Aug. 20, 1940. M. V. TRACY 2,212,331

CARPENTER'S ROOF LAY-OUT GAUGE

Filed Aug. 14, 1939 2 Sheets-Sheet 1

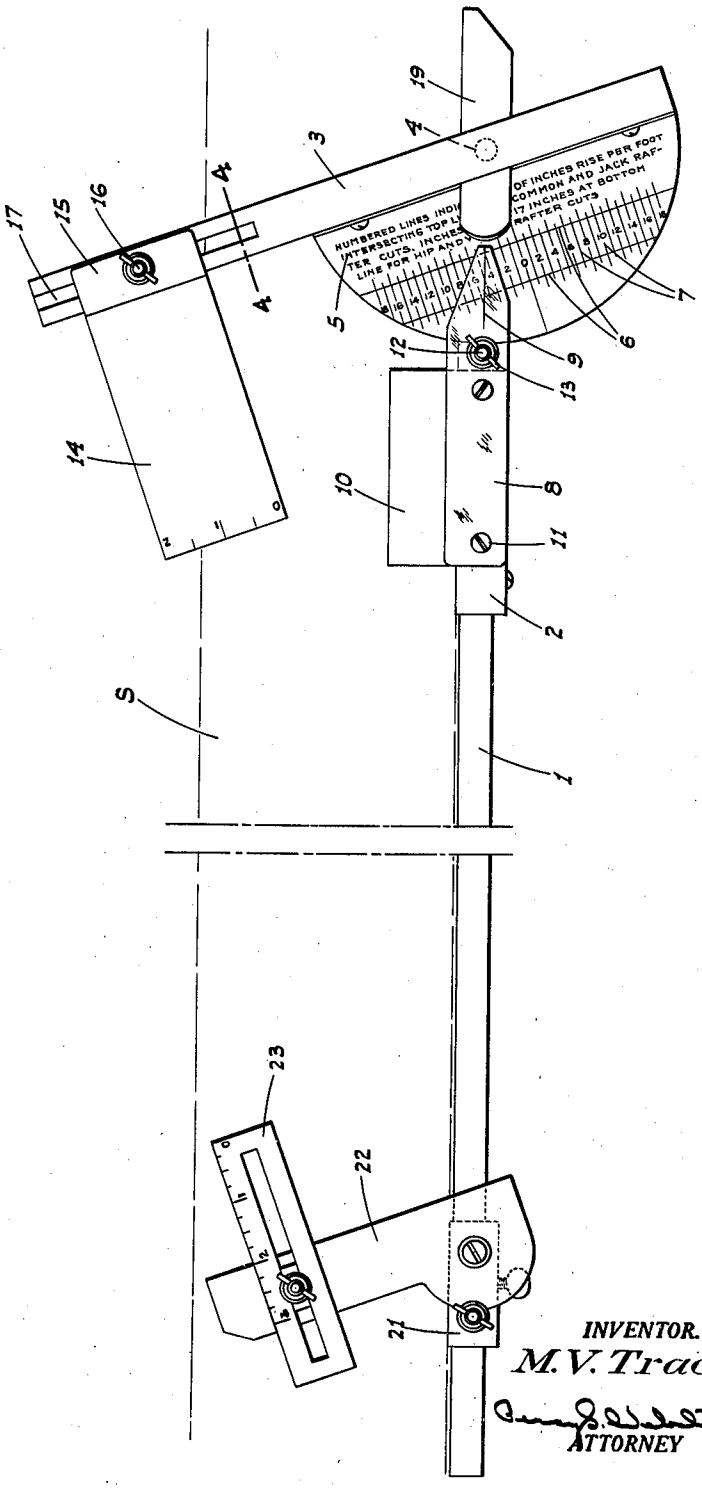

Fig. 1

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CARPENTER'S ROOF LAY-OUT GAUGE

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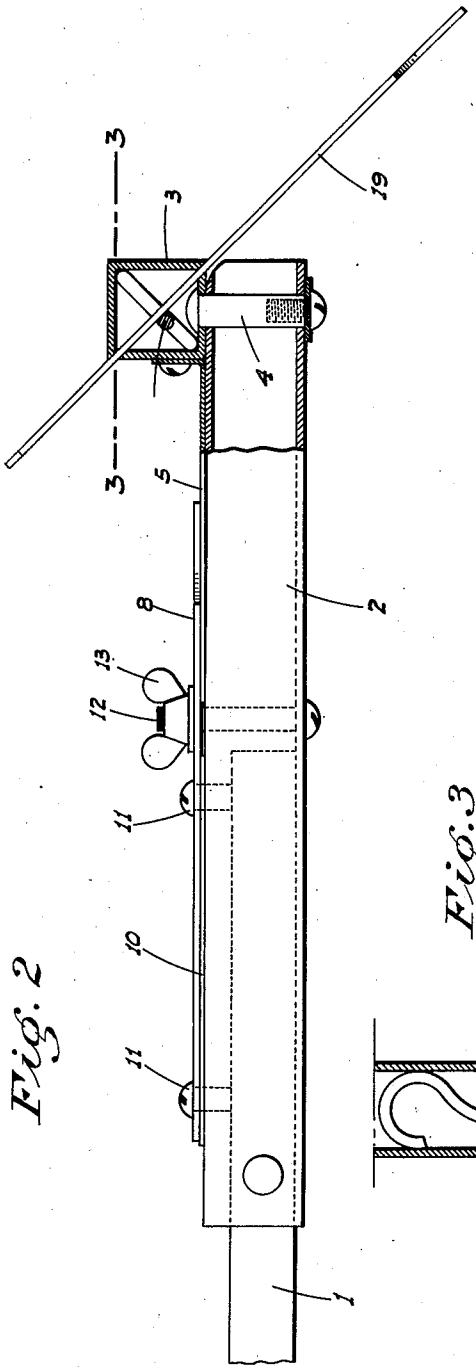

Fig. 2

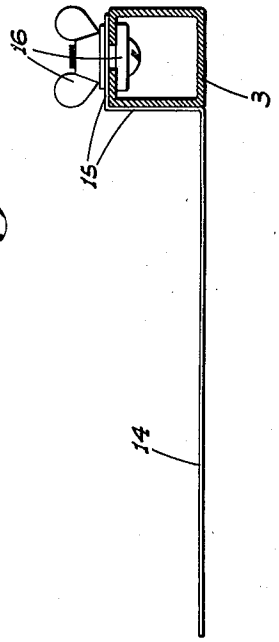

Fig. 4

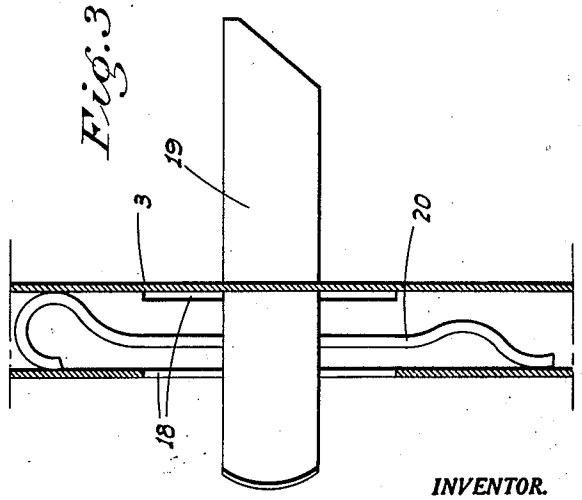

Fig. 3

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Patented Aug. 20, 1940 2,212,331

UNITED STATES PATENT OFFICE

2,212,331

CARPENTER'S ROOF LAY-OUT GAUGE

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Application August 14, 1939, Serial No. 290,035

9 Claims. (Cl. 33—90)

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a plan view of my improved gauge.

Figure 2 is an enlarged fragmentary side elevation of the gauge, partly in section.

Figure 3 is a fragmentary sectional plan on line 3—3 of Fig. 2.

Figure 4 is a fragmentary section on line 4—4 of Fig. 1.

Referring now more particularly to the characters of reference on the drawings, the gauge comprises a straight metal bar 1, preferably square and of hollow form in cross section. This bar is relatively long, or about 3 feet in length as compared with ½ inch in cross section. At one end, the bar projects into a sleeve 2, in which it is removably clamped for purposes of dismantling for packing or transporting.

The outer end of the sleeve extends beyond the adjacent end of the bar and resting on top of the sleeve at said end is a hollow cross bar 3 also of square cross section. The bar 3 is turnably mounted on the sleeve by means of a pivot member 4 engaging the lower thickness only of the bar 3 but extending from top to bottom of the sleeve, as shown in Fig. 2, so as to provide good stability.

A quadrant plate 5, centered at pivot 4, is secured on bar 3 and projects over the adjacent portion of the sleeve 2 on a level with the lower edge of the bar 3. This plate is especially graduated by means of a pair of spaced lines 6 parallel to each other and to the outer edge of bar 3, and a plurality of lines 7 crossing lines 6 and numbered upwardly in both directions from the radial center line of the plate. A transparent resilient pointer strip 8 projects over the plate, being provided with a hair line 9 parallel to the working edge of bar 1. The position and spacing of lines 6 relative to each other and to pivot 4, and the spacing of lines 7 is such that the intersection of the hair line with lines 7 and the line 6 nearest the pivot, represents pitch of inches rise per foot for common and jack rafter cuts, while the intersection of the hair line with said lines 7 and the other line 6 represents inches rise per 17 inches of length for hip or valley rafter cuts. In other words, when bar 1 is laid against one longitudinal edge of a stick S to be marked and cut, and the cross bar is swung so that the hair line reads against a predetermined pair of intersecting lines 6 and 7, a line drawn across the stick at the outer edge of the cross bar will indicate the proper plumb line cut for one end of the rafter of whatever type is being laid out.

The strip 8 rests on a plate 10 the same thickness as plate 5 and overhanging the working edge of bar 1 so as to rest on the stick; the strip and plate 10 being secured on the sleeve 2 by screws 11.

The plate 10 terminates short of the peripheral edge of the quadrant, so that the resilient strip 8 may be releasably clamped against the quadrant to hold the latter and the cross bar against rotation from any set position. Such clamping is effected by means of a stud 12 mounted on sleeve 2 between plates 5 and 10 and projecting up through the pointer, and a wing nut 13 threaded on the upper end of the stud.

A seat-cut marking plate 14, disposed on a level with the bottom of bar 3, projects from one face thereof being formed with its side edges at right angles to the outer edge of said bar and its outer edge parallel to said bar. This plate is slidably and reversibly mounted on the portion of bar 3 beyond the quadrant which overhangs the stick. This is done by forming the plate 14 with portions 15 extending up one side of and over the top of bar 3, as shown in Fig. 4, and mounting a clamping device 16 on the topmost portion which cooperates with the top thickness of the bar 3 through the medium of a slot 17 cut lengthwise in said bar and open to the outer end thereof.

The bar 3 intermediate the ends of the quadrant is formed with longitudinal slots 18 disposed in a plane at an angle of 45° to the perpendicular, for the slidable reception of a rigid marking strip 19, which projects downwardly beyond the outer working edge of the crossbar as shown in Fig. 2. This strip is tightly yet yieldably held against movement by means of a spring rod 20 mounted in and extending lengthwise of the cross bar as shown in Fig. 3, and engaging the under side of said strip between the slots as shown in Fig. 2. This mounting of the strip enables the working edge of the same to be disposed in a vertical plane and flush against the adjacent transverse depending side of the stick (which is laid on the bench with its widest dimension horizontal) regardless of the angle of setting

of the quadrant and cross bar relative to the stick, and enables the stick to be properly marked for side cutting, if a hip or jack rafter is being laid out.

Slidably mounted on the bar 1 for movement along the same is another sleeve 21 whose inner edge is alined with the corresponding edge of sleeve 2 so that such edges, instead of the bar itself, actually engage the stick as indicated in Fig. 1.

A plate 22, having a straight edge along one side facing in the direction of bar 3, is swivelly mounted and adjustably clamped on sleeve 21 and overhangs the stick to prevent dropping of the adjacent portion of bar 1 relative to the stick.

Slidably but non-rotatably mounted on plate 22 near its outer end and overhanging the straight edge thereof is a short rule 23, disposed and movable in a plane at right angles to said straight edge.

When using the gauge, after the cross bar 3 is set to the proper angle for laying out any particular set of rafters, the sleeve 21 and plate 22 are set so that the straight edge of said plate is parallel to the working edge of the cross bar and is spaced two feet (or whatever the run of the rafters may be) therefrom in a direct right-angle line. The gauge, besides enabling the various cut lines to be marked on the stick at the proper angles, also serves as a two foot rule in laying out the total length of the rafters. Such length is ordinarily given on the plans to the center of the ridge rafter, and the purpose of rule 23 is to enable the stick, after it has been laid out to the full theoretical length, to be then marked for actual cutting along a line short of said theoretical length an amount equal to ½ the thickness of the ridge, and as determined by the extent of projection of the rule 23 from the straight edge of plate 22. Although the device has been particularly designed, and is here shown and described, for use when laying out rafters, it may of course be used in connection with any square and straight-edged members, including structural iron. Also, the device without the bar 1 has uses for various layout work, such as determining the rise or pitch for setting up power saws to the desired pitch.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A gauge comprising a longitudinal bar unit, a cross bar pivotally mounted on top of said unit adjacent one end thereof and having its outer edge straight to serve as a marker guide, means to clamp the cross bar in any predetermined angular position relative to the unit, a plate having a straight edge facing in the direction of the cross bar, means mounting said plate on the unit for movement lengthwise thereof and independent angular adjustment relative thereto and a rule slidably mounted on said plate for longitudinal movement in a plane at right angles to the straight edge of said plate and projecting beyond said edge.

2. A gauge comprising a straight-edge member, a cross bar pivotally mounted on top of said member adjacent one end thereof and having its outer edge straight to serve as a marker guide, a marked quadrant mounted on and projecting from the inner face of the cross bar and whose lower face is substantially in contact with the top surface of the adjacent portion of the member, a resilient flat pointer mounted on the member beyond and overhanging the quadrant and means to apply a releasable downward pressure on the pointer adjacent but beyond the quadrant whereby to clamp the adjacent portion of the quadrant between the pointer and member.

3. A rafter lay-out gauge comprising a longitudinal bar unit adapted to extend alongside and parallel to a rafter to be laid out, a cross bar pivotally mounted on top of said unit adjacent one end thereof to overhang the rafter and having its outer edge straight to serve as a guide for marking a plumb line on the rafter, means to clamp the cross bar in any predetermined angular position relative to the unit, and a plate having adjacent straight edges at 90° to each other to form a guide for marking a seat-cut on the rafter, slidably mounted on the crossbar; the plate being substantially level with the under face of the bar and one of said plate edges being parallel to the outer edge of the cross bar.

4. A lay-out gauge comprising a member adapted to engage one side of the work to be laid out, a cross bar pivotally mounted on top of said member adjacent one end thereof to overhang one face of the rafter and having its outer edge straight to serve as a guide for marking a line on the work, means to clamp the cross bar in any predetermined angular position relative to the member, and an element adjustably mounted on and depending from the cross bar to form a guide for marking a line on an adjacent face of the work.

5. A lay-out gauge comprising a member adapted to engage one side of the work to be laid out, a cross bar pivotally mounted on top of said member adjacent one end thereof to overhang the rafter and having its outer edge straight to serve as a guide for marking a line on the work, means to clamp the cross bar in any predetermined angular position relative to the member, a rigid strip having a straight edge adapted for marking a line on the side of the work, and means movably mounting the strip on the cross bar in depending angular relation thereto and so that its straight edge may lie in a vertical plane and against the adjacent side of the work irrespective of the angular setting of the cross bar relative to the unit and work.

6. A lay-out gauge comprising a member adapted to engage one side of the work to be laid out, a cross bar pivotally mounted on top of said member adjacent one end thereof to overhang the rafter and having its outer edge straight to serve as a guide for marking a line on the work, means to clamp the cross bar in any predetermined angular position relative to the member, a rigid strip having a straight edge adapted for marking a line on the side of the work, the cross bar being slotted lengthwise and diagonally for the reception of the strip so that the latter will depend from the cross bar and project beyond the straight edge thereof; the slots being longer than the width of the strip and means yieldably holding the strip against movement.

7. A structure as in claim 6, in which the cross bar is hollow and said holding means comprises

a spring element mounted within the cross bar and engaging one face of the adjacent portion of the strip.

8. A gauge as in claim 2, in which the pointer is relatively wide and is of transparent material.

9. In a gauge having a member to engage one side of the work, a plate to overhang the work and having a straight edge, means mounting the plate on the member for angular adjustment relative thereto and a rule slidably mounted on the plate at a fixed point in the length thereof for longitudinal movement relative thereto in a direction at right angles to the straight edge of said plate and projecting beyond said edge.

MEARL V. TRACY.