No. 834,009. PATENTED OCT. 23, 1906.

V. H. & A. K. HANCHETT.

SWAGE SHAPER FOR SAWS.

APPLICATION FILED SEPT. 6, 1904.

2 SHEETS—SHEET 1.

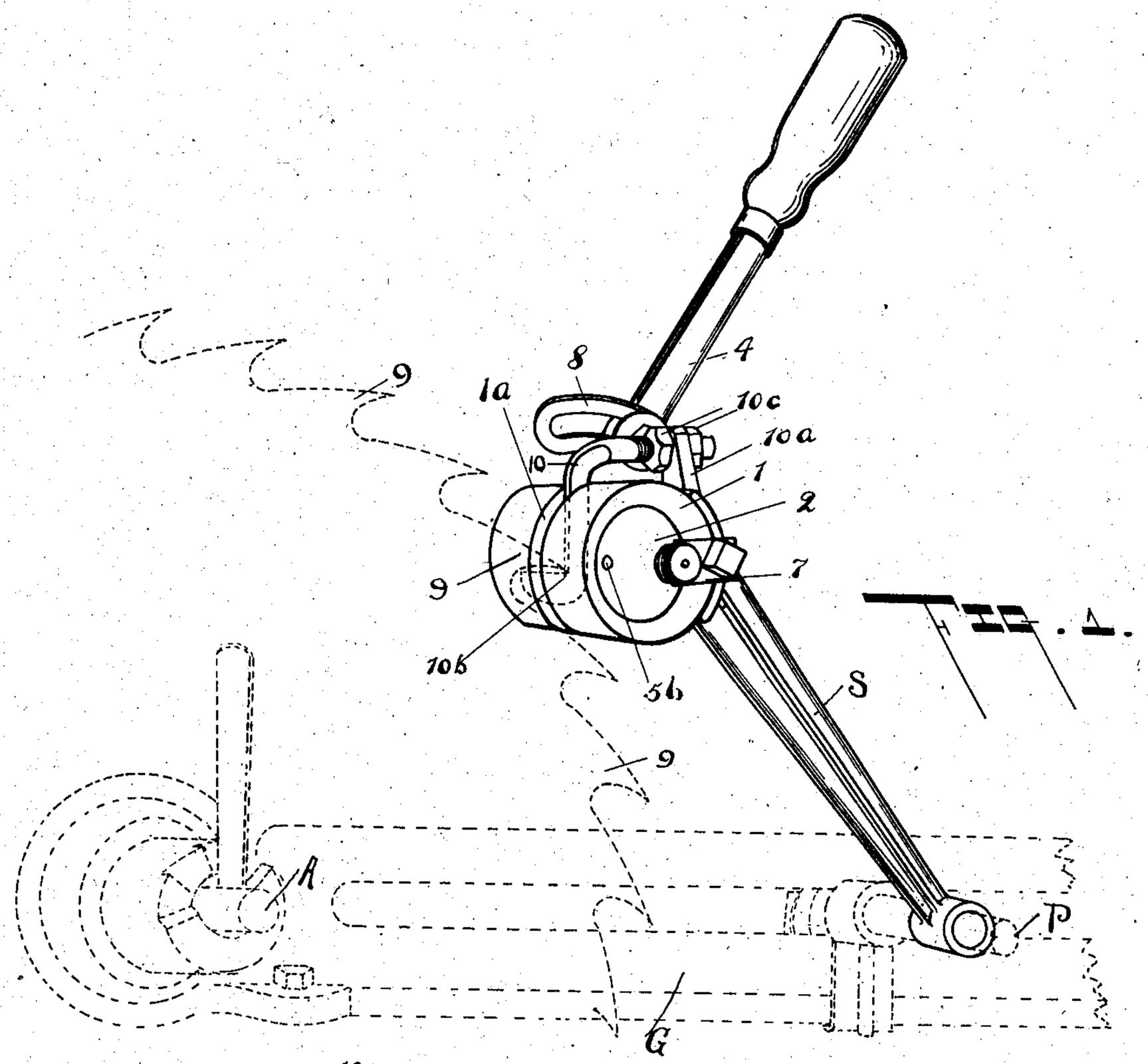

FIG. 1.

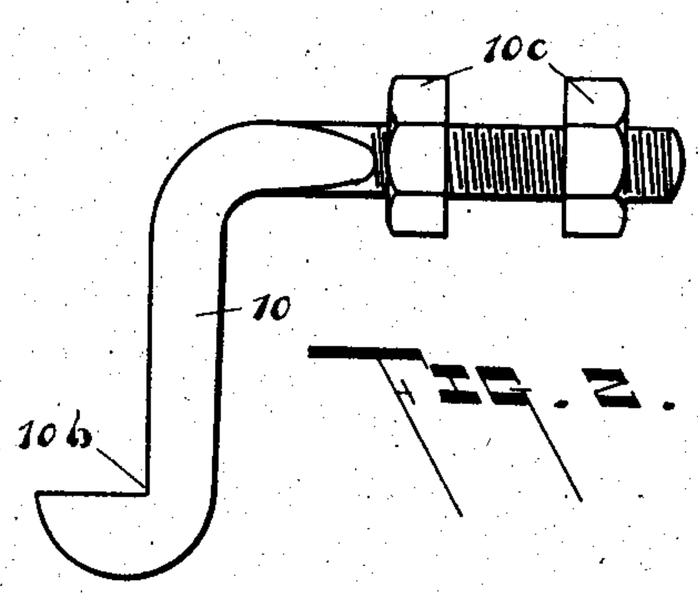

FIG. 2.

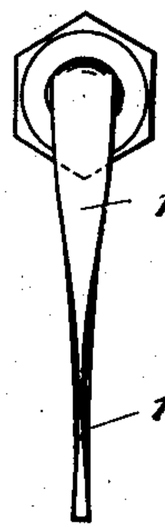

FIG. 3.

WITNESSES:

W. L. Cathcart

J. S. Lee.

Volney H. Hanchett

Arthur K. Hanchett INVENTORS

BY

Geo. B. Willcox ATTORNEY

No. 834,009. PATENTED OCT. 23, 1906.

V. H. & A. K. HANCHETT.

SWAGE SHAPER FOR SAWS.

APPLICATION FILED SEPT. 6, 1904.

2 SHEETS—SHEET 2.

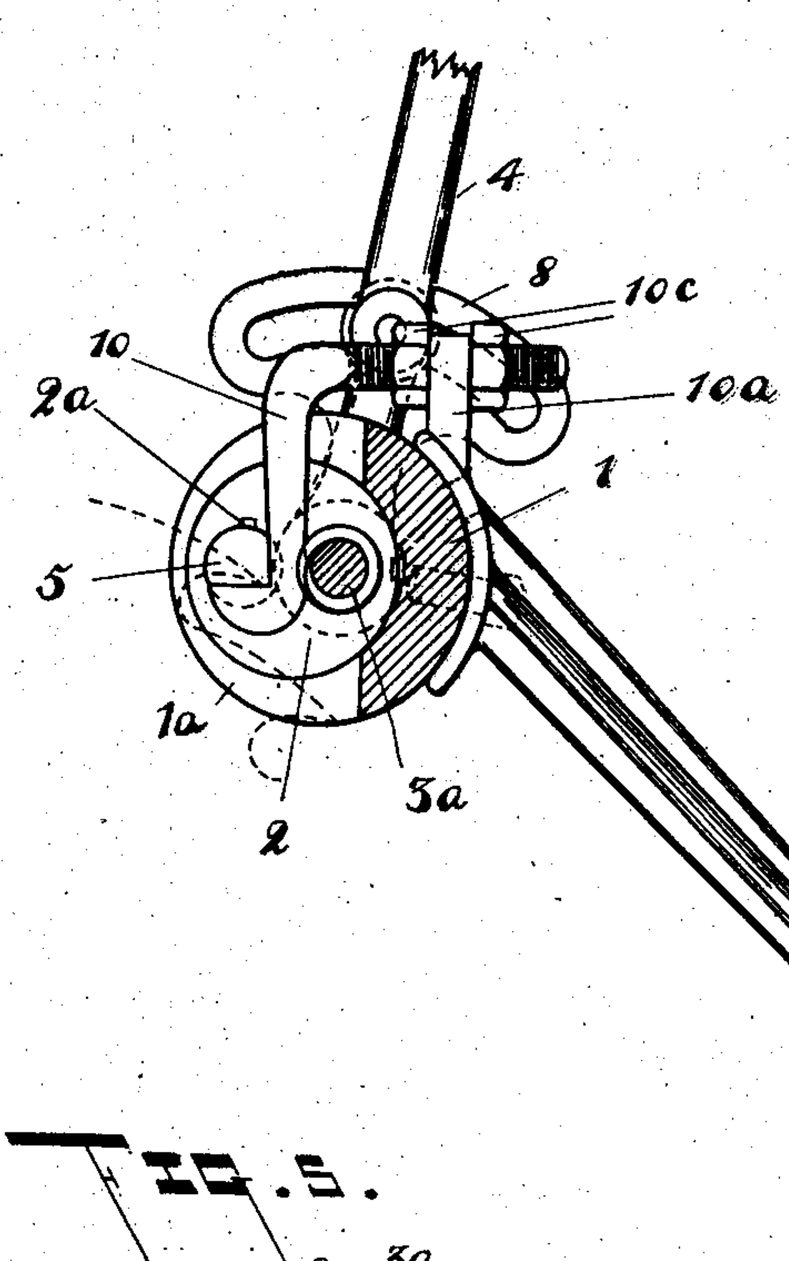

FIG. 4.

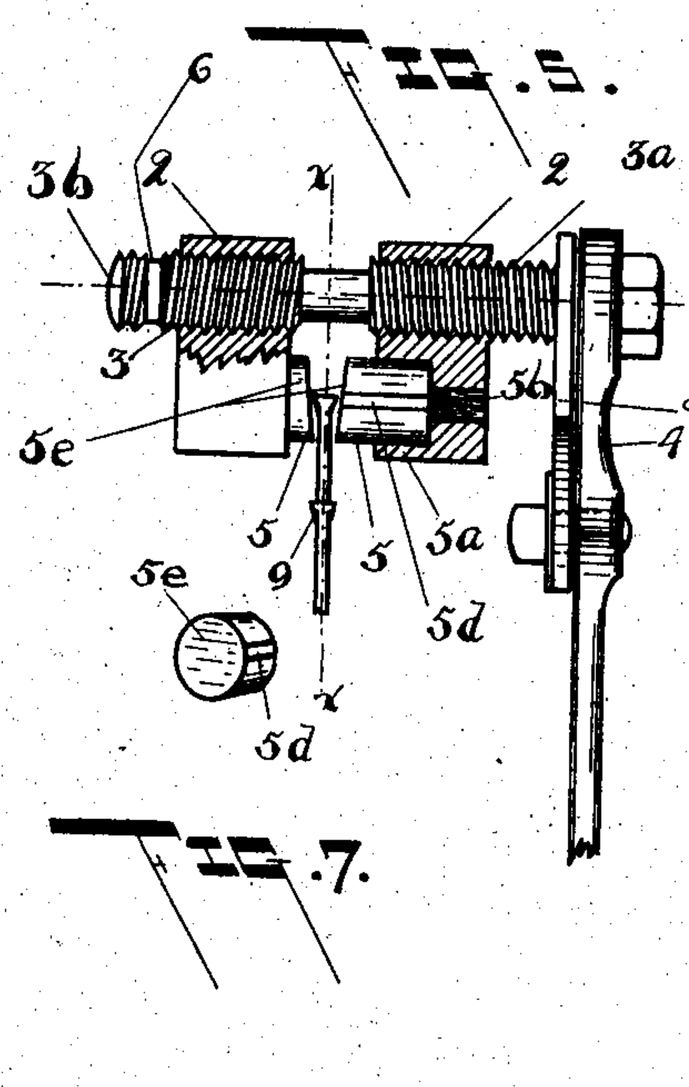

FIG. 7.

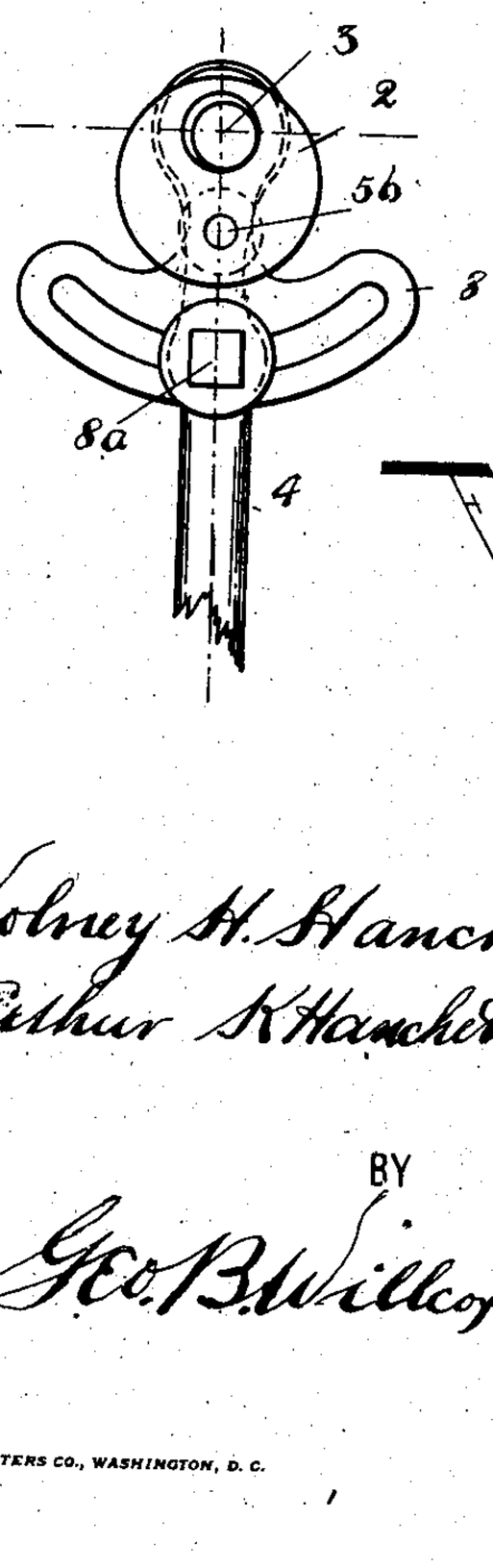

FIG. 6.

WITNESSES:

W. L. Cathcart

J. L. Lee.

Volney H. Hanchett

Arthur K Hanchett INVENTORS

BY

Geo. B. Willcox ATTORNEY

UNITED STATES PATENT OFFICE.

VOLNEY H. HANCHETT AND ARTHUR K. HANCHETT, OF BIG RAPIDS, MICHIGAN.

SWAGE-SHAPER FOR SAWS.

No. 834,009. Specification of Letters Patent. Patented Oct. 23, 1906.

Application filed September 6, 1904. Serial No. 223,499.

To all whom it may concern:

Be it known that we, VOLNEY HIRAM HANCHETT and ARTHUR KENT HANCHETT, citizens of the United States, residing at Big Rapids, in the county of Mecosta and State of Michigan, have invented certain new and useful Improvements in Swage-Shapers for Saws; and we 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 is a machine for shaping the points of saw-teeth that have been previously swaged or flattened; and it operates by exerting side pressure upon the teeth to press the teeth to the desired shape, widest at the extreme point and face of the teeth, thus producing a tooth shape well adapted to give a smooth even cut and to afford the necessary clearance for the saw-blade without cutting away the timber unnecessarily.

Our invention further embodies means for accurately gaging the width of the teeth and for insuring that all the teeth shall have the same shape and size.

With these and certain other objects, which will appear later in this specification, in view our invention consists in certain constructions and combinations of parts and the equivalents thereof, as set forth in this specification and illustrated in the drawings.

Figure 1 is a perspective view of a swage-shaper embodying our inveniton. Fig. 2 is a side view of the tooth-gage. Fig. 3 is a front view of the same. Fig. 4 is a part vertical section of the machine, taken on the line $x\,x$ of Fig. 5. Fig. 5 is a part longitudinal section of the die-plugs and the screws that operate them. Fig. 6 is a side view, partly broken away, showing the operating-lever. Fig. 7 is a perspective view of one of the dies.

As is clearly shown in the drawings, the device consists in a head 1, preferably made from a solid piece of steel and formed with a transverse slot or recess 1^a to receive the saw-teeth. The head is bored longitudinally, and in the bore is fitted a pair of plugs 2, one on each side of the slot 1^a. These plugs are preferably made of high-grade steel. The plugs are internally threaded, preferably eccentrically thereof, to receive the screw 3, one end 3^a of which has a right-hand thread and the other end 3^b of which has a left-hand thread, whereby the plugs 2 are advanced toward or separated from each other. The screw 3 is operated by a suitable handle 4. In the inner face of each plug 2 is set a die 5, preferably made of hardened tool-steel. To receive the dies 5, the inner faces of the plugs 2 are recessed, as at 5^a in Fig. 5, the bottom of the recess forming a shoulder to take the thrust of the die 5. Extending from the bottom of the recess 5^a through to the outer face of the plug 2 is a hole 5^b. A punch or other suitable tool driven into the opening 5^b quickly removes the die from the plug. This removal of the dies 5 is sometimes necessary in order to permit of regrinding the working faces of the dies.

To keep the die from turning, a projection or key 5^d is formed on its circumference and fits a keyway 2^a formed in the plug 2.

The working faces 5^e of the dies are accurately ground and beveled in converging planes, so as to taper the saw-teeth backward from the point and from the face of the tooth, as shown in Fig. 5.

To hold the dies in proper alinement relatively to the slot 1^a, a groove 6 is formed in one end of the screw 3, and a locking-plate 7, secured to the side of the head 1, engages the groove to prevent longitudinal movement of the screw. The dies 5 may be brought more or less closely together, depending upon the arc through which the handle 4 is revolved. The position of this working arc may be adjusted to suit the convenience of the operator by means of the handle 4, which may be clamped at any desired position along the quadrant or slotted arm 8 by means of a nut 8^a. The handle 4 is made to revolve upon the screw 3^a; but the quadrant 8 is rigidly secured to the screw.

The handle is mounted outside the quadrant, permitting the use of a short screw and preventing the handle from wearing on the threads of the screw, as would be the case were it mounted inside the slotted arm.

By the means just described it is seen that movement of the handle through a suitable arc will advance the die-faces 5^e toward each other and moving the handle in the opposite direction will separate them. In their forward movement they engage and accurately press to shape the teeth 9 of the saw.

To insure accuracy in the location of the side bevel of the teeth relatively to their

cutting edge and to secure uniformity in the width of the teeth, we have devised a catch or gage upon which the point of the tooth rests while being pressed and have combined in the catch means for adjusting its position so the width of the teeth may be varied to suit the working requirements of the saw. The catch consists in a hooked finger 10, carried by a bracket 10^a on the head 1. The point of the saw-tooth 9 rests in a corner or angle 10^b of the finger 10, which is properly alined to the die-face 5^e. To increase or decrease the width of the saw-teeth, it is only necessary to shift the hooked finger 10 by means of the set-nuts 10^c, thereby bringing the saw-teeth 9 farther into or out from the center of the beveled die-face, as shown in Fig. 5. Thus by properly setting the finger 10 any required width of teeth can be produced.

When the shaper is used on circular saws, as shown in Fig. 1, we prefer to attach the shaper to a standard S, the lower end of which is fitted to a pin P, carried by the guide G, mounted on the saw-arbor A, the arrangement being the same as on a circular-saw swage. When the swage-shaper is to be used, the saw-swage is removed from the pin and the swage-shaper is placed thereon, as shown in Fig. 1.

By the means above described we have produced a swage-shaper that completes the work of the saw-swage and presses each tooth to a perfect shape, widest at the extreme point, widest on the face, thus making a proper clearance for the saw-blade.

This machine makes all the teeth alike, and hence each tooth does its proper amount of work, producing a saw that is easy running and turning out smoother and better lumber and requiring less power than when the teeth are not even.

This device possesses a further advantage of saving the saw-blade, for it presses the steel of the teeth instead of filing it away, as by a side file.

What we claim as our invention, and desire to secure by Letters Patent, is as follows:

1. The combination of a slotted head; a screw having right and left hand threads; means for preventing longitudinal movement of the screw; a pair of plugs mounted in said head and simultaneously actuated by said screw; a pair of opposing dies having beveled faces, and removably mounted in said plugs; a hooked finger carried by said head and extending into its slot opposite the die-faces, substantially as described.

2. The combination with a head having a transverse slot; of opposing plugs slidably mounted in said head and having longitudinal oppositely-threaded openings; a screw having oppositely-threaded ends respectively engaging the walls of said openings to actuate said plugs simultaneously; oppositely-placed dies secured to the opposing faces of said plugs eccentric to said openings.

3. A swage-shaper comprising a hollow head having a transversely-extending slot located intermediate the ends of the head, a plug slidingly and non-rotatably received in the head on opposite sides of the slot, the plugs provided with alined and oppositely-threaded apertures, a single oppositely-threaded screw received in the apertures and extending across the slot, means for preventing endwise movement of the screw, means for rotating the screw, and a die seated in each plug, the dies located in alinement with and opposite to each other.

4. The combination with a head having a transverse slot; of opposing plugs slidably mounted in said head and having longitudinal oppositely-threaded openings; the inner face of each plug having a recess eccentric to said screw-opening and having a hole extending from the bottom of the recess to the outer face of the plug; a screw having oppositely-threaded ends respectively engaging said threaded openings to actuate said plugs simultaneously; oppositely-placed dies secured to the opposing faces of said plugs eccentric to said openings.

5. A swage-shaper for saws comprising a slotted stationary head, dies supported in the head, means for moving the dies toward and from each other relative to the head, a gage carried by the head, said gage comprising an approximately L-shaped member, one arm of which extends into the slot in the head, and a hook formed on the arm within the slot and adapted to receive the saw-tooth.

In testimony whereof we affix our signature in presence of two witnesses.

VOLNEY H. HANCHETT.
ARTHUR K. HANCHETT.

Witnesses:
C. W. BARTON,
GEORGE M. DAVIDSON.