

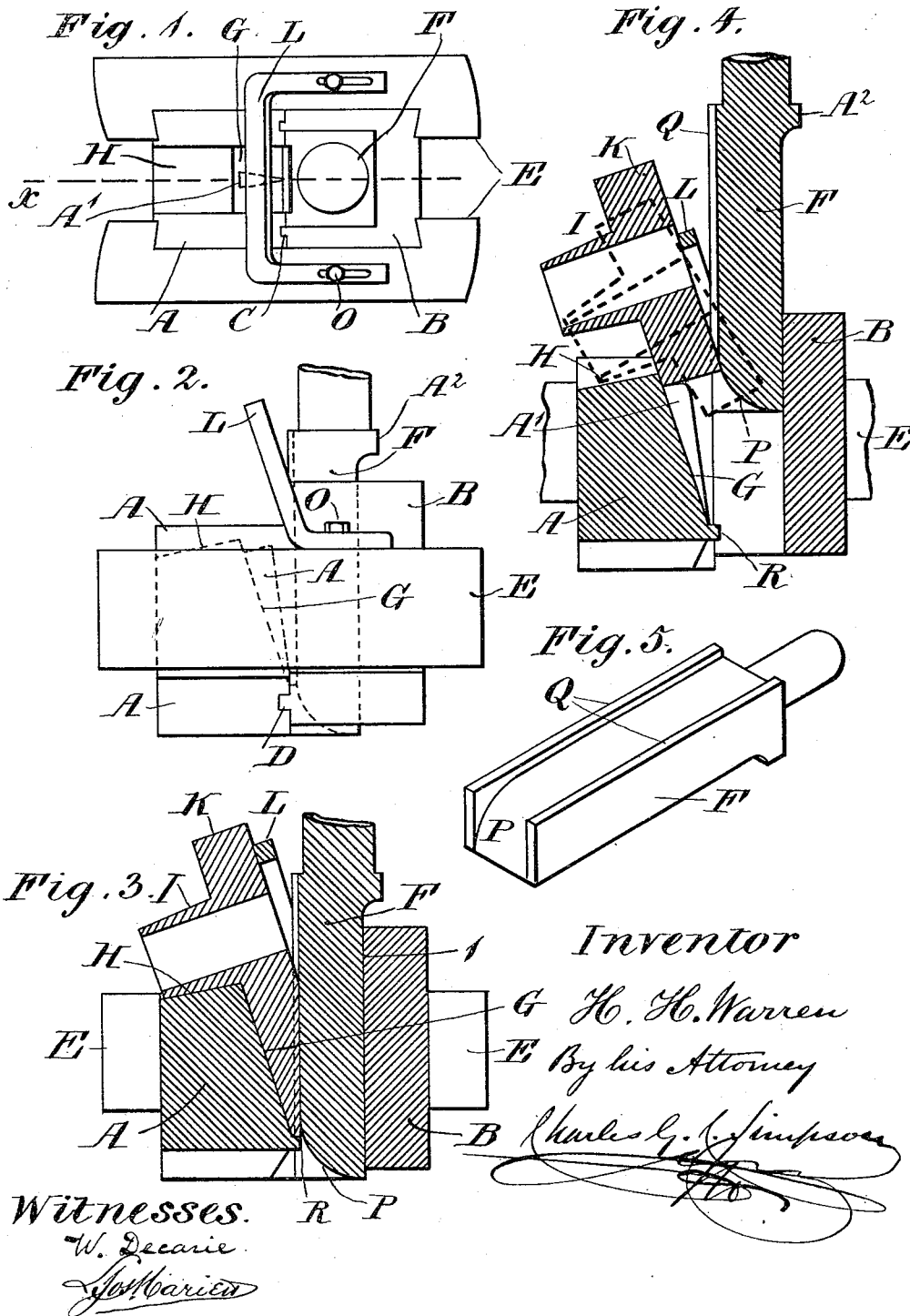
(No Model.)

H. H. WARREN.

DIE FOR MAKING HAMMERS.

No. 348,362.

Patented Aug. 31, 1886.



UNITED STATES PATENT OFFICE.

HENRY H. WARREN, OF CÔTE ST. PAUL, QUEBEC, CANADA.

DIE FOR MAKING HAMMERS.

SPECIFICATION forming part of Letters Patent No. 348,362, dated August 31, 1886.

Application filed April 26, 1886. Serial No. 200,174. (No model.)

To all whom it may concern:

Be it known that I, HENRY HARRISON WARREN, of Côte St. Paul, in the District of Montreal, Province of Quebec, Canada, have invented new and useful Improvements in Dies and Swages for Forging Hammers, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has reference to the construction and arrangement of dies and swages for shaping the peen end of hammers and other tapered articles in metals.

The particular features or combination of elements which form the present invention will be hereinafter fully set forth and claimed.

In the drawings hereunto annexed similar letters of reference indicate like parts, and Figure 1 is a plan of a construction embodying my invention. Fig. 2 is a side elevation of the construction shown in Fig. 1. Fig. 3 is a vertical section on line *x*, Fig. 1. Fig. 4 is a vertical section on line *x*, Fig. 1, modified. Fig. 5 is an isometrical view of the sliding swage.

Letter A is a die, and B a guide, made, preferably, each separate for economy. These are strongly united together by tongues and grooves, as shown at C and D, and by dovetailed side strips, E.

F is a swage, sliding freely but snugly in the guide B, being attached to a pitman moved by sufficient power and having the stroke required, for the purpose hereinafter described. The swage F being situated vertically, the die A will be provided with an inclined face, G, situated at an angle thereto equal to the taper that is to be given to the peen end of the hammer.

H is a surface formed, as shown, to serve as a rest for the neck I of the hammer-head K to rest upon while being treated.

L is an adjustable guide, provided with slotted holes and attached by tap-bolts O to the side strips, E. This guide enables the hammer to be brought at once to the exact position required, when the hammer is introduced into the die A, to be acted upon by the swage F. This swage is provided, as shown, with a rounded end, P, and side projecting edges, Q, the distance between the projections Q being equal to the width of the face G of

the die A, and when the two are together, as shown in Figs. 1 and 3, the space between the projections Q agrees with the sides of the face G, the whole forming a die-recess equal to the width required for the peen of the hammer.

R is a projection formed at the bottom of the face G.

It will be observed that in Fig. 1 a projection, A', is shown; but in the description above given I have treated it as not present, because the description of it and its use will be hereinafter given.

The manner of operating with the above-described parts is as follows: The swage F having been arranged in its stroke to move from its lowest position, (shown in Figs. 2 and 3,) so that its lowest extremity will rise to about the level of the line 1, Fig. 3, the hammers, which are in this case prepared in so far as the eye and neck I and two square ends are concerned, are heated to the required temperature. They are then entered and brought to position upon the face G when the swage F is at the high end of its stroke, and, having the neck I placed upon the rest H, the swage F, now descending, draws out the peen, and with the projection R and the rounded surface P any superfluous amount of metal that may be present is cut off. Thus with one stroke forming the peen to the desired taper and dimensions.

I will now describe the modification in which the projection A is present. If the peen is to be formed into a "claw"—as in carpenters' hammers—the surface G is provided with the projection A', of any desired size, either to partly or wholly form the split between the two parts of the claw. Over the projection A' the end of the hammer to be formed into a claw is entered in the position shown in Fig. 4 by heavy dotted lines. The swage F, coming down upon it, performs the double operation of forcing the metal down upon the projection and drawing it out to the proper taper, as given by the incline of the face or surface G. If the projection A' is not made of such size as to fully split through the metal to the desired size, this and the bending of the peen to the desired curve may be done afterward in any ordinary manner. Nevertheless a large amount of the labor of splitting the peen will

have been accomplished at the same time as that of forming the taper. The rounded end P and side projections, Q, are important features, as the first acts as a roll in extending the metal, and the second prevents side fins being formed on the peen, which would not only give considerable trouble to remove, but would also, in a measure, obstruct the proper action of the swage.

10 Although the above-described invention is more particularly arranged for shaping the peens of hammers, yet it may also be used in giving tapered ends to other articles formed of metals. When the neck I, or its equivalent, is not present, a mandrel may be put
15 into the eye of the hammer, and in the case of other articles to be formed with a tapered end, (or ends,) when such have not any eye or projection answering to the neck I, the article may be held by any suitable grips at the
20 required height and angle to the surface G. Such grips may be of any ordinary form, and may be made in connection with—that is to say, attached to or practically a part of—the
25 die A, or the grips may be altogether separate therefrom, being rigidly supported at the required distance from the die A; but as I do not claim any invention therein, the grips need not be further described. Again, with
30 regard to the guide B, as shown, this guide, if desired, may be removed from the position shown and an equivalent of it may be situated above the collar A, either in connection with the swage F or any attachment thereof; or the
35 guide B may be reduced to the form of a pulley or rolls or a number of rolls situated at

the back of the swage. All these and similar contrivances are considered to be nothing more than mechanical equivalents of the guide B, as shown and described hereinbefore, because
40 any person of ordinary mechanical skill could at once arrange quite a number of ways and means for this purpose without invention. Therefore no further description of them is required.

45 What I claim, and wish to secure by Letters Patent, is as follows:

1. The combination of the die A, having surface G, guide B, and swage F, constructed, arranged, and operating substantially as described.
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2. The combination of the die A, having surface G and rest H, guide B, and swage F, having side projections, Q, the whole substantially as described.
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3. The combination of the die A, having surface G and projection R, guide B, and swage F, substantially as described.

4. The combination of the die A, having surface G and projections A' and R, with
60 guide B and swage F, having side projections, Q, substantially as described.

5. The combination of the die A, having surface G and projections A' and R, guide B, swage F, having side projections, Q, and
65 rounded end P, and guide L, the whole substantially as described.

HENRY H. WARREN.

Witnesses:

CHARLES G. C. SIMPSON,
JOS. MERRILL.