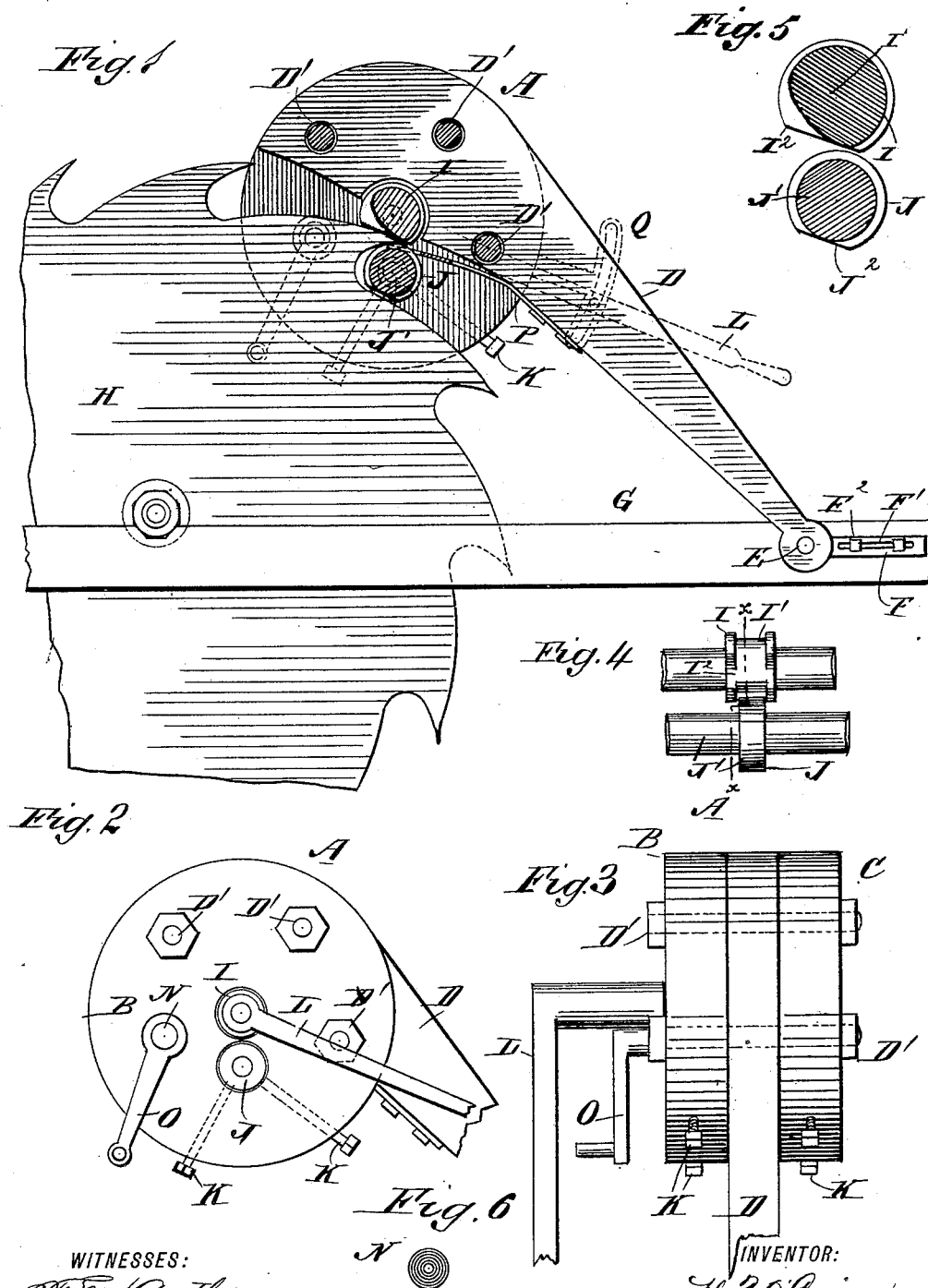


(No Model.)

H. P. O'CONNOR & A. LEDUC.  
SAW SWAGING MACHINE.

No. 418,958.

Patented Jan. 7, 1890.



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# UNITED STATES PATENT OFFICE.

HENRY P. O'CONNOR AND ANTOINE LEDUC, OF MANISTEE, MICHIGAN.

## SAW-SWAGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 418,958, dated January 7, 1890.

Application filed August 19, 1889. Serial No. 321,242. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY P. O'CONNOR and ANTOINE LEDUC, of Manistee, in the county of Manistee and State of Michigan, have invented a new and Improved Saw-Swaging Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved saw-swaging machine which is simple and durable in construction, very effective in operation, and easily and quickly applied to the saw-tooth to be swaged.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement as applied. Fig. 2 is a side elevation of the improvement. Fig. 3 is an end elevation of the same. Fig. 4 is a front elevation of the dies. Fig. 5 is an enlarged sectional end elevation of the same on the line  $xx$  of Fig. 4, and Fig. 6 is an end view of the clamping-screw.

The improved saw-swaging machine A is provided with two disks B and C, between which is placed a handle D, secured in place by bolts D', passing through the said disks B and C and the said handle D. The latter is fulcrumed at its lower end on a shaft E, secured on a plate F, provided with a slot F', through which pass the bolts F<sup>2</sup> for securing said plate F to the bench G, on which the saw H is mounted preparatory to swaging its teeth.

In the middle of the disks B and C is mounted to turn the movable die I, provided between the said disks with a swaging part I', flanked on its sides by flanges I<sup>2</sup>, partly cut away to readily admit the tooth to be swaged, as plainly shown in Figs. 1 and 5. Below the movable die I is held the fixed die J, circular in form and partly cut away on the lower side at J<sup>2</sup>, to readily admit the next following tooth, as shown in Fig. 1. The fixed die J is secured by its arbor J' in the disks A and B by suitable set-screws K. On one outer end of the movable die I is secured a lever L for con-

veniently turning the said die I when swaging the saw-tooth.

In the disk B screws the clamping-screw N, provided on its inner end with annular recesses, (plainly shown in Fig. 6,) and serving to readily engage the face of the saw-tooth in order to hold the latter in place by pressing the saw-tooth against the inside of another set-screw located opposite the screw N, and not shown. On the outer end of the screw N is secured a handle O for conveniently turning the screw N into and out of contact with the tooth to be clamped between the two disks B and C.

A forked plate P is secured to the under edge of the handle D and engages with its forked end the die J, to prevent the latter from end-play. The movement of the lever L may be limited by a slotted arm Q, secured to the disk B, and shown in dotted lines in Fig. 1.

The operation is as follows: The die J is placed in the right position in the disks B and C, and is then secured in place by the set-screws K. The plate F is shifted on the saw-bench G to the desired position, according to the diameter of the saw A to be swaged, so that the tooth of the saw-blade always passes into the proper position between the two dies I and J—that is, between the swaging part I' of the die I and the top of die J, as shown in Fig. 1. The width of the swaging part I' and the die J depends on the width of the saw-tooth to be swaged, different dies being used for different-sized saws. When a tooth is to be swaged, the handle D is swung into position shown in Fig. 1, so that the tooth passes between the flanges I<sup>2</sup> below the lower edge of swaging part I' of die I. When the tooth of the saw H is in place, the operator turns the handle O, so that the screw N clamps the saw-tooth in place between the disks. The handle L is then turned so that the die I moves with its swaging part I' against the point of the saw-tooth, so as to swage the point of the saw-tooth to the desired width, which latter, however, cannot be more than the width between the flanges I<sup>2</sup>, as the saw-tooth point is held between the said flanges. The tooth is thus swaged and the several teeth of the saw are treated similarly, all the teeth having points of the same width.

It is understood that the tooth during the swaging operation is engaged on all four sides—that is, on top by the swaging part of die I, on back by die J, and on its sides by the flanges which limit the tooth-point to the desired width.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In a saw-swage, the combination, with the lower fixed spindle J', having an annular die J, cut away on its lower side, as at J<sup>2</sup>, of the upper or movable die I, formed with parallel annular flanges I<sup>2</sup>, partly cut away and having a swaging part I' between said flanges adjacent to their cut-away portions, the space between the flanges being of the width of the saw-teeth to be swaged, whereby splitting of the teeth is prevented and their width preserved, substantially as set forth.

2. The herein-described saw-swage, consisting in the parallel disks B C, the handle D, bolted at its upper end between said disks, the upper movable die I, journaled in said disks and provided between them with parallel annular flanges I<sup>2</sup>, cut away, as shown, and having a swaging part I' between said flanges, and an operating-handle L, the lower fixed arbor J', formed with an annular die J of the width of the space between said flanges and cut away on its lower side, as at J<sup>2</sup>, and the arm P, secured to the handle and having a forked end engaging the die J, substantially as set forth.

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Witnesses:

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