

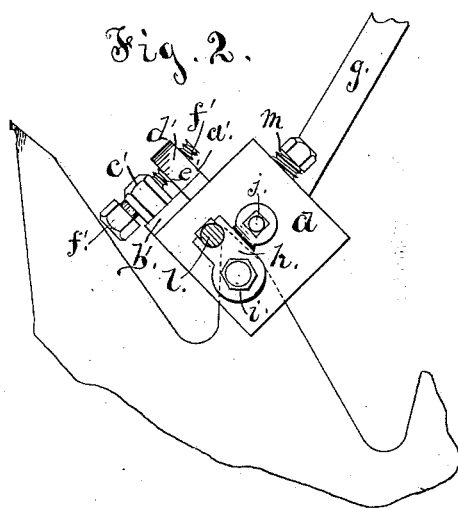
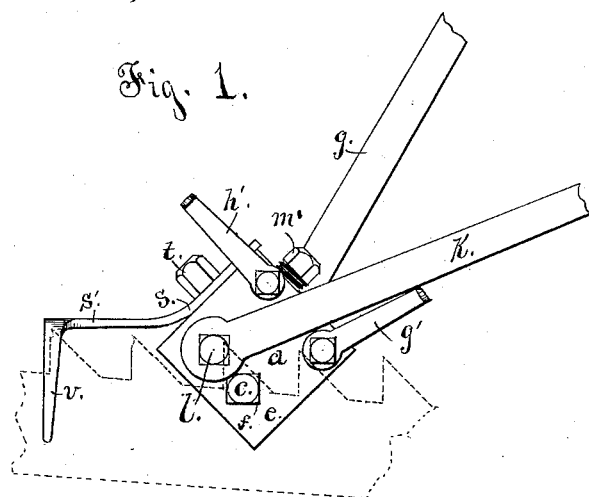
(No Model.)

2 Sheets—Sheet 1.

S. A. PARKE.
SAW TOOTH SWAGING DEVICE.

No. 333,540.

Patented Jan. 5, 1886.



Attest -

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S. A. Parke

By
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Fig. 3.

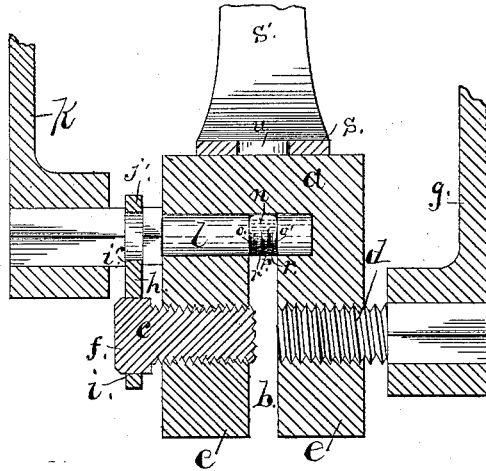
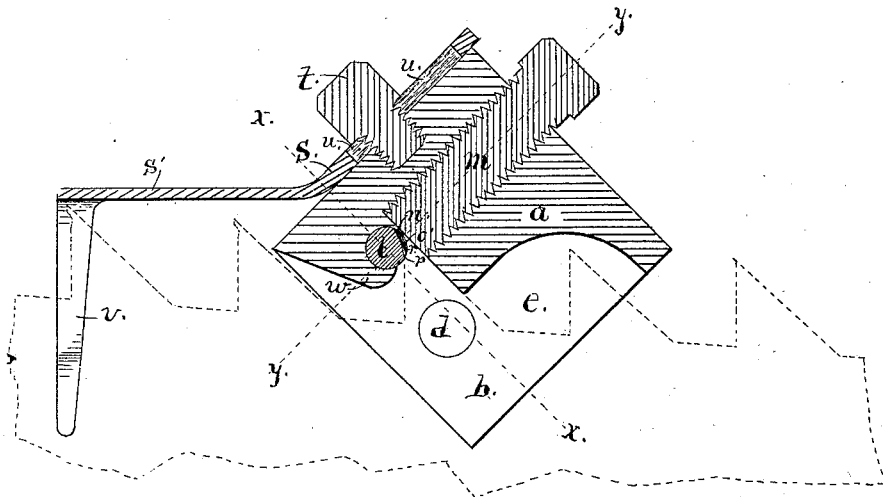


Fig. 4.

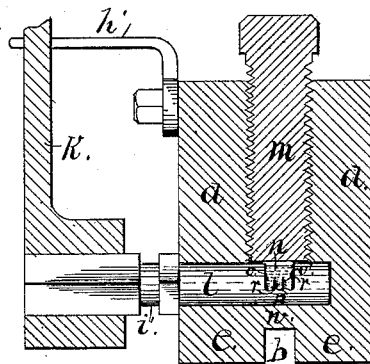


Fig. 5.

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UNITED STATES PATENT OFFICE.

SARAH A. PARKE, OF BAY CITY, MICHIGAN.

SAW-TOOTH-SWAGING DEVICE.

SPECIFICATION forming part of Letters Patent No. 333,540, dated January 5, 1886.

Application filed November 19, 1885. Serial No. 183,287. (No model.)

To all whom it may concern:

Be it known that I, SARAH A. PARKE, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Saw-Swages; 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in devices for swaging the teeth of saws; and it consists, first, in a die block or holder of peculiar construction; second, in a rotary die having a die-face of a new and improved form; third, a guide for properly adjusting the device upon the saw, and a clamping device for holding the die-block in a suitable position for swaging the tooth, and in an adjustable anvil upon which the tooth is held while being swaged; and the object of my invention is to provide an easier and more effectual means of swaging the saw-teeth than has been heretofore in use. I attain these objects by means of the devices illustrated in the accompanying drawings, in which—

Figure 1 is a side view of my improved saw-swaging machine as applied to a straight saw. Fig. 2 is the same as applied for swaging a circular saw, partly sectional. Fig. 3 is a longitudinal vertical section of Fig. 1. Fig. 4 is a section at *x x*. Fig. 5 is a section at *y y*.

a represents a swage-block of any desired form, square being shown for convenience, having a longitudinal slot, *b*, in its lower portion, the upper portion of the slot being of such form as to allow the teeth of the saw to be placed within the slot in a suitable manner to be swaged. A threaded opening is arranged through the solid portions *c* on each side of the slot *b*, and opposite each other, through which are passed the screw-threaded clamping-bolts *e* and *d*, the bolt *e* being provided with a head, *f*, upon its outer end, with which to adjust the bolt, and on its inner end with a serrated face, which bears against the saw-tooth within the slot, and the opposite clamping-bolt, *d*, is provided with a plain face on its

inner end, and with a head upon its outer end, upon which is placed a lever, *g*, with which to turn the bolt, so that when the saw-tooth is placed in a proper position within the slot *b* the clamp *e* is adjusted to bear against one side of the tooth when it is midway between the sides of the slot, and is held in that position by a piece, *h*, provided with an opening, *i*, which is passed over the head *f*, and has its opposite end secured to the block *a* by a screw, *j*. The clamping-bolt *d* is then turned by the lever *g* to bear heavily against the saw-tooth, which will then be securely held for swaging. A shaft, *l*, which forms a rotary die, is passed into the block *a* in a position just above the open slot *b*, and a portion of the upper part of the slot is cut away to allow a saw-tooth to pass properly over the die, and at a point just opposite the slot *b* a die-face is formed by cutting out a portion of the shaft *l* near the inner end thereof, forming a flattened surface, *n*, upon the upper portion of the die-face, and the lower edge is slightly rounded, and upon the ends of this rounded edge are the depressed parts *o* and *o'*, and also a depression, *p*, is formed midway between the parts *o* and *o'*, leaving the higher portions *r* and *r'* between the central and outside depressions.

I form the die-face near the inner end of the shaft *l*, in order to avoid the tendency of the shaft to break, as the die-face is of necessity made very hard, and when the shaft is extended entirely through the block *a* the length of the shaft is so great that it is liable to spring when being hardened, and this causes the shaft to break when worked heavily upon the saw-tooth, whereas by forming the die-face near the end of the shaft only a short portion is required to be hardened, and the liability of springing the shaft is greatly reduced. The shaft *l* is also supported by a solid portion, *w*, of the swage-block under the shaft *l* and over the slot *b*, which receives the pressure of the shaft when the operation of swaging is going on. The shaft *l* is held in position by an extended part, *j'*, of the piece *h*, which engages with a groove, *z*, in the shaft. Directly over the die-face is placed an anvil, *m*, formed by fitting the inner end of a screw-threaded bolt to a proper form—as flat or level—and hardening the same, the bolt being passed in a diagonal direction through the

solid portion of the block *a* above the die *l*, and in a position such as to bring the face of the inner end thereof to conform very nearly to the plane of the upper side of the saw-tooth to be swaged, a further and more accurate adjustment being accomplished by tilting the swage-block *a* in the required direction, and the outer end of the bolt is finished with a square head, *m'*, with which to turn the same and adjust the anvil-face to the proper distance from the die-face. The anvil-face being adjusted to a position close to the die will cause the tooth to be spread out just at the point, while leaving a small space between the die and anvil allows the saw-tooth to be placed farther upon the die, and the die then acts upon the tooth farther from the point and spreads the tooth wider, giving a greater clearance to the saw.

The action of this form of die-face is, that when the parts are properly adjusted the saw-tooth is placed with its forward or cutting edge upon the flat or level part *n* of the die-face, and with its back or opposite edge bearing against the face of the anvil *m*, and is rigidly secured in that position by the clamping-screw *d*. The shaft *l* is then rotated, rolling the die-face toward the point or cutting-edge of the tooth, and the rounded portion of the die-face presses into the tooth, drawing the point forward, and at the same time the raised parts *r* and *r'* pressing deeper into the tooth causes the material displaced by the die-face to spread out at the sides of the tooth, leaving a full or rounded portion in the central portion of the swaged tooth formed by the depression *p* in the central part of the die-face.

The advantage gained by using this form of die-face is that the tooth is spread out with greater ease and rapidity, and the depression *p* avoids the liability of splitting the tooth, which sometimes occurs when the depression *p* is not formed in the face. A guide, *s*, is attached to the back part of the swage-block *a* by a screw, *t*, which passes through a slot, *u*, in the upper end of the guide *s* and into the block. The outward-extending arm *s'* of the guide is provided on its end with the downward-extending parts *v*, between which the saw is held, while the point of one or more of the teeth rest against the under side of the arm *s'*, and the guide being adjustable by means of the slot *u* and bolt *t*, the block may be tilted in the proper position for swaging a straight saw, as a gang or band saw, so that when the guide is adjusted to bear upon the point of the tooth, as described, and the swage is moved to the next tooth, the swage-block will rest in the same position as it occupied upon the former tooth, making the points of the teeth uniform.

For adjusting the swage-block upon a circular saw, a guide, *a'*, is used instead of the guide *s*, and consists of a body, *b'*, secured by the bolts *c'* to the back part of the block *a*, and is provided with an outward-extended part, *d'*, through which is arranged a threaded open-

ing, *e'*, and a threaded bolt, *f'*, is passed upward through this opening *e'*, the head of the bolt *f* being upon its lower end and adapted to rest upon the top of the saw-tooth next to the one being swaged, and is properly adjusted to bring the swage-block in a proper position by turning the bolt *f'* in the proper direction for raising or lowering the rear portion of the swage-block. A stop, *g'*, is secured to the side of the block *a*, which extends forward and then outward to reach somewhat beyond the lever *k* when the lever is thrown over to bring the die-face in position to act upon the tooth; and a similar stop, *h'*, is secured to the upper corner of the block *a* and extended in an opposite direction from the stop *g'*, and adapted to stop the lever when it is moved to the proper distance for swaging the tooth.

Having described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a saw-swage, a rotary die having a die-face formed by cutting away a portion of a cylindrical die, forming a flattened portion, *n*, with the side depressions, *o* and *o'*, and the central depression, *p*, in one edge of the said portion *n*, forming the raised parts *r* between the said depressions, substantially as and for the purpose set forth.

2. In a saw-swage, the swage-block *a*, provided with a longitudinal slot in its lower portion, a shaft, *l*, passed into the block and provided with a die-face opposite the slot, and a clamping device adapted to hold the saw within the said slot, in combination with a screw-threaded bolt passed into the swage-block above the die-face, and with its inner end forming an anvil, against which one edge of a saw-tooth rests while the die acts upon its opposite edge, substantially as and for the purpose set forth.

3. In a saw-swage, the combination, with the swage-block *a*, having the longitudinal slot *b*, of a shaft, *l*, having a die-face formed thereon, the screw-threaded anvil *m* above the die-face, and the clamping-bolts *c* and *d*, passed through opposite sides of the block and extending into the said slot, substantially as and for the purpose set forth.

4. In a saw-swage, the combination of the block *a*, a shaft, *l*, passed into the block and provided with a die-face, and a lever, *k*, on the outer end of the shaft, with the stopping devices *g'* and *h'*, substantially as and for the purpose herein described.

5. In a saw-swage, the swage-block *a*, the shaft *l*, having a die-face, the anvil *m*, secured above the die-face, and clamping-bolts *c* and *d*, in combination with the piece *h*, secured to the swage-block, and provided with an extended part having an opening, *i*, passed over the head *f* of the clamping-bolt *c*, substantially as and for the purpose set forth.

6. In a saw-swage, the swage-block *a*, the shaft *l*, having a die-face formed thereon, the anvil *m*, passed through the block above the die-face, and the clamping-bolts *c* and *d*, in

combination with the guide *s*, secured to the block by the bolt *t*, and provided with the slot *u* and the outward-extending arm *s'*, substantially as and for the purpose set forth.

- 5 7. In a saw-swage, the swage-block *a*, the shaft *l*, provided with a die-face and having a groove, *i'*, in combination with a piece, *h*, secured to the block, and with an extended portion, *j'*, within the said groove and adapted to

hold the shaft *l* in position, substantially as is set forth and shown.

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

SARAH A. PARKE.

Witnesses:

J. E. THOMAS,
ANNA BLAKE.