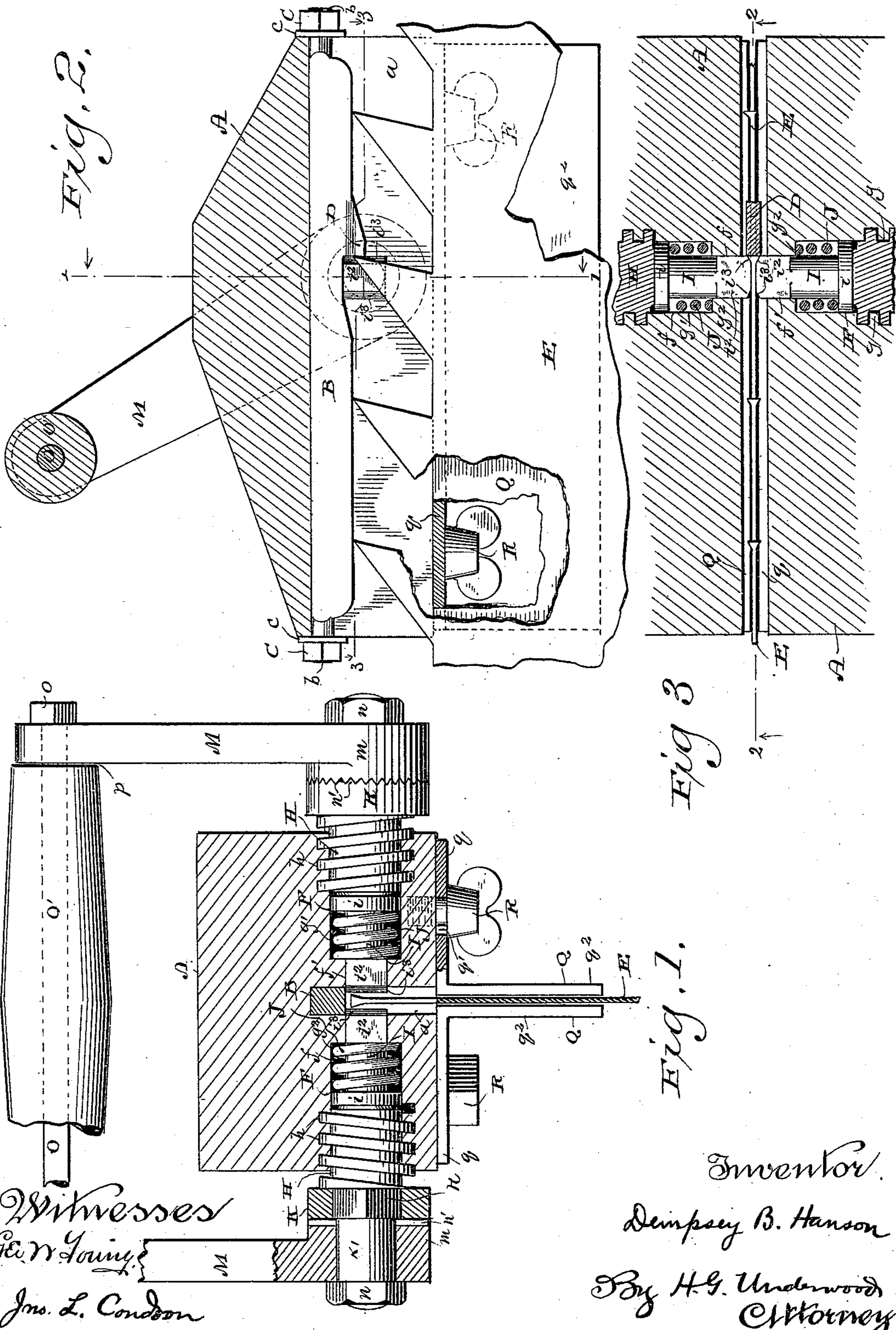


(No Model.)

D. B. HANSON.
SAW SWAGE.

No. 447,111.

Patented Feb. 24, 1891.



Witnesses
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UNITED STATES PATENT OFFICE.

DEMPSEY B. HANSON, OF MILWAUKEE, WISCONSIN.

SAW-SWAGE.

SPECIFICATION forming part of Letters Patent No. 447,111, dated February 24, 1891.

Application filed June 17, 1890. Serial No. 355,705. (No model.)

To all whom it may concern:

Be it known that I, DEMPSEY B. HANSON, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Saw-Swages; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to devices for swaging the teeth of saws; and the invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described, and pointed out in the appended claims.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a transverse vertical section of my improved device on the line 1 1 of Fig. 2. Fig. 2 is a vertical longitudinal section of the same on the line 2 2 of Fig. 3, certain parts being broken away to more clearly illustrate the construction. Fig. 3 is a horizontal cross-section of the same on the line 3 3 of Fig. 2.

The objects of my invention are to produce an instrument which shall accurately and uniformly swage the saw-teeth, so that the saw shall operate with a uniform and rapid cutting action; also, to produce an instrument which can be rapidly adjusted to work upon different gages or widths of saw-teeth, and, finally, to produce a simple and durable instrument which shall be easy to manipulate and rapid and effective in its action. These results I attain by virtue of the construction which I will now proceed to describe.

Referring to the drawings, A designates a block, preferably of metal, which constitutes the body or frame of the machine. In the center of the under side of this block is formed a vertical groove *a*, which extends longitudinally of the block, and the open ends of which terminate at the front and rear sides of said block, as shown in Figs. 2 and 3. Within the upper part of this groove *a* is placed a bar B, which is of such length as to project at its ends *b* beyond the front and rear ends of the block A. These projecting ends *b* are externally screw-threaded to receive nuts C, between which and the adjacent ends of the block A are interposed washers *c*.

It will thus be seen that by tightening the nuts C the bar B will be held by endwise pressure within the groove *a*. On its under side the bar B is formed with a downward lug or stop D, the working-face of which is of straight vertical form. Against the working-face of this stop D the teeth of a saw—such as E—rest when the teeth are being swaged, as hereinafter more fully described, and it will also be seen that by tightening one of the nuts C and loosening the opposite nut the stop bar B can be varied in longitudinal position within groove *a* so as to accurately center the saw-teeth relative to the swaging-dies.

Transversely through the block A are formed two cylindrical sockets F, the outer parts *f* of which are of greater diameter than the inner portions *f'*. These channels are in precise axial alignment with each other and their inner ends open at opposite sides of the groove *a*. The outer portions *f* of the sockets F are internally screw-threaded, as shown at *g*, to receive the external screw-threads *h* of the die-forcing screws H. The inner ends of these screws H abut against the outer ends *i* of the swaging-dies I, the latter being separate from said screws and their stems extending outwardly within the enlarged portions *f* of the channels F. The inner portions *g'* of the sockets F are smooth on their inner surfaces, and the outer ends *i* of the dies are enlarged to form heads which fit closely in these parts of the sockets. Spiral springs J surround the stems of the dies I and are confined between the heads *i* of the dies and the shoulders *g*² at the inner ends of the wider portions *f* of the sockets. The heads *i*² of the dies I work within the reduced portions *f'* of the sockets F, and the inner extremities or faces of these dies are beveled upward and outwardly, as shown at *i*³, so that when the dies come into contact with the sides of the saw-teeth the latter shall be properly and uniformly swaged on both sides without any possibility of unevenness or irregularity of form. The angular portions *k* of the outer ends of the screws H are surrounded by collars K, and the plain cylindrical portions *k'* of said outer ends are surrounded by the hubs *m* of two levers M, the said hubs and collars being confined in described position by nuts *n*, which are screwed upon the outer

extremities of the die-forcing screws H. The adjacent faces of the collars K and hubs *m* are serrated, as shown at *n'*, for a purpose to be hereinafter explained.

5 The levers M are connected at their upper or outer ends by a rod O, which extends loosely through said ends of the levers and which is confined therein by nuts *o*, as shown. Between the levers M the rod O is surrounded
10 by a handle O', which is necessarily of less length than the minimum space between said levers M, as indicated at *p*.

In order to accurately guide the saw within the groove *a* and retain it centrally of the
15 width of said groove, I provide two inverted L-shaped guide-plates Q, each of which corresponds in length with the block A. The upper portion of each of these guide-plates is formed with two or more transverse slots *q'*,
20 through each of which passes a set-nut R, said nuts entering the bottom of the block, and thus confining the guide-plates beneath the same. The lower parts *q''* of these guide-plates rest lightly against the sides of the
25 saw, as shown in Fig. 1.

The general operation of the structure above described is as follows: When the teeth of a saw are to be swaged, the guides Q are first
30 adjusted toward or away from each other to correspond with the gage or thickness of the saw, this operation being performed by loosening the set-nuts R, moving the guide-plates Q toward or away from each other, as required, and then tightening said set-nuts. The forming-dies *i''* are correspondingly adjusted to ac-
35 cord with the gage or thickness of the teeth, this being accomplished by loosening the nuts *n* and moving the collars K the distance of one or more of their teeth *n'*, and then tightening said nuts *n*, the springs J of course
40 keeping the outer ends of the dies always in contact with the inner ends of the forcing-screws. Finally, the stop-bar B is adjusted lengthwise by its nuts C to move the stop
45 D toward or away from the inner ends of the dies to accord with the pitch of the teeth. The machine being thus completely and accurately adjusted to conform with all of the requirements of the saw, the device is placed
50 upon the edge of the saw so that the point of one of the teeth shall rest against the stop D. The handle O' is now forced forward, causing the forcing-screws to push the dies against the sides of the teeth. The beveled edges of

the dies press the metal uniformly on both 55 sides of the tooth, making a perfectly true tooth. The handle is now thrown in the opposite direction, causing the screws H to move outward and allowing the springs J to retract the dies. These operations are successively
60 repeated until all of the teeth are properly and uniformly compressed, after which, if necessary, the various parts of the instrument may be readjusted for saws of a different
65 gage from that last operated upon.

It will thus be seen that I have devised an extremely simple and durable saw-swage, the manipulations of which are easy and rapid and the parts of which can be readily adjusted
70 for all the requirements of saw-swaging.

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

1. In a saw-swage, oppositely-moving screws for actuating the swage-dies, connected levers 75 for revolving the screws, serrated collars on the screws, and serrations on the hubs of the levers for engagement with those of the collars, substantially as set forth.

2. An improved saw-swage comprising a 80 longitudinally-slotted block or frame and a bar secured longitudinally within said slot by end nuts and having on its underside a shoulder or stop to engage the saw-teeth, substantially as set forth. 85

3. An improved saw-swage comprising a longitudinally-slotted block or frame having two oppositely-disposed sockets or channels at right angles to the slot and of greater diameter at their outer than at their inner portions, the outer portions of said sockets being internally screw-threaded, oppositely-disposed dies located in the smaller portions of the sockets, spiral retracting-springs surrounding the dies within said smaller portions 90 of the sockets, externally-threaded die-forcing screws located in the larger portions of the sockets, and actuating-levers operatively connected together, substantially as set forth. 95

In testimony that I claim the foregoing I 100 have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

DEMPSEY B. HANSON.

Witnesses:

H. G. UNDERWOOD,
LAWSON SCOTT.