No. 637,648. Patented Nov. 21, 1899.

R. NEWALL.

COMBINATION TOOL.

(Application filed Feb. 7, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1

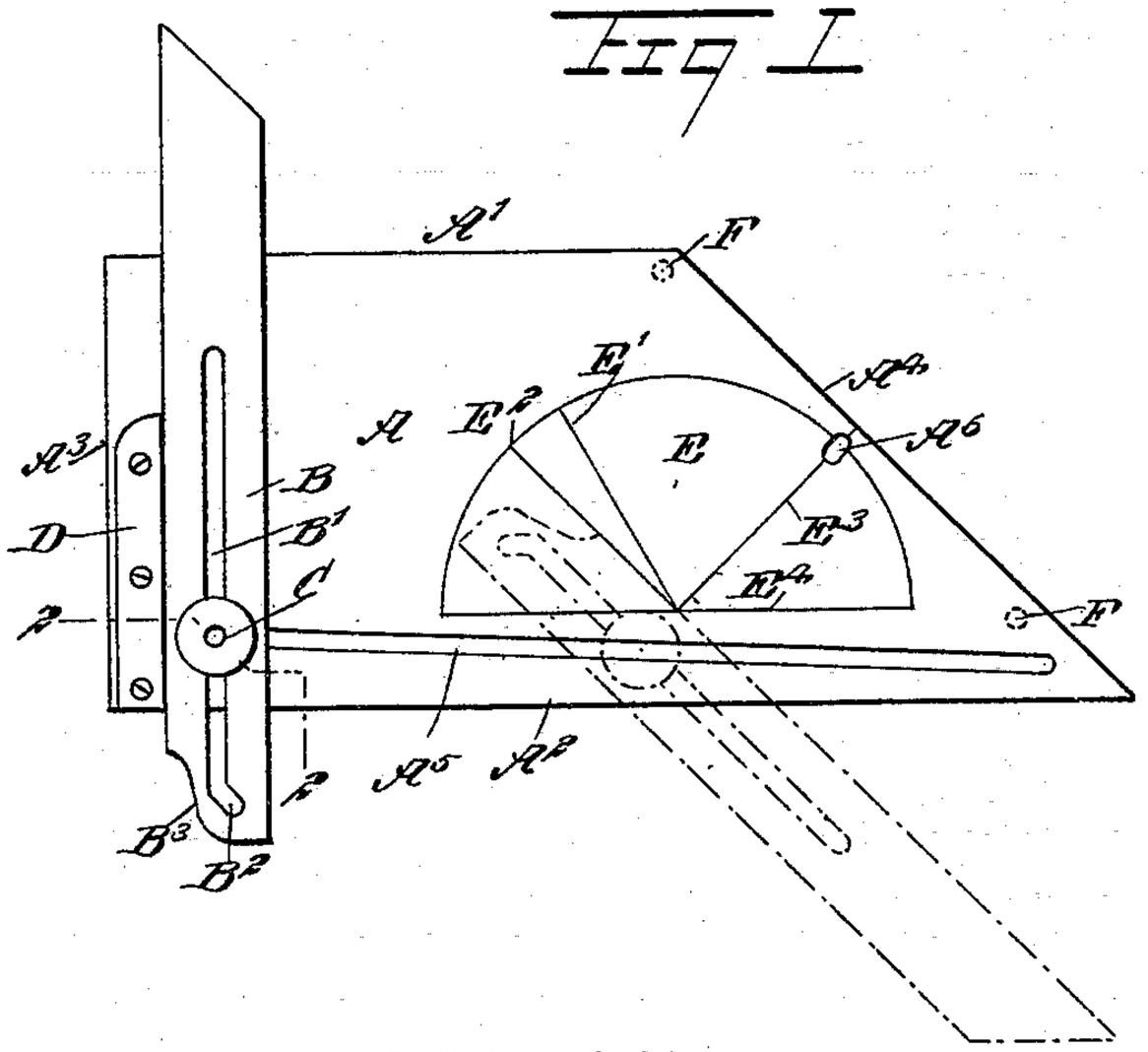


Fig 2

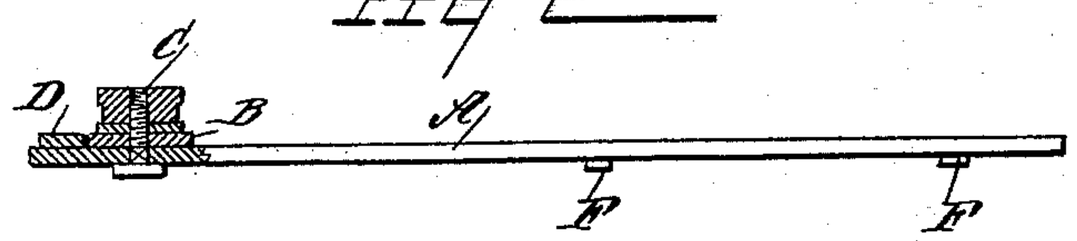


Fig 3

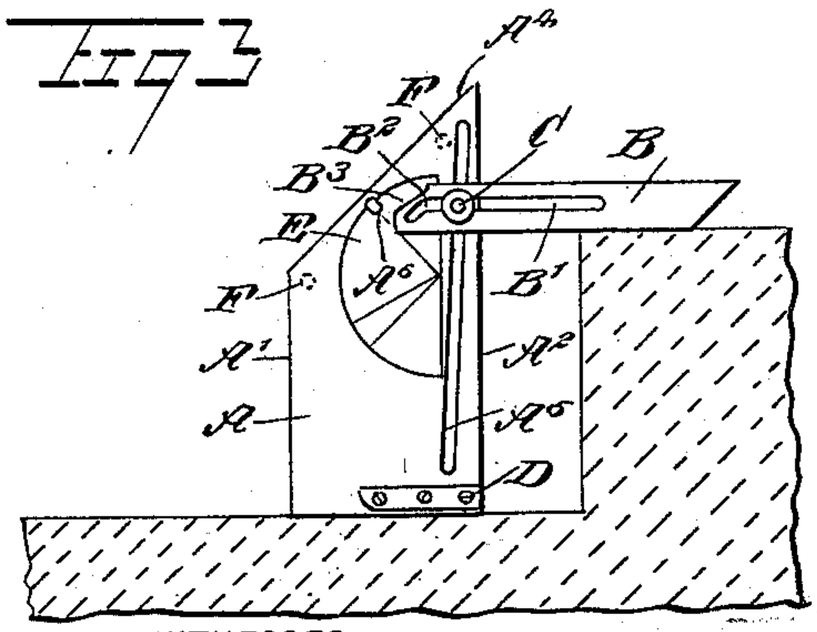
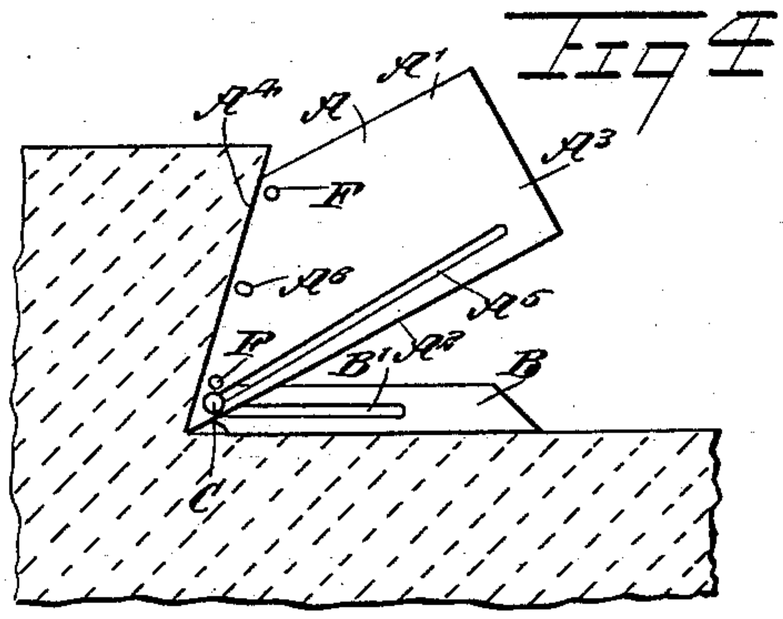


Fig 4



WITNESSES:

H. Walker

Wm. J. Hooker

INVENTOR

Robert Newall.

BY

ATTORNEYS.

No. 637,648. Patented Nov. 21, 1899.

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(Application filed Feb. 7, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig 5

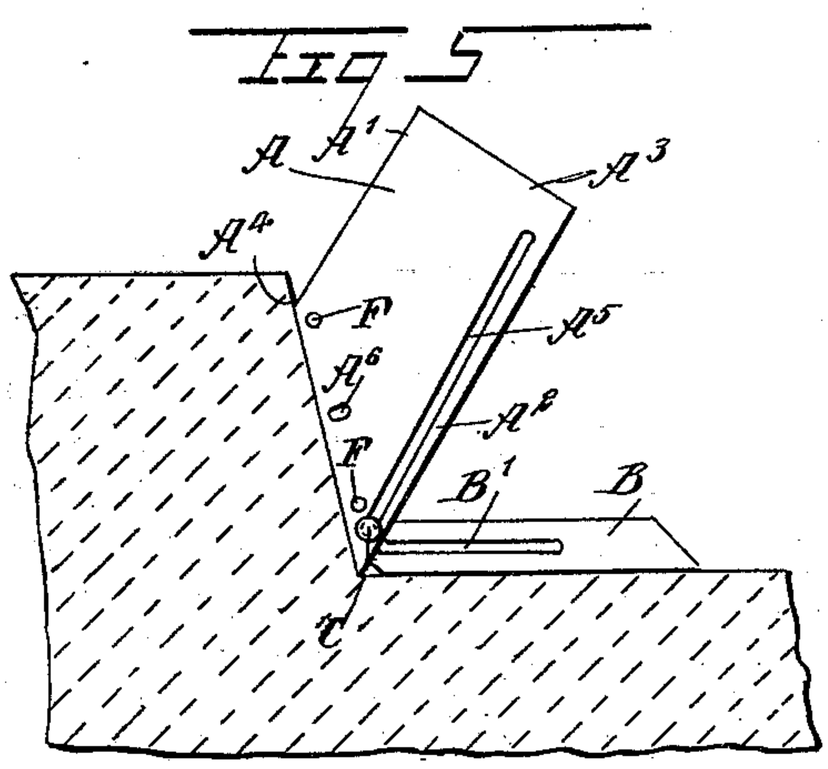


Fig 6

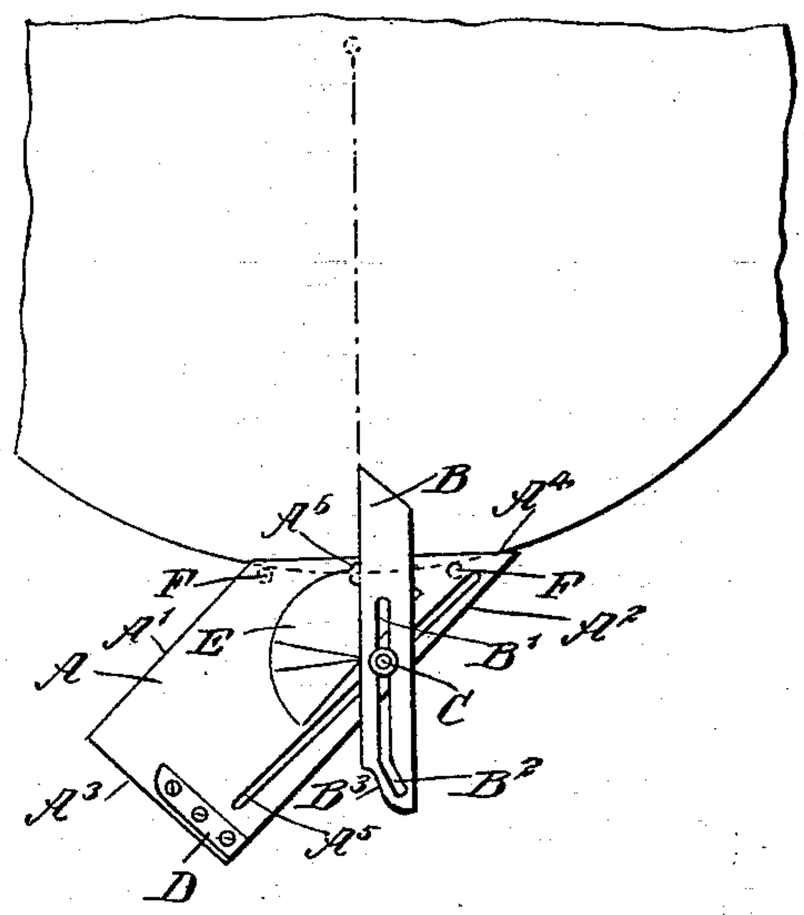


Fig 7

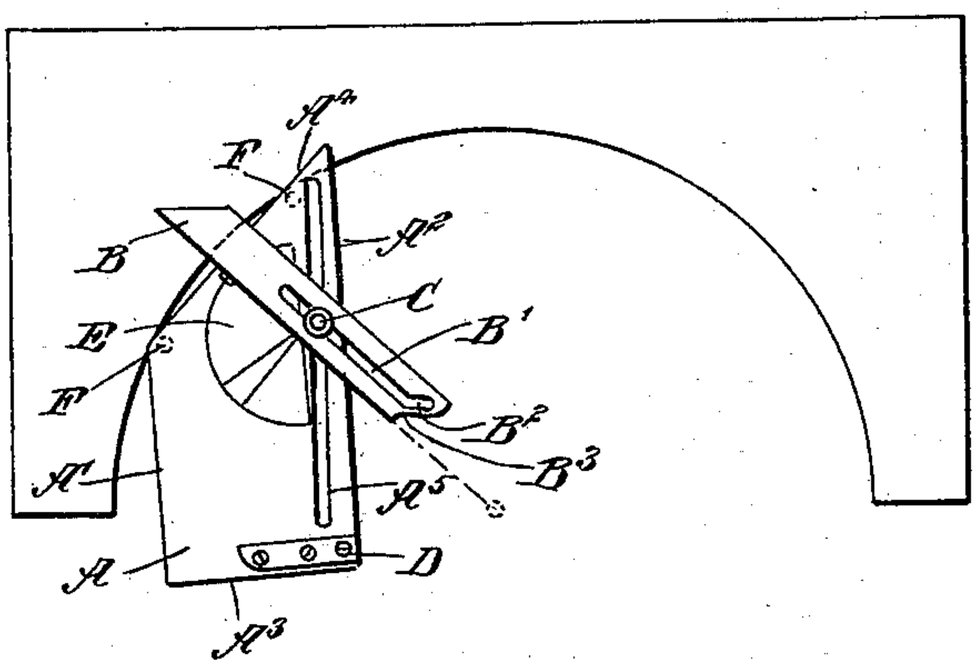


Fig 8

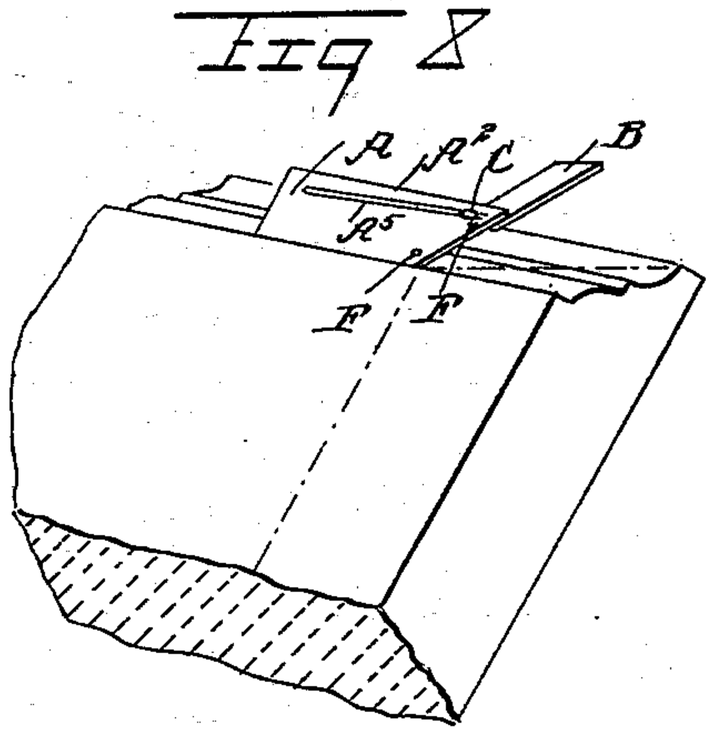
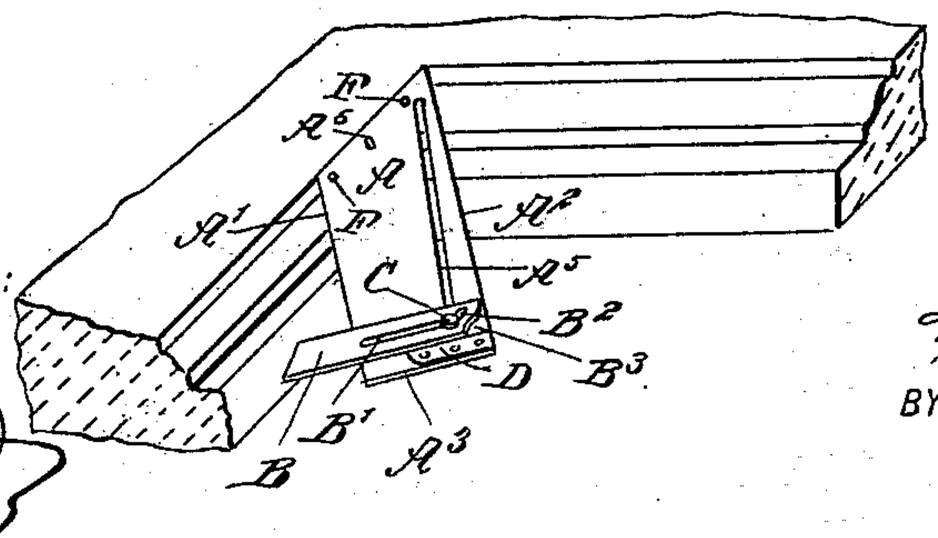


Fig 9



WITNESSES:

H. H. Walker

Rud. J. Hooker

INVENTOR

Robert Newall.

BY Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ROBERT NEWALL, OF QUINCY, MASSACHUSETTS.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 637,648, dated November 21, 1899.

Application filed February 7, 1899. Serial No. 704,807. (No model.)

To all whom it may concern:

Be it known that I, ROBERT NEWALL, of Quincy, in the county of Norfolk and State of Massachusetts, have invented a new and useful Combination-Tool, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved combination-tool, more especially designed for the use of stone-cutters, carpenters, machinists, and other artisans, and combining a square and bevel in such a manner as to enable a workman to readily, conveniently, and accurately lay out work without calculation.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of my invention is represented in the accompanying drawings, forming part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a face view of the improvement. Fig. 2 is a side elevation of the same with part in section on the line 2 2 in Fig. 1. Fig. 3 is a reduced face view of the improvement as applied for gaging height, and Fig. 4 is a similar view of the same as arranged for obtaining inside angles. Fig. 5 is a face view of the improvement arranged for obtaining an obtuse angle. Figs. 6 and 7 are like views of the improvement applied for centering purposes. Fig. 8 is a perspective view of the improvement applied for mitering external moldings, and Fig. 9 is a like view of the same applied for mitering internal moldings.

The combination-tool consists principally of a stock A in the form of a plate made of metal or like material and a blade B, adjustably held on said stock and adapted to be fastened thereon by a suitable clamping-screw C, as is plainly shown in Figs. 1 and 2. The stock A has its top and bottom edges A′ and A^2 arranged parallel to each other, and the edge A^3 on one side of the stock stands at a right angle to the top and bottom edges, while the edge A^4 on the other side is at the bevel or at an angle of forty-five degrees to the edge A^2 and at one hundred and thirty-five degrees to the edge A′. In the stock A, next to the edge A^2, is arranged a slot A^5, and a slot B′ is formed longitudinally in the blade B, both slots being engaged by the shank of the clamping-screw C to permit of giving the proper adjustment to the stock A and the blade B.

Near the edge A^3 and on the front face of the stock A is arranged an offset D for one side of the blade B to abut against, as illustrated in Fig. 1, to hold said blade at a right angle to the edges A′ and A^2, thus forming an outside or a T square of the device.

The slot B′ in the blade B terminates in an angular extension-slot B^2, and the adjacent material of the blade B is cut out, as at B^3, to permit of conveniently using the blade B at the forward end of the stock A without obstructing the bevel edge A^4 of the stock, as will be readily understood by reference to Fig. 5.

On the face of the stock A is arranged a protractor E, preferably provided with only the radial lines E′ E^2 E^3 and the base E^4, which latter stands parallel to the edge A^2, and the line E′ stands at an angle of one hundred and twenty degrees to the said base to permit of readily finding the side of a hexagon by setting the blade B along said line. The line E^2 stands at an angle of one hundred and thirty-five degrees to the base E^4 and the edge A^2, and when the blade B is adjusted along this line, as indicated in Fig. 1, then adjacent octagon sides of a figure can be readily drawn. The line E^3 stands at a right angle to the beveled edge A^4, and the lugs F, formed on the back of the stock A, are arranged adjacent to the edge A^4 and an equal distance from the said line to permit of using the device for an inside or an outside centering-tool, said lugs F engaging the peripheral surface operated upon, the blade B extending along the line E^3 to point to the center of the article.

An aperture A^6 is preferably formed in the stock A along the line E^3 to permit of readily viewing the edge of the blade B, so that the said edge coincides with the line E^3. The slot A^5 is preferably arranged at a slight angle to the edge A^2 to avoid weakening the stock to any great extent. The outer end of the blade B is preferably beveled to forty-five degrees.

It is evident that by loosening the clamp-

ing-screw C the shank of the screw can be readily adjusted along the slot A^5 to bring the blade B to the desired place, and said blade may be shifted longitudinally on the shank of said clamping-screw to extend the blade the desired distance across the stock and beyond the other edge thereof, according to the use to be made of the tool.

It is understood that for obtaining obtuse angles the angular extension-slot B^2 is very serviceable to bring the edge of the stock and that of the blade in proper contact with the faces of the article under treatment, as will be readily understood by reference to Fig. 5.

It is evident by the arrangement described that the tool can be readily used for determining inside angles, (see Figs. 4 and 5,) the height between two faces, as indicated in Fig. 3, for obtaining the sides of hexagons, octagons, and centers of articles, (see Figs. 6 and 7,) for mitering on inside or outside moldings, as shown in Figs. 8 and 9, and for various other purposes.

The instrument is readily transformed with various tools—such, for instance, as inside square, T-square, depth-gage, set-square, external miter-square, internal miter-square, height-square, inside and outside bevel-square, and external and internal center square and protractor.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A combination-tool, comprising a stock having an offset, a protractor on said stock and adjacent to the beveled side of the stock, two lugs projecting from the stock near one edge and equidistant from the center of the protractor, a blade, and a clamping-screw engaging slots in said stock and blade, to permit of adjusting the blade and stock relatively to each other and to clamp the same together, substantially as shown and described.

2. A combination-tool, comprising a stock having parallel top and bottom edges, a right-angle edge on one side and a beveled edge on the other side, the stock being also formed with a slot extending near one end of the parallel edges, a protractor on the face of the stock, two lugs projecting from the stock near one edge and equidistant from the center of the protractor, a blade having a longitudinally-extending slot, and a clamping-screw for connecting the stock and blade together, the shank of the screw passing through said slots, substantially as shown and described.

3. A combination-tool, comprising a stock having parallel top and bottom edges, a right-angle edge on one side and a beveled edge on the other side, the stock being also formed with a slot extending near one end of the parallel edges, a protractor on the face of the stock, a blade having a longitudinally-extending slot provided with an angular extension at one end, a clamping-screw for connecting the stock and blade together, the shank of the screw passing through said slots, and an offset adjacent to the right-angle edge for the blade to abut against, to hold said blade at a right angle to the parallel edges, substantially as shown and described.

4. A combination-tool, comprising a stock having parallel top and bottom edges, a right-angle edge on one side and a beveled edge on the other side, the stock being also formed with a slot extending near one end of the parallel edges, a protractor on the face of the stock, a blade having a longitudinally-extending slot, a clamping-screw for connecting the stock and blade together, the shank of the screw passing through said slots, and lugs on said stock along the beveled edge, an equal distance from a protractor-line standing at a right angle to the said beveled edge, substantially as shown and described.

5. A combination-tool, comprising a quadrilateral stock or plate having two adjacent right-angled corners, and two adjacent corners one greater and one less than a right angle forming a beveled end, the stock having a slot ranging from near the apex of the acute angle along the long side to near the other end, an offset or lug ranging across the end of said slot with its inner side perpendicular to the opposite parallel sides of the stock, a slotted bar, and a clamping-bolt passing through the slots in stock and bar, substantially as described.

6. A combination-tool, comprising a quadrilateral stock or plate having two adjacent right-angled corners, and two adjacent corners one greater and one less than a right angle forming a beveled end, the stock having a slot ranging from near the apex of the acute angle along the long side to near the other end, an offset or lug ranging across the end of said slot with its inner side perpendicular to the opposite parallel sides of the stock, a slotted bar, a clamping-bolt passing through the slots in stock and bar, and a protractor within the acute angle and having its diameter parallel with one side of the stock, substantially as described.

ROBERT NEWALL.

Witnesses:
WILLIAM MCCONNEL,
FRANK W. FLOWERS.