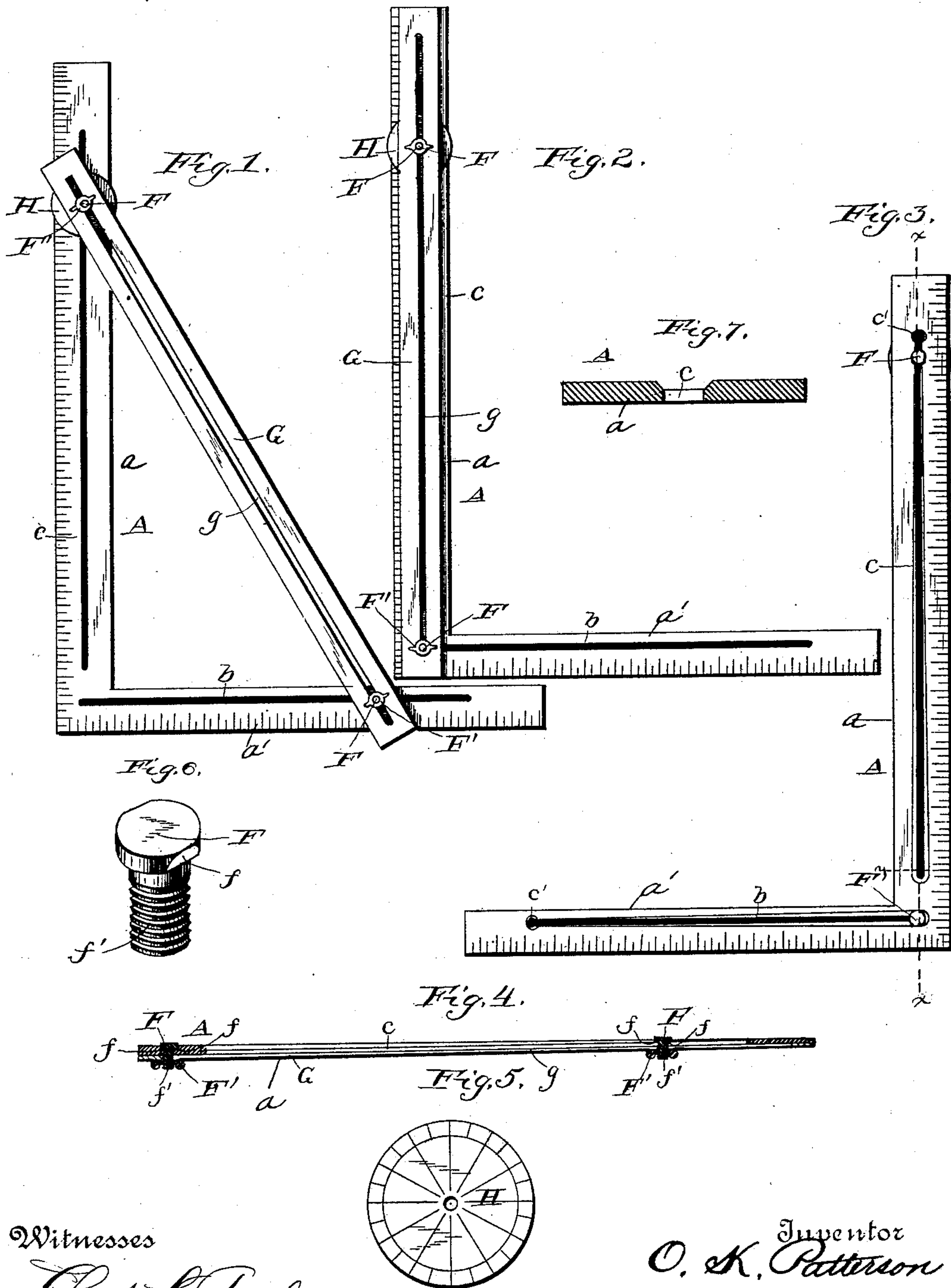


(No Model.)

O. K. PATTERSON.
COMBINED SQUARE AND BEVEL.

No. 360,465.

Patented Apr. 5, 1887.



Witnesses

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UNITED STATES PATENT OFFICE.

ORVICE K. PATTERSON, OF WILLIS GROVE, ASSIGNOR OF ONE-HALF TO
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COMBINED SQUARE AND BEVEL.

SPECIFICATION forming part of Letters Patent No. 360,465, dated April 5, 1887.

Application filed August 16, 1886. Serial No. 211,033. (No model.)

To all whom it may concern:

Be it known that I, ORVICE K. PATTERSON, a citizen of the United States, residing at Willis Grove, in the county of Knox and State of Indiana, have invented new and useful Improvements in Squares, of which the following is a specification.

My invention relates to improvements in combined bevels and squares; and it consists of the peculiar construction and arrangement of parts, substantially as hereinafter fully described, and particularly pointed out in the claims.

The object of my invention is to provide an improved device of the class named, by which the hypotenuse of the two sides of any angle can be very easily and readily determined, a miter-joint can be readily scribed or marked off, and the degree or angle of the adjustable arm very readily ascertained, all as more fully described.

In the accompanying drawings, which illustrate a combined square and bevel embodying my improvements, Figure 1 is a plan view of the device, showing it adjusted for use to cut a miter-joint. Fig. 2 is a like view of the adjustable arm folded in line with the blade of the square. Fig. 3 is a plan view of the reverse side of the square in the position shown in Fig. 2. Fig. 4 is a transverse sectional view on the line *xx* of Fig. 3, and Fig. 5 is a detached view of the protractor. Fig. 6 is a detail view of the headed pins. Fig. 7 is a transverse section on the line *yy*, Fig. 3.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the ordinary square, which is provided with the longitudinal slots *b* and *c* in its right-angled arms *a a'*, as shown. These longitudinal slots terminate a short distance from each other at the point where the right-angled arms *a a'* join each other, and the square is further provided with the usual number of scales or graduations. The terminal ends of the slots in the right-angled arms *a a'* are enlarged and rounded, as at *c'*, and one of the sides of the said slots *b c* is beveled, as shown in Figs. 3 and 7. The beveled edges of the slots gradually diminish from the inner end toward the outer free end of the right-angled arms *a a'* of the square and

the headed guide-pins F, the heads of these guide-pins working on the edges of the slots and on the beveled sides thereof. This structure of the slots gradually diminishing in bevel arises from the fact that the square is thicker at the angle than at the ends of the blades, and in order to have the guide-pins bind equally the whole length of the slot the bevel of the sides should diminish. When, however, the square is made of equal width, this construction of the bevel on the sides of the slots is not necessary. The sides of the enlarged heads of the guide-pins are beveled at *f*, to adapt them to ride upon the beveled sides of the slots more securely, and when these pins lie at the inner terminal ends of the slots, and within the enlargement thereof, they are flush with the sides of the square, as will be very readily understood. By means of the beveled sides of the headed studs working in the beveled sides of the longitudinal slots the studs are prevented from turning or rotating when they are moved back or forth in the slot with the arm G in order to adjust the latter, so that they will move freely therein, and at the same time the thumb-screw can be readily tightened, while the stud is held from rotary movement. When the arm G of the square lies parallel with the arm *a* thereof, the head of the threaded stud lies flush with the outer face of the said arm *a*, so that the square will lie flat upon the object upon which it is desired to use the implement.

The object of providing the rounded enlargement *c'* for the ends of the slots is to enable the head of the guide-pins to pass through in detaching or replacing the adjustable arm G, and yet leave the guide-pins on the arm G. When the arm G is off, the right-angled arms *a a'* can be used for the ordinary purposes of a square. By this arrangement the bevel-arm G can be detached from and replaced upon the square without unscrewing the guide-pins.

G designates an adjustable arm, which is slotted longitudinally at *g*, and through the said slots pass the threaded shanks *f'* of the guide-pins F. These guide-pins pass through the slots in the slotted arm and right-angled arms *a a'* of the square, and they are provided with binding-nuts F', which are screwed upon the threaded shanks thereof, and which bind

upon the arm to hold the latter immovably on the square, and detachably connect the same to the square in any adjusted position.

The guide-pin F' that connects the adjustable arm to blade of the square is not designed to be moved or adjusted longitudinally of the arm a of the square when scoring a miter-joint or determining the angle of the arm, and between the arm a' and the arm G , where the latter is connected to the arm a , is interposed a protractor-plate, H , which has a central opening, through which the shank of the guide-pin passes, and a series of radial indicating marks or characters on its outer exposed face, which can be readily observed by the workman, in order to determine the angle of the arm.

The operation of my invention is as follows: For marking off a miter-joint, the binding-screw that works on the guide-pin which connects the end of the adjustable arm to the stock of the square is adjusted to the desired point and the mark then drawn along the edge of the arm. To determine or ascertain the hypotenuse of a right-angled triangle, we will suppose that one inch on the scale of the square represents one foot, actual measurement, and the adjustable arm is adjusted or set at any number of inches, corresponding with the number of feet desired, on the arm a of the square, and the opposite end of the said arm is set at the number of inches on the stock of the square. The number of inches between the two numbers set on the right-angled arms a and a' of the square will give the hypotenuse. This measurement is especially useful in determining the length and angle of a brace, and by this means the perfect slope of the brace can be determined. To ascertain the angle of the arm in any of its adjusted positions, it is only necessary to consult the scale on the protractor, as is obvious.

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

1. A combined square and bevel consisting of the square having its right-angled arms slotted longitudinally, the walls of the slots being beveled as described, an adjustable slotted arm, the guide-pins passing through the slots in the square and arm and having the enlarged heads provided with the beveled sides and the threaded shanks, and the binding-nuts working on the said shanks, the beveled sides of the heads of the guide-pins corresponding with the beveled walls of the slots, substantially as described.

2. The combination of a square having the longitudinal slots in its stock and blade, an adjustable slotted arm, the guide-pins having the binding-nuts and passing through the slots in the square and arm, and a graduated protractor-disk interposed between one end of the adjustable arm and the blade of the square and having a central opening through which one of the guide-pins is passed, substantially as described.

3. A combined square and bevel consisting of the square having its right-angled arm slotted longitudinally, the terminal ends of the slots being enlarged, for the purpose set forth, an adjustable slotted arm, the guide-pins passed through the slots in the square and arm and having the enlarged heads, and the binding-nuts for the guide-pins, as set forth.

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

ORVICE K. PATTERSON.

Witnesses:

JAMES P. L. WEEMS,
EDSON O. ANDERSON.