C. C. TAINTOR.

FRAMING TOOL.

APPLICATION FILED AUG. 17, 1911.

1,029,774.

Patented June 18, 1912.

2 SHEETS—SHEET 1.

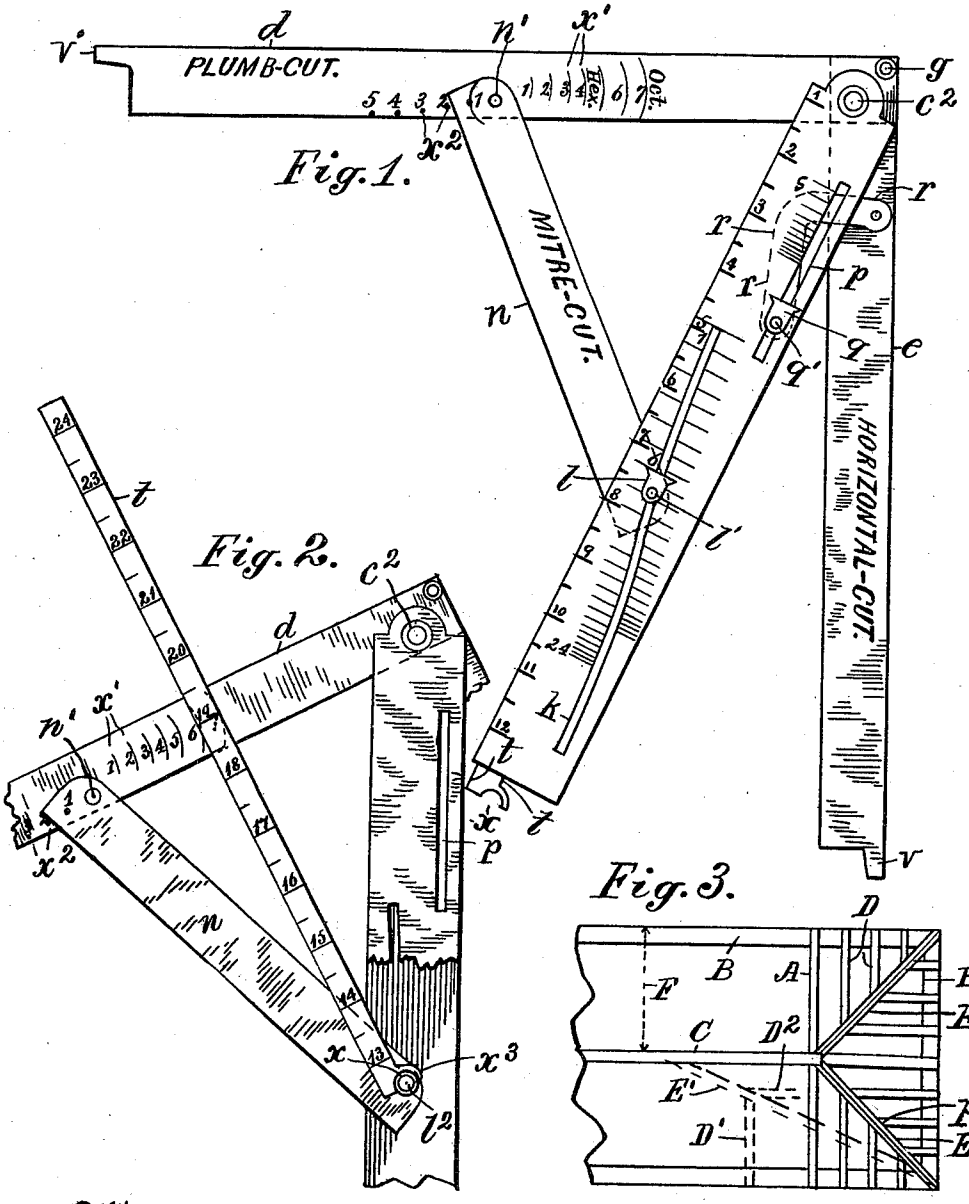

Fig. 1.

Fig. 2.

Fig. 3.

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L. Lee.

Inventor
Charles C. Taintor, per
Thomas S. Crane, Atty.

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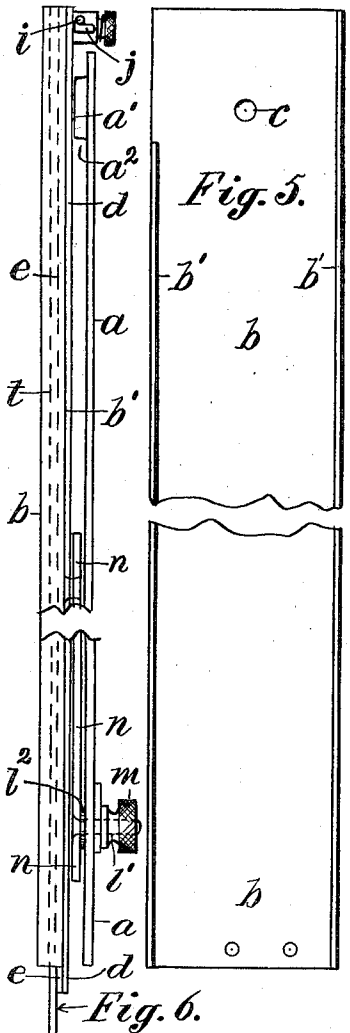


Fig. 6.

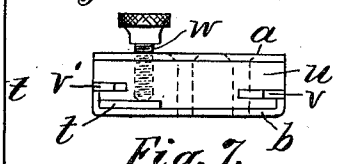


Fig. 7.

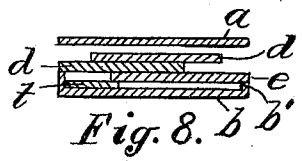


Fig. 8.

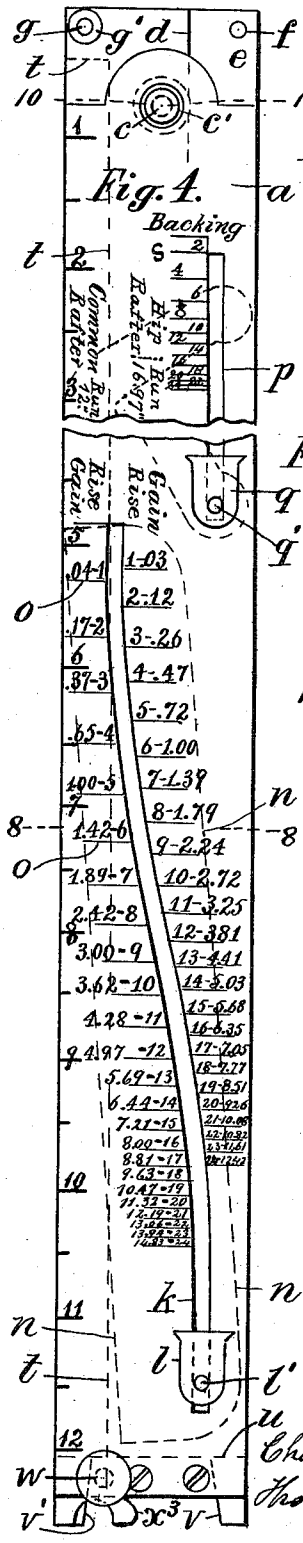


Fig. 4.

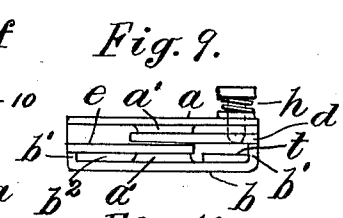


Fig. 9.

Fig. 10.

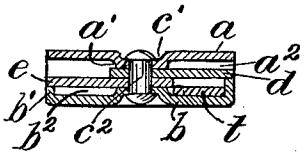


Fig. 11.

Fig. 12.

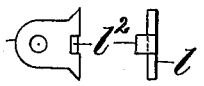


Fig. 13.

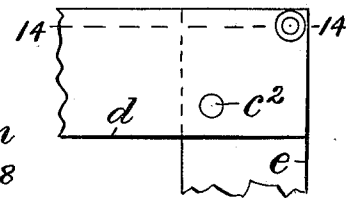


Fig. 14.

Fig. 15.

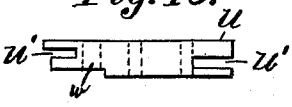
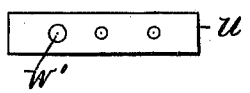


Fig. 16.



Witnesses:

L. Lee.

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Inventor

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Thomas L. Crane, atty

UNITED STATES PATENT OFFICE.

CHARLES C. TAINTOR, OF ELIZABETH, NEW JERSEY.

FRAMING-TOOL.

1,029,774. Specification of Letters Patent. Patented June 18, 1912.

Application filed August 17, 1911. Serial No. 644,658.

To all whom it may concern:

Be it known that I, CHARLES C. TAINTOR, a citizen of the United States, residing at 584 Jefferson street, Elizabeth, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Framing-Tools, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to sundry improvements in the tool patented to me May 10, 1910 with No. 957,271, the said tool being particularly applicable to marking the bevels to be cut upon the rafters of framed timber roofs.

The improvements embrace a scale to show the gain or excess in length of either common-rafters or hip-rafters relative to the base or run of such rafters; also a scale by which to set one marking blade at a suitable angle for backing hip-rafters; also a particular construction for the stock of the tool with one cheek having flanges, and an extension rule fitted movably and detachably within the stock adjacent one of said flanges; also a scale upon one of the marking blades for use in conjunction with the said rule to mark the bevel-joints of jack-rafters upon the side of deflected hip-rafters; also sundry details of construction, which will be fully understood from the following description, in which—

Figure 1 is an elevation of a framing-tool embodying the improvements; Fig. 2 shows a portion of the tool with the extension rule set for marking the bevel on jack-rafters coming against a deflected hip-rafter. These views are upon a reduced scale. Fig. 3 is a plan showing an arrangement of hip-rafters at the median line of the roof corners, with dotted line indicating the position of a deflected hip-rafter; Fig. 4 shows an elevation of the stock upon a larger scale with the scale titles and figures which were omitted from Fig. 1 on account of the smallness of the latter figure; Fig. 5 shows the inner side of the flanged cheek of the stock; Fig. 6 is an edge view of the stock with the marking blades closed and the extension rule partly drawn out. Figs. 4, 5 and 6 are broken for want of room upon the drawing. Fig. 7 shows an end view of the lower end of the stock; Fig. 8 a cross section on line 8—8 in Fig. 4; Fig. 9 an end view at the upper end of the stock; Fig. 10 a cross section on line 10—10 in Fig. 4; Fig. 11 is a plan view and Fig. 12 an end view of the movable index; Fig. 13 shows the joint upon the corners of the marking blades; Fig. 14 is a section on line 14—14 in Fig. 13; Fig. 15 is an end view and Fig. 16 a plan of the spacing-block between the lower ends of the cheeks.

To explain the operation of the tool, Fig. 3 shows common-rafters A having their lower ends resting upon the horizontal wall-plates B, their upper ends fitted to the ridge-pole C, and the jack-rafters D having their upper ends beveled upon one side at p' to fit the hip-rafter E. The hip-rafters are shown set in their median position, that is, at an angle of forty-five degrees to the side and end plates B, and dotted lines E′ indicate the position of a deflected hip-rafter.

The stock of the tool is formed with two outer cheeks. a designates the upper cheek and b the lower cheek provided with flanges b'. c are pivot-holes in the cheeks, the end of the upper cheek being cut away or curved in a half-circle around the outer side of its pivot-hole. Marking-blades d and e are formed each with a pivot-hole near one edge and riveted movably between the cheeks, and are provided with a locking bolt g to hold them at right angles to one another, as indicated in Fig. 1. The blade d is designed for marking the vertical cut on the rafter, and the blade e for marking the horizontal cut, when the blades are locked together at right angles. Each cheek is formed around the pivot-hole c with a socket c' to receive the head of the pivot c^2, as shown in Fig. 10, the sockets being formed in bosses a' upon the respective cheeks, thus forming spaces a^2 and b^2 between the cheeks and the blades, for the purposes hereinafter set forth. The blades fold into opposite sides of the stock between the cheeks, as shown in Figs. 8, 9 and 10. To engage the blade-locking bolt, a bolt-hole f, Fig. 14 is shown in the outer corner of the blade e, and a boss g' is riveted in the outer corner of the blade d, and a bolt g is fitted through the boss and has a slightly tapering point adapted to enter the hole f. The bolt has a head with a spiral spring h fitted between the head and the top of the socket to hold it normally out of the hole f, and a bayonet-lock formed of a pin i upon the bolt and a slot j Fig. 6 in the side of the socket, serving to lock the bolt in the hole f when it is required to secure the blades

in their right angled position shown in Fig. 1, as usual when marking rafters.

A longitudinal slot *k* is provided with a movable index *l* having a screw *l'* inserted through the same and provided with a thumb-nut *m*. (Figs. 4 and 6.) The screw of the index is fixed as a stud in one end of the link *n* for marking bevels, and the opposite end of the link is pivoted by a pivot *n'* to the marking blade *d*. The link moves in the space a^2 beneath the cheek *a;* and sets at an angle of forty-five degrees to the stock and blade *d* when the blade is at right angles to the stock.

Three scales are shown upon the cheek *a* in Fig. 4, one marked "Common rafters run 12″ rise—gain," another marked "Hip rafters run 16.97″ rise—gain," and another marked "Backing." The scale marks *o* of the "Common rafter" scale operate to set the blades *d* and *e* in suitable positions to respectively mark the vertical and horizontal cuts for the ends of a common-rafter, while the link *n* serves to mark the bevel upon the top edge of jack-rafters to fit the hip-rafter. In each case the edge of the stock is applied to the flat side of the rafter but in different positions. In marking with the blade *d* such blade is laid flat upon the flat side of the rafter and the edge of the stock applied to the edge of the rafter along such flat side. In marking with the link *n*, the edge of the link is laid upon the top edge of the jack-rafter and the edge of the stock is laid along the side of the jack-rafter next such top-edge. The scale-marks *o* are shown at the left hand side of the slot *k* forming a scale with serial numbers 1 to 24 inclusive, indicating the setting of the blades *d* and *e* for a rise of the rafter in inches per foot corresponding to the designation of the scale-marks. At the side of each of the designating numbers 1, 2, 3, &c., are additional figures, expressed in integers and decimals, showing the gain or excess of length of a rafter in addition to the run for each foot of the same. Each of the said scale-marks is thus provided with two separate sets of numbers or figures expressing different functions of the said marks, and the single scale is thus enabled to perform two distinct functions. The index *l* in Fig. 1 is shown set to the scale-mark having the number 6, indicating 6 inches rise to the foot, the decimal by the side of which number in Fig. 4 is 1.42, indicating that the rafter is 1.42 inches longer than the base or run for each foot of the run; thus, with a ten foot run and a six inch rise to the foot, the increased length of the rafter would be $14\frac{1}{5}$ inches, and its total length eleven feet, $2\frac{1}{5}$ inches. The provision of the figures upon the scale-marks, in conjunction with the numbers indicating the rise, constitutes the improvement in this particular scale as the application of two sets of figures or numbers to the same scale-marks obviously enables the scale-marks to perform a double function. At the right hand side of the slot *k* is a second scale to set the blades *d* and *e* for marking hip-rafters with a series of numbers indicating the rise in inches per foot, and figures consisting of decimals and integers are applied to the scale-marks at the side of the said scale-numbers, to show the gain or excess of length of such rafters in addition to the run, for each 16.97 inches of run. Each of these scale-marks at the right hand side of the slot thus performs two functions, the same as the scale-marks *o* at the opposite side. The association of the figures indicating the excess of length with the numbers indicating the rise, enables the carpenter to readily compute the length of a common or hip-rafter when the run or base of the rafter is given, and the rise in inches per foot. The stock is also provided with a scale to set the marking blade *e* at a suitable angle to the stock for marking or testing the backing upon the upper edge of a hip rafter. The backing is the slope formed upon the top side of hip-rafters from each side of the same toward a ridge in its center, such slope being proportioned to agree with the inclination of the jack-rafters where they rest upon the hip-rafter. This backing scale is applied to the edge of a slot *p* adjacent the pivot of the marking blades in which the locking-stud *q'* is fitted for locking the bent link *r* in any required adjustment of the marking-blade *e*. An index *q* is fitted to the locking-stud *q'* and scale-marks *s* are applied to one edge of the slot *p* and provided with numbers 2 to 24 inclusive, the setting of the index to any of such numbers indicating the setting of the marking-blade *e* for testing the slope or bevel (termed backing) upon hip-rafters having the designated rise. In marking the backing upon a hip-rafter, a center line is marked upon the upper edge of the rafter at one end of the same, the right hand side of the stock is applied to the left hand side of the rafter, and the upper edge of the blade *c* is set coincident with the end of the marked center line from which a line can be drawn to the left hand side of the rafter to indicate the backing upon that side. By reversing the position of the tool and applying the same side of the stock to the opposite sides of the hip-rafter, the slope upon the top-edge of the rafter can be marked at the opposite side of the center line. The setting of the marking blades (by the use of the index *l* and scale marks *o*) sets the bevel-link *n* automatically in a suitable position to mark the miters of jack-rafters having the rise designated by the numbers upon the scale marks, for fitting against regular hip-rafters, which lie at an angle of

forty-five degrees to the sides and ends of a roof; but special scales are provided upon the marking blade d for marking the miters upon jack-rafters D′ to fit a deflected rafter indicated by the dotted lines E′ in Fig. 3. The special scales are used in conjunction with an extension rule t which is carried, as shown in Fig. 9, in the space b^2 within the cheek b and in contact with one of the flanges b'.

A spacing-block u is secured between the cheeks at the end opposite to the rivet-holes c, and formed with notches u' to receive lugs v, v' projected respectively from the ends of the marking blades e and d to move them out of the stock when folded therein. A thumb-screw w is fitted through a tap-hole w', Fig. 16 in the block u, where it may press upon the extension rule t to hold it in place. The rule is formed at one end with a notch x in line with a marking edge upon the rule, and adapted to fit against a collar l^2 upon the screw l'. (See Figs. 2 and 6).

Two scales are provided upon the marking-blade d against which the edge of the rule t may be set for marking the bevels upon the ends of jack-rafters D′ (see Fig. 3), the notch x upon the rule being fitted against the collar l^2 or screw l', as shown in Fig. 2. The scales for hip-rafters as E′, Fig. 3, deflected to the left side of the regular hip-rafter consists of the dots x^2 designated 1, 2, 3, 4 and 5 upon the blade d in Fig. 1 at the left side of the pivot n'; and the scale for hip-rafters deflected upon the opposite or right hand side of the regular hip-rafter consists of marks x' upon the blade d at the right hand side of the pivot n'. The point numbered 1 in the left hand scale occurs within the outer end of the bevel-link n, and is therefore marked upon the end of the link, serving the same purpose in that position as a dot or scale-mark upon the blade d. The numbers applied to the scale-marks x' or x^2 indicate inches of deflection for each 16.97 inches of run on regular hip-rafters, and suffice for all ordinary deflections. This figure 16.97 expresses the relation between the run of a hip-rafter and the run of a common rafter, which runs are in the proportion of 16.97 to 12. Marks designated "Hex." and "Oct." are also applied to these scale-marks x' to indicate the setting for hip-rafters on hexagon or octagon roofs.

The rule t is used, as shown in Fig. 2, by setting its notch x against the collar l^2 or the stud l', and extending its edge to the required index mark, either edge of the rule then serving to indicate the miter or angle of the jack-rafter where it fits the deflected hip rafter. The "extension rule" t is so called because it may be slid outward to any extent from the space l^2 within the stock, and secured by the set screw w', and is provided, as shown in Fig. 2, with graduations having numbers indicating the combined length of the rule and stock with the rule in any given adjustment. The conjunction of an extension rule with a tool for marking rafter cuts is of especial convenience in measuring or marking off the rafter spaces on the wall-plate, as the stock and rule may furnish, in practice, an extension measure of two foot in length, which is the usual spacing for common-rafters. The rule is provided with an ear x^3 at one side of its outer end, which permits the formation of the notch x, and also serves as a thumb-piece for pulling the rule out of the stock when the set screw w is slackened.

The indices l and q are constructed so that they have an end transverse to the slot and long enough to overlap upon the scale at both sides of the slot k and extended materially beyond the side of the nut which clamps the index, so that such transverse end may be plainly seen and adjusted to the transverse scale-marks, as indicated at l in Fig. 1. The index is formed of a piece of sheet-metal which embraces the shank of the screw as shown in Fig. 4, and has a tongue l^2 bent downward from its transverse end to enter the slot k or p and thus hold the index from turning upon its stud. These details of construction are different from those employed in the tool heretofore patented to me, and the usefulness of the tool and its value are greatly enhanced by the addition to the slot k of a scale for showing the marking and cutting of hip-rafters, as well as the gain in length of such rafters over the run.

The link r has been heretofore used merely as a means in conjunction with a locking-stud in a suitable slot for holding the marking-blade e in any desired position, but I have given a double function to the locking-stud in the present invention by applying the index q thereto in conjunction with a scale for setting the blade e to gage the backing upon hip-rafters, and I have thus given a new function to the old elements of my previous construction.

In the plan in Fig. 3, the delineation of the hip-rafter forms the diagonal of a square, which it is well known is about four-tenths greater than the side of the square, and measures sixteen and ninety-seven hundredths inches for each foot upon the side of the square. This represents the run of the hip-rafter, and the figures indicating the gain on the hip-rafter scale in Fig. 4 show the actual length per foot of the hip-rafter in excess of each foot of such run. The numbers on the hip-rafter-scale which designate the rise express the rise of the common-rafters in the same roof, as the rise of both rafters is the same, and such numbers are more convenient for setting the index and

the marking blades than the fractional numbers which would express the rise of the hip-rafter per foot of its own run.

This implement is also adapted for use as a square or bevel, and for any other purpose where timbers are to be framed together at an angle.

Having thus set forth the nature of the invention what is claimed herein is:

1. In a framing-tool, the combination, with the stock and the marking blade *d* pivoted thereto, of an index movable upon the stock and a link connecting the index and marking blade the stock having a series of scale-marks in the path of such index with separate numbers and figures applied to each of said scale-marks, the numbers indicating the rise per unit of base for rafters and the figures indicating the gain in length per foot run for the designated rise of such rafters, each scale-mark thus performing a double function in conjunction with a single index.

2. A framing-tool for marking the angles of common-rafters and hip-rafters and gaging or marking the backing of hip-rafters, comprising the stock having the slot *k* with the index *l* fitted movably thereto, the marking-blades *d* and *e* connected together and to the stock by pivot c^2, the link *n* connecting the blade *d* with the index *l*, scale-marks at opposite sides of the slot *k* for setting the blade *d* at suitable angles for marking the bevels upon the common-rafters and hip-rafters, the slot *p* adjacent to the pivot c^2 with the index *q* fitted movably therein, the link *r* connecting the marking-blade *e* with the said index, and scale-marks adjacent the slot having numbers thereon indicating various rises per unit of base and disposed to set the blade *e* at a suitable angle for gaging or marking the backing of hip-rafters having the designated rise.

3. In a framing tool, the combination, with the stock having the marking-blade *d* fitted thereto and having the slot *k* with the index *l* movable therein, of a parallel edged link *n* jointed by a pivot *n'* to the marking-blade and carrying a stud *l'* extended through the index with a nut for clamping the index upon the stock, the link *n* setting at 45 degrees to the stock and marking-blade when they are at right angles to one another, the stock having scale-marks *o* by the slot *k* uniting numbers indicating various rises of rafters per unit of base, and the rule *t* having the open notch *x* in its end adapted to engage the index-stud, the blade *d* having a scale adjacent its linked pivot *n'* by which to set the edge of the rule *t* for marking the beveled joints of jack-rafters with deflected hip-rafters.

4. A framing tool having a stock provided with the slot *k* having two diverse sets of scale-marks at opposite edges of the slot with numbers and figures upon each indicating respectively the rise and gain of common rafters and hip-rafters, the clamp-stud *l'* movable in the slot, the blade *d* jointed to the stock with the link *n* pivoted to the blade and carrying the clamp-stud, a nut applied to the stud over the index to clamp it upon the slot and the index having a transverse end extended beyond the side of the stud and overlapping both sides of the slot to fit both sets of scale-marks, and a tongue bent downwardly from the middle of such transverse end into the slot to hold the end of the index transverse to the slot.

5. In a framing tool, the combination, with a stock having the outer cheeks *a* and *b* with pivot-holes *c* in each near one end of the same, and the cheek *a* curving around the outer half of the pivot-hole, of the marking-blades *d* and *e* fitted to opposite sides of the stock one over the other, having each a pivot-hole near its inner edge and secured movably between the cheeks by the pivot c^2, the bolt-hole *f* in the blade *e* outside the curved end of the cheek *a*, the tubular boss *g'* secured in the blade *d* with the bolt *g* fitted movably in said boss and having the spiral spring *h* to hold it normally clear of the bolt-hole *f* in the blade *e*, and the bayonet lock formed of the pin *i* upon the bolt and the slot *j* in the side of the boss to hold the bolt in engagement with the bolt-hole *f* when desired.

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

CHARLES C. TAINTOR.

Witnesses:
L. LEE,
THOMAS S. CRANE.