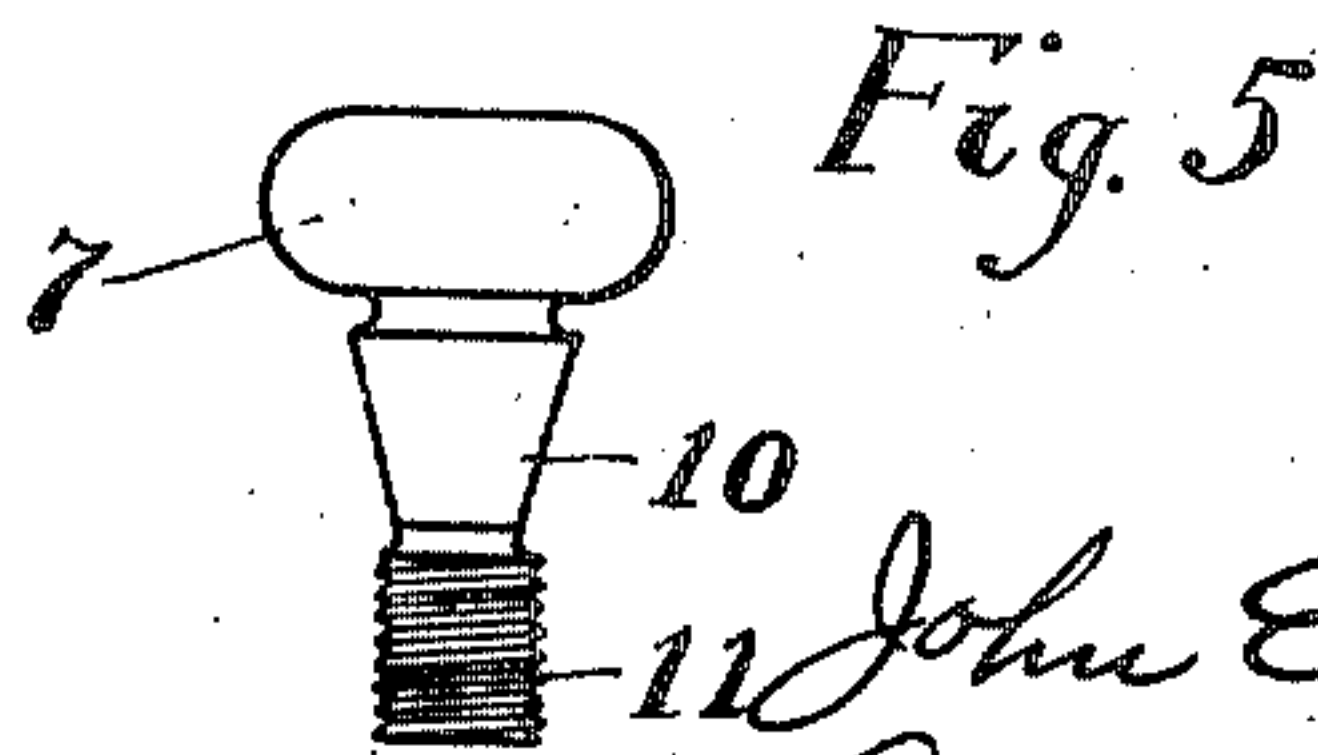
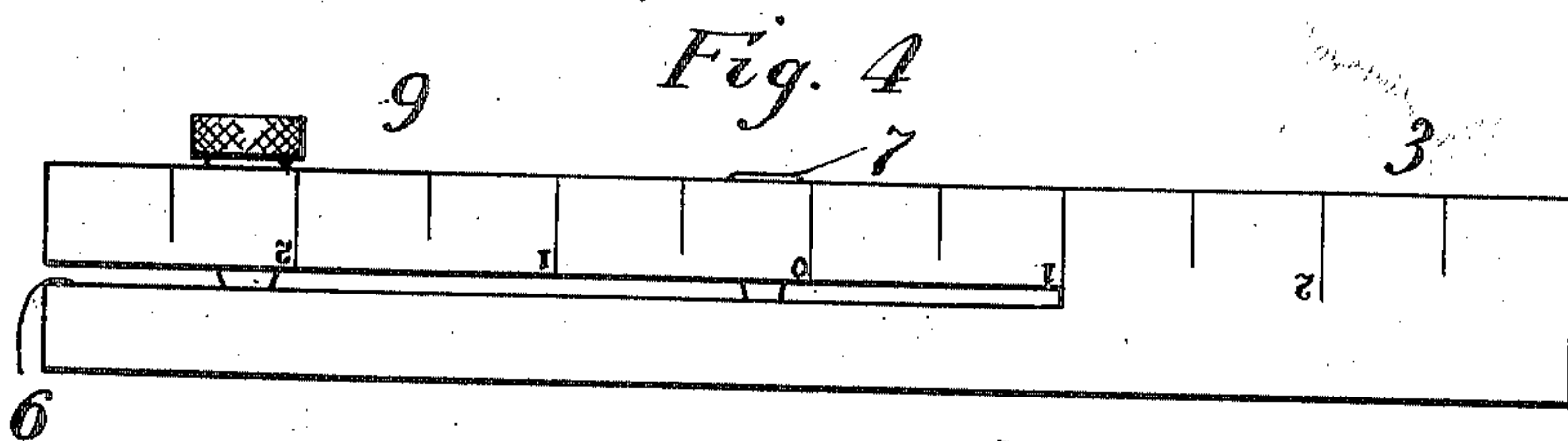
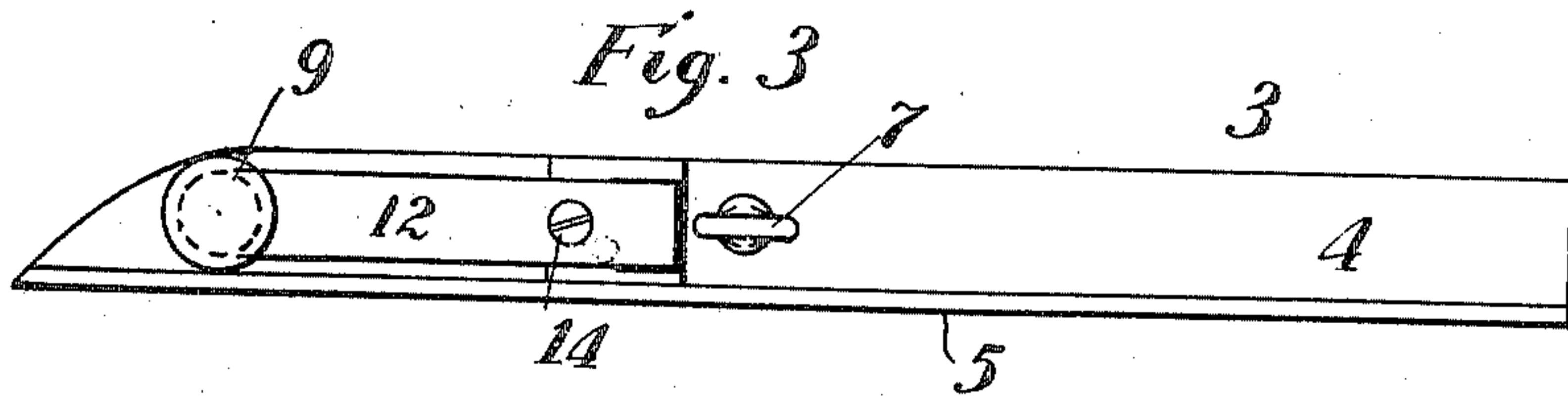
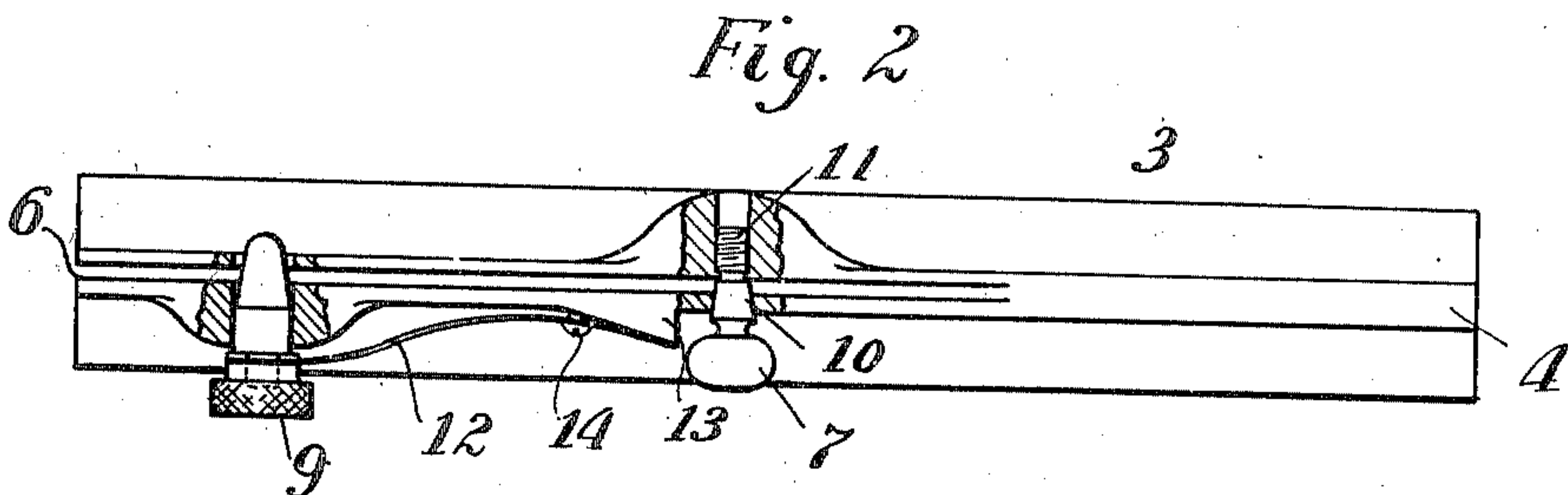
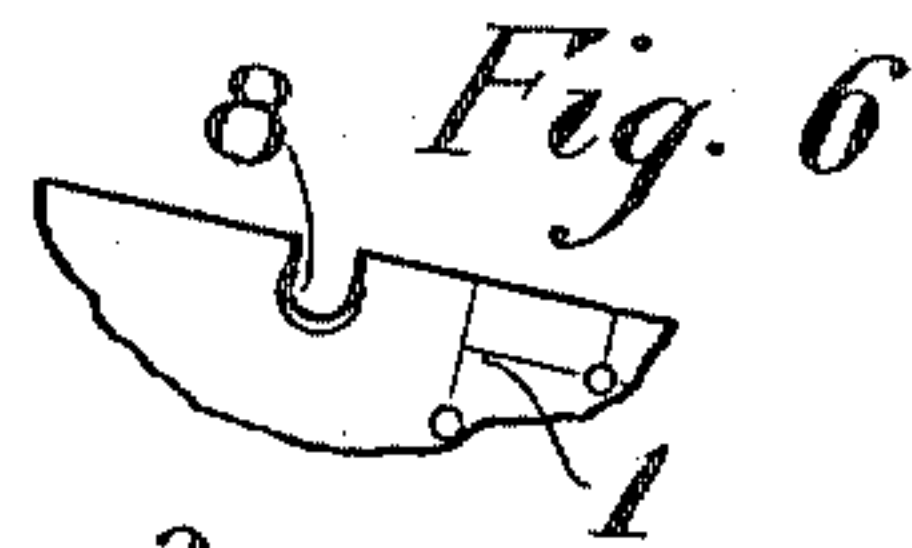
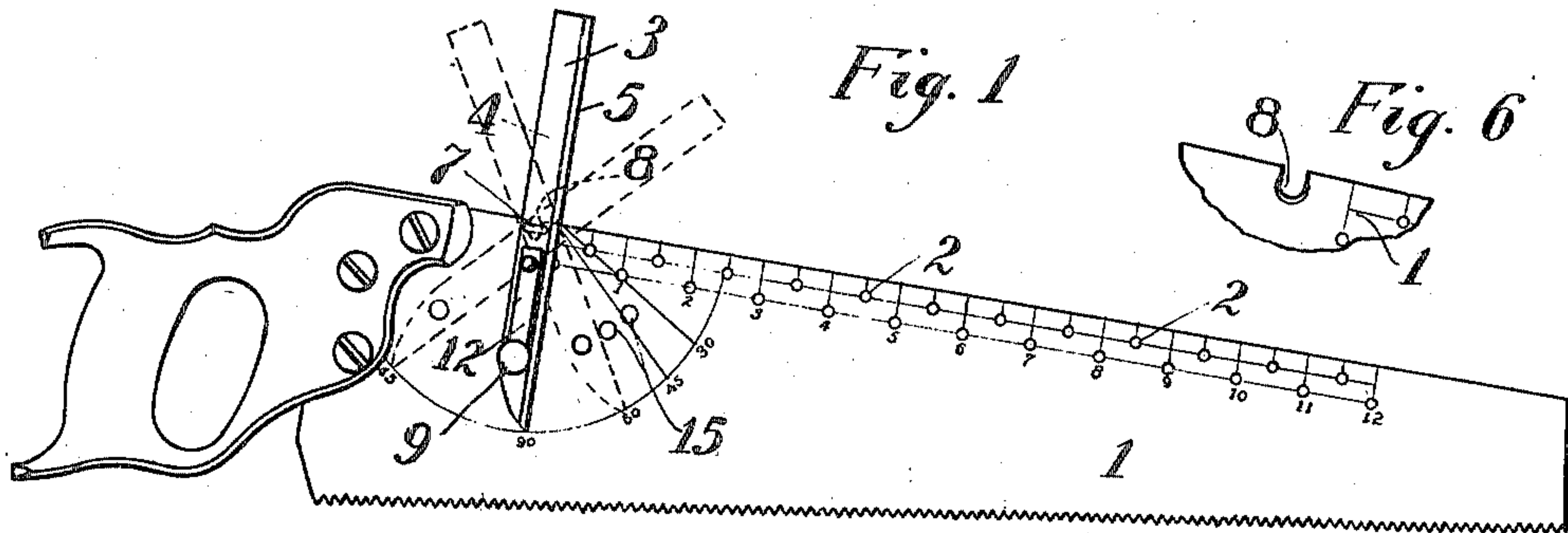


J. E. L. LARSON & A. HESSEL.  
 COMBINED SAW, BEVEL, AND SQUARE.  
 APPLICATION FILED OCT. 15, 1908.

948,059.

Patented Feb. 1, 1910.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN E. L. LARSON AND ANDERS HESSEL, OF CHICAGO, ILLINOIS.

COMBINED SAW, BEVEL, AND SQUARE.

948,059.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed October 15, 1908. Serial No. 457,918.

*To all whom it may concern:*

Be it known that we, JOHN E. L. LARSON, a subject of the King of Sweden, and ANDERS HESSEL, a citizen of the United States of America, both residents of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Combined Saws, Bevels, and Squares, of which the following is a specification.

The main objects of this invention are to provide an improved form of combination tool adapted to perform the functions of a saw, rule, bevel, square, gage, and compass; to provide an improved attachment for a saw whereby the saw may be used as a bevel, square or gage; and to provide an improved construction for such attachment and the saw whereby the attachment may be readily attached to or removed from a saw, or may be accurately and quickly set to any of a plurality of angular positions on the saw.

These objects are accomplished by the device shown in the accompanying drawing, in which:

Figure 1 is a side elevation of a combined saw, bevel, square, and marking gage embodying this invention. Fig. 2 is a rear view of the saw-attachment, partly sectional. Figs. 3 and 4 are side and front views respectively of the attachment. Fig. 5 is an enlarged detail of the pin which serves as a pivot for the attachment. Fig. 6 is a fragmentary detail of the saw blade, showing the shape of the pivot hole.

In the construction shown in the drawing, the saw-blade 1 has a straight back and has a scale inscribed on one face along and parallel with the back edge. The blade 1 has perforations 2 at points corresponding to the inch and half-inch, or any other of its graduations.

An arm or attachment 3 is pivoted to the blade 1 and adapted to be swung on its pivot to various angular positions with respect to the back edge of the saw-blade 1. In Fig. 1 the attachment is shown by full lines in the position for using the saw as a square or gage. Other positions of the attachment are shown in dotted outline.

The attachment 3 is preferably of T-shaped cross-section and is split along its middle rib 4 to provide the slot 6 which permits the attachment to straddle the saw-blade 1. The attachment 3 is pivoted to the blade 1 by the pin 7 bearing in the re-

cess or notch 8 at the back of the blade 1. The recess 8 is circular at its inner end, so as to provide a true pivot bearing for the attachment.

The pivot pin 7 has a tapered shank 10 which enters into wedging contact with the recess 8. The threaded part 11 of the pin screws into a boss on the rib 4. The tapered shank of the pin 7 makes it adjustable to compensate for wear of the recess 8, and also has a clamping and centering effect for securing the attachment accurately in any of its positions of adjustment.

A detent 9 coöperates with the pivot pin 7 for securing the attachment 3. The detent 9 is depressed by the spring 12 secured to the rib 4 in any convenient manner, a screw being preferred, as it admits of a renewal of springs. To provide for adjustment of its tension, the spring has its end seated on a projection 13 on the rib 4, and the screw 14 bears between the projection and the detent 9. The pin 9 also has its shank tapered where it engages the saw-blade, to provide for accurate centering in the aperture 15. The spring 12 is preferably seated in a notch in the top of the projection 13 which prevents the spring from turning on the screw and insures that the pin 9 will always be directed by the spring into its seat. The pin 9 has a cylindrical bearing in the boss on the rib 4.

The perforations 15 in the blade 1 are in the arc of a circle having for its center the pivotal axis of the attachment 3, and are so located as to engage the detent 9 for locking the attachment in certain desired angular positions, such as 30°, 45°, 60°, and 90°. Lines may be inscribed on the blade 1 corresponding to the different positions of the straight edge of the attachment 3.

When it is desired to change the angle between the attachment 3 and the blade 1, it is only necessary to lift the detent 9 clear of the blade and shift the attachment to the desired position. In each of the principal positions of attachment, the detent 9 will seat in a perforation 15. When the attachment is at an unusual position, as when used as a bevel, it may be held with sufficient security for the purpose by screwing down the pivot pin.

The front face 5 of the attachment may be graduated as shown in Fig. 4. It is preferred to have the recess 8 so located that when engaged by the pin 7 the front face 5



of the attachment will register with the zero mark on the scale of the saw.

The operation of the device shown is as follows:—When the device is in use as a saw, 5 the attachment 3 may or may not be retained in position thereon. To apply the attachment 3, it is merely necessary to insert the blade of the saw into the slit 6 and lift the detent pin 9 so as to allow it to clear the 10 blade. The attachment is then slid inward until the pivot pin 7 is seated in the notch 8. As soon as the attachment is turned to one of the angular positions for which apertures 15 are provided, the detent pin 9 will 15 snap into the corresponding aperture, and its conical shank will accurately center the pin in such aperture. The attachment is therefore self-locking in each of its principal positions of adjustment. By screwing 20 down the pivot 7, its conical shank 10 will tightly fit the notch 8 and thereby insure accuracy of the angle between the straight edge 5 of the attachment and the back edge of the saw. The conical shanks of the pins 25 7 and 9 insure accuracy of the setting of the attachment 3, regardless of any wear which may result in the apertures due to long continued use of the device. The pivot pin 7 may be set so as to snugly fit the aperture 30 8, and it will then merely be necessary, upon attaching to or detaching from the blade of the saw the attachment 3, to lift the detent pin 9 without changing the adjustment of the pivot pin. By screwing the pivot pin 35 tightly, the attachment may be clamped in angular positions where there are no apertures 15, with sufficient security for use as a bevel, and for this reason apertures 15 are provided only at such angles, where accuracy of adjustment is of great importance, 40 and where it is essential that there shall be no possibility of slipping or accidental change in the adjustment. When the device is to be used as a square or miter, such security of the adjustment is of great importance. 45 When the attachment 3 is at right angles to the back of the saw, it is in position for use as a square or as a marking gage. The perforations 2 are provided to 50 permit a pencil point to be inserted therein for marking when the device is used as a marking gage. The saw blade may be used as a compass by inserting a pointed instrument in one of the perforations 2 as a center 55 and by drawing the circle with a pencil inserted into another perforation 2.

The construction shown in the drawings is a preferred embodiment of this invention, but it will be seen that numerous details of 60 the construction shown may be altered without departing from the spirit of this invention.

We claim:—

1. A saw comprising a handle, a blade 65 having a recess extending transversely

through it and extending into it from one edge thereof, in combination with an arm adapted to have pivotal connection with said blade in said recess and adapted to be slid into and out of its pivotal position, means 70 adapted to engage said recess and serve as a pivot for said arm, said arm being adapted to be swung on its pivotal axis to a plurality of positions with respect to said edge, and means for locking said arm in 75 different positions, one of said means being adjustable to insure accurate centering of the pivotal connection.

2. A saw, comprising a handle, and a blade having a recess extending transversely 80 through it and extending into it from one edge thereof, in combination with an arm having a pivot adapted to engage said recess, said arm being adapted to be swung on said pivot to a plurality of angular positions 85 with respect to said edge, said blade having therein a plurality of perforations arranged in the arc of a circle around said recess, a spring pressed detent adapted to engage said perforations for retaining said pivot in said 90 recess and at the same time locking said arm in one of its different positions, and means for adjusting the pivot to insure accurate centering thereof in said recess.

3. A tool, comprising a blade having a 95 straight edge and having a recess extending inward from said edge, an arm having a pivot fitting said recess and adapted to be swung to different angular positions with respect to the blade, said pivot having a 100 tapered shank, and means for forcing said shank endwise into wedging engagement with said recess.

4. A tool, comprising a blade having a 105 straight edge, having a recess extending inward from said edge, and having a series of perforations arranged in the arc of a circle having its center in said recess, an arm having a pivot fitting said recess and adapted to be swung to different angular 110 positions with respect to the blade, said pivot having a tapered shank, means for forcing said shank endwise into wedging engagement with said recess, a detent having a tapered part fitting said perforations 115 for securing said arm, and means for urging said tapered part endwise into wedging engagement with said perforations.

5. A tool, comprising a blade having a 120 straight edge, having a recess extending inward from said edge, and having a series of perforations arranged in the arc of a circle having its center in said recess, an arm having a pivot fitting said recess and adapted to be swung to different angular positions 125 with respect to the blade, said pivot having a tapered shank, means for forcing said shank endwise into wedging engagement with said recess, a detent having a tapered 130 part fitting said perforations for securing



said arm, and a spring normally urging said tapered part endwise so as to have wedging engagement with said perforations when registering therewith.

5 6. A tool, comprising a blade having a recess extending inward from one edge and having a perforation spaced away from said recess, an arm, pins carried by said arm and adapted to respectively engage said re-  
10 cess and perforation, both of said pins having tapered shanks, and means for forcing

said pins into endwise wedging engagement with said recess and perforation to insure their accurate centering therein.

Signed at Chicago, this 13th day of October, 1908.

JOHN E. L. LARSON.  
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