R. C. BROWNING.

RAFTER FRAMER.

APPLICATION FILED NOV. 6, 1919.

1,412,162.

Patented Apr. 11, 1922.

2 SHEETS—SHEET 1.

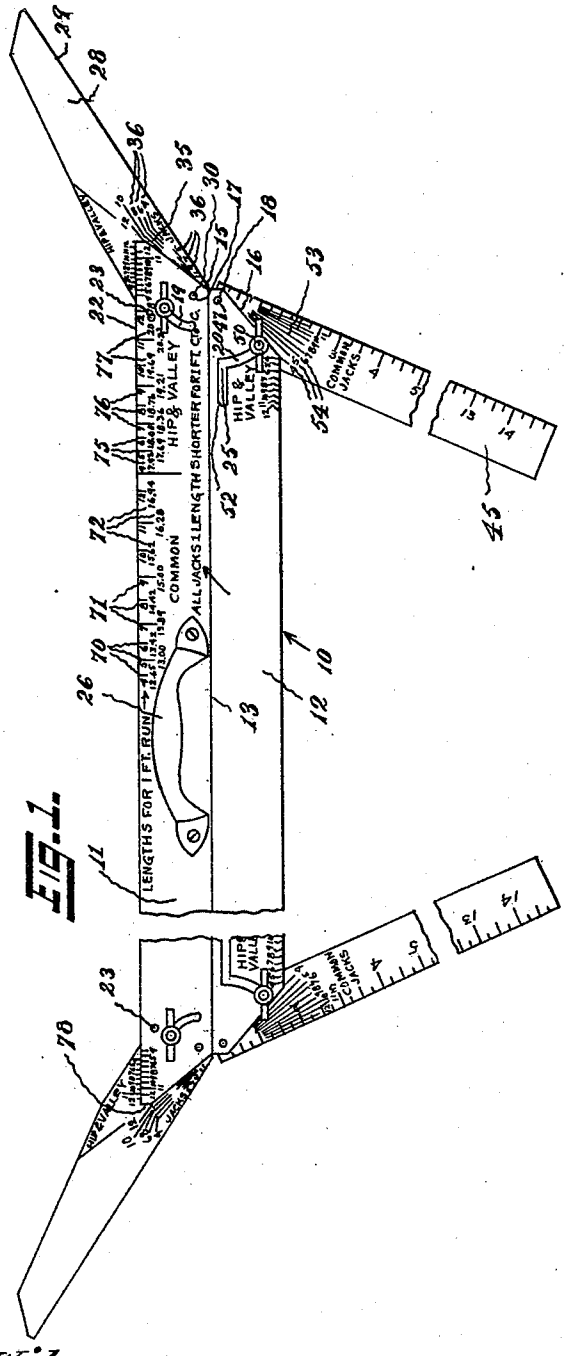


FIG. 1.

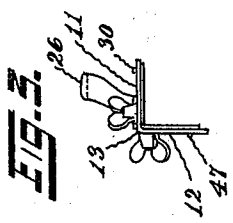


FIG. 3.

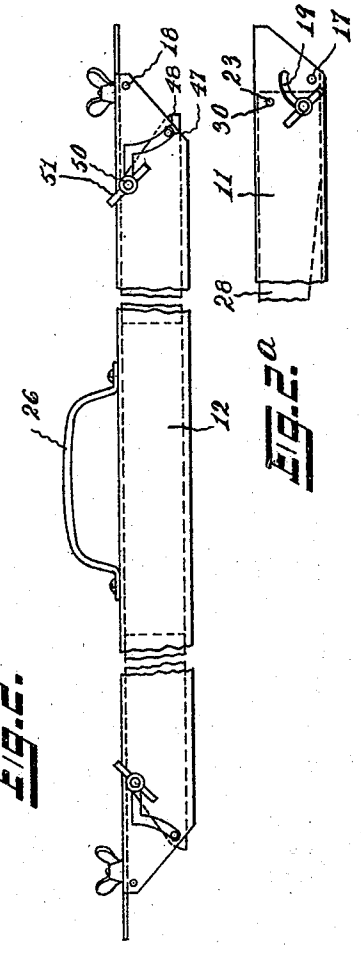


FIG. 2a.

FIG. 2.

Witnesses;
L. C. Badeau.
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Inventor:
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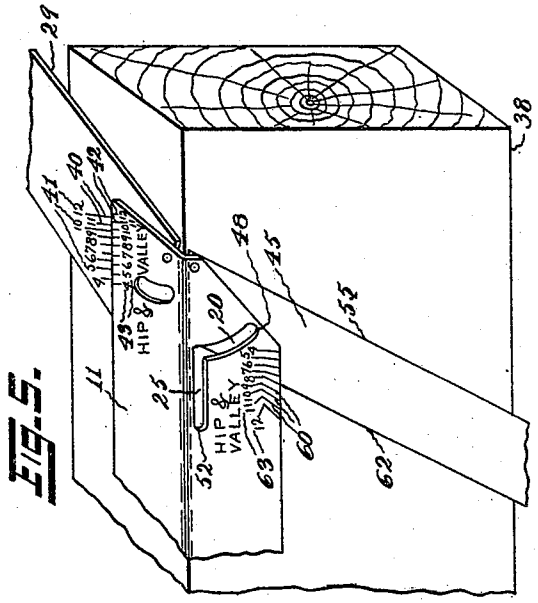


FIG. 5.

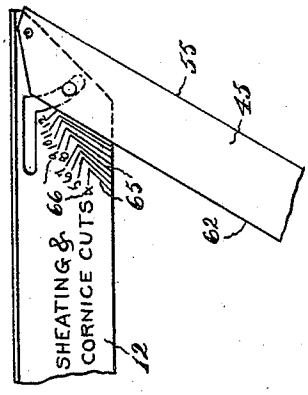


FIG. 7.

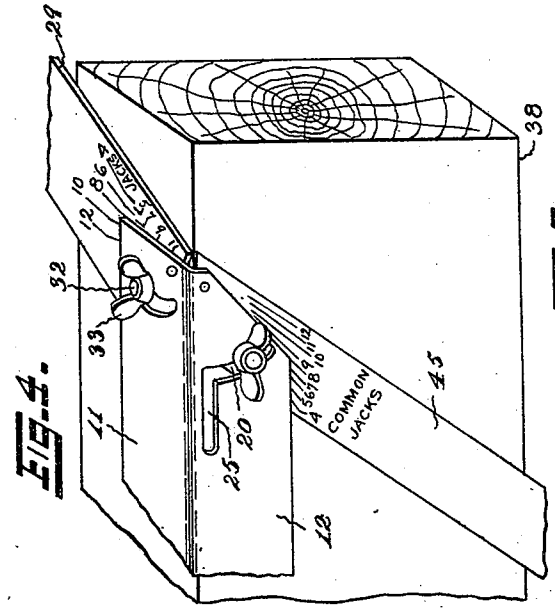


FIG. 4.

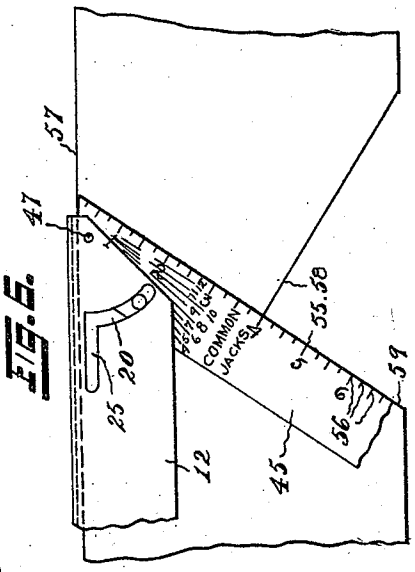


FIG. 6.

Witnesses;

L. C. Badeau.

H. D. Penney

Inventor:

Roy C. Browning,

By his Atty, J. H. Richards.

UNITED STATES PATENT OFFICE.

ROY C. BROWNING, OF WILLIAMSPORT, PENNSYLVANIA.

RAFTER FRAMER.

1,412,162. Specification of Letters Patent. **Patented Apr. 11, 1922.**

Application filed November 6, 1919. Serial No. 336,201.

To all whom it may concern:

Be it known that I, ROY C. BROWNING, a citizen of the United States, residing in Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Rafter Framers, of which the following is a specification.

This invention relates to a tool for laying off rafters and has for its object to provide such a tool by which the various angles and lengths of common, jack, hip, and valley rafters, and the angles of cornice and sheathing cuts, and cuts of cripple rafters may be laid off without the necessity of complicated measurements or calculations.

Other objects of the invention will appear as the description proceeds; and while herein minute details of the invention are described, the invention is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed.

In the accompanying drawing, showing by way of example, one of many possible embodiments of the invention,—

Figure 1 is a somewhat distorted perspective view showing the rafter framer adjusted for use;

Figs. 2 and 2ª are a plan and fragmental side elevation respectively showing the framer folded;

Fig. 3 is an end elevation;

Figs. 4 and 5 are fragmental perspective views showing the framer in use for laying off the top or plumb ridge cuts and the plumb seat cuts of jack rafters, and hip and valley rafters respectively;

Fig. 6 is a fragmental side elevation showing the rafter framer in use for laying off the plumb seat cut and measuring the depth or rise of the level plate cut; and

Fig. 7 is an inside fragmental side elevation showing the framer set for sheathing and cornice cuts.

The principal element of my rafter framer on which the movable parts of the framer are mounted consists of a one-piece body portion 10 comprising a top plate 11 and a side plate 12 disposed at right angles to each other (see Fig. 3) and joining in a meeting line 13. The top and side plates have at each end inclined index edges 15 and 16 (Fig. 1), pivot holes 17 and 18 near the respective index edges and the meeting line 13, and arcuate slots 19 and 20 concentric with the associated pivot holes and approaching said meeting line. The top plate is provided near its outer edge 22 about on a transverse line with the inner end of the arcuate slot 19, with a keeper hole 23; and the side plate 12 is provided at the inner end of the arcuate slot with a keeper slot 25 parallel with the meeting edge 13, the object of which will presently appear. Said index edges 15 and 16 of the top and side plates form respectively obtuse and acute angles with said meeting line. A handle 26 is provided on the mid-part of said top plate 11 near said meeting line 13 for convenience in applying and handling the framer.

A top blade 28 is disposed against the inner face of each end of the top plate 11 and has an outer working edge 29. A short pivot pin 30 is mounted in the outer corner of the inner end of each top blade 28 and is adapted to engage in said pivot hole 17 when the top blade is assembled in working condition (Fig. 1), and to engage in said keeper hole 23 (Fig. 2ª) when the top blade is folded longitudinally against the inner face of the top plate, as for convenience in storing when the framer is not in use. A clamping bolt 32 (Fig. 4) is secured on said top blade and projects through the arcuate slot 19, and is provided with a wing nut 33 adapted to clamp the top blade and top plate together in any position of open or closed adjustment.

Jack rafter top ridge cut graduations 35 (Fig. 1) are provided on the top blade and adapted, one at a time, to register with said index edge 15; and each graduation is provided with a pitch number 36 designating at which graduation the blade should be set to have its working edge set in position for laying off a line for the ridge top cut of jack rafters of the pitch specified by such pitch number. Fig. 4 shows the framer applied to a portion of a rafter 38 and set for the top cuts of jack rafters of eight-inch pitch.

Hip and valley ridge top cut graduations 40 (Fig. 5) are provided on said top blade 28 adjacent to the outer edge of the end of the top plate when the top blade is set for hip or valley top cuts and are each provided with an associated pitch number 41. Graduations 42 are provided at the outer edge of each end of the top plate 11 and are each

provided with a pitch number 53. Said graduations 42 and hip and valley graduations 40 are so positioned relative to each other that when the graduation 42 of any pitch number is set opposite to the hip and valley graduation 40 of the same pitch number, the top blade will have its working edge set for marking off the ridge top cuts of hip or valley rafters of roofs of such pitch. Fig. 5 shows the graduation designated by "8" on the blade set opposite the graduation "8" on the plate, and the blade is therefore set for marking the top cuts of hip or valley rafters of roofs having 8-inch pitch.

A plumb blade 45 is disposed against the inner face of each end of the side plate 12 and has an outer working edge 46. A short pivot pin 47 mounted in the outer corner of the inner end of the plumb blade is adapted, when the blade is open, to engage in said pivot hole 30 of the side plate, and when the blade is closed, to lie in the outer end of the arcuate slot 48 (Fig. 2) of the side plate. A clamping bolt 50 secured on said plumb blade and having a clamping nut 51 thereon projects through the arcuate slot 20 of the side plate when the blade is open and disposes itself in the closed end 51 of the keeper slot 25 when the blade is closed.

Common and jack rafter plumb cut graduations 53 (Fig. 1) provided on said plumb blade are adapted, one at a time, to register with the index edge 16 of the side plate, and are each provided with a pitch number 54 designating at which graduation the plumb blade should be set for marking the plumb cut of jack and common rafters. The plumb blade is shown in Fig. 4 set for the plumb cut of jack and common rafters of 8-inch pitch.

Said plumb blade 45 is also provided at its working edge 55 (Fig. 6) with an inch or other linear scale 56, for measuring distances from the top face 57 of rafters for determining the depth at the level plate cut 58 of rafters. In Fig. 6 the pitch is 8 inches, and the vertical distance from the level plate cut at 58 to the top face 57 is 4 inches. The level plate cut 58 is laid off by placing a square against the plumb cut line 59.

The outer face of each end of said side plate 12 is provided with hip and valley plumb cut graduations 60, (Fig. 5), adapted, one at a time, to register with the inner edge 62 of the plumb blade and each provided with a pitch number 63 designating the graduation at which the plumb blade should be set for marking hip and valley rafter ridge plumb cuts for hip and valley rafters for roofs of the pitch specified by such pitch number. Fig. 5 shows the plumb blade set for ridge plumb cuts of hip or valley rafters for a roof of 8-inch pitch.

The inner face of each end of said side plate 12 (Fig. 7) is provided with sheathing and cornice graduations 65 adapted one at a time to register with the inner edge 62 of the plumb blade 45. Each graduation 65 is provided with a pitch number 66 designating the graduation at which the plumb blade should be set for cornice, sheathing and edge bevel of purlin cuts on hip and valley of roofs of the pitch specified by the pitch number. Fig. 7 shows the plumb blade set for cornice cuts of a roof of 12-inch pitch.

The rear edge portion of the outer face of said top plate 11 (Fig. 1) is provided near its mid-part with graduations 70 each having associated therewith a pitch number 71 and a length number 72 representing the corresponding common rafter length for one foot run for a roof of such pitch. These lengths are given in inches and hundredths of inches.

The rear edge 22 of one end of said top plate 11 is provided with graduations 75 each having associated therewith a pitch number 76 and a length number 77 representing the corresponding rafter length for hip and valley rafters for each foot of run of roofs of such pitch.

The distances from the graduations 70 and 75 to the end 78 of the body portion are the actual lengths represented by the corresponding associated length numbers 72 and 77, so that these lengths may be measured from the framer direct without the aid of any other scale.

The note to which attention is directed by the adjacent arrow (Fig. 1) is merely a reminder that all jack rafters and cripples of any pitch are cut one length shorter for one foot center to center, two lengths shorter for two feet center to center, etc.

The object of having the blades provided on both ends is to permit the laying off of both right and left-hand rafters, and for cripples.

It is noted that the working edges 29 and 55 of the top and plumb blades intersect at about the same point. This makes it easy to lay off both the top cut and the plumb cut with practically one stroke of the pencil or marker.

The operation of the rafter frame will be easily understood from the foregoing. For the ridge cuts of rafters, the blades are set in accordance with the pitch graduation for the kind of rafter to be cut and the framer applied to the rafter as shown in Figs. 4 or 5. Then the pencil or other marker is drawn along the working edges of the blade thus making the mark on which the rafter is to be cut.

The length of the rafter is determined by referring to the numbers 72 or 77 (Fig. 1). For example, to find the length of a hip rafter of a roof of nine-inch pitch of a

house twenty feet wide, find the pitch number "9" among the pitch numbers 75 and note the corresponding length number "19.21" immediately under it. As the house being 20 feet wide, it has a ten foot run. Therefore, multiply the length number "19.21" by 10 and one gets 192.10 inches as the length of the rafter. This is most conveniently done by merely measuring off ten times the distance from the end 78 to the graduation associated with the length number "19.21".

I claim as my invention:

1. In combination, a body portion comprising a top plate and a side plate; a pivotally disposed top blade at each end of the top plate provided with jack top-cut graduations adapted to register with an edge of the top plate; the top plate and top blade being provided with graduations for hip and valley top cuts adapted to register with each other respectively; and a pivotally disposed plumb blade at each end of the side plate provided with common and jack plumb cut graduations adapted to register with an edge of the side plate; the side plate being provided on the outer face thereof with graduations for hip and valley plumb cuts adapted to register with an edge of the plumb blade and provided on the inner face thereof with graduations for sheathing and cornice cuts adapted to register with an edge of the plumb blade.

2. In combination, a body portion comprising a top plate and a side plate; a pivotally disposed top blade at each end of the top plate provided with jack top-cut graduations adapted to register with an edge of the top plate; the top plate and top blade being provided with graduations for hip and valley top cuts adapted to register with each other respectively; and a pivotally disposed plumb blade at each end of the side plate provided with common and plumb cut graduations adapted to register with an edge of the side plate; the side plate being provided on the outer face thereof with graduations for hip and valley plumb cuts adapted to register with an edge of the plumb blade.

3. In combination, a body portion comprising a top plate and a side plate; a top plate pivotally disposed on the side plate; and a plumb blade pivotally disposed on the side plate; the side plate being provided on the outer face thereof with hip and valley plumb cut graduations adapted to register with an edge of the plumb blade and provided on the inner face thereof with graduations for sheathing and cornice cuts adapted to register with an edge of the plumb blade.

4. In combination, a body portion comprising a top plate and a side plate at right angles to each other; and a plumb blade pivotally adjustably disposed against the inner face of the end of the side plate; the inner face of said end being provided with graduations for sheathing and cornice cuts adapted, one at a time, to register with the inner edge of the plumb blade and each such graduations being provided with a pitch number designating the graduation at which the plumb blade should be set for cornice, sheathing and edge bevel of purlin cuts on hip and valley of roofs of the pitch specified by the pitch number.

5. In combination, a body portion comprising a side plate; and a plumb blade pivotally adjustably disposed on the side plate, said plate being provided with graduations for sheathing and cornice cuts adapted, one at a time, to register with the inner edge of the plumb blade and each such graduation being provided with a pitch number designating the graduation at which the plumb blade should be set for cornice, sheathing and edge bevel of purlin cuts on hip and valley of roofs of the pitch specified by the pitch number.

6. In combination, a body portion comprising a top plate and a side plate at right angles thereto provided with an index end edge; and a plumb blade pivotally adjustably disposed against the inner face of said end, common and jack rafter plumb cut graduations being provided on said plumb blade and adapted, one at a time, to register with the index edge of the said plate and each provided with a pitch number designating at which graduation the plumb blade should be set for the plumb cut of jack and common rafters of such pitch, said plumb blade being provided at its working edge with inch graduations for measuring distances from said meeting edge for determining the rise at the seat cut of rafters.

7. In combination, a one-piece body portion comprising a top plate and a side plate disposed at right angles to each other and joining in a meeting line, said side plate having at one end an inclined index edge, a pivot hole near the index edge and meeting line and an arcuate slot concentric with the pivot hole and approaching said meeting line, the side plate being provided with a keeper slot communicating with the inner end of the arcuate slot and parallel with the meeting edge and extending away from said index edge; a plumb blade disposed against the inner face of the end of the side plate and having an outer working edge; a short pivot pin mounted in the outer corner of the inner end of the plumb blade and when the blade is open engaging in said pivot hole and when the blade is closed being adapted to lie in the outer end of the arcuate slot of the side plate; and a clamping bolt secured on said plumb blade and having a clamping nut thereon and adapted to project through the arcuate slot of the side plate when the

blade is open and to dispose itself in the closed end of the keeper slot when the blade is closed.

8. In combination, a body portion comprising a top plate and a side plate joining in a meeting line, said side plate having at one end a pivot hole near the meeting line, an arcuate slot concentric with the pivot hole and approaching said meeting line, and a keeper slot communicating with the inner end of the arcuate slot and parallel with the meeting line; a plumb blade; a sort pivot pin mounted in the outer corner of the inner end of the plumb blade and when the blade is open engaging in said pivot hole and when the blade is closed being adapted to lie in the outer end of the arcuate slot; and a clamping bolt secured on said plumb blade and adapted to project through the arcuate slot of the side plate when the blade is open and to dispose itself in the closed end of the keeper slot when the blade is closed.

9. In combination, a body portion comprising a top plate, and a side plate having a pivot hole, an arcuate slot concentric with the pivot hole, and a keeper slot communicating with the arcuate slot; a plumb blade; a pivot pin mounted on the plumb blade and adapted when the blade is open to lie in said pivot hole, and when the blade is closed to lie in the outer end of the arcuate slot; and a bolt secured on said blade and adapted to project through the arcuate slot when the blade is open and to dispose itself in the closed end of the keeper slot when the blade is closed.

10. In combination, a body portion comprising a top plate and a side plate at right angles to each other and each provided at both ends with an index edge; and a top blade pivotally adjustably disposed against the face of each end of the top plate, hip and valley ridge top cut graduations being provided on said top blade adjacent to the outer edge of the end of the top plate when the top blade is set for hip or valley top cuts and each provided with an associated pitch number, graduations being provided at the outer edge of each end of the top plate and each provided with a pitch number, said graduations and hip and valley graduations being so positioned relative to each other that when the graduation at the outer edge of the end of the top plate of any pitch is set opposite to the hip and valley graduation of the same pitch the top blade will have its working edge set for top cuts of hip or valley rafters for a roof of said pitch.

11. In combination, a body portion comprising a top plate and a side plate; and a top blade pivotally adjustably disposed against the top plate and provided with hip and valley ridge top cut graduations adjacent to the edge of the top plate when the top blade is set for hip or valley top cuts and each provided with an associated pitch number, graduations being provided at the edge of the top plate and each provided with a pitch number, said graduations at the edge of the top plate and hip and valley graduations being so positioned relative to each other that when the graduation at the edge of the top plate of any pitch is set opposite to the hip and valley graduation of the same pitch the top blade will have its working edge set for top cuts of hip or valley rafters for a roof of said pitch.

12. In combination, a body portion comprising a top plate and a side plate; and a top blade pivotally adjustably disposed against the top plate and provided with hip and valley top cut graduations, each provided with an associated pitch number, graduations being provided on the top plate and each provided with a pitch number, said graduations and hip and valley graduations being so positioned relative to each other that when the graduation of any pitch is set opposite to the hip and valley graduation of the same pitch the top blade will have its working edge set for top cuts of hip or valley rafters for a roof of said pitch.

13. In combination, a body portion comprising a plate; and a blade pivotally adjustably disposed against the plate, hip and valley ridge top cut graduations being provided on said blade, each provided with an associated pitch number, graduations being provided on said plate and each provided with a pitch number, said graduations and hip and valley graduations being so positioned relative to each other that when the graduation of any pitch is set opposite to the hip and valley graduation of the same pitch the blade will be set for hip or valley top cuts of rafters of said pitch.

14. In combination, a body portion comprising a plate member; and a blade member pivotally adjustably disposed on the plate member, hip and valley top cut graduations being provided on one of said members and each provided with an associated pitch number, graduations being provided on the other of said members and each provided with a pitch number, said graduations and hip and valley graduations being so positioned relative to each other that when the graduation of any pitch is set opposite to the hip and valley graduation of the same pitch number, the blade member will be set for hip or valley top cuts of rafters of said pitch.

15. In combination, a body portion comprising a plate member; and a blade member pivotally adjustably disposed on the plate member, pitch graduations being provided on one of said members, graduations being provided on the other of said members and each provided with a pitch number, said graduations and pitch graduations being so positioned relative to each other that when

the graduation of any pitch is set opposite to the pitch graduation of the same pitch the blade member will be set for said pitch.

16. In combination, a body portion comprising a plate member; and a blade member pivotally adjustably disposed on the plate member, pitch graduations being provided on one of said members, graduations being provided on the other member and adapted each to register with the corresponding pitch graduations both sets of graduations being near the pivoted ends of the respective members.

17. In combination, a one-piece body portion comprising a top plate and a side plate disposed at right angles to each other and joining in a meeting line, the top plate having at one end an inclined index edge, a pivot hole near the index edge and meeting line and an arcuate slot concentric with the pivot hole and approaching said meeting line, said top plate also being provided near its outer edge on about a transverse line with the inner end of the arcuate slot with a keeper hole; a top blade disposed against the inner face of the end of the top plate; a short pivot pin mounted in the outer corner of the inner end of the top blade and engaging in said pivot hole when the top blade is assembled in working condition and adapted to engage in said keeper hole when the top blade is folded longitudinally against the inner face of the top plate; a clamping bolt secured on said top blade and projecting through the arcuate slot of the top plate; and a wing nut on said clamping bolt and adapted to clamp the top blade and top plate together in any position of open or closed adjustment.

18. In combination, a one-piece body portion comprising a top plate and a side plate disposed at right angles to each other and joining in a meeting line, the top plate having at one end a pivot hole near the meeting line, an arcuate slot concentric with the pivot hole and approaching said meeting line, and a keeper hole near its outer edge; a top blade disposed against the end of the top plate; a pivot pin mounted in the outer corner of the inner end of the top blade and engaging in said pivot hole when the top blade is assembled in working condition, and adapted to engage in said keeper hole when the top blade is folded longitudinally against the top plate; and a clamping bolt secured on said top blade and projecting through the arcuate slot of the top plate.

19. In combination, a body portion comprising a top plate and a side plate at right angles to each other; a top blade; and a plumb blade pivotally adjustably disposed against an end of the top and side plates respectively, the rear edge of the outer face of said top plate being provided near its mid-part with graduations each having associated therewith a pitch number and the length number of the corresponding common rafter length for each foot run of a roof of such pitch, the rear edge of one end of said top plate being provided with graduations each having associated therewith a pitch number and the length number of the corresponding rafter length for hip and valley rafters for each foot run of a roof of such pitch, the distance from the graduations to the end of the body portion being the actual length represented by the associated length numbers.

20. In combination, a plate having a pivot hole and a keeper hole; and a blade provided with a pivot pin engaging in said pivot hole when the blade is in working position and adapted to engage in said keeper hole when the blade is folded against the plate.

21. In combination, a body portion comprising a plate having a pivot hole, an arcuate slot concentric with the pivot hole, and a keeper hole; a blade; a pivot pin mounted on the blade and engaging in said pivot hole when the blade is in working position and adapted to engage in said keeper hole when the blade is folded against the plate; and a bolt secured on said blade and projecting through the slot.

22. In combination, a plate having a pivot hole and a slot; a blade; a clamping bolt passing through said slot and blade; and a pivot pin separate from said bolt and mounted on the blade and adapted when the blade is closed to lie in the arcuate slot, and when the blade is open to lie in the pivot hole.

23. In combination, a body comprising a pair of plates disposed at an angle to each other and each having at one end a pivot hole and a slot; a blade disposed against the end of each plate; a pivot pin mounted in the inner end of each blade and engaging in said pivot hole when the top blade is assembled in working condition, and disposed outside of said pivot hole when the blade is folded longitudinally against the associated plate; and a clamping bolt secured on each blade and projecting through the slot of the plate.

24. In combination, a body comprising a pair of plates joining in a meeting line and each having at one end a pivot hole near said meeting line; a blade disposed against the end of each plate and each having a pivot pin mounted in the outer corner of the inner end of the blade and engaging in said pivot hole when the top blade is assembled in working condition, and disposed outside of said pivot hole when the blade is folded longitudinally against the associated plate; and means additional to said pins for holding each blade to the associated plate; said pivot holes being as near as practicable to said meeting line, whereby lines coinciding with the working edges of said blades when

in any working position substantially intersect to permit the same saw cut to follow the lines delineated from both of said working edges.

25. In combination, a body comprising a pair of plates disposed at right angles to each other and meeting in a line, each plate having at one end a pivot hole near the meeting line, and an arcuate slot concentric with the pivot hole; a blade disposed against the end of each plate; a pivot pin mounted in the outer corner of the inner end of each blade and engaging in said pivot hole when the top blade is assembled in working condition, and disposed outside of said pivot hole when the blade is folded longitudinally against the associated plate; and a clamping bolt separated from the associated pivot pin and secured on each blade and projecting through the arcuate slot of the plate.

ROY C. BROWNING.

Witnesses:
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J. H. DONALDSON,