(No Model.)

N. H. ROBERTS.

SAW SWAGE.

No. 469,411. Patented Feb. 23, 1892.

FIG. 1.

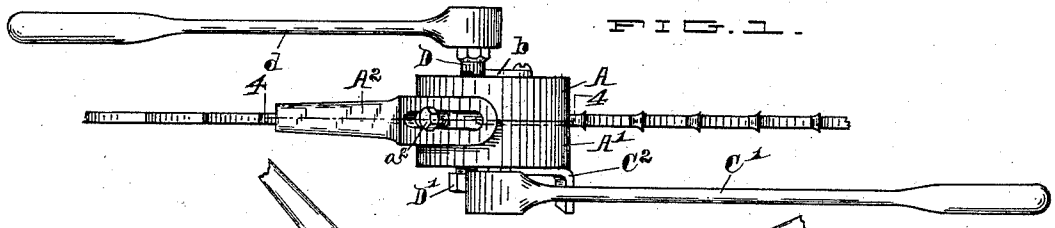


FIG. 2.

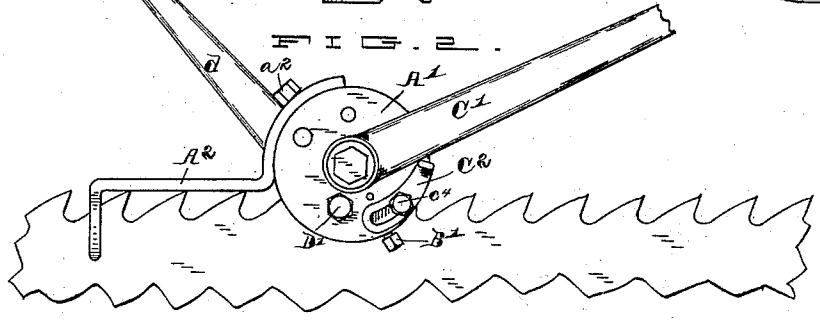


FIG. 3.

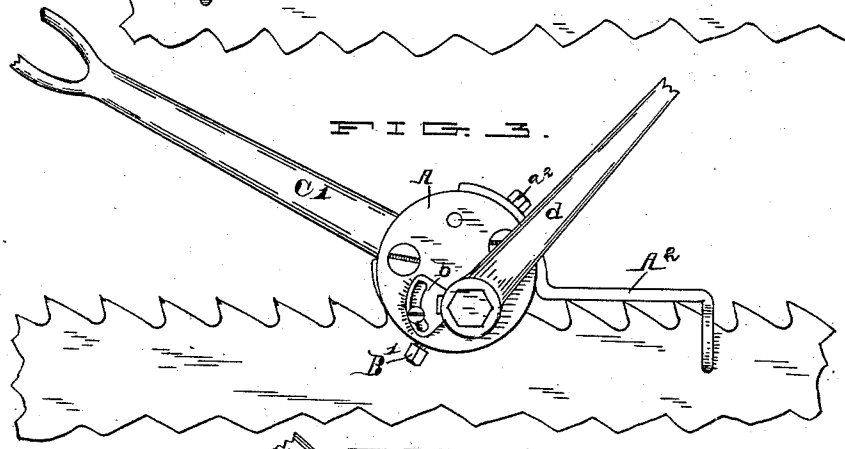


FIG. 4.

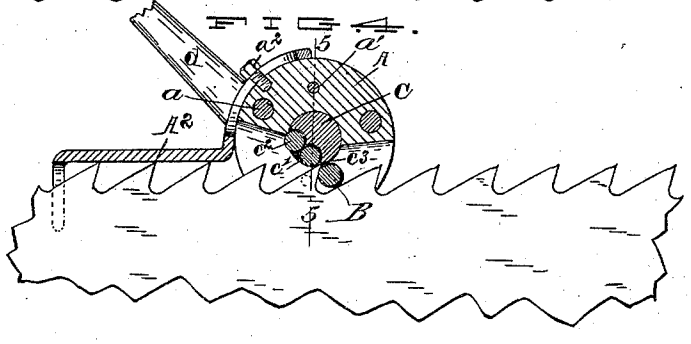
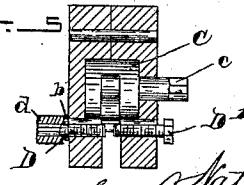


FIG. 5.



WITNESSES.

F. W. Harper

Frank H. Hood.

INVENTOR.

Nate H. Roberts,

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UNITED STATES PATENT OFFICE.

NATE H. ROBERTS, OF INDIANAPOLIS, INDIANA.

SAW-SWAGE.

SPECIFICATION forming part of Letters Patent No. 469,411, dated February 23, 1892.

Application filed June 1, 1891. Serial No. 394,758. (No model.)

To all whom it may concern:

Be it known that I, NATE H. ROBERTS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Saw-Swages, of which the following is a specification.

My said invention consists in an improved construction of saw-swages for use in swaging band, gang, and other saws which are best held in a clamp while being swaged, the swage being adapted to be moved from one tooth to the other in operation. Said improved swage embodies the same construction of die and anvil, and many of the main principles of the machine forming the subject-matter of my application, Serial No. 394,757, filed on the same date herewith, and may be termed a modification of the construction therein shown and described, whereby the principles are applied to a swage adapted to be moved and adjusted on the saw in operation instead of being stationary, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of my improved swage mounted upon a saw, being clamped thereon, and the parts shown in the position they occupy just before the lever of the die is brought forward to swage the tooth; Fig. 2, a side elevation of the side of said machine on which the lever of the swaging-die is mounted; Fig. 3, a similar view of the other side of the machine; Fig. 4, a central vertical section through the same on the dotted line 4 4 in Fig. 1, and Fig. 5 a transverse vertical section on the dotted line 5 5 in Fig. 4.

In said drawings the portions marked A A′ represent the two parts of the casting or frame containing the several bearings for the various parts; B, the anvil; C, the swaging-die, and D D′ the clamp.

The parts A A′ of the frame are substantially duplicate castings, the adjacent faces being notched out on one side to form a recess or way of sufficient width to receive the edge of the saw, and central perforations being formed in the adjacent faces, adapted to serve as bearings for the journals of the die, suitable bearings being also provided for the anvil, and the two parts being securely fastened together by means of screw-bolts *a* and a dowel-pin *a′*, as shown. A supporting-plate A^2, formed with a curved forward portion, adapted to fit upon the surface of the said frame, is adjustably secured thereto by means of a set-screw a^2, inserted through a slot in said curved portion into a screw-threaded perforation in the frame. Said plate A^2 extends back to secure a bearing upon a sufficient number of teeth of the saw to afford a firm support for the device, its rear end being turned down and formed bifurcated and adapted to straddle the saw, whereby it is guided and maintained in its position thereon.

The anvil B may be of such a construction as that shown in my application above referred to or of any other construction found desirable. It is preferably mounted loosely in elongated perforations, or perforations larger than the anvil, formed in the adjacent faces of the two parts A and A′ at a point which is close to one edge of the perforations which receive the ends or bearings of the die. One end of said anvil projects out and has an adjusting-plate *b* mounted on its outer end, which is formed with a slot and is secured to the side of the machine by a set-screw, thus providing for turning the operating-face of the anvil to different angles. An indicator-point is also formed on said plate and indicator-marks on the frame for the purpose of determining the angle desired. Set-screws B′ extend in from the outside of the main castings with their ends projecting into the perforations in which the ends of the anvil rest, the back side of said anvil resting near each end upon the points of said set-screws. By this arrangement (the holes in which the anvil is mounted being somewhat elongated) a slight adjustment of said anvil toward or from the die is provided for, the pressure from the die in operation holding it firmly to its seat, and it being secured with the operating-face in the desired position by means of the plate *b* and the set-screw on the outside. By reason of this adjustment of said anvil the parts may be brought into the various relative positions necessary for swaging teeth of different degrees of pitch or construction.

The die C consists of a circular head formed in two parts, having a shaft c extending out through one side of the casting, which is provided with an operating-lever C′. The head is mounted in the bearings provided by the central perforations in the frame or casting A A′, its ends serving as its journals. Operating-rolls c' and c^2 are journaled in said head, the roll c^2 being journaled farther from the center of the head than the roll c' and in position so that its face will come in close contact with the corner of the operating-face of the anvil. The roller c' is formed with a face higher in its center than at its ends, and a tooth-rest c^3 is provided beneath it.

A stop C^2, consisting of a plate with a curved slot and a bent-out end, is adjustably secured to the side of the machine by a set-screw c^4, inserted through said slot into a perforation in the frame. Said stop serves as a rest, against which the operating-lever C′ is supported when thrown back, it being formed adjustable to permit the die to be secured in the position desired with the tooth-rest in close proximity to the corner of the operating-face of the anvil at whatever angle said operating-face may be adjusted.

The clamps, consisting of the screws D and D′, are of a usual construction and arrangement, one serving as a stationary jaw and the other having an operating-lever d and serving as a movable jaw for clamping and releasing the saw as each tooth is swaged.

In general the operation of this machine is the same as that of the machine of the aforesaid application, except that it is mounted on a fixed saw, being adjusted by adjusting the plate A^2, which supports it thereon, so that its anvil and die will be brought into proper relation to the teeth, and the anvil and die be also adjusted as described in said application, so that they will be in proper relation to each other. By forming the frame circular and by the corresponding formation and arrangement for adjusting the supporting-plate A^2 thereon I am able to secure a firm support for the machine and one which will be uniform at all times, regardless of the position of the die or angle of the operating-face of the anvil, said plate A^2 being thus capable of adjustment to bring its face, which bears on the teeth, into a longitudinal plane adapted to rest firmly on several teeth in whatever position the frame may be adjusted to accommodate the position of the parts to the particular character of tooth to be operated upon, and I regard this as an important feature of my invention.

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

The combination, in a saw-swaging machine, of the frame consisting of the two parts A and A′, secured together, the anvil B, mounted therein and having a slotted plate on one of its ends by which it is adjustably secured in position, and set-screws extending in through the frame to bear against the ends of said anvil, the operating-die C, consisting of a rotary disk having a series of rolls journaled therein with a shaft extending through the frame, an operating-lever on the end of said shaft, and an adjustable stop against which said operating-lever rests when thrown back, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 25th day of May, A. D. 1891.

NATE H. ROBERTS. [L. S.]

Witnesses:
E. W. BRADFORD,
FRANK W. WOOD.