

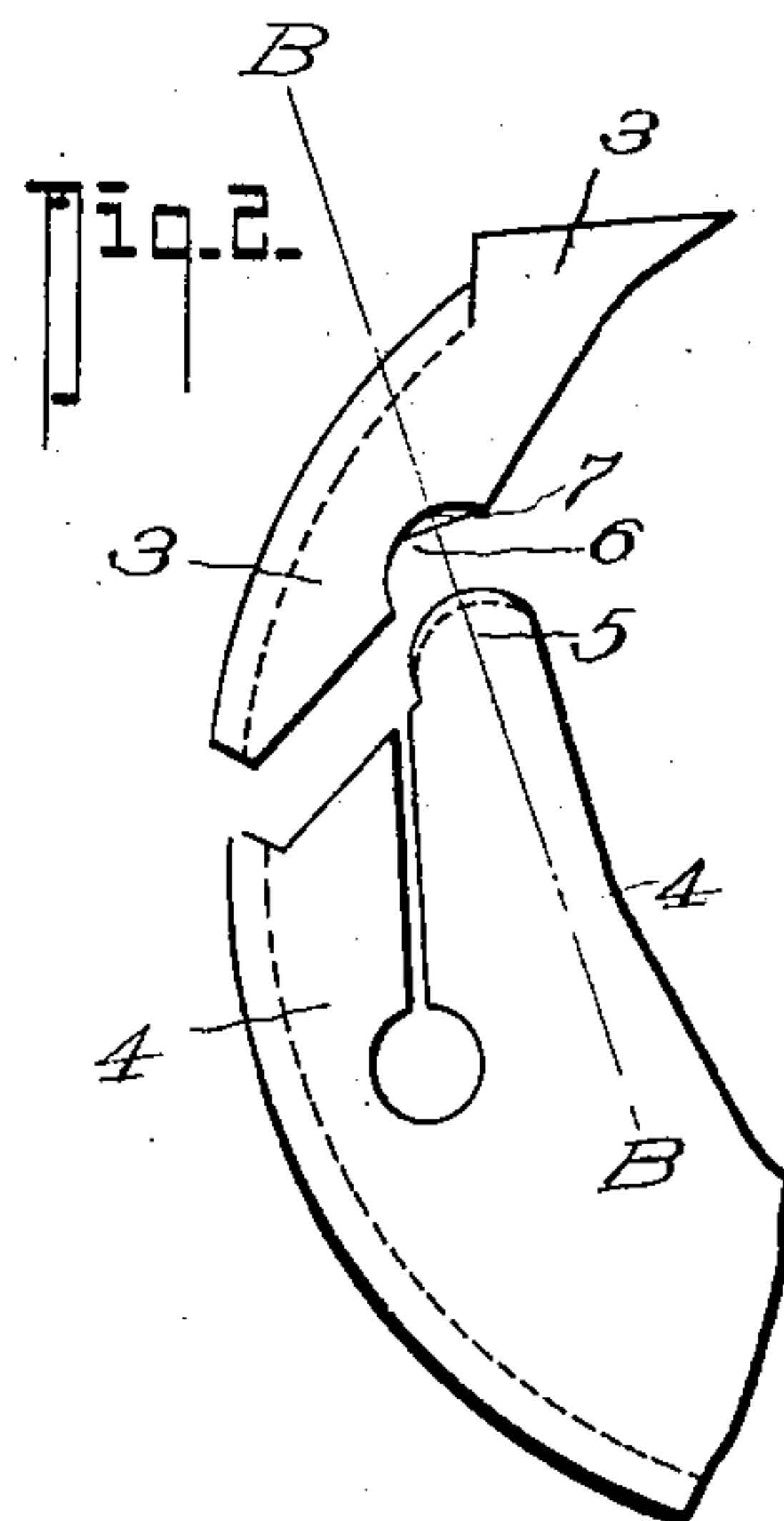
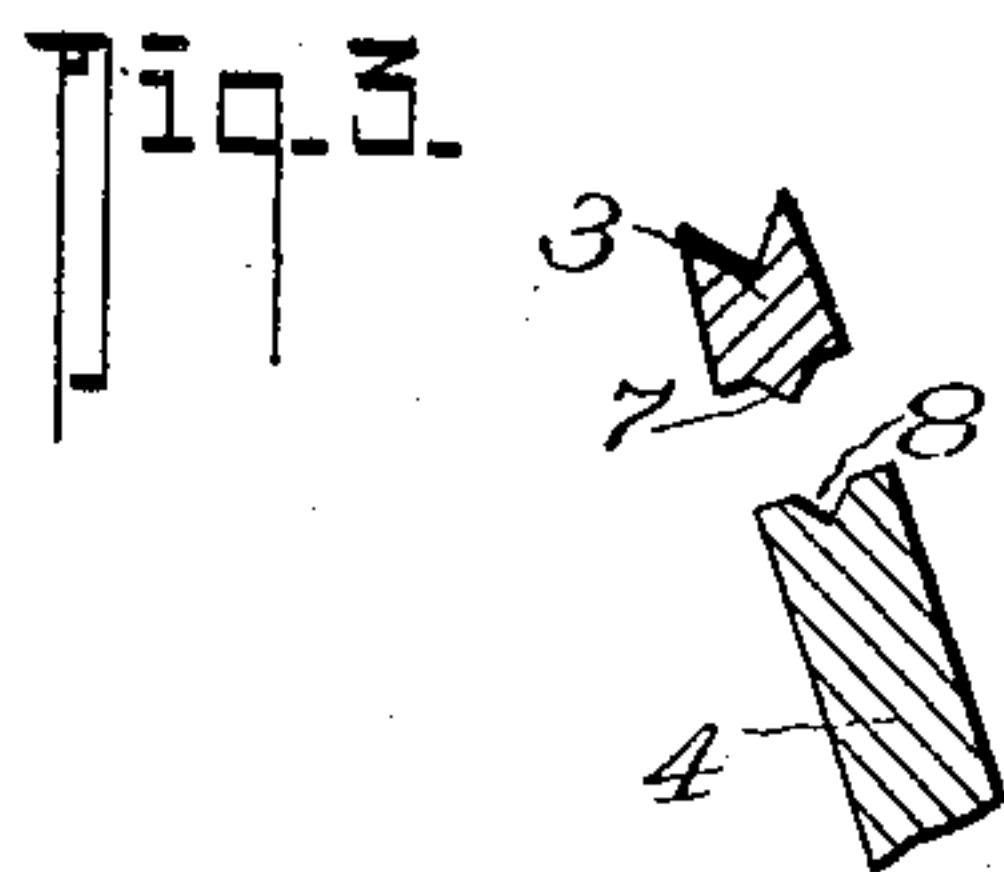
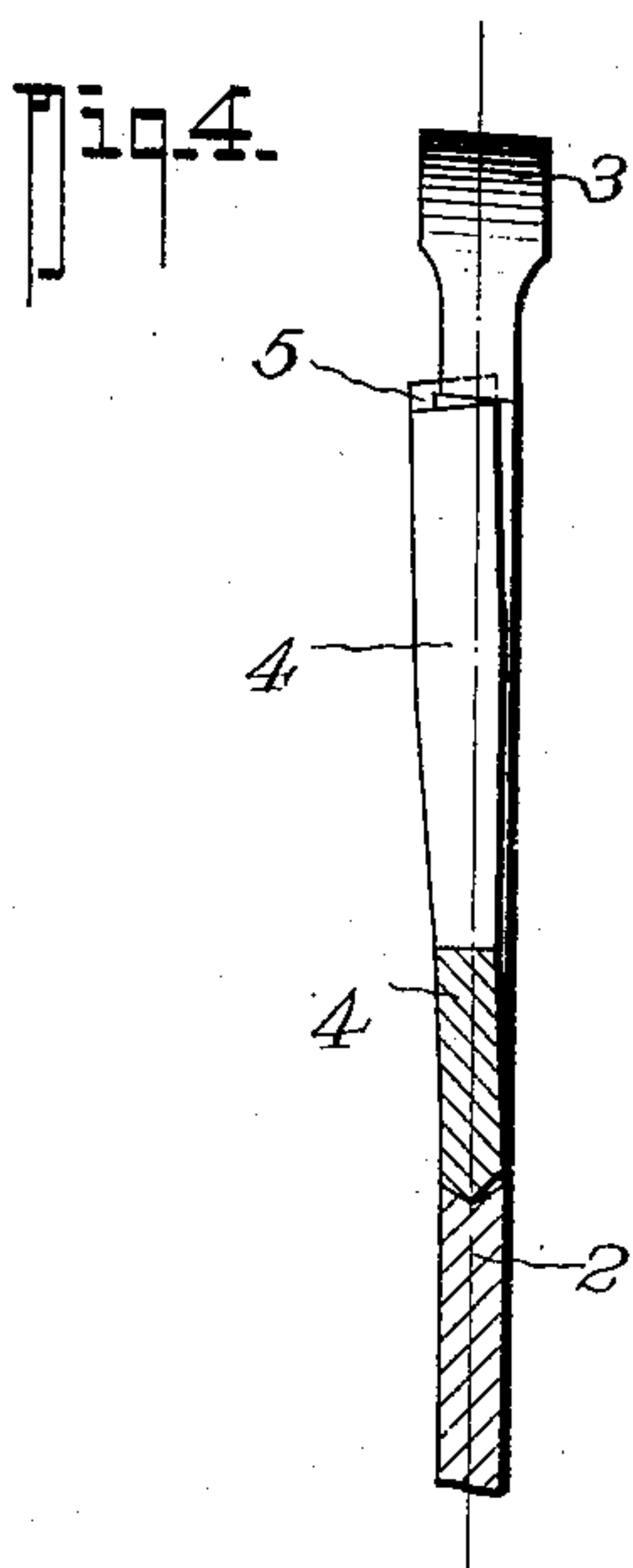
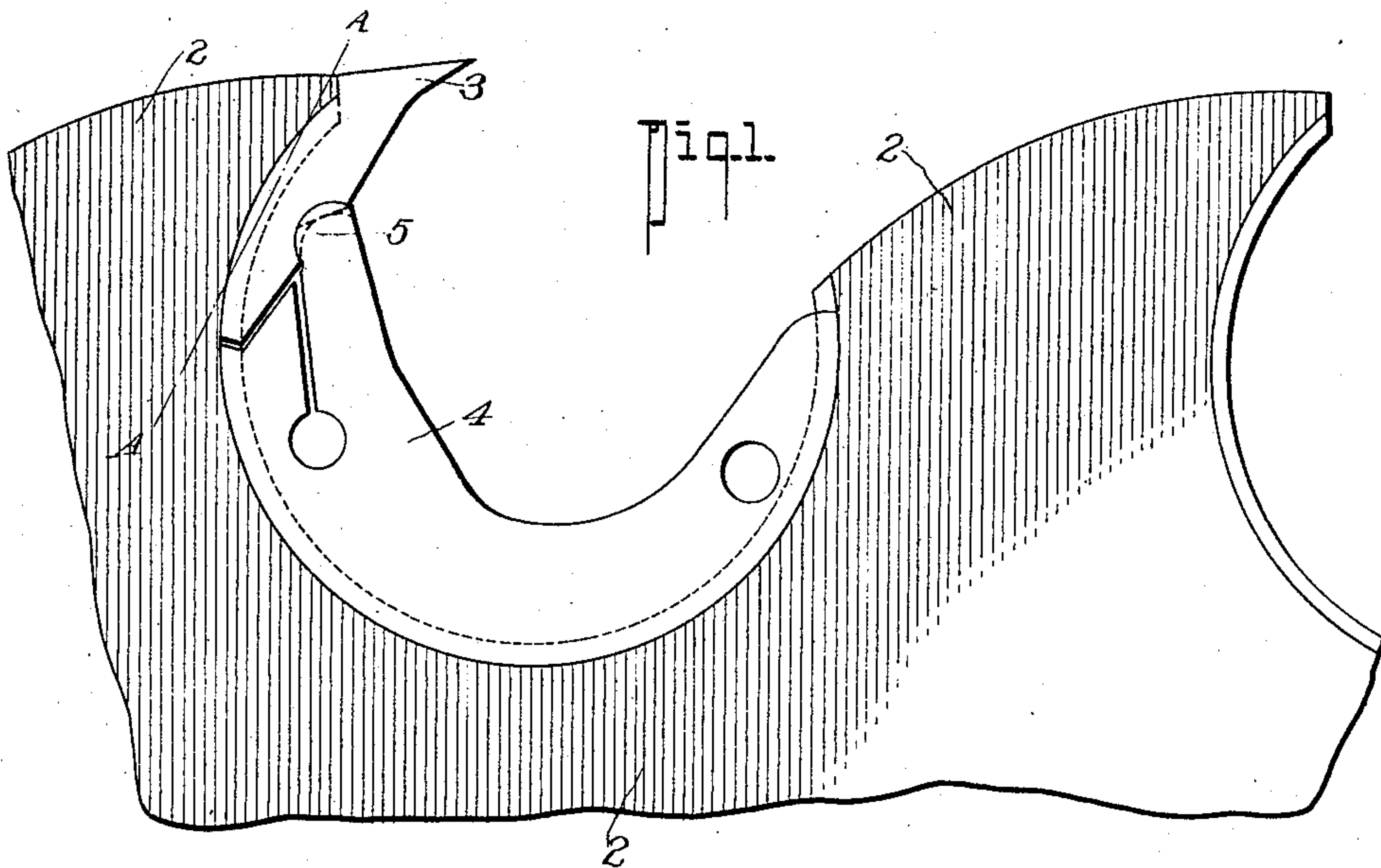
No. 786,103.

PATENTED MAR. 28, 1905.

W. J. CUMMINGS & S. ABERNETHY.

INSERTED TOOTH SAW.

APPLICATION FILED APR. 13, 1904.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM J. CUMMINGS AND SAMUEL ABERNETHY, OF PORT MOODY,
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INSERTED-TOOTH SAW.

SPECIFICATION forming part of Letters Patent No. 786,103, dated March 28, 1905.

Application filed April 13, 1904. Serial No. 202,979.

To all whom it may concern:

Be it known that we, WILLIAM J. CUMMINGS, and SAMUEL ABERNETHY, citizens of the Dominion of Canada, residing at the town of Port Moody, in the Province of British Columbia, Canada, have invented a new and useful Improvement in Inserted-Tooth Saws, of which the following is a specification.

Our invention relates to an improvement in inserted-tooth saws of the kind known in the trade as "Disston," "Hoe," and "Simonds" saws, and is directed to prevent that tendency to lateral displacement which is a common fault in saw-teeth of this class.

If an examination is made of any saw with inserted teeth of the above-mentioned kinds which has been in use for a short time the lateral displacement referred to may be readily detected, and not only that, but an examination of the apertures in the saw-blade in which the teeth are fixed will reveal the fact that the "cutting-bit" of the inserted tooth has been working or moving from side to side, evidence of which wear may be seen in the edge of the aperture at the junction of the bit with the lock and again on the heel of the lock portion which bears against the bit. This lateral movement of the bit is a pivotal one about an axis through the chord of its bearing in the saw-blade aperture formed to receive it, which axis is indicated by a line A A in Figure 1 of the drawings. Although the bearing of the bit in the saw-blade aperture is V-shaped to prevent lateral movement, the arc of its bearing, it will be readily seen, is too short to support the bit against any tendency to the rocking movement referred to on the imaginary axis through its chord. The lateral displacement of the bit is of course objectionable as productive of rough work; but beyond this it has a more serious injurious effect, in that as the bit is displaced to one side the heel of the lock portion is thrown to the opposite side, and the condition of strain tends to retain it in that lateral displacement, wherein on one side it rubs against the work and causes undue friction in the saw cut and on the other side permits the sawdust to escape from the throat, past the swage of the lock

portion, and down the side of the saw-blade, causing heating of the blade, with its attendant injurious effects. The wear has the further serious objection of lessening the resilient grip which the heel of the lock portion is designed to have on the bit and on which the fit of the inserted tooth is largely dependable.

The object of our invention is to prevent the lateral movement between the heel of the lock and the bit, and so obviate the faults referred to and prevent the wear between these surfaces. We attain this steadiment of the bit in a very simple manner and one which may be introduced into the construction of the bit and lock portion without departing from the manner of manufacture at present in use for these parts. The preventive means which we adopt and which is the subject of this application is fully described in the following specification, reference being made to the drawings which accompany it, in which—

Fig. 1 is a side elevation of an inserted tooth of standard type, showing the application of our improvement. Fig. 2 is a similar view of the bit and its lock portion detached; Fig. 3, a cross-section of the same on the line B B; and Fig. 4 is an end elevation of an inserted tooth of standard type, showing the lateral displacement referred to in the specification.

In the drawings the saw-blade is represented by 2, the bit by 3, and the lock portion which secures the bit by 4. In all efficient teeth of this class the bearing of the lock portion on the bit is effected by a convex heel 5 on the former, which fits into a corresponding concave recess 6 in the bit. This is intended to centralize the application of the resilient pressure of the lock portion 4 and effect a more uniform distribution of that pressure along the bearing of the bit on its seat in the saw-blade, and it is in this heel-bearing that the check to lateral movement of the bit should be provided. We therefore provide a web or fin 7, extending as a chord across the recess 6 of the bit, and in the heel of the lock portion we provide a corresponding groove 8, which will laterally engage the sides of the fin 7. The engagement laterally

of the V-shaped projection 7 in the corresponding V-shaped groove 8 in the heel of the lock portion will effectually prevent any lateral movement of the bit and will retain it
 5 in the central position. The part 7 and its groove 8 may be of any form in cross-section, but are preferably V-shaped, as the groove may then be readily cut at the same time as the groove is being cut in the edge of the lock
 10 portion which bears in the saw-blade.

An important feature in the design of this improvement lies in the fact that as the bit is drop-forged with the line of junction of the dies along the line of joint contiguous when
 15 in place to the lock portion the V-shaped projection 7 can be very readily formed by the upper die, and thus will necessitate no extra work in the manufacture of the piece save in the provision in the die for forming it. Again,
 20 as previously referred to, the lock portion as at present manufactured requires to have machined the V-groove round its edge which fits in the saw-blade, and the operation of cutting the V-groove 8 in the heel 5 may be per-
 25 formed by the same tool and at the same time. The groove 8 may be slightly convex, as drawn, to permit of the slight movement required by the resilience of the heel.

We are aware that prior to our invention
 30 attempts have been made to afford a lateral support to the bit of an inserted tooth by providing a groove and projection at the junction between bit and lock; but such have been defective either because they were associated
 35 with an otherwise complicated tooth or they have been applied in such a manner as to necessitate a separate and comparatively difficult operation in forming them. We believe, however, that we are original in providing a
 40 lateral engagement to the contacting portion between bit and lock in a tooth of the class

described, where the locking pressure upon the bit from the lock is transmitted through a heel-bearing, and

We therefore claim as new, and desire to be 45 protected in by Letters Patent, the construction revealed in the foregoing specification and claimed as follows:

An inserted saw-tooth comprising in combination with the saw-blade having a circular 50 tooth-receiving portion provided with a V-shaped rib, said saw-tooth comprising a bit and a lock portion, said bit and said lock portion having V-shaped grooves to cooperate with the V-shaped rib of the saw-blade, said 55 lock portion having a heel terminating in the circular end, a V-shaped groove extending in a circular direction in the end of the heel, the lowermost line of said heel-groove lying in the arc of a circle having a greater diameter 60 than the arc of the circle of the extreme end of the heel portion, said tooth having a circular cut-away portion to receive the circular end of the heel portion of the lock, a V-shaped rib extending across said circular cut- 65 away portion, the projecting edge of said rib forming a chord to the arc of the circle containing said circular cut-away portion of the tooth, said projecting edge of the rib adapted when the tooth and lock are in their normal 70 position to enter the V-shaped circular groove of the heel and lie tangent to the curve of the groove, all being arranged substantially as shown and for the purposes described.

In testimony whereof we have signed our 75 names to this specification in the presence of two subscribing witnesses.

WILLIAM J. CUMMINGS.
 SAMUEL ABERNETHY.

Witnesses:

ROWLAND BRITTAIN,
 HERBERT G. CUMMINGS.