

No. 734,290.

PATENTED JULY 21, 1903.

J. D. WITCHER.
SQUARE.

APPLICATION FILED APR. 4, 1903.

NO MODEL.

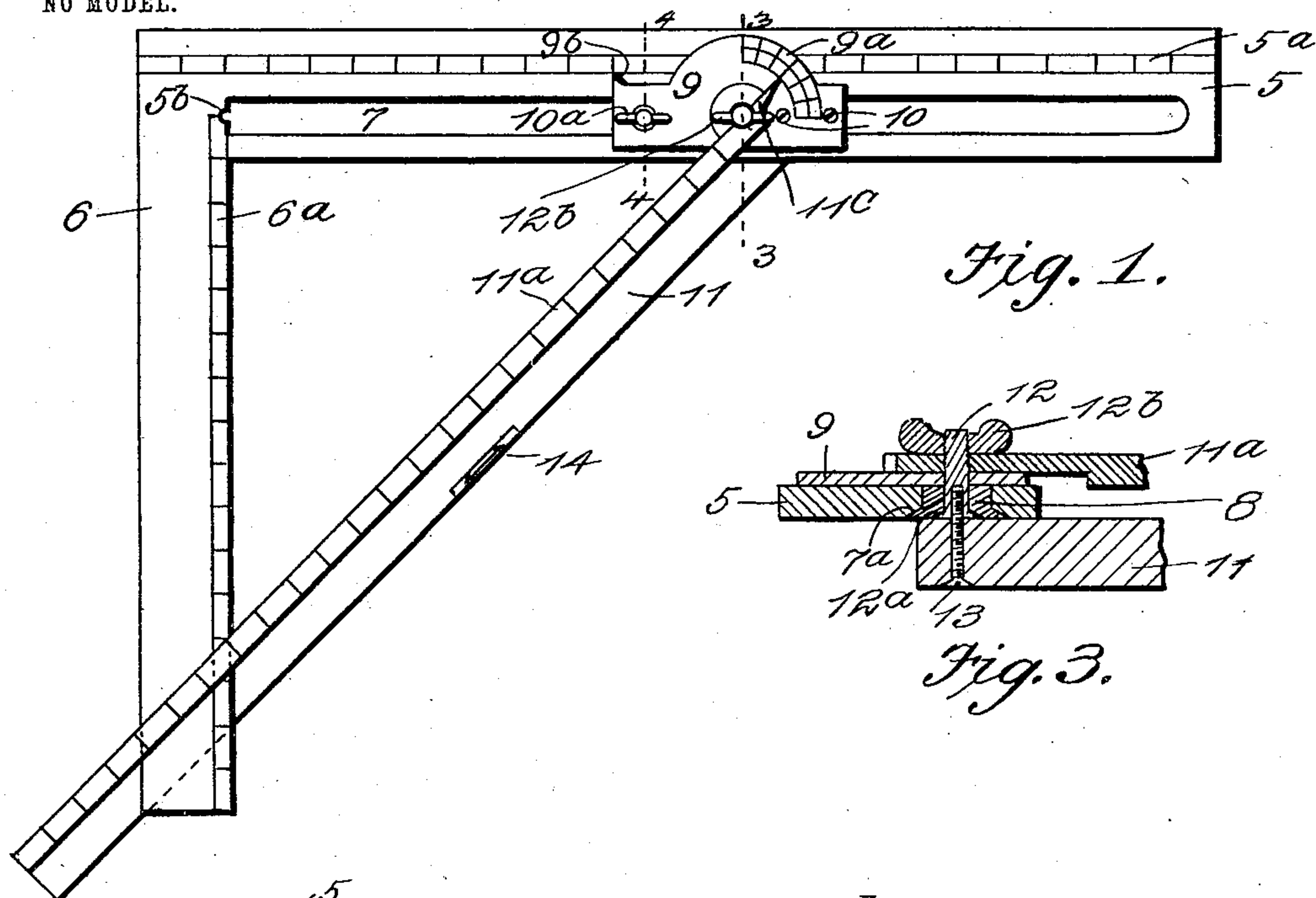


Fig. 1.

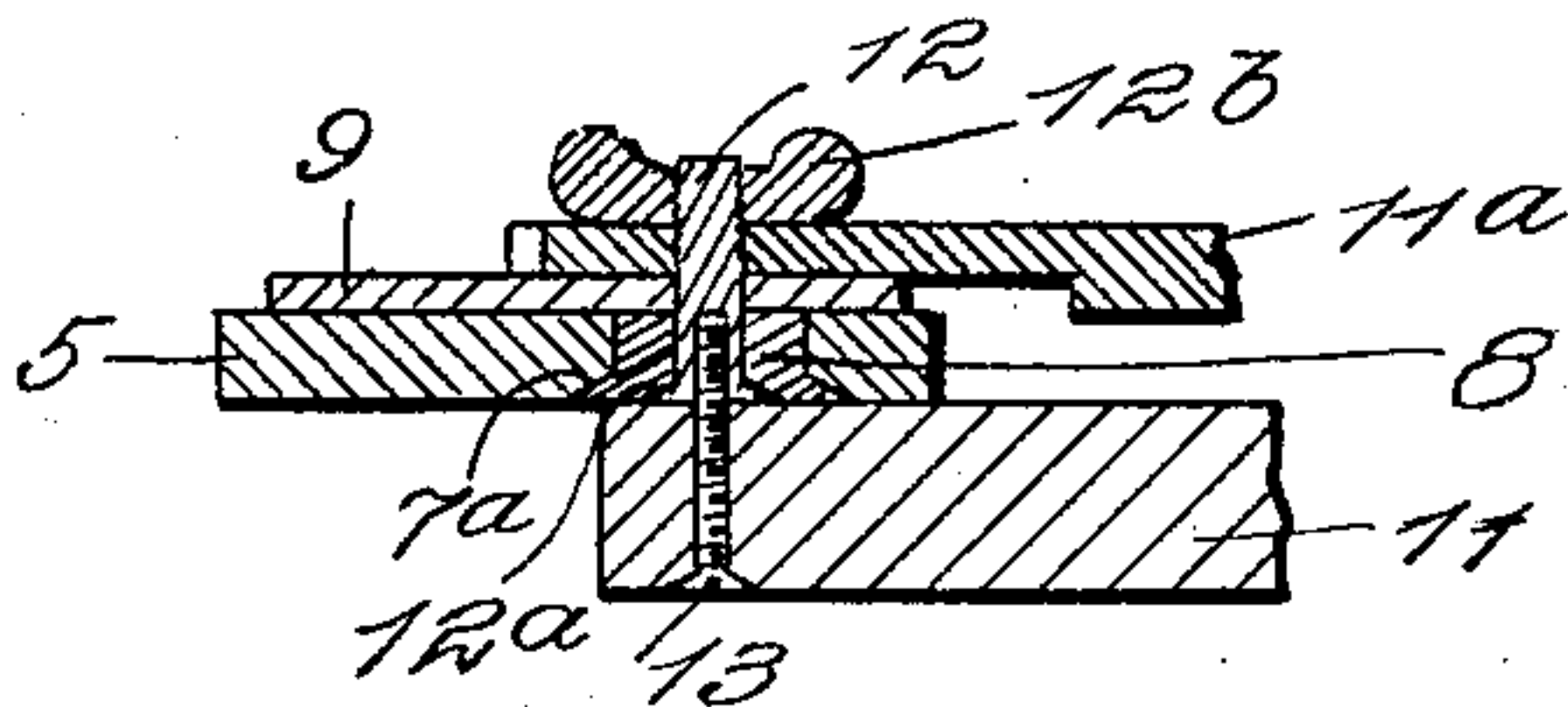


Fig. 3.

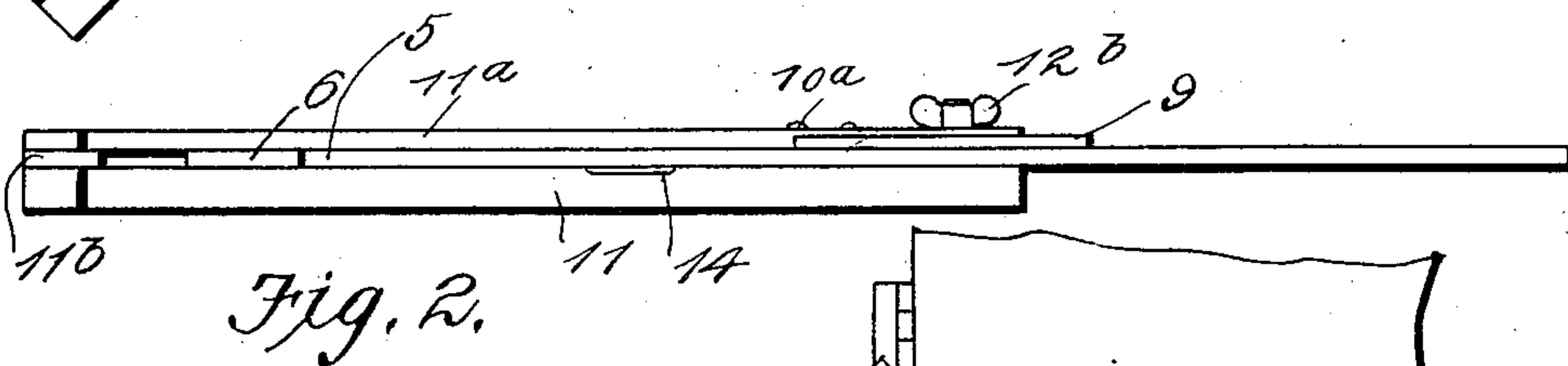


Fig. 2.

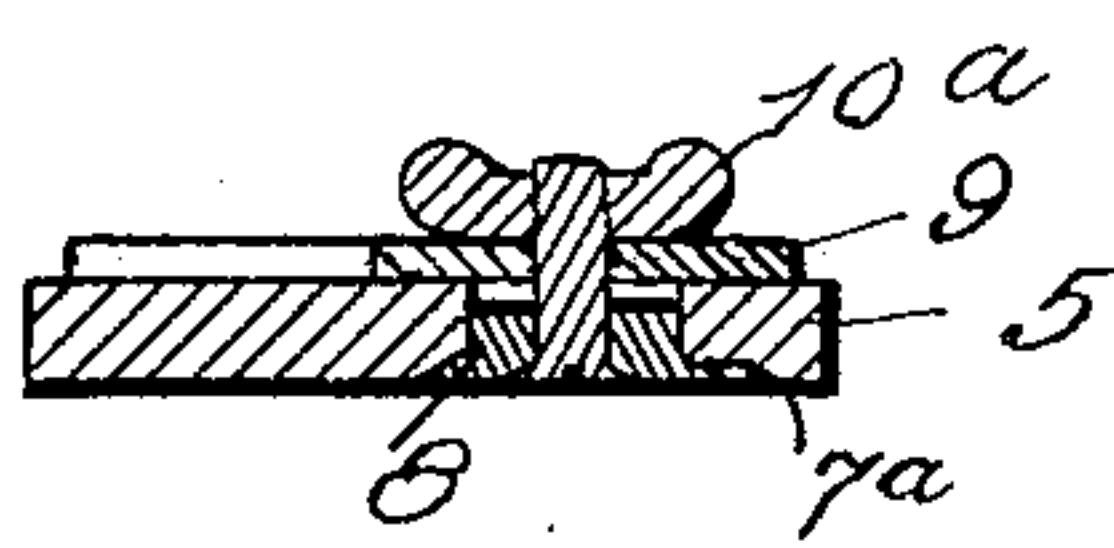


Fig. 4.

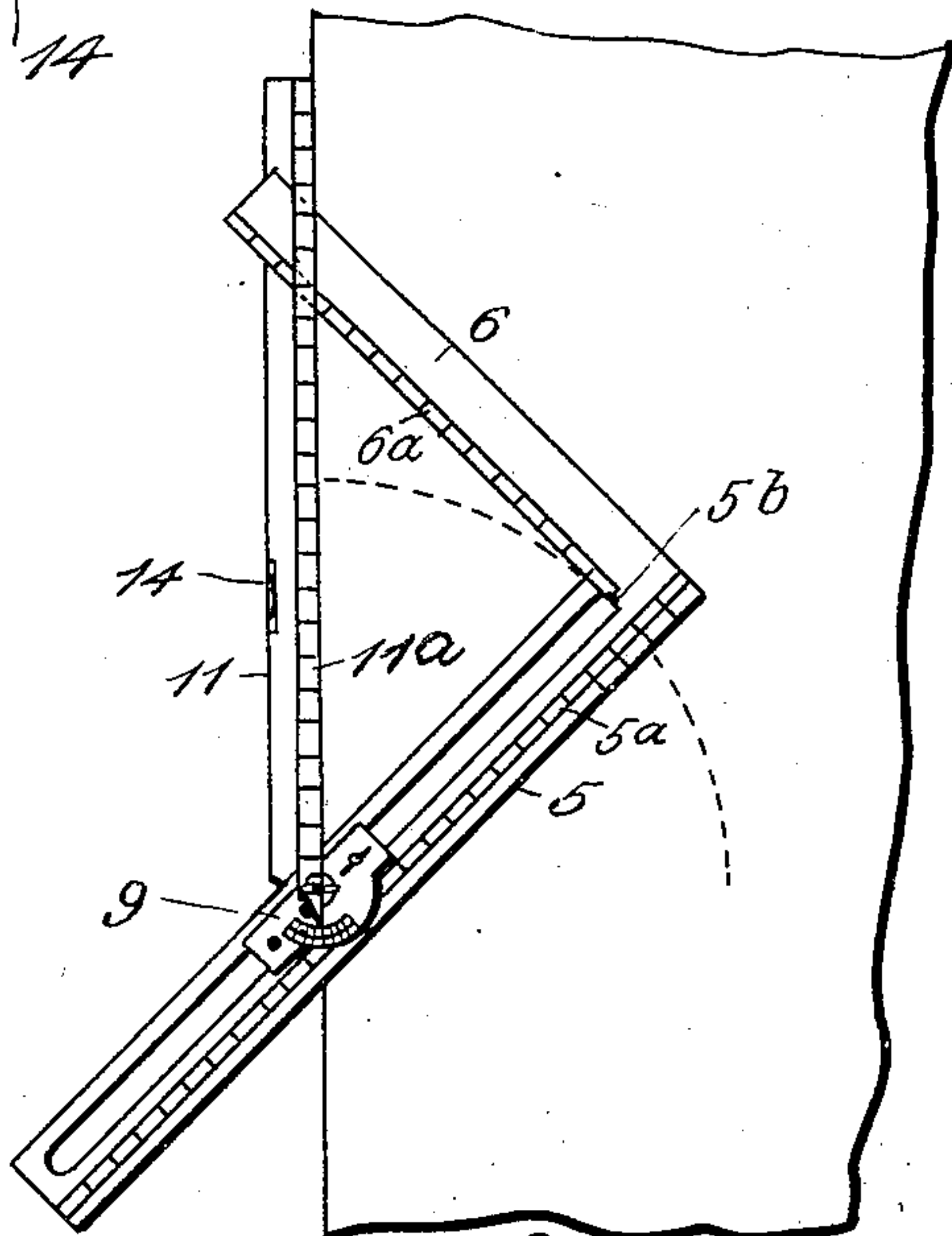


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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SQUARE.

SPECIFICATION forming part of Letters Patent No. 734,290, dated July 21, 1903.

Application filed April 4, 1903. Serial No. 151,128. (No model.)

To all whom it may concern:

Be it known that I, JOHN DANIEL WITCHER, a citizen of the United States, residing at Unionpoint, in the county of Green and State of Georgia, have invented certain new and useful Improvements in Squares; 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in squares, and has for its object to provide a square with a protractor adjustable with respect to the arms of the square.

With this and other objects in view the invention comprises an arrangement and combination of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of my invention. Fig. 2 is an edge view thereof. Fig. 3 is an enlarged vertical section on the line 3 3 of Fig. 1. Fig. 4 is an enlarged section on the line 4 4 of Fig. 1. Fig. 5 is a plan view on a reduced scale, showing some of the uses to which the invention is adapted.

Referring specifically to the drawings, 5 and 6 indicate the arms of a square, each of which has a scale 5^a and 6^a, respectively. The arm 5 has a longitudinal slot 7, the edges of which are beveled, as at 7^a, to hold the sliding plate 8, which fits in this slot and which has secured thereto another and larger plate 9. The two plates are fastened together by screws 10 and a thumb-screw 10^a. That portion of the plate 8 which is near the thumb-screw is thinned, so that both plates may be drawn together to bind the edges of the slot when the thumb-screw is tightened, and thus retaining them in the adjusted position. The plate 9 has on its face a protractor-scale 9^a and also has at one end a pointer 9^b for the scale 5^a of the square.

The numeral 5^b indicates a notch in the end of the slot 7 for a purpose to be hereinafter described. This notch is in line with the inner graduated edge of the arm 6.

An angle-arm is indicated at 11, which has a scale-plate 11^a spaced therefrom by a block 11^b at its free end, so that the arm 6 can pass

therebetween. The other end of the arm 11 and the plate 11^a is pivoted to the plates 8 and 9 by a threaded pivot-pin 12. The pin has a countersunk head 12^a. A screw 13 extends through the arm 11 and into the pin. By tightening the thumb-screw 12^b the parts are bound together, holding the arm and its scale-plate in adjusted position.

The inner edge of the scale-plate 11^a is extended, as at 11^c, to form a pointer for the protractor-scale and passes through the center of the pivot-pin, as would also a line drawn from the notch 5^b parallel to the arm 5. The scale 5^a is so positioned that the pointer 9^b will indicate thereon the distance from the notch 5^b to the center of the pivot-pin 12. In other words, the distance from the pointer 9^b to the center of the pivot-pin, measured along the scale 5^a, is equal to the distance from the beginning of the scale 5^a to the notch 5^b. The scale 6^a starts from the notch 5^b, while the scale on the angle-arm 11 starts from the center of the pivot-pin.

It will now be understood that when it is desired to know the length of the third side of a right-angled triangle, the length of two sides being known, the pointer 9^b is set to indicate on the scale 5^a the length of one of the known sides, while the arm 11 is set so that its scale will intersect the scale on the arm 6 at a point on the latter indicating the length of the other known side. The length of the third side will be indicated on the scale 11^a at the point of intersection.

The device may be used, as illustrated in Fig. 5, to draw an arc adjacent a straight edge, the pencil being placed in the notch 5^b, with the arm 11 against the straight edge, as a piece of timber. Then, the arm 11 being held fast, the square may be swung on the pivot 12 to describe the arc on the surface of the work. Angles may also be described along the edges of the arms, or by sliding the device along the edge of the work a line parallel to the edge may be drawn.

The protractor-scale is double, as shown, so as to indicate the angle of both arms with respect to the arm 11. I also provide a spirit-level 14 on the arm 11, enabling the device to be used for leveling or to determine inclinations.

It will be apparent that my invention may

be used in various other ways besides those described above.

Having thus described my invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A square, a protractor-plate slidable along one of the arms thereof, an angle-arm pivoted to the plate, and a scale-plate secured to the angle-arm and spaced therefrom, and having an indicator-pointer for the scale of the protractor, substantially as described.

2. A square, a protractor-plate slidable along one of the arms thereof, and having a pointer for the scale of said arm, an adjustable angle-arm pivoted to the protractor-plate, and a scale-plate secured to the angle-arm and spaced therefrom, substantially as described.

3. A square having a longitudinal slot in one of the arms thereof, a sliding protractor-plate adjustable in the slot, an angle-arm pivoted to the plate, a scale-plate secured to the angle-arm and spaced therefrom, and

means for retaining the angle-arm and protractor in adjusted position.

4. A square, a protractor-plate adjustable along one of the arms of the square according to the scale of said arm, an angle-arm pivoted to the protractor-plate, and a scale-plate secured to the angle-arm and spaced therefrom, substantially as described.

5. A square having a perforation for a scribing instrument at the junction of the arms thereof, a plate slidable along one of said arms, means to indicate its distance from the perforation, an angle-arm pivoted to the plate, and a scale-plate secured to the angle-arm and spaced therefrom, substantially as described.

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

JOHN DANIEL WITCHER.

Witnesses:

W. A. PERKINS,
BUNYAN CHEEK.