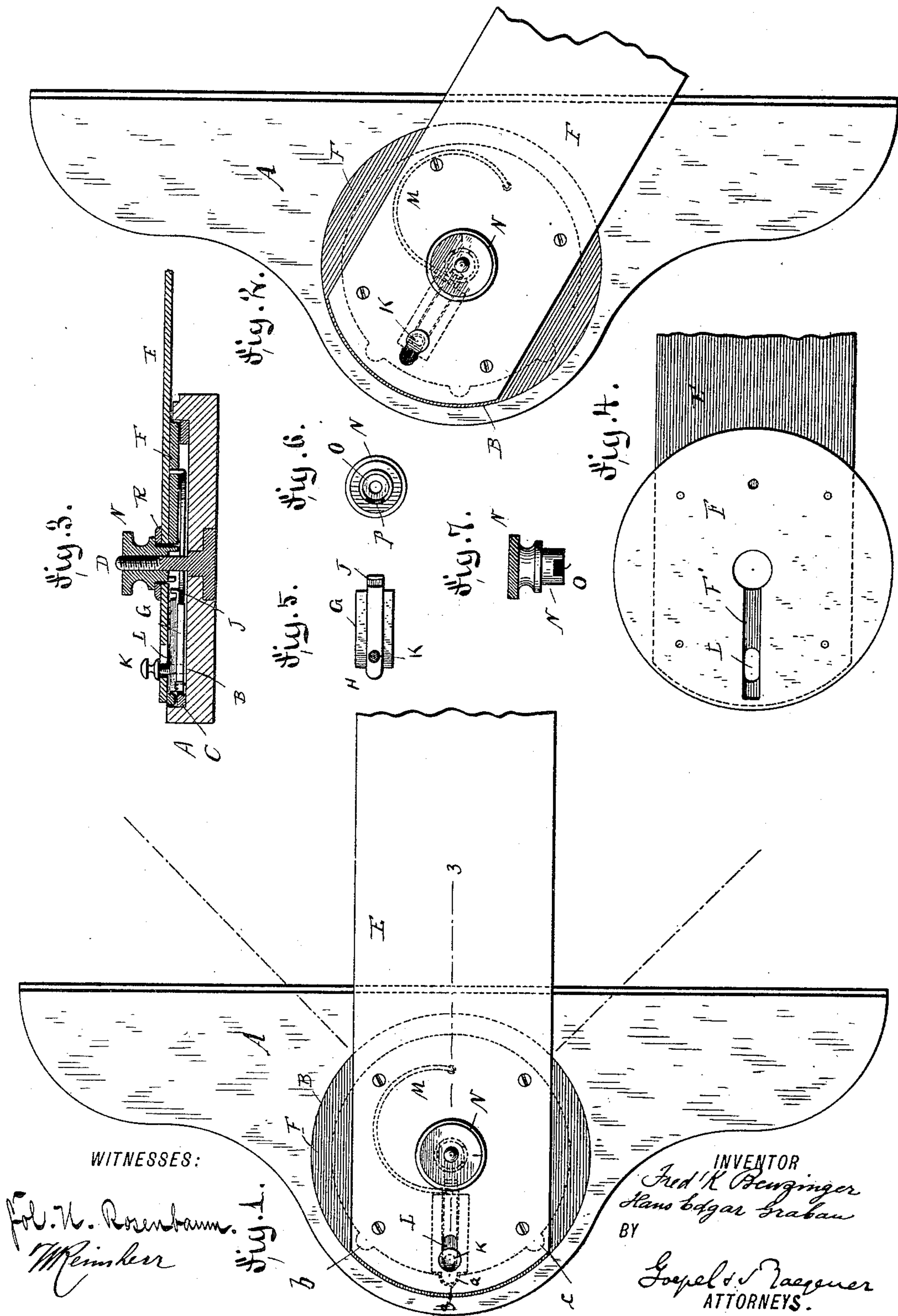


(No Model.)

F. BENZINGER & H. E. GRABAU.
T SQUARE.

No. 418,969.

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UNITED STATES PATENT OFFICE.

FREDERICK BENZINGER, OF NEW YORK, N. Y., AND HANS EDGAR GRABAU,
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T-SQUARE.

SPECIFICATION forming part of Letters Patent No. 418,969, dated January 7, 1890.

Application filed October 22, 1889. Serial No. 327,807. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK BENZINGER, of New York, county and State of New York, a citizen of the United States, and HANS EDGAR GRABAU, of Hoboken, county of Hudson, and State of New Jersey, a citizen of the Empire of Germany, have invented certain new and useful Improvements in T-Squares, of which the following is a specification.

10 This invention relates to improvements in T-squares usually used by draftsmen.

The object of our invention is to provide a T-square which is so constructed that the blade can be set and locked at different angles to the head, or can be so adjusted that it can be turned freely on the head.

In the accompanying drawings, Figure 1 is a top view of our improved T-square, the blade being held in position at an angle of 20 ninety degrees to the edge of the head, parts being broken out. Fig. 2 is a similar view, showing the blade released, so that it can be turned on the head, parts being broken out. Fig. 3 is a vertical section on the line 3 3, Fig. 1. Fig. 4 is a face view of the under side of the circular plate on the end of the blade. Fig. 5 is a detail plan of the sliding catch, the handle being shown in section. Fig. 6 is a bottom view of the thumb-nut. Fig. 7 is a 30 side view of the same.

Similar letters of reference indicate corresponding parts.

The head A, which may have any desired shape, is provided with a circular recess B, at 35 the edge of which a circular rail C is fixed, which is provided with apertures *a*, *b*, and *c*, which are so arranged that lines drawn through the same to the center of the circular recess B form angles of forty-five degrees. A screw-pivot D is secured at the center of the circular recess B and projects from the upper surface of the head A. On one end of the blade E a circular disk F is securely fixed, which is of such size that it fits snugly within 45 the circular recess B and can rotate on the rail C. Said disk F is provided with a slot F', extending from the central aperture of the disk F to the rim, and in the same the sliding latch or bolt G is arranged, which is provided 50 at one end with a head H, adapted to pass into the notches *a*, *b*, and *c* of the rail C, and

at its opposite end said latch or bolt G is provided with a hook J, the shank of which projects upward. A knob K is passed through a slot L in the blade E and is connected with 55 the sliding bolt or catch G. A spring M has one end fastened on the disk F, and the other end bears against the inner end of the sliding bolt G and presses said bolt toward the rim of the disk F. The thumb-nut N, which can 60 be screwed on the pivot-screw D, is provided on its lower end with a neck O, having an aperture or notch P. A washer R is placed between the bottom edge of the thumb-nut N and the upper surface of the blade E. 65

The blade E can be locked in position at right angles to the edge of the head A, or at an angle of forty-five degrees, as shown by the dotted lines in Fig. 1.

The bolt or latch G is pressed by means of 70 its knob K in the direction toward the pivot-pin D, so as to move the head H on said latch out of one of the notches *a*, *b*, or *c*, so as to permit swinging the blade E on the head A. As soon as said head of the latch has been 75 withdrawn from the notches and the blade E turned slightly from the head the latch-knob is released, so as to permit the spring M to press the latch-head against the inner edge of the rail C. When the latch arrives at a notch 80 in the rail C, it snaps into the same, locking the blade in position.

When it is desired to turn the blade freely on its pivot, the latch must be withdrawn and locked in position when withdrawn. To ac- 85 complish this the latch is pressed inward, so that its hook K rests against the outer surface of the neck O on the thumb-nut N, and then said nut is turned, and when the hook J arrives at the notch P in the neck O it passes 90 into the same, and if the nut is then turned it will engage said hook and keep the latch G withdrawn, as shown, for example, in Fig. 2. The blade can then be swung in any position on the head and can be locked in place by 95 turning the thumb-nut N, care being taken to keep the knob K on the latch pressed inward while thus turning the thumb-nut, so as to prevent the hook J on the inner end of the latch from becoming disengaged from the 100 neck on the thumb-nut.

Having thus described our invention, we

claim as new and desire to secure by Letters Patent—

1. In a T-square, the combination, with a head having a recess, of a circular rail arranged in said recess and provided with notches, a pivot-screw on the head at the center of the recess, a circular disk fitting in said recess, a blade fixed to said disk, and a spring-latch on said blade, substantially as set forth.

2. In a T-square, the combination, with a head having a circular recess and a pivot-screw at the center of said recess, of a blade and a circular disk to which said blade is secured, a sliding spring-latch on said blade, a hook on the rear end of said latch, and a thumb-nut adapted to be screwed on the pivot-screw in the head and provided at its lower end with a neck having a notch through which

the said hook can pass, substantially as set forth.

3. In a T-square, the combination, with a head and a pivot-screw projecting upward from the same, of a blade mounted to turn on said pivot-screw, a sliding latch on said blade, which latch can engage notches on the head, and means for locking said latch in place when withdrawn, so as not to engage the notches, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

FRED. BENZINGER.
HANS EDGAR GRABAU.

Witnesses:

OSCAR F. GUNZ,
W. REIMHERR.