

R. Blake,
Pick Eye Opener.

No. 111,306.

Patented Jan. 31. 1871.

FIG. 1.

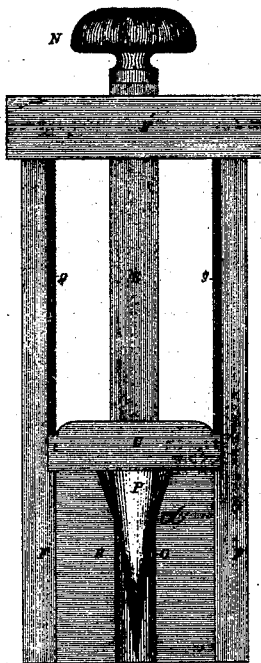


fig. 4.

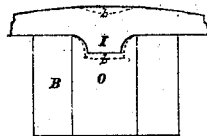


fig. 5.

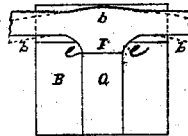


FIG. 2.

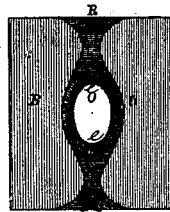


FIG. 3.

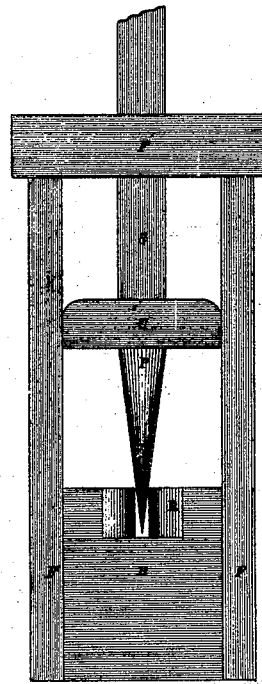


fig. 6

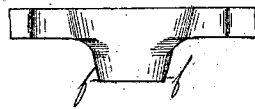


fig. 7



Witnesses.

Charles Halcom
James A. Skilton.

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ROBERT BLAKE, OF SCRANTON, PENNSYLVANIA.

Letters Patent No. 111,306, dated January 31, 1871.

IMPROVEMENT IN APPARATUS FOR OPENING THE EYES OF PICKS.

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

I, ROBERT BLAKE, of Scranton, in the county of Luzerne and State of Pennsylvania, have invented certain Improvements in Dies and Punches for Opening the eyes of Picks and other tools, and in the method of treating the prepared and punched blank, whereof the following is a specification.

Nature and Object of my Invention.

The object of my invention is to take the blank already punched with what is called a "flat eye," and open or expand the eye, giving a beveled shape to the inside of the same from without inward, to facilitate wedging the handle; and to accomplish the same at one heat and one handling, in place of the two heats and two handlings required in the present state of the art.

Description of the Drawing.

Figure 1 represents a vertical section of the punch, die, and a drop.

Figure 2 represents a top view of solid block and die.

Figure 3 represents an elevation of the punch, die, and drop.

Figure 4 represents the present rude die, with a punched blank in position.

Figure 5 represents section of my die, with a punched blank in position.

Figure 6 represents a top and side view of the punched flat-eye blank which the machine is intended to treat.

Figure 7 represents a top and a side view of the "opened" eye after it has been treated according to my invention.

B designates the die-block.

C, the cross-head of the drop.

E, the frame of the machine.

I, the eye part of the blank.

O, the straight part of the opening in the die-block, into which the punch P descends.

R, the recess or recesses in the die-block into which the arms of the blank, fig. 6, are placed.

The dotted lines *b b*, fig. 4, indicate the depression and defective results of the present or common method; and

b b, fig. 5, the improved results of my method.

d, fig. 1, designates the point where the die proper terminates.

e e, figs. 2 and 5, the shouldered part of the die on which the parts *ff* of the flat-eye blank, fig. 6, rest when placed to be opened.

General Description.

The die proper is an oval-shaped cavity made in

a solid block of metal, with flaring walls, and of a depth slightly greater than that of the eye to be operated on.

At each of the two opposite extremities of the die is a notch or recess in the sloping walls, extending down to within a short distance of the bottom of the same, through which to project the arms of the blank; and from the bottom of the die an opening, of a size equal to or greater than the die at the bottom *d*, is continued down through the block.

The tapered punch is, in cross section, of an oval shape, corresponding to the oval shape of the cavity; but its taper is much longer and more gradual than the flare of the die-walls, so that when passed down into the die its nearest point of approach to the walls thereof will be at the extreme bottom *d* of the die, as shown at fig. 1.

The mode of adjusting the blank, and the operations of the punch and die, are as follows, viz:

The blank is placed in the die, the elongated portion of the eye in contact with and resting on the shoulders *e e*, figs. 2 and 5, only of the die, and the arms projecting through the notches R, the walls of which prevent the eye from turning when the punch descends, but which arms are slightly elevated above the bottoms of said notches, see fig. 5.

The blank being thus placed and supported, the punch, on being dropped or forced down, will in its descent gradually open out the eye, impart a downward curvature to the arms by reason of its wedge-like action against the walls of the eye at the two extremities of the upper and unsupported portion, and perhaps slightly depress the eye, until finally its further descent is arrested by its being wedged at the bight *d* of the die, or by the cross-bar C reaching a bearing on the die-block.

In the drawing, and so far in the description, the opening has been represented as being done before the "points" are welded on; but it may be done afterward, and perhaps with increased advantage from the curving and shaping effect upon the arms, and from the further consequence that thereupon the implement may be passed, still heated, immediately to the final shaper, who speedily finishes his part of the work thereto.

As represented, the punch is operated by a drop. It may be operated by a cam, or any of the other well-known devices; but the method of actuating the punch forms no part of my present invention.

What I claim is—

1. The die and punch respectively, of the form and of the dimensions relative to one another and to the blank to be operated on, herein described and shown.

2. The method of adjusting the blank in the die to be operated on by the punch, that is to say, its arms lying in and supported laterally by the walls of the notches, but free from contact with the bottoms thereof, and the eye in contact with the die at two points only, (the rounded shoulders at its two extremities,) in virtue of which the tapered punch will, in its de-

scend, open out the eye transversely and give to it the proper form, and at the same time impart to the arms a downward curvature, all as set forth.

ROBT. BLAKE.

Witnesses:

A. O. BALL,
ROBERT PRESTON.