A. E. PROCTOR.

SAW SWAGE.

APPLICATION FILED JAN. 31, 1912.

**1,045,078.**

**Patented Nov. 19, 1912.**

3 SHEETS—SHEET 1.

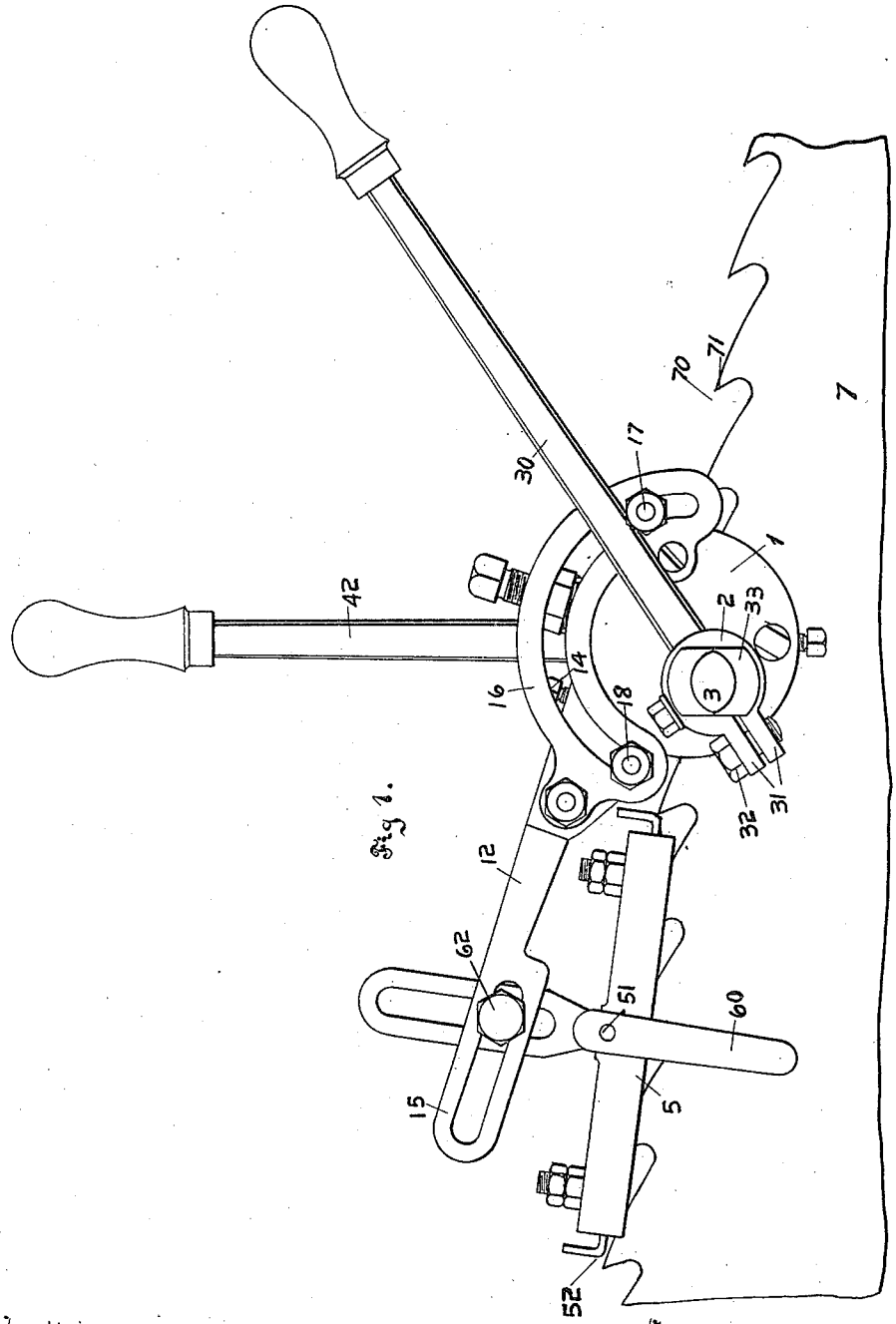


Fig 1.

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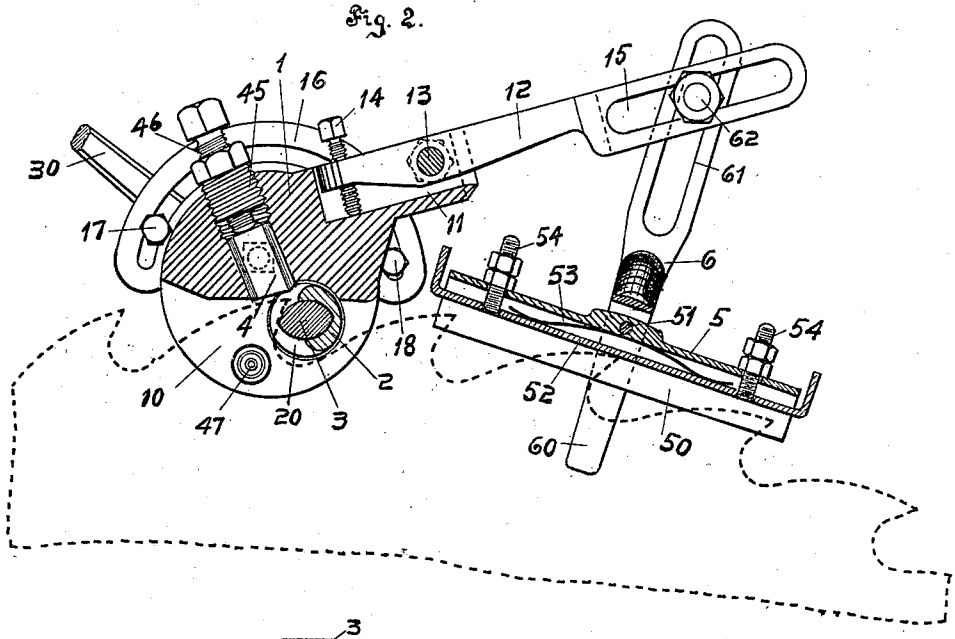
3 SHEETS—SHEET 2.

Fig. 2.



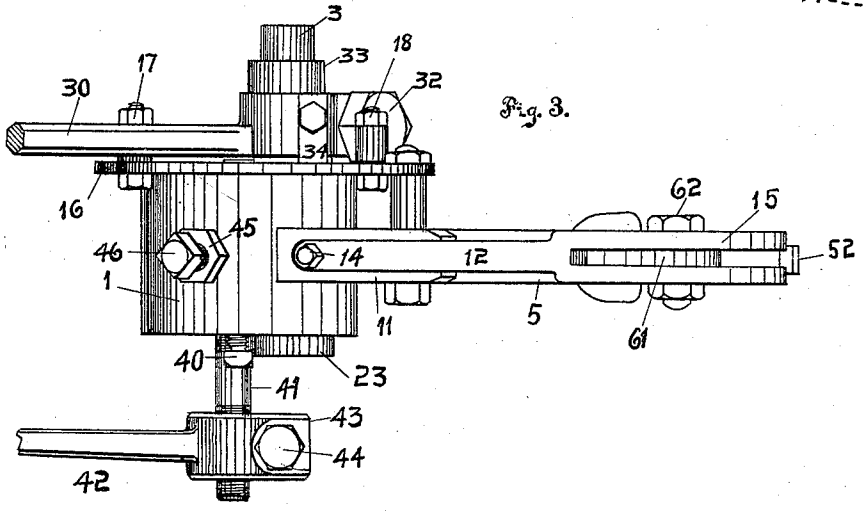




Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 4.

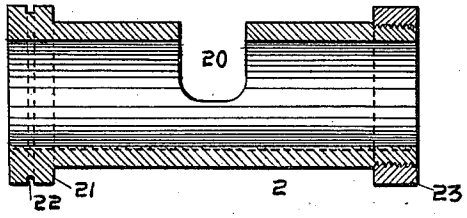



Fig 5.

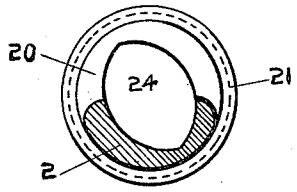



Fig. 6

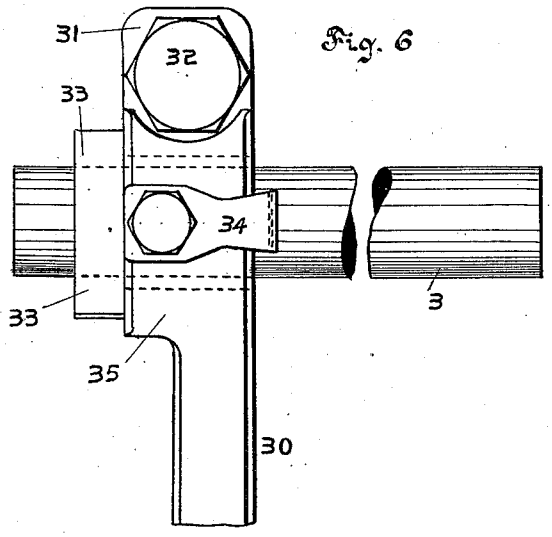



Fig 7

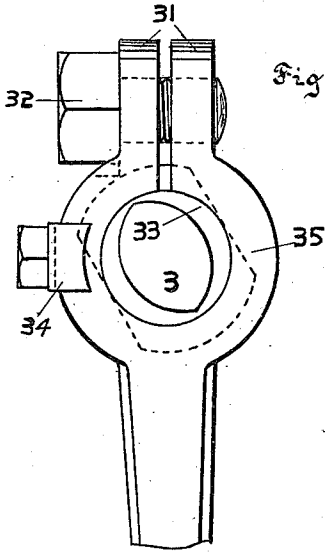



Fig. 8.

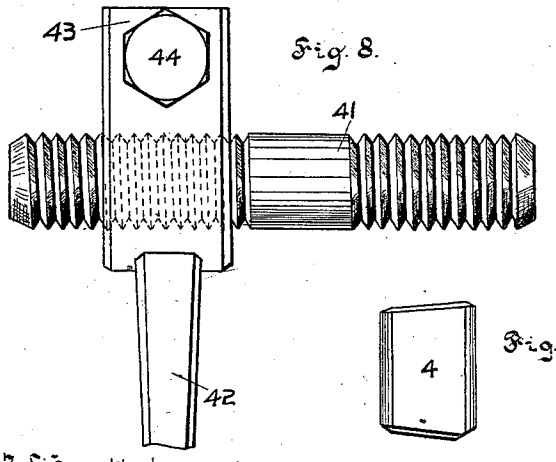



Fig. 9.

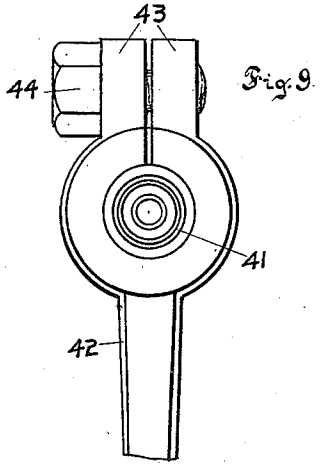
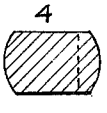



Fig. 10.




Fig. 11.




Witnesses
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# UNITED STATES PATENT OFFICE.

ALBERT E. PROCTOR, OF BELLINGHAM, WASHINGTON.

## SAW-SWAGE.

1,045,078. Specification of Letters Patent. Patented Nov. 19, 1912.

Application filed January 31, 1912. Serial No. 674,589.

*To all whom it may concern:*

Be it known that I, ALBERT E. PROCTOR, a citizen of the United States, and resident of the city of Bellingham, in the county of Whatcom and State of Washington, have invented certain new and useful Improvements in Saw-Swages, of which the following is a specification.

My invention relates to saw swages, and comprises the novel parts and combinations of parts which are particularly defined in the claims.

My invention belongs to that type of saw swages which consist of an organized machine having a rotative, cam-like member, which engages one edge of the tooth and, by pressure and movement toward the point of the tooth, causes a flow of metal at the point, which spreads the tooth point to give it a chisel shape, wider than the original thickness of the tooth.

The object of my invention is to improve and simplify such devices, both in their construction and operation.

In the drawings which accompany this specification, I have shown my invention in the form which is now preferred by me.

Figure 1 is a side elevation of my invention in place upon a saw, ready for use. Fig. 2 is a side view, in section, taken through the slot which receives the saw, a section of a saw being shown in dotted lines, the view being taken from the side opposite that of Fig. 1. Fig. 3 is a top plan view. Fig. 4 is a longitudinal section, and Fig. 5 a cross section of the sleeve which surrounds the swage bar. Figs. 6 and 7 are two views showing the swage bar and the operating handle therefor. Figs. 8 and 9 show, from different view points, the saw clamping bolt and its operating handle. Figs. 10 and 11 are respectively elevation and cross section of the anvil block.

The frame or body upon which the operating parts are assembled is herein shown as a cylindrical block 1, having therein a transverse slot 10, cutting well into the body thereof and designed for the reception of the toothed edge of the saw, when the device is in position for use. It also has a bore, parallel with its axis and intersecting the slot 10, in which is mounted the swage bar, a bore extending from its periphery to intersect the former bore and designed to receive the anvil block, and bores for the reception of the saw clamping bolts. Other saw swages now in use have similar parts, but differ specifically in their construction of these parts.

The position of the swage upon the saw, is determined by the position of the arm 12, which projects from the frame 1, and is provided with adjustable means for engaging the toothed edge of the saw. I prefer to secure this arm to the frame by a pivot bolt 13, the inner end of the arm being placed within a slot or channel in an arm 11, which is secured to or integral with the frame 1. The angular position of the arm 12 may be varied by an adjusting screw or bolt 14. To the outer end of the arm 12 is secured a bar 6, having a yoke or forked end 60, adapted to straddle the saw. These two bars are adjustably secured together by a clamping bolt 62, which passes through the slotted ends 15 and 61 of the respective bars. To the yoke or forked end of the bar 6 is secured, by a pivot 51, a slide 5, which is of a channeled cross section, the flanges 50 lying, when in use, one at each side of the saw. Within this channel is a bar 52, held outward by a flat or bar spring 53, and restrained by bolts 54. This bar 52 directly engages the outer surface of the saw teeth.

The frame block 1 has a hole therein placed in an approximate diametrical position and intersecting both the slot 10 and the bore which contains the swage bar. In this hole is placed the anvil block 4. The sides of this block are engaged by the screws 40 which hold it laterally. Its end is engaged by a set screw which determines its position lengthwise its containing bore, and its projection into the slot 10. I have herein shown a compound bolt consisting of a plug 45 which screws into the outer end of the bore, and a central adjusting bolt 46 which screws into a central hole in the plug 45.

Passing through the frame block parallel with its axis and intersecting the slot 10 and the bore which contains the anvil block, is a bore which receives the swage bar. The swage bar 3 is of a symmetrical, non-circular cross section, in the sense that it may be turned about its axis into more than one position, in each of which it presents a like face in like relation to the tooth. The form shown and preferred is one in which the cross section is outlined by segments of circles of larger diameter than that of the bar. As herein shown the cross section is outlined by two segments of circles.

A sleeve 2 is provided which is circular in outer cross section, fitting the bore in the frame block, and has an axial hole of the same cross section as that of the swage bar 3, which hole receives the swage bar. This sleeve serves as a support and journal for the swage block, turning with it and permitting adjustment of the swage bar lengthwise, and also by turning upon its axis, so as to present different surfaces to the saw teeth.

The sleeve 2 has a flange 21 at one end, preferably integral therewith, and at the other end a flange ring 23, screw threaded thereon, or otherwise removable at will. The sleeve 2 has a transverse slot 20, in position to register with the slot 10 in the frame block, this slot cutting half or more of the sleeve and permitting engagement of the saw teeth by the swage bar. The flange 21 of the sleeve 2 has a peripheral groove 22 which receives the inwardly turned end of a plate 34 which is secured to the swage operating lever 30, thereby holding these parts against lateral displacement while permitting free relative rotative movements.

The swage bar is directly engaged by the operating handle, the sleeve 2 serving solely to support the bar so that it may be rotated. In consequence there is no strain upon it tending to break it. The operating handle 30 has a short sleeve or bushing 33 of similar cross section and the head 35 which receives this bushing is slit at one side, the ears 31 at each side of this slit being drawn together by a clamping bolt 32.

The device is placed upon a saw in the manner shown in Fig. 2. The anvil block engages the outer edge of the teeth at their point and a corner of the swage bar extends under the tooth in position to engage the under surface of the tooth close to its point. By rocking the swage bar the material at the point of the tooth is swaged out into a chisel point.

The extent of swing of the operating arm 30 is limited by adjustable stop bolts 17, 18, secured in a segment slot in an arc 16 secured to the block 1.

The saw, while being operated upon, is held by a clamping bolt 41, which is threaded at each end, so that either end may be used to engage the saw. The lever 42 by which it is operated, is secured thereto by a split head having a clamping bolt 44 passing through the ears 43. This head is threaded to engage the threads on the bolt 41. The ends of this bolt are preferably circularly grooved to enable it to better grip the face of the saw, and when one end becomes worn the bolt may be reversed in position so as to use the other end. Opposite this bolt is placed a complemental bolt, 47 which is set in fixed position.

By the construction adopted for the swage bar and its mounting, a number of advantages are obtained. The handle being secured directly to the swage bar, no torsion strain is produced in the sleeve of bushing 2, and it is not likely to get broken. As this bushing is of irregular shape and costly to make, this is a material advantage.

The swage bar being of symmetrical cross section, it may be turned to bring any of its faces into working position. The method of securing this bar to the operating lever 30, permits reversal of the swage bar end for end, and also its adjustment endwise, thereby making possible the utilization of substantially the entire outer surface of the bar as swaging surfaces for engagement with the teeth, instead of using only a small section of its length, as may only be done in other like devices. This feature adds greatly to the life of the bar.

What I claim as my invention is:

1. A saw swage having a swage bar of symmetrical, non-circular cross section throughout its length, a bearing sleeve surrounding said bar and having a bore of outline to fit said bar and a circular outer shape, and a handle having clamping engagement with the swage bar, whereby said swage bar may be both turned and reversed within its bearing sleeve and may also be adjusted lengthwise.

2. In a saw swage, in combination, a frame adapted to fit over the saw and having a hole with its axis perpendicular to the plane occupied by the saw, a sleeve rotatively fitting said hole and having an axial perforation of a symmetrical cross section outlined by intersecting arcs of circles, a swage bar having a cross section fitting said axial perforation of the sleeve, and a handle having clamping engagement with the swage bar.

3. In a saw swage, in combination, a frame having a slot therein adapted to fit over a saw, and a cylindrical hole perpendicular to and intersecting said slot, a sleeve rotatively secured in said hole, said sleeve having an axial hole of a cross section of a symmetrical, non-circular outline, and a cross slot at one side registering with the slot in the frame, a swage bar of like cross section fitting the axial hole in the sleeve, an operating lever clamped directly to the swage bar, and means for retaining said swage bar in said sleeve.

4. In a saw swage, in combination, a frame having a slot therein adapted to fit over the saw, and a cylindrical hole perpendicular to and intersecting said slot, a sleeve rotatively secured in said hole, said sleeve having an axial hole of a cross section of symmetrical, non-circular outline and a cross slot at one side registering with the slot in the frame, said sleeve having a peripheral groove at one end and the operating handle having a retaining bar provided with a flange sliding

in said groove, a swage bar of a cross section which fits said axial hole in the sleeve, an operating lever having a clamping engagement with the swage bar, whereby said bar may be adjusted lengthwise and reversed both rotatively and endwise.

In testimony whereof I have hereunto affixed my signature at Bellingham, Whatcom county, Washington this 22nd day of August, 1911.

ALBERT E. PROCTOR.

Witnesses:
A. MAKIN,
ANDERS ANDERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."