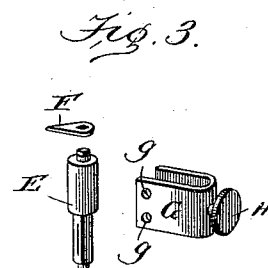
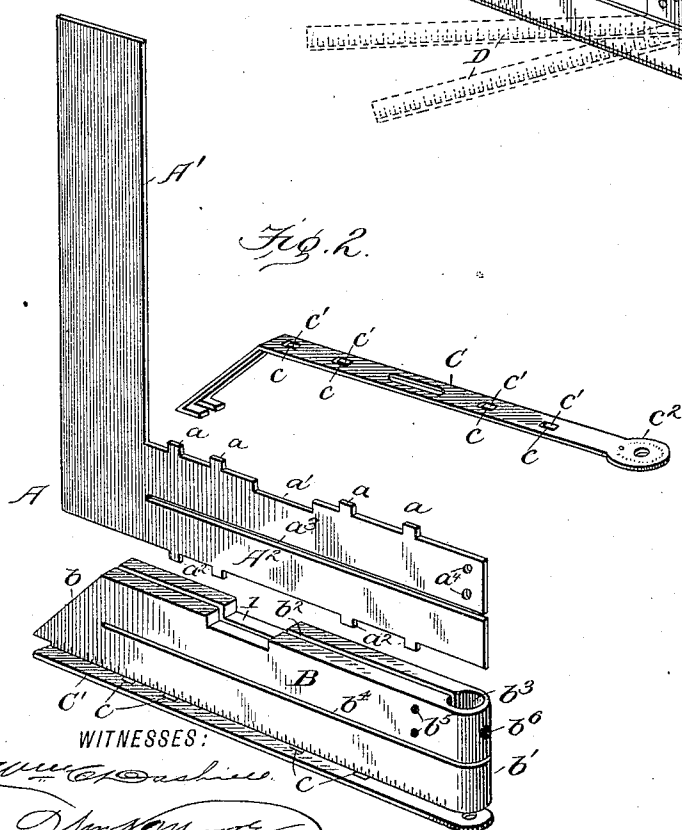
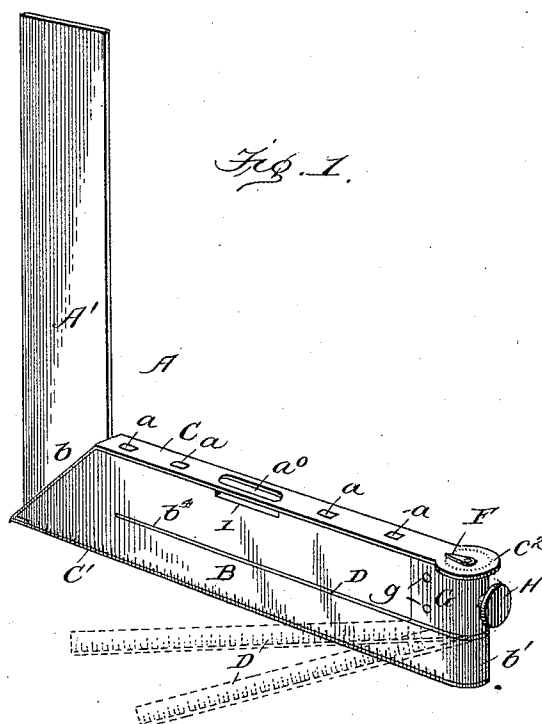


(No Model.)

O. ENGMAN.
COMBINATION TOOL.

No. 569,963.

Patented Oct. 20, 1896.



INVENTOR
Olof Engman.
BY Walton & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

OLOF ENGMAN, OF KEWANEE, ILLINOIS.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 569,963, dated October 20, 1896.

Application filed May 2, 1896. Serial No. 589,963. (No model.)

To all whom it may concern:

Be it known that I, OLOF ENGMAN, a citizen of Sweden, residing at Kewanee, in the county of Henry and State of Illinois, have invented certain new and useful Improvements in a Combined Square, Level, and T-Square; 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.

This invention relates to improvements in a combined square, level, and T-square.

The object of this invention is to produce a compact instrument of this class which is inexpensive to manufacture and which can be readily used for a variety of purposes by carpenters, mechanics, &c.

A further and more essential object is to provide, in connection with the ordinary carpenter's square and level, an adjustable T-square, which latter may be, by means of a dial, quickly adjusted to any angle desired.

For a full and complete understanding of my invention reference is to be had to the accompanying drawings, wherein corresponding letters indicate like parts in the several views, and in which—

Figure 1 is a general perspective view of the device complete, different positions of the T-square being indicated in dotted lines. Fig. 2 is a view in detail of the metal part of the square, metal strips, and wooden casing before they are secured together. Fig. 3 is a view of the dial and securing device for securing the T-square at any angle desired.

In the drawings, A refers to the metal part of the square, which consists of the two arms A' A², formed of a single piece of metal, at right angles with respect to each other, as shown, the arm A² having lugs a, formed at certain intervals on its upper edge, also a cut-away portion a' for a level, as hereinafter referred to, also lugs a² on its lower edge. It also has a slot a³, running nearly its entire length from its outer end, near to and parallel to its edges, and apertures a⁴ in its outer end.

B refers to a wooden casing of rectangular form having one of its upper corners cut away at b and its opposite end vertical edges rounded away at b'. Extending from the cut-

away end b centrally and vertically to within a short distance from the rounded end b' is a slot b², (see Fig. 2,) which terminates in a circular aperture or well b³, extending from the upper surface of the casing to the bottom thereof.

b⁴ is a horizontal slot in the casing near the bottom thereof, extending from the rounded end nearly to the opposite end thereof and through the casing.

In the rounded end of the casing, near the upper surface thereof, is an aperture b⁶, cut away and forming an opening into the well b³ for a purpose hereinafter described.

C C' are two metallic plates of the dimensions of the upper and lower surfaces, respectively, of the casing, and having apertures c c' and lips c' depressed therein, which correspond with the lugs a a² for securing the plates on the upper and lower surfaces of the casing by said lugs passing through these apertures and being bent inwardly against said lips to lie flush with the surfaces of the plates, the arm A² of the square A being first inserted in the slot b², so that holes or apertures a⁴ in the outer end thereof register with apertures b⁵, which pass horizontally through the casing adjacent to the well b³, as shown.

The slots a³ and b⁴ are so arranged that they register with each other, and rivets or screws are passed through the apertures or holes a⁴ b⁵ to securely retain the square in the casing.

Plate C is slightly enlarged and rounding at its rear end, and has a dial C² accurately marked thereon in degrees from "0" up to "180."

D is an arm of the T-square, which is of the same dimension and fits within the slots a³ and b⁴, one end of which is suitably secured to revolve with a post E, mounted in any well-known manner in the well b³ between the plates C C', and having an upper pivotal point extending upward centrally through the dial-plate, with an index-finger F thereon. This index-finger lies in the same vertical plane with the arm D, and as that arm is revolved out of the casing the index-finger, being also rigidly attached to the post E, follows in the same vertical plane, thereby indicating accurately the angle which the arm makes with respect to the casing. Over aperture b⁶ is a protecting-plate G of rounding

contour to fit the end of the casing, and this plate has apertures *g*, which when the plate is in position register with the apertures *a*⁴ and *b*⁵ to fasten the same to the end of the casing. This plate has also in its central portion a threaded hole, through which works a thumb-screw or threaded securing device *H*, which when screwed inwardly brings its inner end in contact with the post *E* to hold the same securely in any desired position.

The lower side edges of the casing are marked or graded with suitable scales, also the arm *D*, and the casing is cut away at *I* to correspond with the cut-away portion *a'* in the arm *A* of the square for securing in a suitable manner a level therein.

Having thus described my invention, what I desire to secure by Letters Patent is—

A combined square, level, and T-square, comprising a metallic square having upon the upper and lower edges of one arm, lugs, a horizontal slot extending from the outer end nearly to its opposite end, a cut-away recess upon its upper edge near the middle thereof, and apertures in its outer end, a casing having a centrally and vertically formed slot extending from a cut-away end corner to a verti-

cally-formed well in its opposite end, in which the arm of the square with the lugs fits, a slot in the casing corresponding to and in the same horizontal plane with said first slot, plates having apertures with inwardly-projecting lips thereon, registering with the lugs on the plates, and secured thereto upon the upper and lower surfaces of the casing, a dial upon the outer end of the upper plate, a post in the well in the casing, an index-finger secured to the upper end of the post to revolve over said dial, a T-square arm fitting in said slots in the casing and square, and having its inner end securely attached to revolve with said post and dial, an opening in the rear end of the casing and well, a plate secured over said opening, a screw-threaded aperture in this plate and a thumb-screw in said aperture to hold the post in any desired position, and a level in the upper surface of the casing, substantially as described and set forth.

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

OLOF ENGMAN.

Witnesses:

A. J. SERENE,
WILLIAM LAWSON.