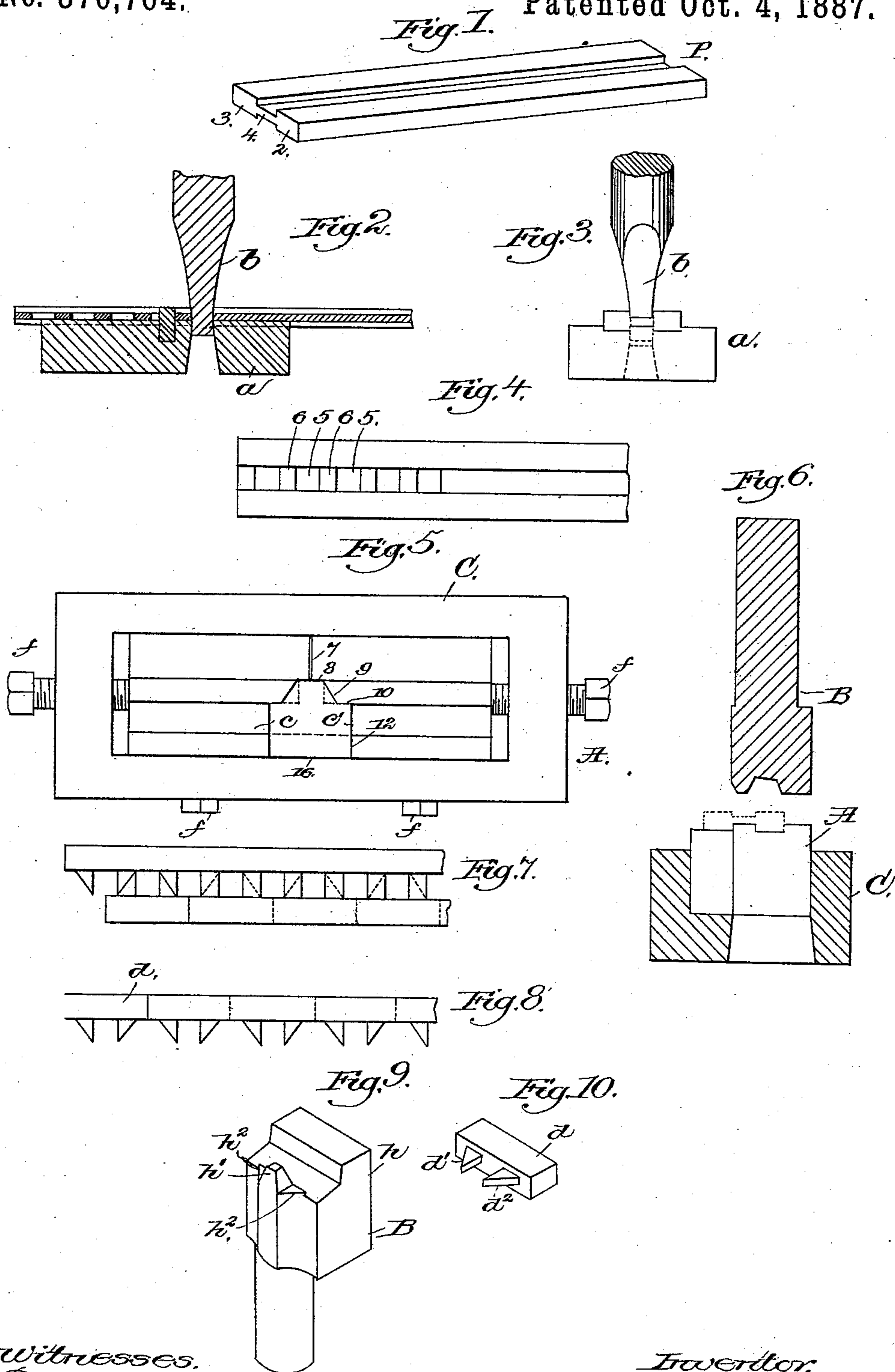


(No Model.)

P. F. BURKE.
DIE FOR MAKING HORSESHOE CALKS.

No. 370,764.

Patented Oct. 4, 1887.



Witnesses,
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UNITED STATES PATENT OFFICE.

PATRICK F. BURKE, OF BOSTON, MASSACHUSETTS.

DIE FOR MAKING HORSESHOE-CALKS.

SPECIFICATION forming part of Letters Patent No. 370,764, dated October 4, 1887.

Application filed March 1, 1887. Serial No. 229,295. (No model.)

To all whom it may concern:

Be it known that I, PATRICK F. BURKE, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Dies for Making Horseshoe Toe-Calks, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In another application filed by me concurrently with this, Serial No. 229,294, I have shown and described a die for punching horseshoe toe-calks from a blank or plate, each toe-calk having a single triangular projection.

This invention has for its object to construct a die for punching toe-calks from a bar or plate suitably rolled and prepared, as will be described, each toe-calk having two triangular projections. The bar or plate is rolled to present two edges or sides of even thickness and a reduced central connecting-web. This rolled bar is fed between an open die and a plunger, and the web is punched to leave a series of holes at equal distances apart. The bar or plate thus punched is then fed between another or auxiliary open die and a plunger, this latter open die and plunger forming the essential feature of this invention.

The auxiliary open die is composed of two blocks having their adjacent faces cut to form three sides of the opening, the said blocks being adjustably held in a frame, one wall or side of which forms the remaining side of the opening.

The auxiliary plunger has a head the cross-section of which corresponds with the opening of the auxiliary die, the said head having a projection, which enters one of the holes punched in the connecting-web of the prepared plate when the plunger descends.

Figure 1 shows in perspective a rolled blank, bar, or plate from which the toe-calks are to be cut; Fig. 2, a vertical section, and Fig. 3 an end view, of the die and plunger employed for punching a series of holes in the connecting-web of the bar and preparing it to be hereafter acted upon by the auxiliary die and plunger. Fig. 4 is a plan view of the bar after it has been acted upon and prepared by the die and plunger shown in Figs. 2 and 3;

Fig. 5, a plan view of the auxiliary die instrumental in punching the toe-calks from the prepared bar; Fig. 6, a vertical section of the said die and its co-operating auxiliary plunger for punching the toe-calks from the bar; Fig. 7, a diagram showing a part of a prepared or punched bar, the relative positions of several toe-calks taken collectively to form the bar being shown; Fig. 8, one half of the bar taken longitudinally, the other half being removed by the die shown in Figs. 5 and 6; Fig. 9, a perspective view of the auxiliary plunger, and Fig. 10 a perspective view of one of the toe-calks.

The metal bar or plate P from which the toe-calks are to be punched is rolled to present edges or sides 2 3 of even thickness and a connecting-web, 4, of reduced thickness. The rolled bar or plate is fed between a die, *a*, and a plunger, *b*, of suitable shape to punch or form one at a time a series of holes, as 5, in the connecting web 4 at equal distances apart, as shown in Fig. 4, thereby leaving connecting-pieces 6 between adjacent holes. The prepared bar, having the holes 5, is then fed between an open auxiliary die, A, and auxiliary plunger B, and the toe-calks are punched or cut off one at a time.

The die A consists of two like blocks, *c c'*, each having a face, 7, cut to abut one against the other. Each die also has a face, 8, substantially at right angles to the face 7, diagonally-extended faces, 9, leading from the face 8, a face, 10, leading from the faces 9 and extending parallel, or substantially so, to the face 8, and a face, 12, parallel to the abutting-face 7, all as shown last in Fig. 5.

The described auxiliary die conforms to the shape desired for the main body *d* of the toe-calk (see Fig. 10) and its two triangular projections, *d' d''*. The two blocks *c c'* are held adjustably in a rectangular frame or block, C, by adjusting-screws *f*, the faces 7 of the blocks abutting against each other. The blocks *c c'* form three sides of the auxiliary die-opening, the fourth side, 16, being formed by one wall of the frame. The auxiliary plunger B has a head, *h*, shaped in cross-section to correspond with the opening in the auxiliary die. The head *h* has a projection, *h'*, which, as the

plunger descends, enters one of the holes 5 cut in the plate, the said plunger also having triangular cutting-shoulders $h^2 h^2$.

5 The auxiliary open die may be supported by any suitable frame-work, and the plunger may be attached to be operated by any suitable moving cross-head or carrying-frame, which will move the plunger toward and from the auxiliary open die.

10 The prepared plate provided with the holes 5, as shown in Fig. 4, is fed between the die A and plunger B, so that the projection h' of the plunger will enter one of the holes 5, strike the plate or bar, and force it into and through
15 the auxiliary die corresponding in shape with the shape of the said die and plunger.

It will be seen by referring to Figs. 6 and 7 that the plunger in its descent strikes but one half of the prepared or punched bar, and that
20 the toe-calks are cut therefrom on the dotted lines, Fig. 7, the plate being at such time held or centered firmly by the projection h' , so that the shoulders h^2 , co-operating with the inclined faces 9 of the die, sever the connecting-webs
25 diagonally to form the two triangular projections, as $d' d^2$, both being formed at one operation, after the plate has been fed from end

to end between the die and plunger and the toe-calks have been cut from one side, and thereafter the remaining half of the bar is 30 severed transversely at intervals, as shown by dotted lines, Fig. 8.

I claim—

For forming horseshoe toe-calks of the kind described, an open auxiliary die, A, composed, 35 essentially, of two blocks, $c c'$, the adjacent faces of which are cut away to present corresponding faces, 7, 8, 9, 10, and 12, to constitute three sides of the die-opening, and a frame having a supporting wall or surface, as 16, to 40 constitute the remaining side of the die-opening, combined with a plunger having a head provided with a projection, h' , and shoulders $h^2 h^2$, the said plunger in cross-section corresponding with the opening in the auxiliary die, all 45 substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PATRICK F. BURKE.

Witnesses:

BERNICE J. NOYES,
F. L. EMERY.