of the cleat just below the flange 17*a* and adapted to be driven into the tongue edge of the adjacent board just below the tongue thereof in the same manner as shown in Fig. 1.

The cleat 15*a* is provided with an extension 20 extending beyond the channel purlin 10*a* and having the angular ear 21 adapted to be bent downward against the back surface of the purlin as shown in 21*a* in Fig. 4, thus locking the cleat against lateral movement across the purlin and holding each roofing board against longitudinal movement with reference to the purlin.

I claim:

1. In combination with a structural metal member having a tapered flange, tongue and groove wooden members extending across the flange, and a sheet metal cleat having a tapered recess for tightly fitting upon the flange, an angular flange at the top of said cleat for engagement in the groove of one of the wooden members the width of said angular flange being less than the depth of said groove, and an integral sharp prong upon the cleat oppositely disposed to said angular flange for engaging below the tongue of the adjacent wooden member.

2. In combination with a structural metal member having a tapered flange, tongue and groove wooden members extending across the flange, and a sheet metal cleat having a tapered recess for tightly fitting upon the flange, an angular flange at the top of said cleat for engagement in the groove of one of the wooden members, an integral sharp prong upon the cleat for engaging below the tongue of the adjacent wooden member, and means upon the cleat for engaging the structural metal member at a point opposite to said tapered flange.

3. In combination with a structural metal member having a tapered flange, tongue and groove wooden members extending across the flange, and a sheet metal cleat having a tapered recess for tightly fitting upon the flange, an angular flange at the top of said cleat for engagement in the groove of one of the wooden members, an integral sharp prong upon the cleat for engaging below the tongue of the adjacent wooden member, an extension upon the metal cleat beyond the tapered recess therein, and an angular ear upon said extension adapted to be bent into engagement with the structural metal member at a point opposite to said tapered flange.

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