No. 716,851. Patented Dec. 30, 1902.

T. C. AURINGER.

COMBINED BEVEL AND SQUARE.

(Application filed Oct. 23, 1902.)

(No Model.)

Fig. 1.

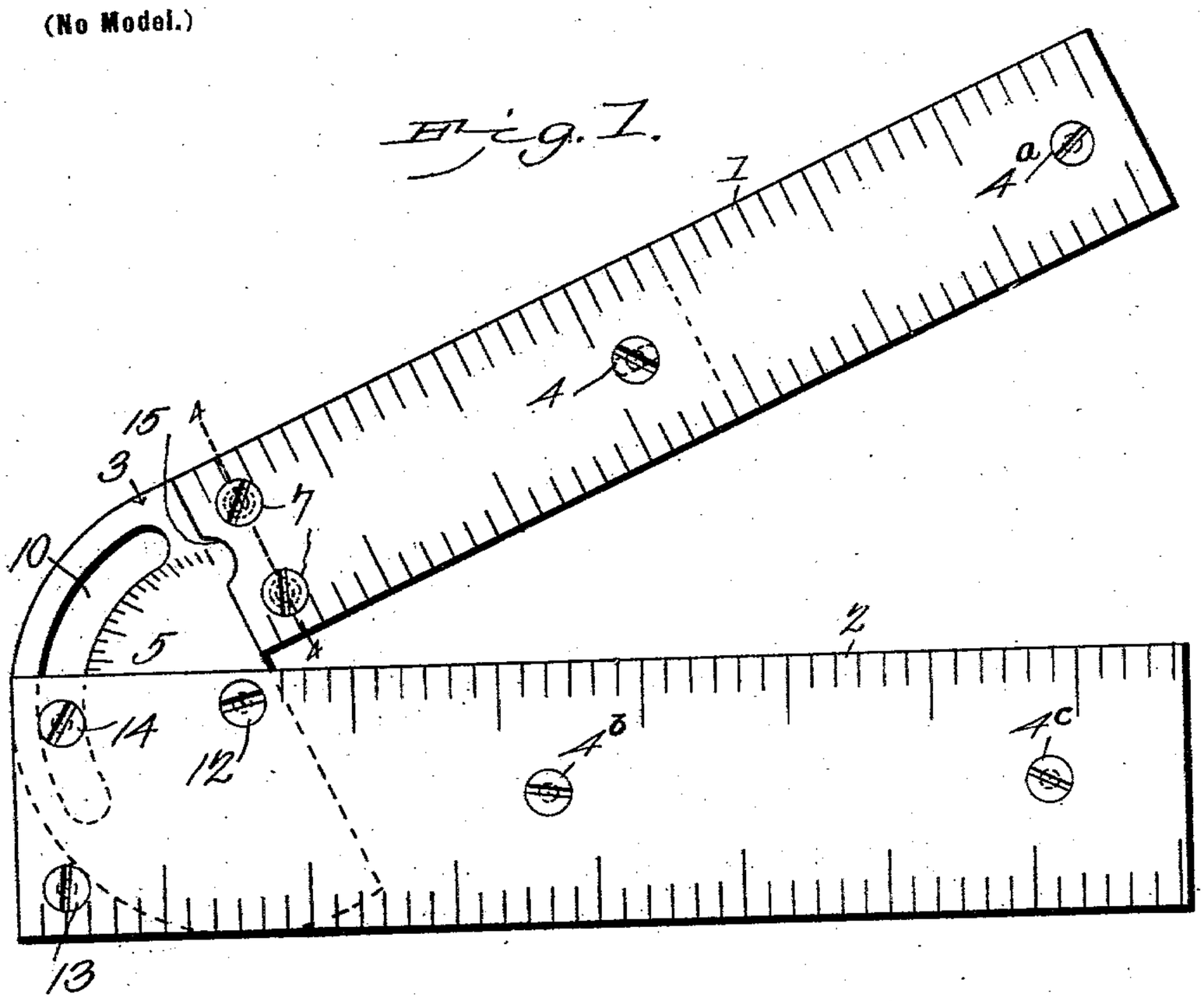


Fig. 2.

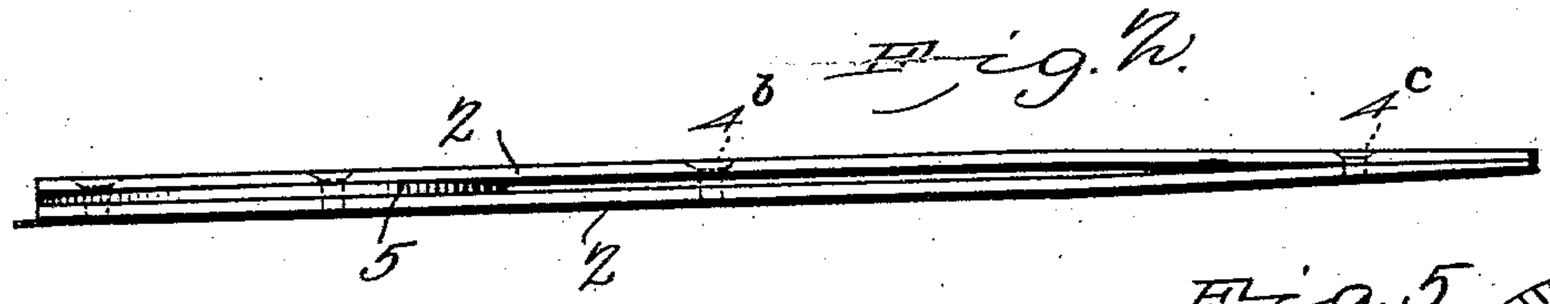


Fig. 5.

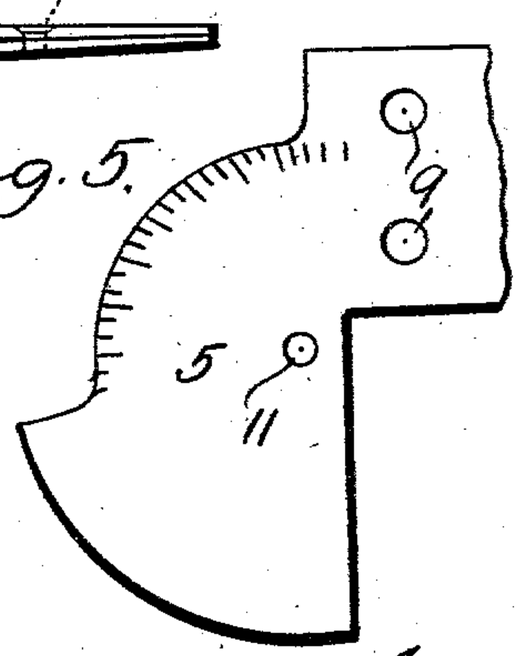


Fig. 3.

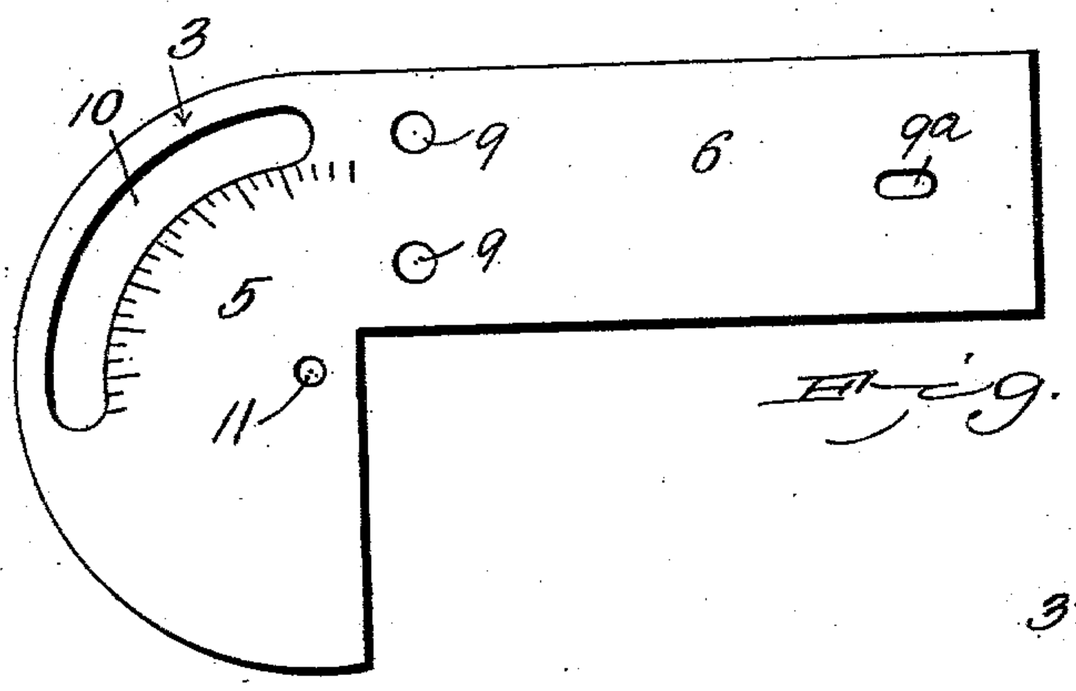
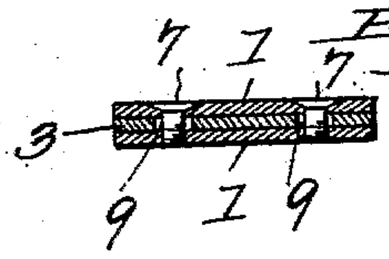


Fig. 4.



Witnesses:
E. F. Stewart
R. M. Elliott.

Inventor:
T. C. Auringer,
by Cachow & Co
Attorneys.

UNITED STATES PATENT OFFICE.

TRACY C. AURINGER, OF COHOES, NEW YORK.

COMBINED BEVEL AND SQUARE.

SPECIFICATION forming part of Letters Patent No. 716,851, dated December 30, 1902.

Application filed October 23, 1902. Serial No. 128,498. (No model.)

To all whom it may concern:

Be it known that I, TRACY C. AURINGER, a citizen of the United States, residing at Cohoes, in the county of Albany and State of New York, have invented a new and useful Combined Bevel and Square, of which the following is a specification.

This invention relates to a combined square and bevel.

The object of the invention is to provide an instrument of the character specified in which the parts shall be so assembled as to secure accuracy in use, in which danger of breakage or derangement of parts in use will be reduced to a minimum, and in which adjustment of the elements to form a perfect right angle may be effected with accuracy.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a combined square and bevel, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof, and in these drawings—

Figure 1 is a view in elevation of an instrument constructed in accordance with the present invention. Fig. 2 is an edge view looking upward against the handle of Fig. 1. Fig. 3 is a detached detail view of the protractor attachment. Fig. 4 is a transverse sectional view on the line 4 4 of Fig. 1. Fig. 5 is a side view of the head of the protractor.

The tool of the present invention comprises a blade 1, a handle 2, and a protractor 3. The blade and handle are each constructed in this instance of two strips of metal, preferably of steel, and are suitably graduated into inches and parts thereof, as is common with devices of this character.

The advantage of constructing the blade and handle of connected members is that while securing the same rigidly the tool is made much lighter and therefore easier to handle. As herein shown, the members of the blade and handle are connected by screws 4, 4^a, 4^b, and 4^c, disposed, respectively, approximately intermediate of the ends of the parts and near their free terminals.

The protractor shown in Figs. 1, 2, and 3 comprises a semicircular head 5 and an arm 6 integral therewith, the arm being disposed between the members of the blade and held therein by the intermediate screw 4 and by two screws 7, disposed near the inner end of the blade. As above stated, it is an object of this invention to provide means for adjusting the square members with relation to each other, so as to provide for an exact right angle, and to effect this result the openings 9 in the arm 6, through which the screws 7 pass, are of greater diameter than the screws, and the opening 9^a, through which the screw 4 passes, is a slot disposed longitudinally of the arm.

The head of the protractor is provided with a curved slot 10, concentric with an opening 11, through which passes a pivot-screw 12, the opening 11 being so disposed with relation to the periphery of the head that when the protractor is positioned between the members of the handle its periphery will not project beyond the ends or lower side thereof. In addition to the screw 12 for holding the protractor associated with the handle two other screws 13 and 14 are employed, the latter of which passes through the slot 10 of the protractor, and these two screws by being tightened will take up any lost motion or play of the protractor-head. To increase the frictional contact between the protractor and the members of the handle thus to assist in holding the blade at the desired adjustment, the impinging faces of these parts may be roughened for that purpose. The head is provided adjacent to the inner wall of the slot with a graduated scale indicating different degrees, thus to enable the user to set the blade at any desired angle with relation to the handle, and the terminal of one of the blade members is provided with a semicircular recess 15 to permit inspection of the first scale-mark.

In assembling the parts of the device the protractor is inserted between the members of the handle and held there by the screw 12 with the first degree-mark on the scale or

that next to the recess 15 coincident with the upper side of the handle. The arm of the protractor is then inserted between the members of the blade and adjusted in any certain manner to an exact right angle to the handle, the terminals of the blade members being brought into engagement with the upper edge of the handle, this being permitted by the enlarged screw-openings 9 and slot 9^a, and when the parts are in this position the screws 4 and 7 are tightened, thus securely holding the blade in its adjusted position.

If preferred and as shown in Fig. 5, the outer wall of the curved slot may be dispensed with, thereby simplifying the construction of the protractor and reducing its weight. When thus constructed, it will be thoroughly efficient in use for the purpose designed.

Instead of making the handle and blade each in two sections these may be made of one piece of metal having one end slotted to receive the protractor, and as this construction will be obvious detailed description thereof is deemed unnecessary.

The tool of this invention is exceedingly simple in construction, will be found highly efficient and durable in use, and thoroughly reliable in making accurate joints and miters.

Having thus described the invention, what I claim is—

1. A tool of the character specified, comprising a handle and a blade each constructed of two strips of metal suitably assembled, and a protractor having a head pivoted between the members of the handle, and an arm secured between the members of the blade.

2. A tool of the character specified, comprising a handle and a blade each constructed of two strips of metal suitably assembled, and a protractor having a head pivoted between the members of the handle and provided with a slot concentric with its pivotal point, and an arm secured between the members of the blade.

3. A tool of the character specified, comprising a handle and a blade each composed of two strips of metal suitably assembled, and a protractor having a semicircular head pivoted between the members of the handle and having its perimeter disposed within the outer edge and end thereof, said protractor being provided with a curved slot concentric with its pivot-point to be engaged by a holding device passed through the handle, and an arm projecting from the head and secured between the members of the blade.

4. A tool of the character specified, comprising a handle and a blade each composed of two strips of metal secured together, a protractor having a semicircular head pivoted between the members of the handle, an arm disposed between the members of the blade, and securing means for holding the arm within the blade, the securing means being of less diameter than the openings in the arm through which they pass, thus to permit of the blade being adjusted with relation to the protractor.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

TRACY C. AURINGER.

Witnesses:
I. M. AURINGER,
S. M. AURINGER.