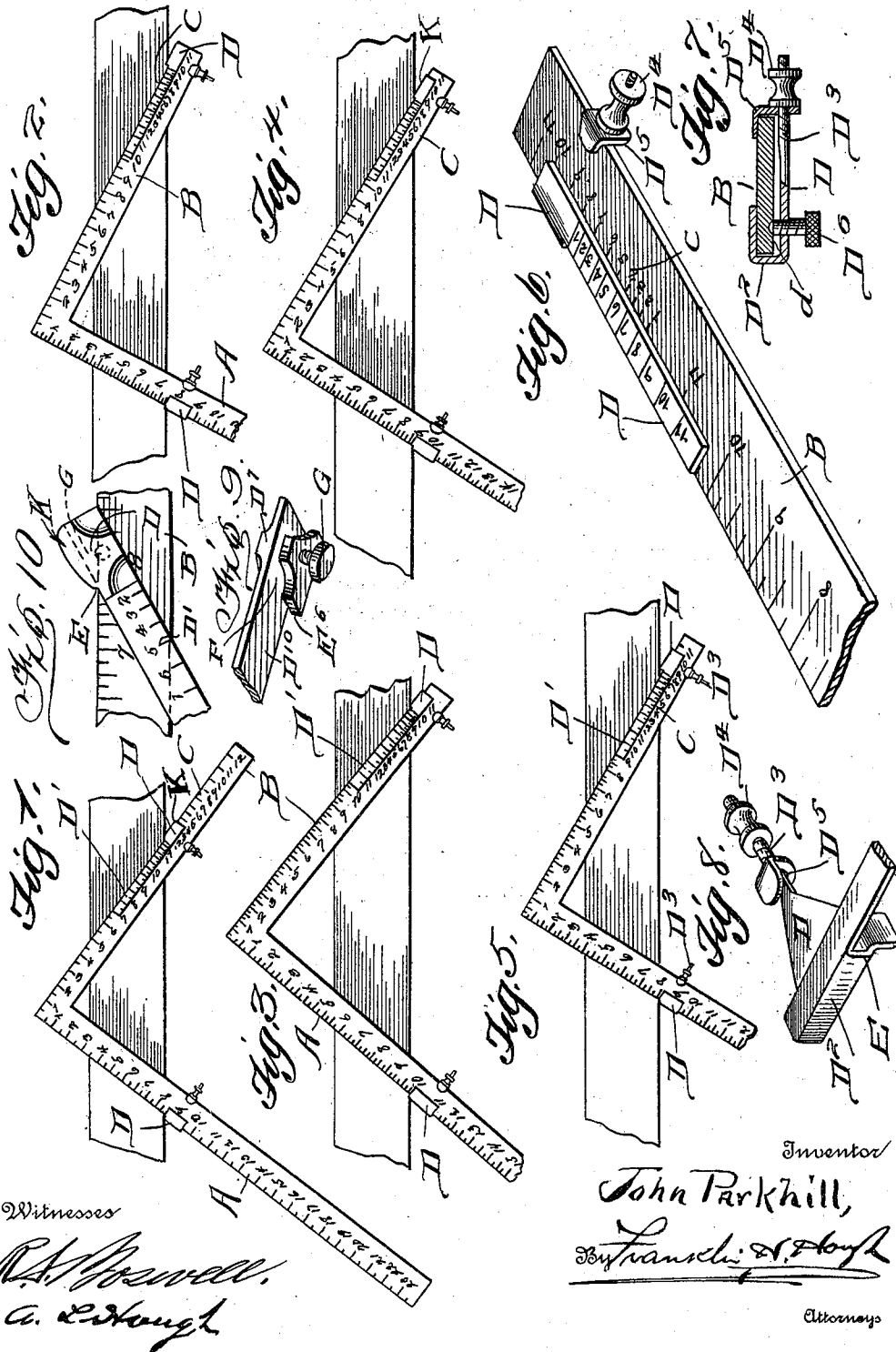


J. PARKHILL.
 PITCH GAGE ATTACHMENT FOR SQUARES.
 APPLICATION FILED MAR. 9, 1910.

979,996.

Patented Dec. 27, 1910.



Witnesses

R. A. Maxwell.
C. E. Knight.

Inventor

John Parkhill,
By Trans. & S. Boyd

Attorneys

UNITED STATES PATENT OFFICE.

JOHN PARKHILL, OF ROCHESTER, MINNESOTA.

PITCH-GAGE ATTACHMENT FOR SQUARES.

979,996.

Specification of Letters Patent. Patented Dec. 27, 1910.

Application filed March 9, 1910. Serial No. 548,250.

To all whom it may concern:

Be it known that I, JOHN PARKHILL, a citizen of the United States, residing at Rochester, in the county of Olmstead and State of Minnesota, have invented certain new and useful Improvements in Pitch-Gage Attachments for Squares; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in gage attachments for squares for cutting timbers at different inclinations, and consists essentially in the provision of extra graduations and numbers upon the tongue of the square or upon an extension of a clamping member held to one arm of the square, and the object of the invention is intended primarily to facilitate finding and marking on the timber all cuts and lengths on common, hip and valley rafters for any and all pitches of roofs, difference in lengths of adjoining jack rafters and side bevels for same, and also affording means whereby bevel cuts on roof boards and backing on hip rafters may be determined.

Another and essential use of the invention consists in its employment for cutting braces and as a stair gage.

The invention comprises various details of construction, combinations and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawings, in which:—

Figure 1 shows a square applied to a timber with the clamping means fastened to said arms of the square to indicate top and bottom cuts for common rafters. Fig. 2 is a view showing the application of the invention to mark the length of the rafters for any part of a foot of run. Fig. 3 designates the application of the invention upon a square used for giving the cuts and lengths of hip and valley rafters. Fig. 4 shows the application of the invention for giving the depth of backing for hip rafters. Fig. 5 shows its application for marking the side-bevel on jack rafters. Fig. 6 is a detail perspective of one arm of a square showing

the clamping device with extension arm adjusted thereto. Fig. 7 is a cross sectional view through the clamp and arm of the square. Fig. 8 is a detail perspective view of the form of clamp shown in Figs. 1 to 7 inclusive. Fig. 9 is a perspective view of a modified form of a clamping member, and Fig. 10 is a bottom plan view of Fig. 9 as applied to a scale.

Reference now being had to the details of the drawings, by letter, A and B designate the arms of a square which may be of any length and graduated by markings equal distances apart and numbered in regular order from the vertex of the square upon each arm. One of said arms is provided with a series of extra graduations, designated by letter C, which graduations identified by numerals are located each at a distance from the mark numbered 12 of the regular scale upon the arm of the square equal to the difference between the length from said mark numbered 12 to the vertex of the square, and from said 12th mark to a similar mark on the other arm of the square bearing the same number as the particular numeral indicating this particular extra mark.

D designates a clamp having an extension scale arm D' projecting therefrom, the graduations thereon corresponding to said extra graduations C upon the arm of the square. Said clamping member has a knife edge, designated in the drawings by letter E and shown clearly in Fig. 8, and which projects at right angles from the face and in line with the edge of the arm of the square on which the clamp is held. Said clamp is bent as at D², shown clearly in Fig. 7 of the drawings, to form a recess for the reception of one edge of the arm B of the square and has a contracted shank portion D³ which is threaded for the reception of the adjusting nut D⁴. An angled plate D⁵ is provided with an aperture for the reception of the shank portion D³ and its angled end fits over the marginal edge of the arm B opposite the edge engaging said recess. A screw D⁶ is mounted in a threaded aperture in the clamp D and its inner end is designed to engage indentation d formed in the face of the arm of the square in order to hold the clamping member securely in different adjusted positions.

It will be noted that the clamp through its graduated arm may be adjustably held at various locations upon the arms of the square

and the graduations upon the extension arm of the clamp may be so placed that, when any one is even with a certain point or mark upon the square (12 in the present instance), the knife edge of the clamp will be even with one of the extra marks upon the surface of the arm of the square. Any point or mark on the square might be taken to set the clamp marks even by but, when the numeral 12 is used as shown upon the tool, the extra marks upon the arm of the square, are at the same respective distances from 12 as the marks on the clamp are from its bearing. Said graduations on the arm of the square or the equivalents on the extension arm of the clamp need not, of course, be limited to the number shown but any additional graduations may be employed if desired but, as a matter of convenience, only the number shown are used as being thus commonly employed.

While one or more indentations may be formed in the face of the arm of the square, it will be understood that each one is so located that it holds the knife edge of clamp at one of those particular points indicated by the extra marks on the square.

A full series of indentations may be numbered and used without the extra marks, or they may be used coöperatively with said marks to furnish a means to more readily adjust the clamp in the desired position. Of course when the extra marks are used the indentations may be dispensed with. By having the knife edge of clamp in line with the edge of the arm of the square the marks on square at which the knife edge is set are held coincident with the edge of the timber being operated on when the square is pivoted on the knife edge to any angle on the timber.

In operation:—with equal divisions representing either inches or fractional portions thereof and numbered in regular order from the vertex of the square in two directions on the arms, when it is desired to cut common rafters, a bearing of one clamp is placed at the ordinary mark 12, as shown in Fig. 1 of the drawings, and the bearings of the other clamp upon the other arm at the numbered mark which represents the rise to the foot of the desired pitch. The clamps after being adjusted upon the square are placed in their bearings against the edge of the timber to be marked and the arm B of the square will indicate the marking for the bottom or horizontal cut and the blade A in the adjustment shown the top or plumb cut. The distance between the bearings of the clamps on the edge of the timber would indicate the length of the rafter for one foot of run. To mark the length of rafter for any part of a foot of run, the arm B which marks bottom cut is slid along said cut until the desired inches on B, see Fig. 2 show on the edges of the timber and the clamps be-

ing moved up into contact with the edge of the timber the distance between the bearings of clamps will be the desired length.

For hip and valley rafters:—with K at same place as shown in Fig. 1 with the bearings of clamp D upon the arm B of the square, as shown in Fig. 3, moved to the extra mark 12 being in the same position described in Fig. 3, the same operation as for common rafters would be repeated and this adjustment will mark the cuts and lengths of the hip and valley rafters. With the tool in this position, a mark or point on the timber half the thickness of the rafter from the knife edge of the clamp along the edge of the tongue B will give the depth of the backing for the hip rafter.

The distance between the bearings of the clamps shown in Fig. 9 is the difference in the lengths of the adjoining jack rafters when placed one foot apart on centers, and the difference in lengths for any fraction of a foot apart would be the same as the length of common rafter for the same distance of run.

For the side bevel on jack rafters and the bevel cut on the face of roof boards, the clamp D is placed upon the arm B with knife edge at the extra mark numbered same as the rise to the foot, being the same position as shown and described in Fig. 4, and the other clamp at 12 on the other arm when the arm E containing the extra graduations will indicate the marking for the side bevel on the jack rafters and the edge of the blade A will mark the cut on the face of the roof boards. For the bevel on the edge of the roof boards, the clamps would be fastened as shown in Fig. 5 of the drawings D, same as Fig. 4 and K and the numbered mark on A which indicates the rise to the foot, the blade A then indicating the proper bevel to be marked.

Hopper cuts are the same as the bevel cuts on roof boards, for the same pitch.

In utilizing the device for marking hip or valley rafters joining roofs of different pitches, the clamp upon the arm A is positioned with its knife edge at the numbered mark which indicates the rise to the foot of the flatter pitch, and the knife edge of the clamp D on arm B positioned at the particular extra mark on that arm that bears the number representing the run which the rise just before mentioned would require on the steeper pitch. The distance between the two clamps on the edge of the timber is the length of the rafter for one foot of run, and a mark by the arm B will be the bottom or horizontal cut, and a mark by the arm A will indicate the top or plumb cut.

From the foregoing, it will be noted that, by the provision of a square having extra graduations thereon as shown, extending beyond the ordinary mark 12 of the usual

scale, various pitches and bevels may be readily laid off on the piece of timber. It will be noted that each mark of the extra graduation is positioned at a distance from the numeral 12 equal to the difference between the length from the mark numbered 12 on the regular scale of the arm to the vertex of the square, and from said mark 12 to the mark on the other arm of the square which bears the same number as this particular extra mark.

By the provision of the scale arm upon the clamping member, the same results may be obtained as with the extra graduations upon the square.

What I claim to be new is:—

1. A right angled square having graduations numbered similarly each way from the vertex of the square, one of the arms of the square having an extra series of identifying characters beyond the ordinary mark numbered 12 of the arm, and each extra character being positioned at a distance from the mark numbered 12 equal to the difference between the length from said mark 12 to the vertex of the square and from the said mark 12 to the graduation upon the other arm of the square bearing the same numeral as that of this particular extra character.

2. A right angled square having graduations numbered similarly each way from the vertex of the square, one of the arms of the square having an extra series of identifying characters beyond the ordinary mark numbered 12 of the arm, and each extra character being positioned at a distance from the mark numbered 12 equal to the difference between the length from said mark 12 to the vertex of the square and from the said mark 12 to the graduation upon the other arm of the square bearing the same numeral as that of this particular extra character, and adjustable clamps fastened to the arms of the square.

3. A right angled square having graduations numbered similarly each way from the vertex of the square, one of the arms of the square having an extra series of identifying characters beyond the ordinary mark numbered 12 of the arm, and each extra character being positioned at a distance from the mark numbered 12 equal to the difference between the length from said mark 12 to the vertex of the square and from the said mark 12 to the graduation upon the other arm of the square bearing the same numeral as that of this particular extra character,

and adjustable clamps fastened to the arms of the square, each of said clamps having a knife edge adapted to bear against the edge of the timber being marked.

4. A right angled square having graduations numbered similarly each way from the vertex of the square, one of the arms of the square having an extra series of identifying characters beyond the ordinary mark numbered 12 of the arm, and each extra character being positioned at a distance from the mark numbered 12 equal to the difference between the length from said mark 12 to the vertex of the square and from the said mark 12 to the graduation upon the other arm of the square bearing the same numeral as that of this particular extra character, and adjustable clamps fastened to the arms of the square, each of said clamps having a knife edge projecting at right angles therefrom.

5. A right angled square having graduations numbered similarly each way from the vertex of the square, adjustable clamping members fastened to the arms of the square each having a knife edge projecting therefrom, and one of said clamps having an extension arm with a series of numbered marks thereon, each of the other marks being at a distance from the first one equal to the difference between the length from the ordinary mark numbered 12 on one arm to the vertex of the square and from said mark 12 to the graduation upon the other arm of the square bearing the same numeral as that of this particular mark on said clamp.

6. A right angled square having graduations numbered similarly each way from the vertex of the square, adjustable clamping members fastened to the arms of the square each having a knife edge projecting therefrom, and one of said clamps having an extension arm with a series of numbered marks thereon, each mark being at a distance from said knife edge equal to the difference between the length from the ordinary mark numbered 12 upon one arm to the vertex of the square and from said mark 12 to the graduation upon the other arm of the square bearing the same numeral as that of this particular mark on said clamp.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JOHN PARKHILL.

Witnesses:

THOMAS FRASER,
MINNIE BOELTER.