April 21, 1953 C. HUDSON 2,635,343

RAFTER MARKING DEVICE

Filed May 12, 1950 2 SHEETS—SHEET 1

Fig. 1.

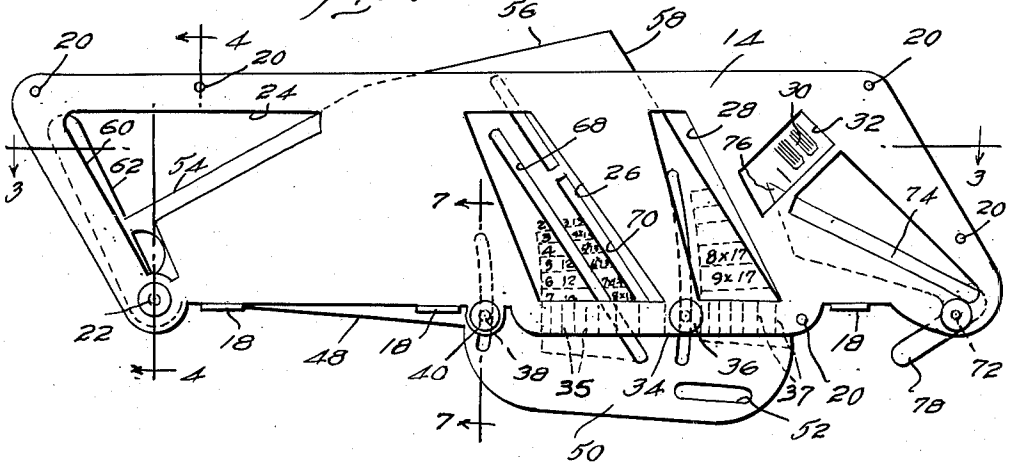


Fig. 2.

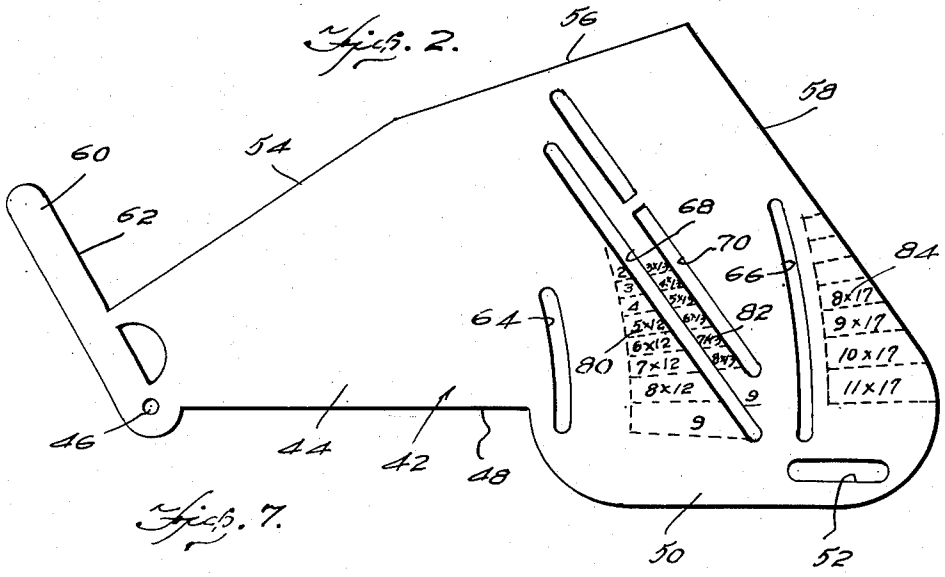
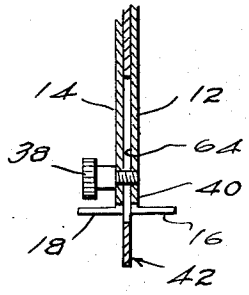


Fig. 7.



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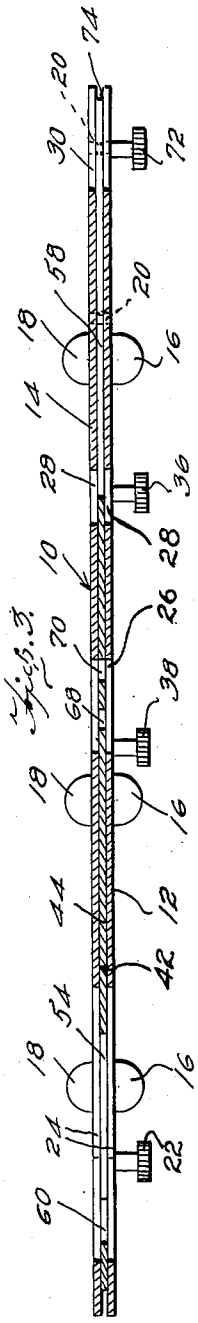


Fig. 3.

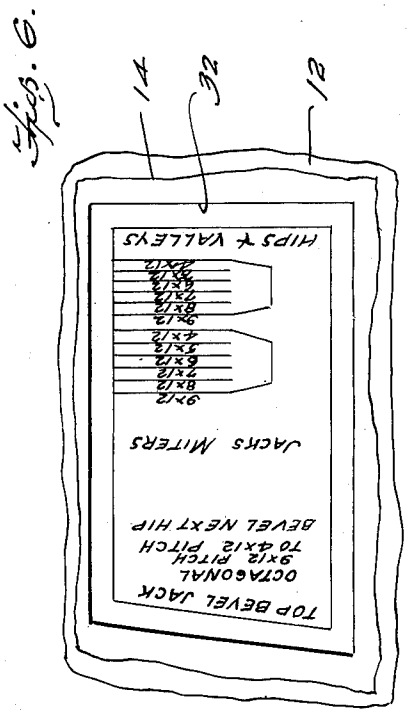


Fig. 6.

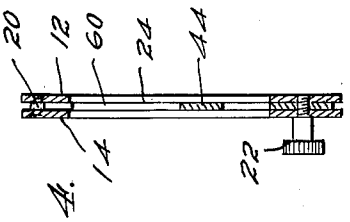


Fig. 4.

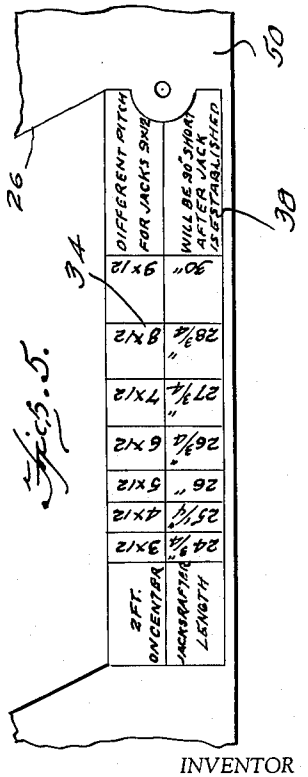


Fig. 5.

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RAFTER MARKING DEVICE

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1 Claim. (Cl. 33—93)

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This invention relates to a geometrical instrument and more particularly to an instrument for use in marking timber preparatory to cutting it.

The primary object of the invention is to enable a carpenter or like workman easily and quickly to mark timbers, such as roof rafters and the like at the proper angles for cutting.

Another object is to enable the workman to lay out the proper angles at which valley and hip rafters are to be cut and to provide a pattern for such rafters preparatory to the cutting thereof.

Still another object is to enable the workman easily to determine the proper angle for heel cuts on all rafters, and in general to enable the workman easily and quickly to lay out the various angles on a piece of timber at which, said timber is to be cut.

A further and more specfic object is to enable the instrument to be used in making either right or left hand cuts by simply reversing its position on the timber on which the angles are being laid out.

Among its features this invention embodies an adjustable pattern by which the various angles at which rafters are to be cut may be determined, and the pattern used in guiding a marking means along the timber.

Other features include a bottom plate, a top plate of substantially the same peripheral contour as the bottom plate, a group of windows adjacent one end of each plate, means holding said plates in spaced parallel relation with windows therein in registry, a blade mounted between said plates to rotate about an axis adjacent the ends of said plates, angularly disposed straight edges along one side of said blade, and indices on said blade remote from the axis, said indices being visible through said windows and stops carried by the plates along the edges thereof remote from the straight edges on the blade for engaging a piece of timber to be marked.

Still other features include means carried by the plates for holding the blade in various adjusted positions about the axis according to the readings of the indices which are visible through the windows, and spaced slots extending through the blade and said slots having straight edges which are accessible through the windows to enable a pencil or the like to be thrust through the windows and guided by the straight edge in making a mark on the timber upon which the device is being used.

In the drawings:

Figure 1 is a top plan view of a geometrical instrument embodying the features of this invention,

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Figure 2 is a top plan view of the blade used in the instrument,

Figure 3 is a longitudinal sectional view taken substantially along the line 3—3 of Figure 1,

Figure 4 is a transverse sectional view taken substantially along the line 4—4 Figure 1,

Figure 5 is a fragmentary enlarged plan view of one of the scales employed in connection with the device,

Figure 6 is a fragmentary enlarged plan view of the device showing the window in the top plate through which certain indices are visible, and

Figure 7 is a fragmentary sectional view taken substantially along the line 7—7 of Figure 1.

Referring to the drawings in detail this instrument designated generally 10 comprises an elongated bottom plate 12 and an elongated top plate 14 which is of the same peripheral contour as the plate 12. Carried by one longitudinal edge of the plate 12 and extending perpendicularly from said plate are a series of stop lugs 16, and carried by the adjacent edge of the top plate are spaced perpendicular lugs 18. The lugs 16 engage an edge of a timber to be marked, when the top plate 14 is uppermost, and the lugs 18 serve as stops to engage an edge of a timber to be cut when the bottom plate 12 is uppermost. It will thus be seen that the device is reversible and may be used in either position. The plates 12 and 14 are held in spaced parallel relation by suitable rivets 20 which extend therethrough adjacent the marginal edges thereof as will be readily understood upon reference to the drawings. Extending through the plates adjacent one corner of instrument 10 is a pivot pin 22 by which a blade—to be more fully hereinafter described—is pivotally supported to move in an arc between the plates. Formed in each plate adjacent the pivot 22 is an opening 24 of substantially triangular contour with the edge of the opening 24 remote from the pivot 22 lying substantially parallel with the longitudinal side edges of the plates. These openings 24 lie in registry and give access to certain elements of the blade as will be more fully hereinafter described. Formed in the plates 12 and 14 in spaced relation to the pivot 22 are registering openings 26 forming windows through which certain indices carried by the blades, to be more fully hereinafter described, are visible. As illustrated in Figure 1 the openings 26 extend transversely of the plates 12 and 14 and opposite side walls of these open-

ings converge toward the edges of the plates remote from the lugs 16 and 18 to form straight edges along which a marking instrument may be guided for marking rafters having what is known as the "common pitch" or for marking octagonal rafters. The openings 26 also serve as windows through which certain indices on the blade, to be more fully hereinafter described, are visible. Extending through the plates transversely thereof near the openings 26 are window openings 28 with the opening in one plate registering with that in the other, and these window openings lie transversely of the plates as will be readily understood upon reference to Figure 1. These openings not only give visibility to certain indices carried by the blade, but also render accessible by a marking instrument one straight edge of said blade. Registering substantially triangular openings 30 are formed in the plates adjacent the ends thereof remote from the pivot 22, and formed in the top plate 14 adjacent the ends of the openings 30 is a window opening 32 through which indices 34 carried by the bottom plate 12 are visible. Extending outwardly from the edge of the plates carrying the lugs 16 and 18 is an elongated lip 34 upon which indices 35 and 37 are carried. These indices lie along the edges of the openings 26 adjacent the edges of the plates 12 and 14 carrying the lugs 16 and 18. Carried by the lip or flange 34 intermediate the ends thereof is a set screw 36, and a similar set screw 38 is carried by a lug 40 formed on and extending outwardly from the edge of the plates 12 and 14 from which the tongues or flanges 34 extend. These set screws 36 and 38 cooperate in holding the blade of the device in various adjusted positions.

Pivotally supported on the pivot pin 22 for movement about the axis thereof and between the plates 12 and 14 is a blade designated generally 42. This blade 42 comprises a substantially rectangular body 44 which is provided adjacent its smaller end with a suitable opening 46 for the reception of the pivot pin 22. The edge 48 of the body 44 lies adjacent the edges of the plates 12 and 14 carrying the lugs 16 and 18, and formed on the body 44 adjacent the end thereof remote from the opening 46 is a lip or flange 50 having a slot 52 extending thereto which serves as a finger grip for moving the blade between the plates 12 and 14. Formed along the edge of the body 44 remote from the edge 48 and lying in angular relation to the edge 48 is a straight edge 54, and lying adjacent said straight edge 54 at a different angle thereto is a straight edge 56. Adjoining the end of the straight edge 56 remote from the straight edge 54 and lying in angular relation thereto is a straight edge 58 which extends substantially to the end of the body 44 remote from the pivot opening 46. An arm 60 projects from the smaller end of the body 44 in substantial alignment with the axis of the opening 46 and is provided with a straight edge 62 which lies perpendicular to the straight edge 54. Formed in the body 44 and curving about the axis of the opening 46 are spaced concentric slots 64 and 66 through which the set screws 36 and 38 are projected to hold the blade in various adjusted positions between the plates 12 and 14. Spaced slots 68 and 70 are formed in the body 44, and when the parts are assembled with the blade between the plates 12 and 14, the slots 68 and 70 will be accessible through the openings 26.

Pivotally supported on a suitable pivot pin 72 which extends between the plates adjacent the ends thereof remote from the pivot pin 22, and adjacent the smaller ends the openings 30 is a blade 74 carrying at its end remote from the pivot 72 a pointer 76 which moves between the plates 12 and 14 and is visible through the window 32. This pointer cooperates with the indices which are visible through the window 32 in determining the proper angles for hips and valleys. A lever arm 78 is connected to the blade 74 and projects beyond the confines of the plates 12 and 14 so that the blade 74 may be easily adjusted to the desired position with relation to the indices beneath the window 32.

In use when it is desired to lay out the proper angles for the cutting of a piece of timber, the instrument is placed on the timber with the lugs 16 lying against one edge of the timber and the set screws 36 and 38 are loosened so as to permit the blade to move between the plates 12 and 14. The blade is then moved to bring the indices 80, 82 or 84 into the desired position with respect to the bottom edges of the openings 26 or 28 according to which type of rafter is to be cut, and with the parts in this position, the set screws 36 and 38 are locked, and the marks are made by using the various straight edges carried by the blade, some of which are accessible through the openings 26 and 28, while others are accessible beyond the opposite edge of the instrument. When it is desired to lay out the angles on a piece of timber for hips and valleys, the device is placed on the timber as previously described, and the arm 78 is moved so as to adjust the plate 74 to the desired position according to the indices visible through the window 32 whereupon the blades 74 lying at the desired angle is accessible through the window openings 30 in the plates 12 and 14 so that a marking instrument may be drawn along the edge of the blade to indicate on the timber the angle at which it is to be cut. Obviously if so desired the device may be turned upside down on the work in which event the lugs 18 will engage the edge of the work, and the parts may be manipulated in identically the same manner as previously described. By the use of this instrument the various rafter angles, as well as the miters, hips and valleys, may be laid out on a piece of timber preparatory to cutting it, and when the timber is placed in position the fit will be accurate. By using this device the carpenter or workman will save considerable time over the ordinary methods employed when using a square.

While in the foregoing there has been shown and described the preferred form of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

I claim:

In an instrument for use in marking a timber preparatory to cutting it, an elongated bottom plate, an elongated top plate overlying the bottom plate, said plates having substantially identical peripheral contours, a group of windows adjacent to one end of each plate and in registry, means holding said plates in spaced parallel relation, a blade of substantially triangular form pivoted to and between said plates adjacent to the ends thereof opposite from the said windows to swing about said pivot, a series of parallel and aligned slots in the end of said blade remote from said pivot, said blade having angularly dis-

posed straight edges along one of its sides, indices on said blade remote from the point of its pivot, said indices being visible through said windows, depending and upstanding stops carried by the bottom and top plates respectively along the side edges thereof remote from the straight edges of the blade for engaging a piece of timber to be marked, an arm on the blade at its pivoted end and having a straight edge disposed in right angular relation with respect to the adjacent of the straight edges of the blade, and the plates having registering openings therethrough through which the latter straight edges are exposed, the said slots in said blade and a straight edge at the wider end of the blade being exposed through certain of the windows at the opposite end of said plates.

CHARLES HUDSON.

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