

W. Forshaw,

Die for Making Chord Bars.

No. 109,506.

Patented Nov. 22, 1870.

Fig 1

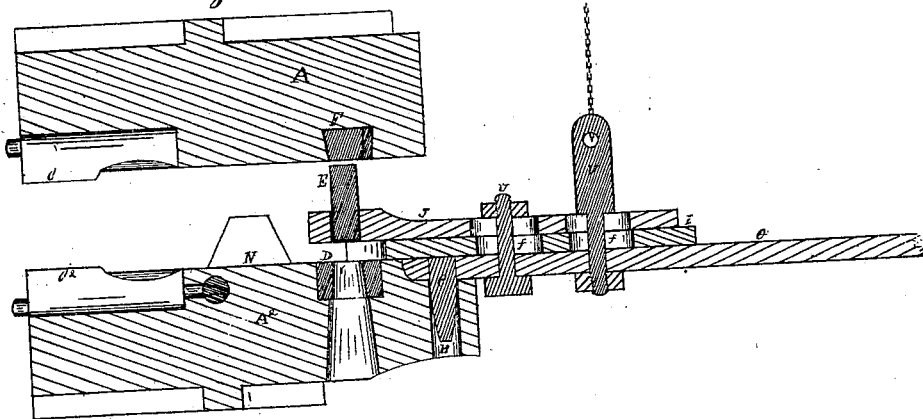


Fig 3.

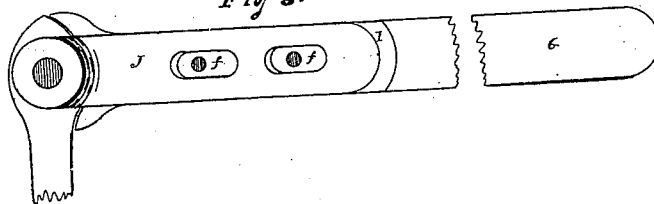


Fig 2.

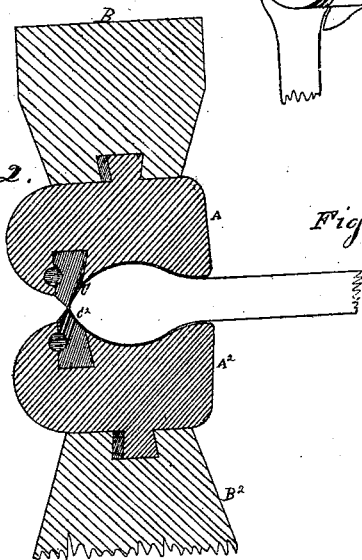
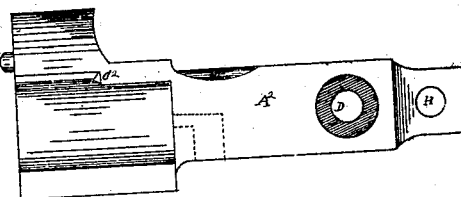


Fig 4.



Witnesses.

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WILLIAM FORSHAW, OF CHICAGO, ILL.

Letters Patent No. 109,506, dated November 22, 1870.

IMPROVEMENT IN DIES FOR MAKING CHORD-BARS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM FORSHAW, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dies for Making Chord-Bars; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a vertical longitudinal central section of the die, with the gauge for punching the chord, attached;

Figure 2 is an end view of the same;

Figure 3 is a top view of the gauge employed; and

Figure 4 is a top view of the lower portion of the die.

Similar letters of reference indicate corresponding parts in the several figures of the drawing.

It is found, in constructing chord-bars for iron bridges, roofs, and other architectural purposes, that great accuracy in the shaping and punching of the head or end of the bar is required.

For this object my invention is designed; and

The nature of my improvement consists—

First, in a die shaped approximating to the desired shape of chord-end, and provided with cutters, arranged in proper manner, whereby the end of each chord is swaged and cut to a uniform shape, thus obviating the necessity of using the common hand-hammer in finishing the same.

Second, in the gauge, and manner of adjusting the same, whereby chords of unequal width may be punched uniformly in the center, and without reheating the same, by which means a great saving of labor and fuel is obtained.

As my invention consists in the manner of punching the chord, and the die for shaping the same, which may be attached to any steam or other-power hammer, a description of the hammer, which is not shown in the drawing, is not necessary to be herein fully given.

In the accompanying drawing—

A represents the upper or moving portion of the die, which is attached to the hammer or working-beam B; and

A², the lower or fixed portion of the die, that is secured to the anvil or bed-plate B² of the machine.

The outer portion of the surfaces of said dies, coming in contact, is shaped approximating to the desired shape of chord-end, and is provided with cutters C C², dovetailed or otherwise attached longitudinally therein.

The edges of said cutters are so arranged as to smoothly cut and finish the outer or curved end of the chord as the same is swaged in the curvature of the die.

The central portion of said dies is provided with a smooth flat surface, upon which the chord-bar is first forged or drawn out preparatory to being swaged.

Said die A² has an aperture, D, the orifice of which is provided with an annular piece of steel, the size of cavity corresponding with the diameter of perforation in the end of the chord through which punch E is forced.

The lower surface of die A is provided with a steel key or wedge, F, which comes in contact with the upper end of punch E, thus preventing the surface of the die from becoming worn by continual use.

Die A² is provided with a right-angled or L-shaped aperture, as shown in dotted lines, fig. 2, to which may be attached a blow-pipe for removing the scales of iron from the curvature of the die; thus each and every chord-end is pressed to a uniform size.

G represents the handle for operating the gauge, which is provided at its inner end with a pivot, e, that fits into an aperture, H, in the end of die A².

Attached to the upper side of said handle is the chord-gauge I, the inner end of which is shaped to fit the curved side of the chord-end, as shown in fig. 3.

Said gauge is provided with mortises f f, through which pass bolts v v, and is so arranged as to be adjusted longitudinally to receive any desired width of chord, whereby the same may be punched in the center.

Attached to the upper side of said gauge I is the punch-guide J, which is perforated to receive the punch, as shown in fig. 1.

Said handle G, gauge I, and guide J are firmly bolted together and suspended by chain m from the ceiling above, the arrangement of which is such as to admit of being attached or removed from die A², as found necessary in forming the chord-ends preparatory to being punched.

N, fig. 1, represents a movable check-block, used to prevent die A from coming in contact with guide J as the punch is forced through the chord.

Having thus described the nature and object of my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the dies A and A² for swaging and punching the ends of chord-bars, the cutters C and C² arranged thereon, substantially as and for the purpose set forth.

2. The combination of handle G, gauge I, and guide J, constructed and arranged to operate substantially as described, in combination with the dies, as and for the purpose specified.

WILLIAM FORSHAW.

Witnesses:

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