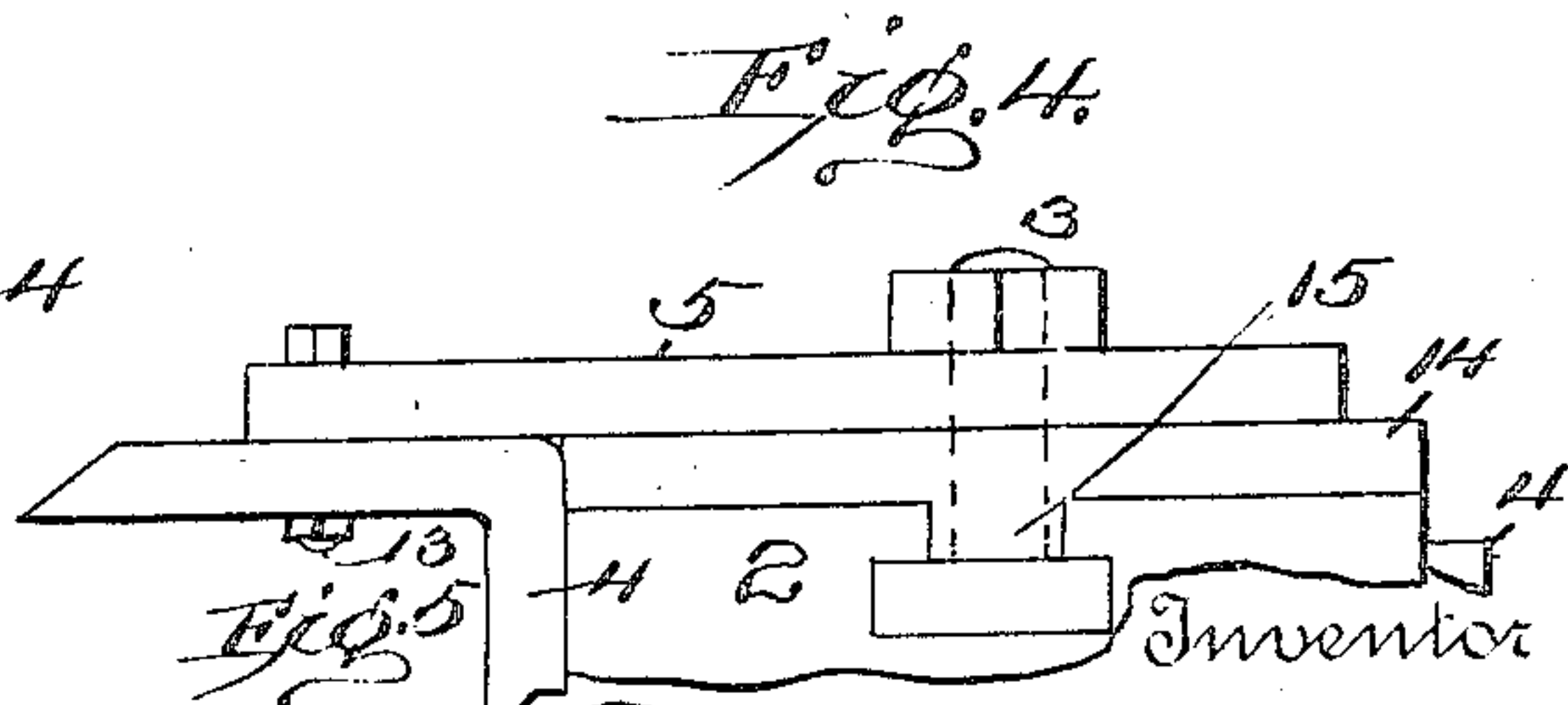
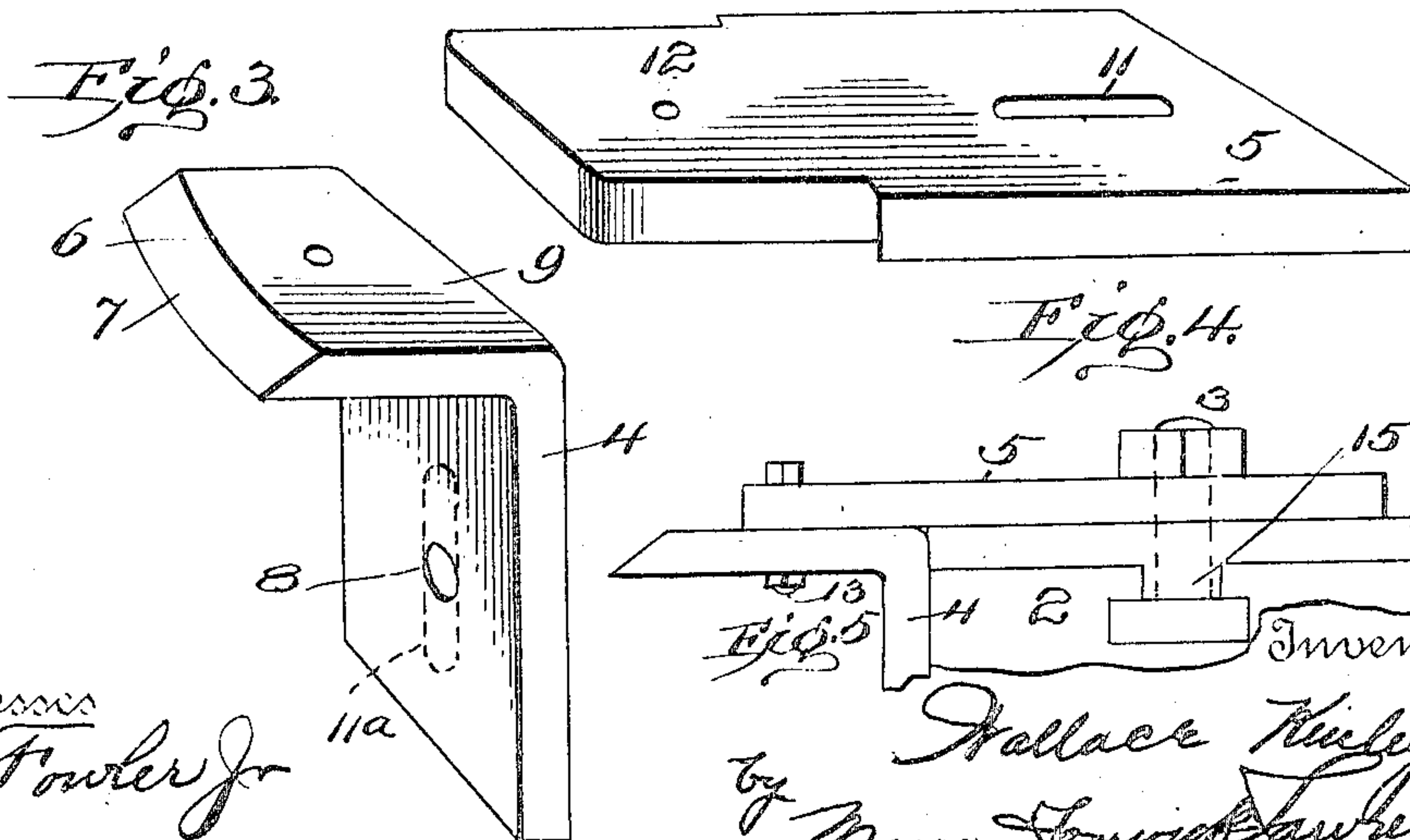
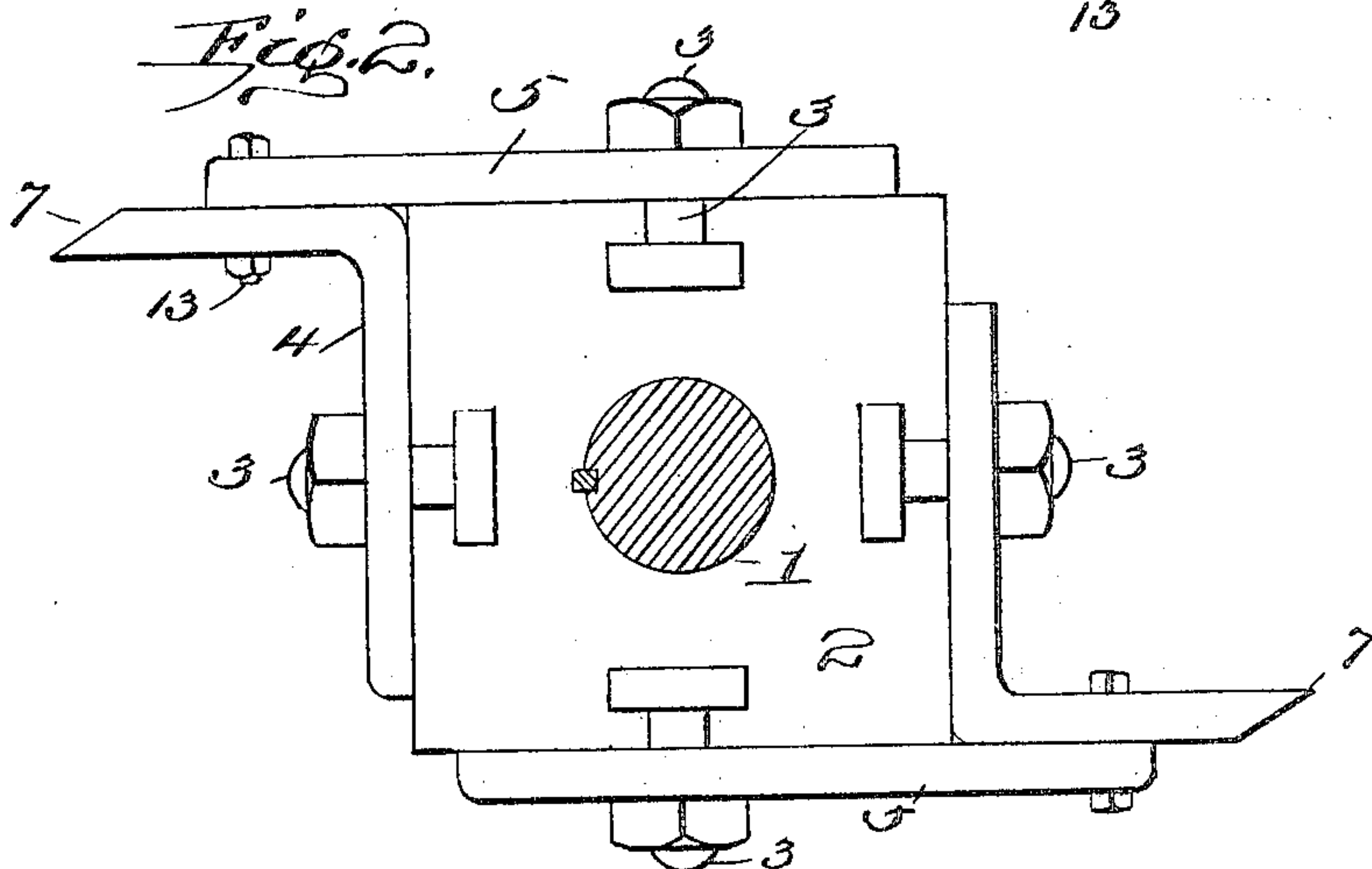
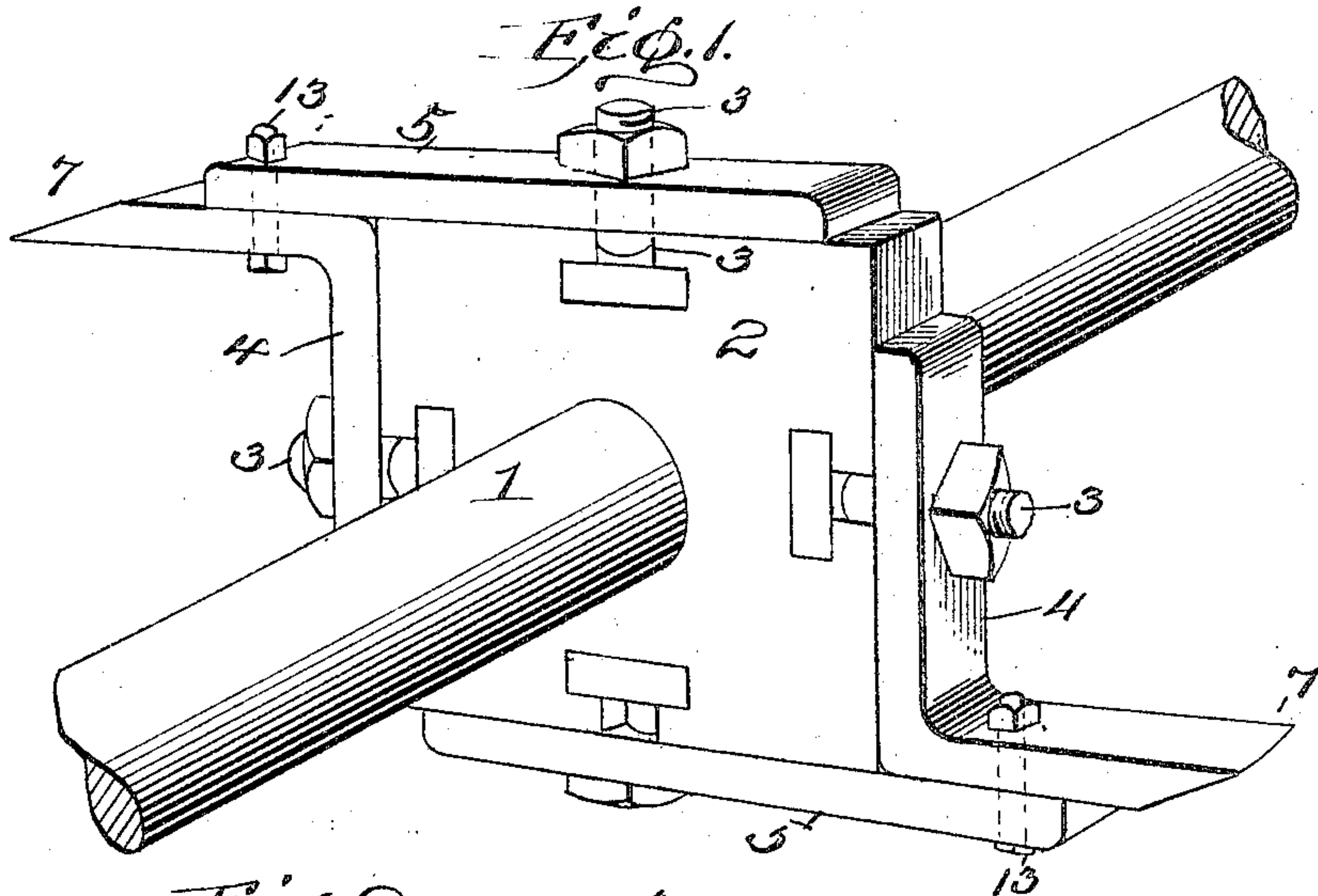


No. 804,734.

PATENTED NOV. 14, 1905.

W. KINLEY.
ROTARY CUTTER FOR WOODWORK.
APPLICATION FILED OCT. 21, 1904.



Witnesses
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Fig. 5.
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UNITED STATES PATENT OFFICE.

WALLACE KINLEY, OF SEATTLE, WASHINGTON.

ROTARY CUTTER FOR WOODWORK.

No. 804,734.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed October 21, 1904. Serial No. 229,480.

To all whom it may concern:

Be it known that I, WALLACE KINLEY, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Rotary Cutters for Woodwork; 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 tools for cutting rabbets or grooves in wood for the purpose of forming gutters for roof-eaves and the like.

The object of the invention is the provision of means carried by a shaft for bracing an angular blade or knife.

Another object of the invention is to improve the construction of a knife or blade which is carried by a rotary member and is adapted to cut grooves in a surface which said knife engages when movement is imparted to said rotary member.

A still further object of the invention is to improve the construction of a cutting device which is provided with an angular knife, said knife being braced by means of an extension projecting from one side of a revoluble head or shaft and engaging the outer side of said knife.

With these and other objects in view the invention consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a cutting device which is constructed in accordance with the present invention. Fig. 2 is a view in side elevation of the construction depicted in Fig. 1. Fig. 3 is an enlarged perspective view of an angular blade or knife employed in the construction of a cutting device in accordance with the present invention. Fig. 4 is an enlarged perspective view of an improved brace constructed in accordance with the present invention. Fig. 5 is a fragmentary view, in side elevation, of the device depicted in Figs. 1 and 2, showing a washer or shim 14 in proper position upon the block 2 for the purpose of adjusting one of the knives and its brace.

Referring to the drawings by reference-numerals, 1 designates a revoluble shaft, upon which is keyed a head-block 2. A plurality

of slots are formed upon the head 2, one of said slots being formed upon each side of the head. Within these slots are removably mounted bolts 3, which are employed for securing the angular knives 4 and their bracing-bars 5 in a positive assembled position with the head 2. The knives 4 are substantially L or angular in shape, and each is provided with a small aperture 6 upon its outer or bent-up portion 4^a, the bent-up portion 4^a being provided with a cutting edge 7. A comparatively large aperture 8 is formed upon the body portion of each knife or blade. The body portion of the knives engage the head 2. The angular blades 4 are secured to the head 2 by means of bolts 3, which are preferably of sufficient length to permit of adjustment of the knives, as will be hereinafter set forth. The outer face 9 of the bent-up portion 4^a of each knife is engaged by a bar 5 when said knives are positioned upon the head, for the purpose of forming a brace for increasing the durability and efficiency of the construction of the cutting device. Bracing bars or plates 5 are each provided with an elongated aperture 11, in which is removably positioned one of the bolts 3 for the purpose of providing means whereby the bracing plates or bars may be rigidly secured to the head-block 2. The plates or bars 5 are each provided with a comparatively small aperture 12, which is approximately the same diameter as the aperture 6, which is formed upon knives or blades 4. For the purpose of increasing the durability of the construction of the knives 4 and their brace members 5 the apertures 6 and 12, respectively, are made of small diameter, so that a comparatively small bolt 13 may be positioned therein for the purpose of positively securing the outer end of the bracing means 5 in engagement with the outer surface 9 of the knives 4 when the ends upon which bolts 13 are positioned are tightened. It will be obvious that the small aperture does not weaken the bracing means 5. The elongated aperture 11 is formed in the braces 5 for the purpose of permitting the knives to be extended from the head by placing back of the blades shims or washers 14 after the nuts on the bolts have been loosened, as may be required when the knife-edges become worn off by grinding, &c., and as the blades are extended it becomes necessary to extend the braces upon the head 2. The adjustment of the braces is permitted by reason of the construction of the slots in the braces 5, permitting of the

bolts 3, which are positioned therein, to be retained in their assembled position with the head without removing said bolts from their mounted position upon said head and in engagement with the apertured portion of the braces. It is not necessary to form the apertures 8 of the knives 4 elongated in construction, as the knives are capable of having a slight lateral movement sufficient for accomplishing the desired adjustment—that is, the knives are capable of being projected laterally to a slight angle to the plane in which the knife-engaging sides of the head 2 are formed. The slots which are formed upon the block 2 for the reception of the bolts 3 will permit of the bolts being inserted from either side of the block, thereby facilitating the assembling of the different elements which are employed in the construction of a completed cutting device. The adjustment of the knives by means of introducing washers 14 or the like between the same and the head 2 materially increases the life of the knives, for the reason that if the blade could not be extended the depth of the groove the operation of the knife could not be as complete or efficient as when new blades were employed. From this description of the knives it will be obvious that I have produced an adjustable structure.

The construction and arrangement of the braces 5 produce practically the same result as if the head 2 were provided with integral means adapted to engage the outer surface 9 of the knives instead of employing a removable flat plate or blades, which form an extension upon the head for engaging the approximately L-shaped or angled blades or knives 4. Owing to this construction, many advantages are obtained over the ordinary construction of a flat or approximately flat blade or knife which is provided with an angular support or brace, among which may be mentioned the fact that an angular bolt performing the function of a brace is likely to become destroyed when strain is exerted thereupon when the knives are in use, for the reason that the shank of the bolt must not be of a very great diameter, as the aperture on the blade through which said shank extends must not be of such a size as to impair the durability of the construction of said knife. If the angular bolt is provided with a large shank which extends through the knife, the durability of the knife construction will be materially impaired. The construction of placing an angular brace beneath the blade is also subjected to the same weakness as an angular bolt, for the reason that the bolts holding flat blades in an assembled position with the angular bracing members must sustain nearly the entire strain against the cutting edges, and the breaking of the retaining-bolts causes a great danger to the operator as well as causing the knives to give when cutting tough or knotty lumber. Owing to my im-

provement in the construction of the cutting device the strain on the angular knives is brought directly against the head 2, greatly obviating the strain of an ordinary flat-constructed blade, as the cutting edges 7 of the knives when engaging the lumber bring the strain directly upon a rigid extension projecting from the head 2, which is that portion of the blades having the cutting edges 7. The bracing means 5 positively prevents the knife from being bent, and especially the right-angled extension upon which the cutting edge is formed. In other words, in the ordinary construction the strain which is brought to bear upon the knives when they are in operation is not exerted upon bolts, but upon a rigid knife which is held against a solid surface.

Referring to Fig. 5, I have shown the position of the washer or shim 14 upon member 2 when it is desired to adjust the knife and its plate by said shim. It is to be understood that the shim 14 may be placed parallel with knife 4 upon member 2, if it is desired, or if it is found necessary shim 14 may be placed in parallel position upon member 2 with knife 4, as well as brace-plate 5, in each instance. When a shim 14 is positioned parallel with plate 5 as depicted in Fig. 5, it will be necessary to employ a knife having an elongated aperture, as shown by broken lines 11^a in Fig. 3. This elongated aperture 11^a is similarly constructed to aperture 11, clearly disclosed in the brace-plate, which is illustrated in Fig. 4. The shim or washer 14 is provided with an integral head or extension 15, which is adapted to be positioned in the bolt-receiving slot of the member 2. The head 15 materially assists in retaining the shim in its proper assembled position with member 2, knife 4, and brace-plate 5.

While I have described in the foregoing description and illustrated in the accompanying drawings the preferred form of my invention, it will be obvious to one versed in the art to which this invention relates that certain alterations, modifications, and changes may be made, and I therefore reserve the right to make such alterations, modifications, and changes as shall fairly fall within the spirit and scope of the present invention.

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

1. In a device of the character described, the combination with a revoluble head, of a knife provided with a body portion secured to one side of the head, said knife provided with a bent-up cutting portion, and a brace-plate secured to another side of the head and engaging the outer face of the bent-up portion of the knife.

2. In a device of the character described, the combination with a head, of a knife provided with a body portion engaging one side of said head, a bent-up cutting portion formed upon

said body portion, removable fastening means securing said knife to said head, a removable brace-plate engaging another side of the head and the outer face of the bent-up portion of said knife, said plate of greater length than said head, and removable fastening means for securing said plate to the bent-up portion of said knife and to said head.

3. The combination with a revoluble support, of an angular knife provided with an aperture formed in the bent-up portion thereof, a shim mounted upon said support, a brace member provided with an elongated aperture near one end and with a comparatively small aperture near the opposite end, positioned upon said support, means engaging the elongated, apertured portion of said member for securing said shim and member to the support, and removable means positioned within the aperture of the bent-up portion of said knife and the comparatively small aperture of the member for securing said knife and member together.

4. The combination with a polygon head, of a knife secured to one of the sides of said head and adjustable to project beyond another side thereof, a brace member secured to said knife and a different side of said head, and removable means for supporting the projecting portion of the knife secured to the second-named side of said head.

5. In a device of the character described, the combination with a shaft, a many-sided head secured to said shaft, of a substantially L-shaped knife secured to one of the sides of said head, the bent-up portion of said knife having its outer face lying in the same plane in which one of the sides of the head is formed, a bracing member engaging the outer face of the bent-up portion of said knife and the side of the head, lying in the plane in which said outer face of the knife is positioned, said knife and member being capable of adjustment upon said head, a bolt securing said brace member to said head, and comparatively small, transverse securing means fastening said brace member to the outer face of the bent-up portion of said knife.

6. In a device of the character described, the combination with a polygonal head, of a knife engaging one of the sides of said head, said knife provided with a body and a bent-up por-

tion provided with a cutting edge, extending at right angles to said body, an adjustable bracing member engaging one of the sides of said head and the outer face of said bent-up portion, the bracing member extending parallel to the bent-up portion of said knife, and means for securing said bracing member and the knife to the sides of the head.

7. The combination with a revoluble head, of a substantially L-shaped knife secured to said head, the bent-up portion of said knife provided with a cutting edge, and a bracing member secured to said head and the outer face of said bent-up portion.

8. The combination with a revoluble support, of an angular knife provided with an aperture formed in the bent-up portion, a cutting edge formed upon the bent-up portion, said knife provided with an elongated aperture formed in its body, a brace member provided with an elongated aperture near one end and with a comparatively small aperture near the opposite end positioned upon said support, means engaging the elongated apertured portions of said member and knife for securing the same to said support, and means positioned within the aperture of the bent-up portion of said knife and the comparatively small aperture of the member for securing said member and knife together.

9. The combination with a polygonal support, of a knife provided with a body and a bent-up portion, said bent-up portion provided with a cutting edge, said body and bent-up portion provided with apertures, a brace member provided with apertures positioned upon one side of said support and the outer face of the bent-up portion of said knife, fastening means positioned within the aperture of the bent-up portion of said knife and one of the apertures of said brace member, and means carried by said support and engaging the apertured portion of the body of said knife and one of the apertures of said member, for securing the knife and member upon said support.

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

WALLACE KINLEY.

Witnesses:

CLARK VAUGHN,
GILBERT M. FARSTVEDT.