C. C. TAINTOR.

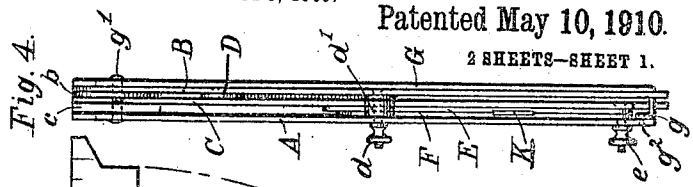
TOOL.

APPLICATION FILED MAY 8, 1909.

957,271.

Patented May 10, 1910.

2 SHEETS—SHEET 1.



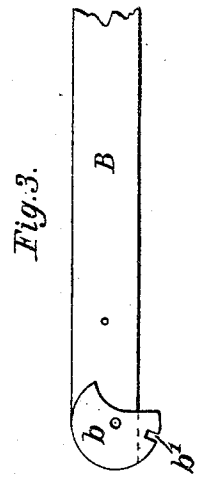


Fig. 1.

WITNESSES:

Geo. W. Kittredge

John H. Reisz

INVENTOR.

Charles C. Taintor

BY Dewey & Fisk

ATTORNEYS

C. C. TAINTOR.

TOOL.

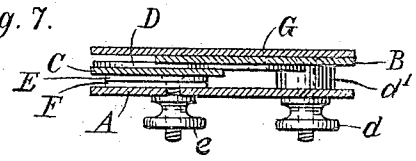
APPLICATION FILED MAY 8, 1909.

957,271.

Patented May 10, 1910.

2 SHEETS—SHEET 2.

Fig. 7.



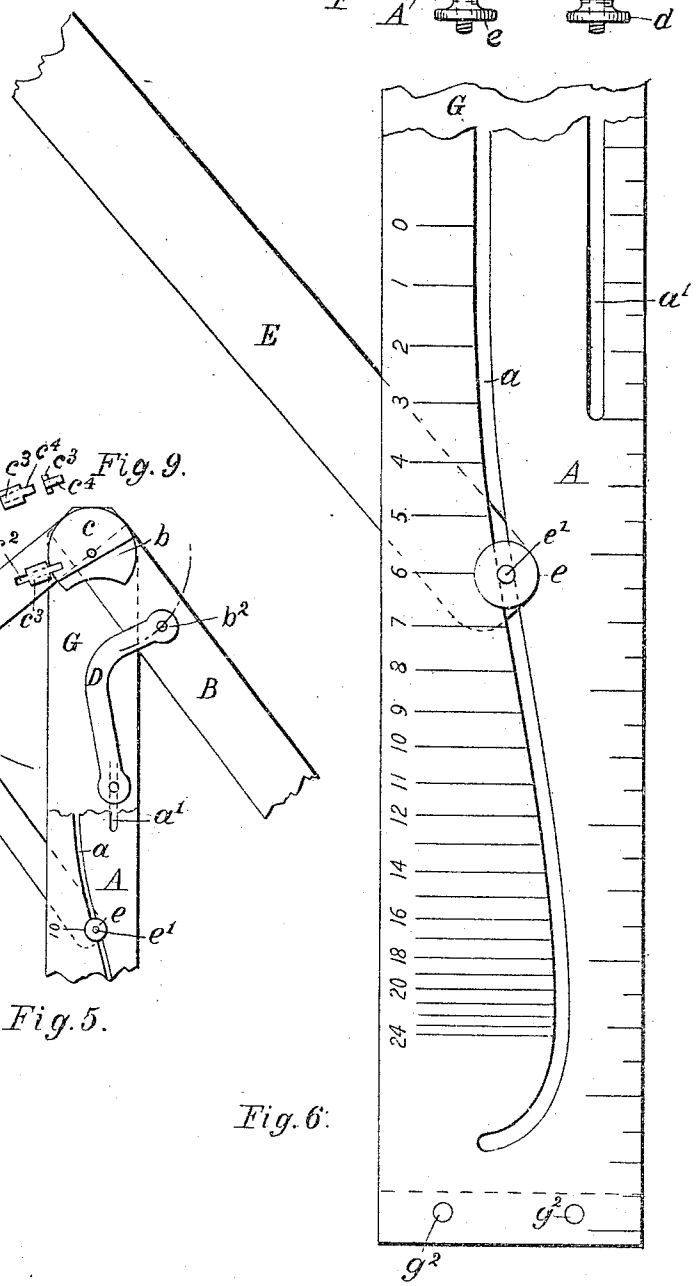


Fig. 6.

Fig. 8.

Fig. 5.

Fig. 9.

WITNESSES:

Geo. W. Kittredge

John B. Reis.

INVENTOR.

Charles C. Taintor

BY

Dumont Frick

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES C. TAINTOR, OF ELIZABETH, NEW JERSEY.

TOOL.

957,271. Specification of Letters Patent. Patented May 10, 1910.

Application filed May 8, 1909. Serial No. 494,864.

To all whom it may concern:

Be it known that I, CHARLES C. TAINTOR, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Tools, of which the following is a full, clear, and exact specification.

My invention relates to a tool for use in such work as framing timbers for buildings and may be used for other purposes and is particularly applicable to the use of carpenters in cutting the different bevels required upon rafters, particularly jack or cripple rafters; and while it is of special use in this connection, it may also be used in any case where oblique lines are required.

My object is to produce in one instrument a tool which will comprise all of the uses of the steel square and of the bevel and which, when folded, will be compact and occupy but small space.

Another object of my invention is to produce a tool which, when set to make the line for a vertical cut upon an inclined timber as a rafter, will automatically give the proper line for the horizontal cut; and further, without additional adjustment, will also give the line for the top or miter cut of what are termed jack or cripple rafters, to cause them to fit against or miter perfectly with any other timber, rafter, or surface placed at any angle.

To effect these objects my invention consists of the parts hereinafter referred to and particularly described in the accompanying drawings wherein—

Figure 1 is a top view of a tool embodying my invention; Fig. 2 a detail view of one of the blades employed in connection with other parts of the tool for obtaining the perpendicular cut upon an inclined timber. Fig. 3 is a detail view of a blade employed, among other purposes, for that of obtaining the line for the horizontal cut. Fig. 4 is an edge view of the assembled tool. Fig. 5 is a detail view, with the top plate partly broken away, illustrating the manner of connecting the blades shown in Figs. 2 and 3 so as to form a right-angle. Fig. 6 is a face view, full size, of a part of the front plate. Fig. 7 is a cross-section on the line 7—7 of Fig. 1. Figs. 8 and 9 are top and end views respectively of a connecting block, catch, or slide, for securing the blades shown in Figs. 2 and 3 in position at right-angles to each other.

My tool is provided with a front-plate A and a back-plate G, which may be attached together in any suitable manner, as, for instance, by rivets g^1, g^2, the latter of which connects the lower end of plate A with the bent-around end g of plate G. These two plates may be made of one piece of metal if desired, integral at their lower ends and united by a rivet at their upper ends, and together form a stock or case to contain the other members of the tool. Between these plates and turning freely upon the rivet g^1 as a pivot, is a blade C, connected to the plate A by a brace E, which is attached at one end to the blade C by a pivot e^2. In the other end of brace E is a stud e^1 secured in position by any convenient means, the outer end of which is threaded to receive a milled-nut e. The stud or threaded stem of this nut e slides freely in a slot a, cut through the plate A, carrying with it the inner end of brace E and thereby adjusting blade C and likewise the brace E to different positions, the proper corresponding angles of the blade and the brace with the stock being simultaneously maintained by the contour of the slot a. This blade C has a capacity for swinging throughout a half-circle; to wit, from the closed position indicated by dotted lines in Fig. 1, to the upright position likewise indicated by dotted lines in said figure, thereby in its extended position forming a straight edge in continuation of the right-hand edge of plate A. The tightening of the milled-nut e at any point along the slot a will hold the blade C in any position to which it may be set. Also between the plates A and G and swinging in a direction opposite to that occupied by blade C from the side of the plate A, as seen in Fig. 1, where it is illustrated in open position, is a blade B, which likewise swings freely upon the rivet g^1, and has attached to it by means of the pivot b^2, an elbow-brace D, which brace receives at its opposite end a threaded stud or stem d^1, to which is fitted a milled nut d, said stem sliding in a slot a^1 in the plate A.

Fixed upon the inner end of the blade B is a hub b, which has a portion cut away, as illustrated in Fig. 3. This cut-away portion conforms in outline to the bend of the elbow-brace D, and being situated in the

same plane as said elbow-brace constitutes a stop to the further movement of the blade B, when, in the movement of the blade B, the elbow-brace swings against the said hub as the blade B is opened to a rectangular position, as illustrated in Fig. 1, and will there prevent the same from being moved beyond such a position. The blade C is also equipped with a hub c, having a portion cut away in such a manner as to make room for the brace E, thereby permitting the said blade to turn to its extended position as hereinabove described, and constituting at the same time a stop to the further movement of the blade C. The peripheries of the hubs b and c are provided with slots b^1, c^1, which register when the arms are situated at right-angles with respect to each other, as illustrated in Fig. 5, and means are provided for retaining the arms in this position, consisting of a block (shown in Figs. 8 and 9) having a top-plate c^3 and rib c^4, which latter slides in a slot c^2 in the blade C. The hubs are fixed to their respective blades and the rib c^4 projects, as shown, slightly in advance of the plate c^3, which latter, when the block is moved forward to lock the parts together, will butt against hub c, as shown in Fig. 5, permitting the said rib to enter slot b^1 in the hub b, which is located below hub c and below blade C, as seen in Fig. 4. Additional slots or notches may be provided in hub b of the blade B, whereby the blade B may be fixed or locked to the blade C at such angle other than a right-angle to the said blade as occasion may require.

Mounted so as to turn freely about the threaded stem e^1 of nut e is an auxiliary blade F, the outer end of which is free for a purpose presently to be described. This does not require very extended play with relation to the fixed brace E and may be linked to it if desired by link K. By the operation of the link K, which is pivoted at its two ends respectively to the brace E and to the auxiliary blade F, the blade F is caused to slide on the brace E during its adjustment to position, a slot f in its end-receiving stem e^1 of nut e permitting this movement. The link connection between E and F tends to hold F to adjusted position and to make its accidental displacement more unlikely, owing to the fact that it must slide longitudinally beneath pressure of nut e to change its position. By reason of the fact that the parts held in position by the tightening of nut d are located some distance below the plate A, I provide a washer d^1 between front plate A and blade B thick enough to compensate for the thickness of the parts C, E, and F, as appears in Figs. 4 and 7.

My tool is provided on the face of its front plate A, adjacent the slot a, with a graduated scale, the purpose of which will appear in the description of the use of the tool, and for convenience in the further use of the tool I have likewise provided an inch scale upon one edge of the said plate, and also upon the edges of plates B and C. For further convenience in the use of the tool I have preferred to make the said blades and brace E of stated dimensions; to wit, the blade C may be an inch wide, blade B one and one-half inches wide, brace E three-quarters of an inch wide, and the plate A two inches wide, these being measurements traditionally useful to framers; but my invention is not confined to the employment of such inch scales nor to these particular dimensions of parts.

I have stated that the hereinabove described tool is particularly adapted for the use of framers in obtaining the different bevels required upon jack or cripple rafters. Its usefulness, however, may be extended to the determining of all bevels usually required in constructive work.

I will describe the use of my tool in cutting the different bevels required to fit a cripple or jack rafter to the hip rafter and to the wall plate. Three cuts are required for this purpose: the first, which I call the perpendicular cut, which is determined by the number of inches of rise to the foot of horizontal measurement of the jack rafter in the position which it assumes in the finished roof and which varies with the perpendicular rise; the second, which I call the miter cut, which varies with the angles of inclination and deviation of the hip rafter; and the third, which I call the horizontal cut, which is at the foot of the rafter and is at right-angles to the perpendicular cut. The slot a is of curved form, carefully planned so as to maintain the proper relative position of blades C and E to plate A at different adjustments on the scale to accommodate various angles of inclination of the rafters.

The scale appearing upon the face of plate A adjacent slot a bearing the numerals 0 to 24, is based upon the usual construction of hip rafters; to wit, that in plan they shall be at an angle of substantially forty-five degrees to the wall of the building, and in obtaining the miter cut upon rafters following this customary plan, the auxiliary or loose blade F may be disregarded and the fixed brace E only employed. This brace adjusts the blade C to a position whereby a line drawn along its outer edge will give the correct bevel for the perpendicular cut of the rafter or other timber being cut. The angle of inclination of such rafters varies in different roofs and to allow for such variation the scale adjacent to the slot a is provided. The number of inches of rise to the foot run of the rafter having been ascertained, the stud e^1 in the inner end of brace E will be

adjusted opposite that figure upon the scale which corresponds to the inches of rise to the foot run of the cripple rafter desired, and in this position the outer edge of the blade C gives the proper angle to mark the perpendicular cut when the left-hand edge of plate A is laid upon the inner face of the cripple rafter. With this adjustment of the blade C, either edge of the brace E will give the angle for the miter cut. This is marked upon the top edge of the rafter by placing the left edge (Fig. 1) of the plates A, G, against the side of the rafter, permitting the brace to rest upon the top of the rafter while drawing a line along the edge of the said brace E, from the end of the mark previously made for the perpendicular cut, to the opposite side of the rafter. By reason of the fact that the horizontal cut for the lower end of the rafter is at right-angles to the perpendicular cut, blade B will then be locked in position at right-angles to the blade C, as shown in Fig. 5, and the right-hand edges (Fig. 1) of the plates A, G, being placed on top of the rafter near its foot at a point to give the required length to the rafter, the blade B being now upon the same side of the rafter as was the blade C when the perpendicular cut was laid out, a line drawn along the outer edge of blade B will then be at right-angles to the perpendicular cut and properly positioned for fitting the rafter to the wall plate of the building.

It occasionally happens that the hip rafters are not constructed at an angle of forty-five degrees to the ridge or wall plate, and for such cases I provide the auxiliary blade F. This blade may be adjusted to position by means of a scale placed upon blade C or brace E, indicating inches or fractions thereof, of divergence per foot from an angle of forty-five degrees, so that in case the hip rafter should, for instance, diverge two inches to the foot from such angle either one way or the other, *i. e.*, either toward an acute or an obtuse angle with the wall plate or ridge, the scales situated upon the parts mentioned will furnish means whereby, in connection with the previously-described adjustment of brace E, the change in markings due to the above-mentioned divergence may be easily ascertained. Or it may be set by the plan from which the roof is constructed; to wit, by first placing the blade C parallel with the wall plate of the building, the fixed brace E having first been adjusted to that point on the scale whereat the plate A and blade C are at right-angles to each other, when the loose blade F may then be set to the angle of the hip rafter as given upon the plan. The relative position of the parts thus ascertained being maintained, the inner end of the brace E may subsequently be adjusted to that point on the scale indicating the desired rise to the foot for the perpendicular cut, maintaining and tightening the said parts in position by thumb screw *e*.

I have illustrated and described one concrete embodiment of my invention, but in carrying my invention into practice, modifications and changes may be made therein without departing from the essential principle thereof. For instance, the curved slot in the fixed plate which is a guide for the brace, might be formed as a channel or as a rib, although I prefer the slot as shown.

What I claim is:

1. In a tool of the character described, a fixed plate having a straight edge, an irregularly curved guide therein, a swinging blade having a straight edge and pivotally connected to said fixed plate, a brace having a straight edge connecting the free ends of said plate and blade and having a pivotal connection with said blade, and a sliding connection between said brace and said curved guide, whereby said brace is fixed against transverse movement relative to said curved guide, but has a longitudinal sliding movement on said curved guide.

2. A tool comprising a fixed plate, a swinging blade pivotally attached thereto, an elbow-brace pivotally attached to said swinging blade, and having a sliding connection in a slot in said fixed plate, a stop upon said swinging blade in the path of said brace adapted to stop said swinging blade when the same is at right-angles to said fixed plate, substantially as described.

3. In a tool of the character described, a fixed plate, a swinging blade pivotally connected thereto, a brace pivotally connected to said swinging blade and having a sliding connection with a slot in said fixed plate, an auxiliary brace having the same sliding connection with said fixed plate and having its outer end free.

4. In a tool of the character described, a fixed plate, a swinging blade pivotally connected thereto, a brace having a fixed pivotal connection with said swinging blade at a fixed point near its inner end, and having a sliding connection with a slot in said fixed plate, a second swinging blade pivotally secured to said fixed plate and swinging independently of said first-mentioned blade, and a lock for locking said swinging blades at desired angle to each other.

5. In a tool of the character described, a fixed plate, a swinging blade pivotally connected thereto, a brace pivotally connected to said swinging blade and having a sliding connection with a slot in said fixed plate, an auxiliary brace having the same sliding connection with said fixed plate and having its outer end free, a second swinging blade pivotally secured to said fixed plate, and a lock for locking said swinging blades at desired angle to each other.

6. In a tool of the character described, a

fixed plate having therein a curved guide, a scale adjacent thereto indicating inches, or other units of measure, of rise to the foot, a swinging blade pivotally connected to said fixed plate, a brace pivotally connected to said swinging blade and having a sliding connection in said curved guide, said guide being so constructed that when the inner end of said brace is adjusted to a point indicating the rise of an inclined timber as a cripple rafter, the swinging blade indicates the perpendicular cut for said timber and the brace indicates the miter cut for the top of the timber to fit against the side of another timber as a hip rafter placed at an angle of forty-five degrees in plan to the wall plate or ridge.

7. In a tool of the character described, a fixed plate having therein a curved slot, a scale adjacent thereto indicating inches, or other units of measure, of rise to the foot, a swinging blade pivotally connected to said fixed plate, a brace pivotally connected to said swinging blade and having a sliding connection in said curved slot, the said slot being so constructed that when the inner end of said brace is adjusted to the point indicating the rise of an inclined timber, the swinging blade indicates the perpendicular cut for said timber and the brace indicates the miter cut for the top of said timber to fit against a surface placed at an angle of forty-five degrees in plan to the wall or the ridge, and a blade having the same sliding connection and a free outer end, whereby the miter cut for an inclined timber to fit against a surface placed at any angle other than forty-five degrees to the wall in plan can be obtained.

8. In a tool of the character described, a fixed plate having therein a curved slot, a scale adjacent thereto indicating inches, or other units of measure, of rise to the foot, a swinging blade pivotally connected to said fixed plate, a brace pivotally connected to said swinging blade and having a sliding connection to said curved slot, the said slot being so constructed that when the inner end of said brace is adjusted to the point indicating the rise of a rafter, the swinging blade indicates the perpendicular cut for said rafter and the brace indicates the corresponding miter cut for the top of the rafter to fit against a surface lying at an angle of forty-five degrees in plan to the wall or ridge, a second swinging blade pivotally attached to said fixed plate, and a lock for locking said two blades in fixed position.

9. In a tool of the character described, a fixed plate having therein a curved slot, a scale adjacent thereto indicating inches, or other units of measure, of rise to the foot, a swinging blade pivotally connected to said fixed plate, a brace pivotally connected to said swinging blade and having a sliding connection in said curved slot, the said slot being so curved as to maintain at all points the proper adjustment between the blade and the brace for cutting the perpendicular and the miter cuts respectively of a jack rafter for varying degrees of vertical inclination of said rafter.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES C. TAINTOR.

Witnesses:
HENRIETTA E. WORKMAN,
JOHN H. REISS.