(No Model.) 3 Sheets—Sheet 1.

G. DUNNING.

DIE FOR MAKING HORSESHOES.

No. 257,924. Patented May 16, 1882.

Fig. 1.

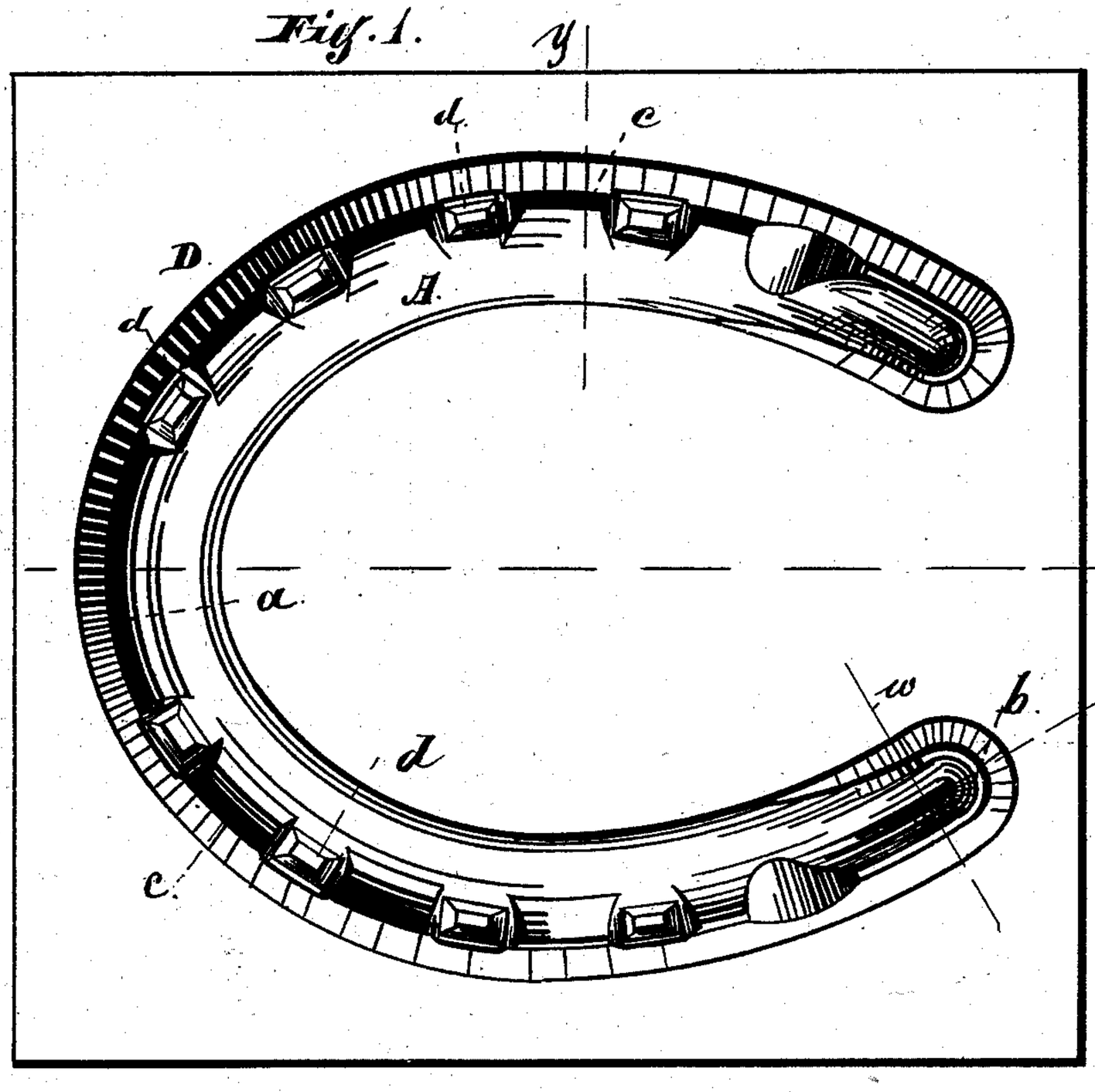


Fig. 2.

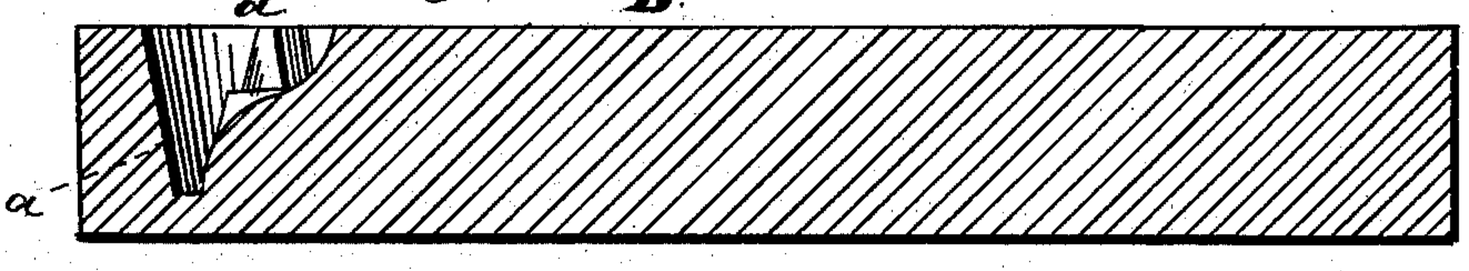


Fig. 3.

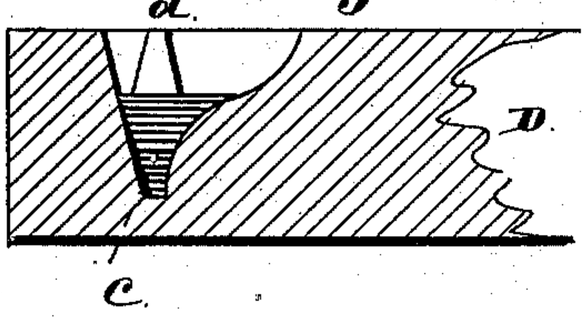


Fig. 4.

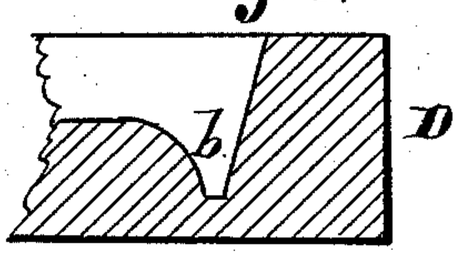
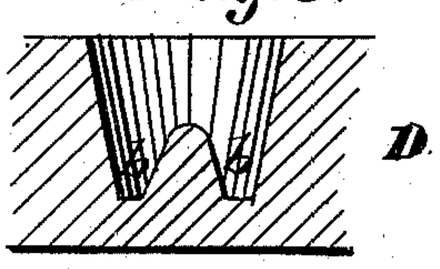


Fig. 5.



Witnesses:
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Inventor:
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By West & Bond
Attys

(No Model.) 3 Sheets—Sheet 2.

G. DUNNING.

DIE FOR MAKING HORSESHOES.

No. 257,924. Patented May 16, 1882.

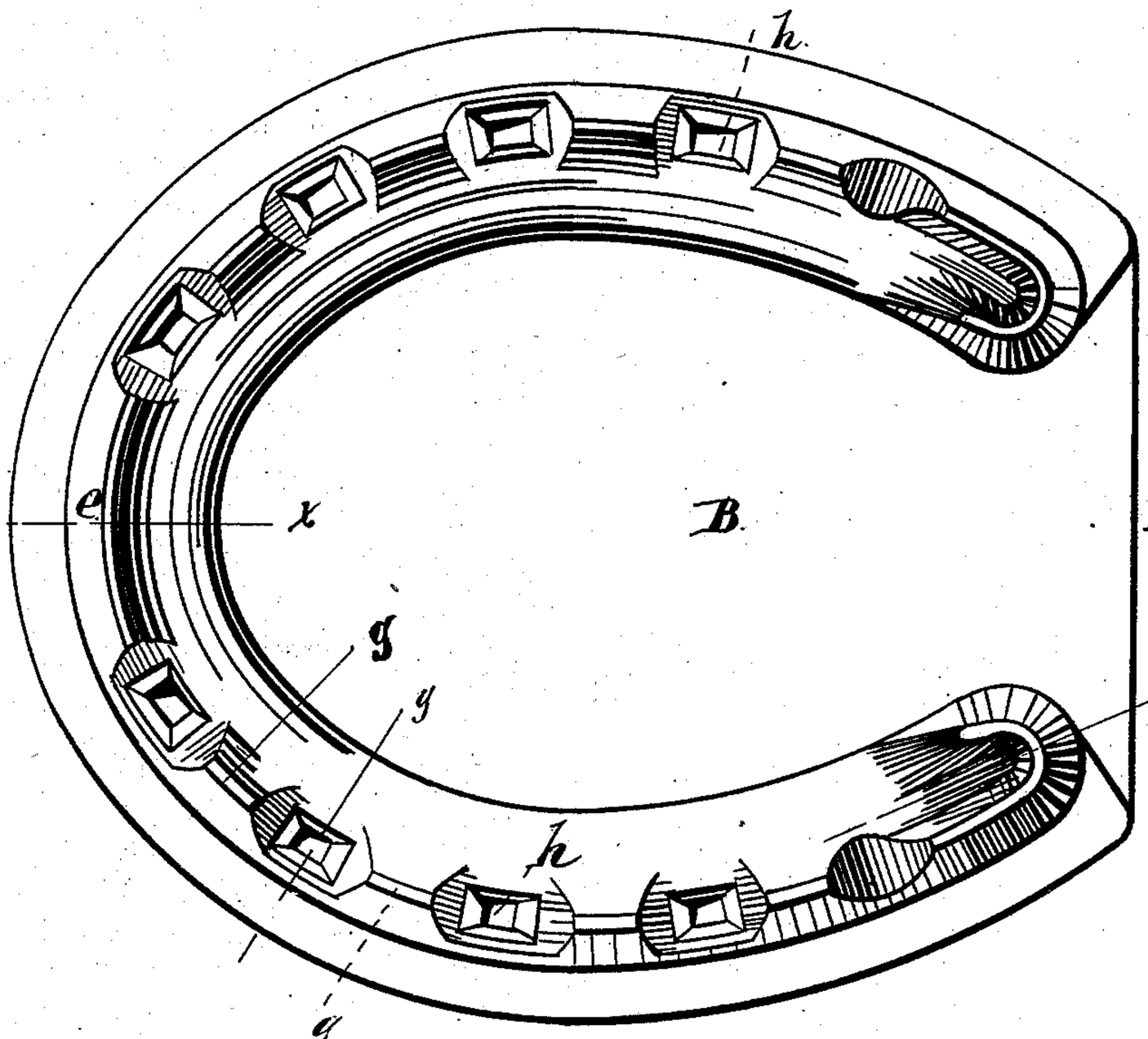


Fig. 6.

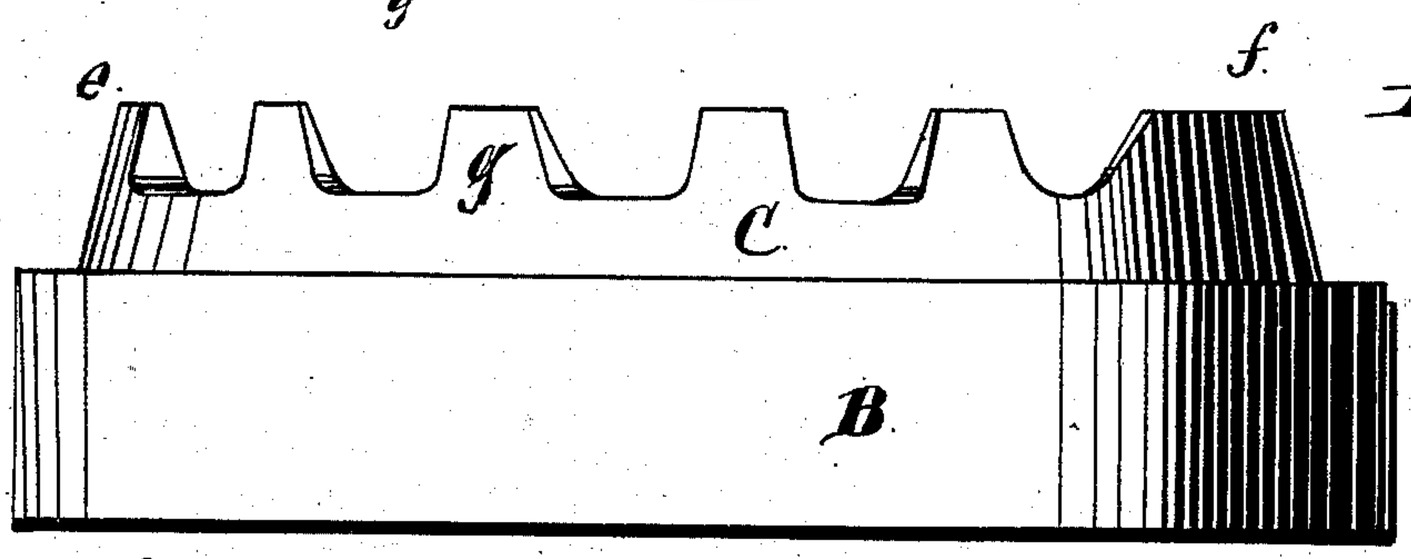
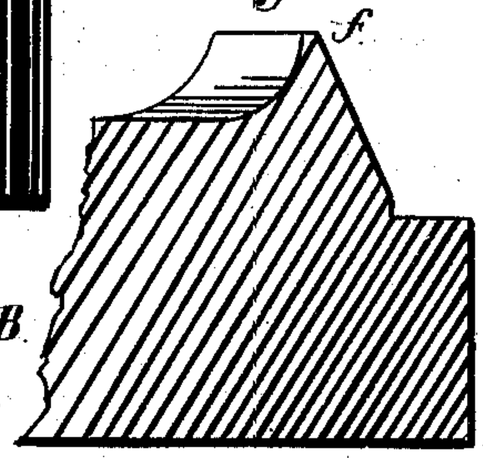


Fig. 7.

Fig. 10.



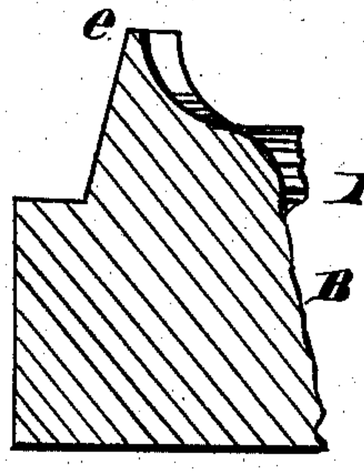


Fig. 8.

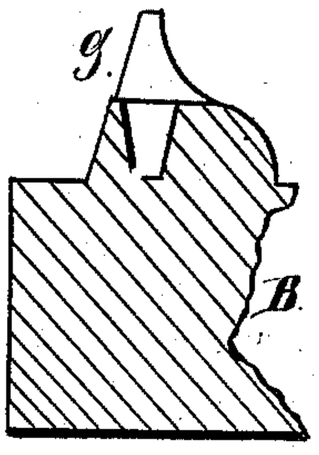


Fig. 9.

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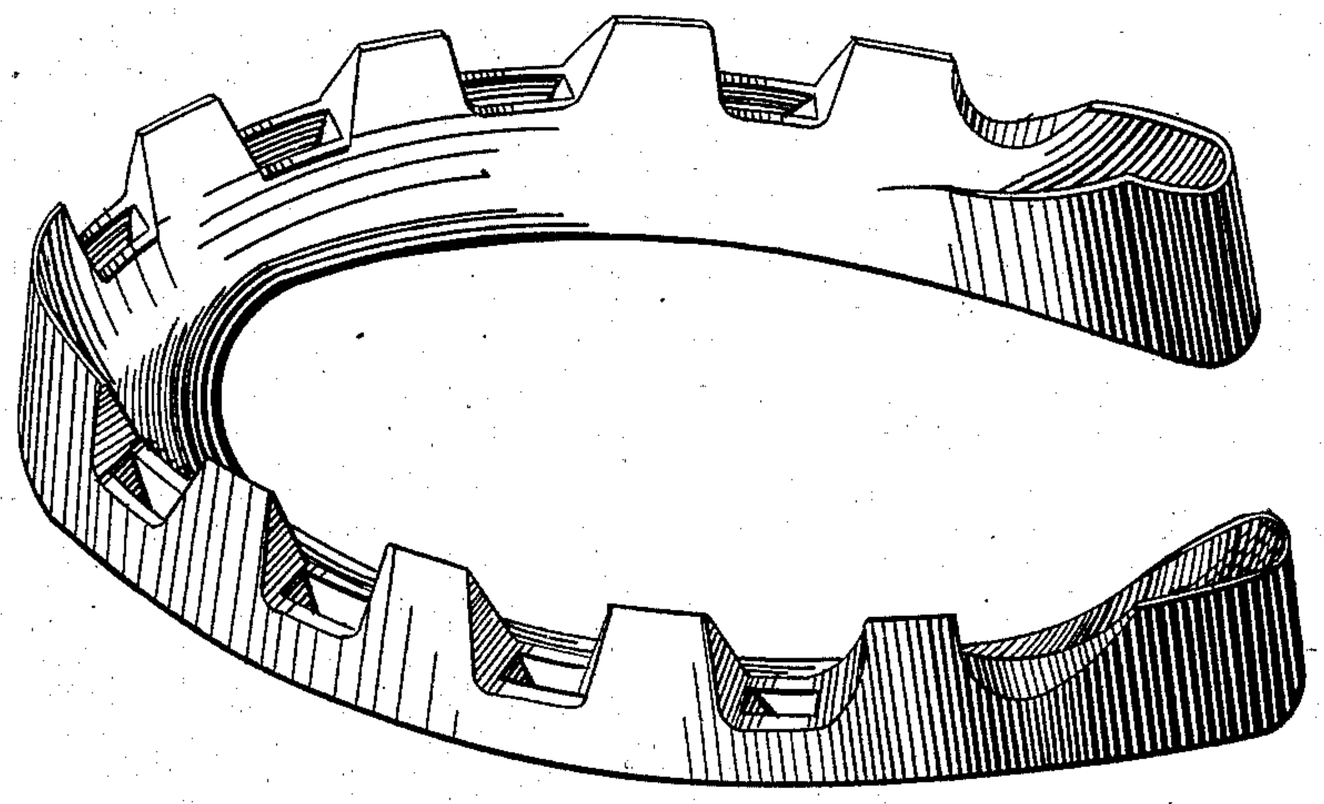
(No Model.) 3 Sheets—Sheet 3

G. DUNNING.

DIE FOR MAKING HORSESHOES.

No. 257,924. Patented May 16, 1882.

Fig. 1.



Witnesses:
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Edgar T. Bond.

Inventor:
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UNITED STATES PATENT OFFICE.

GERARD DUNNING, OF CHICAGO, ILLINOIS.

DIE FOR MAKING HORSESHOES.

SPECIFICATION forming part of Letters Patent No. 257,924, dated May 16, 1882.

Application filed January 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, GERARD DUNNING, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Dies for Making Horseshoes, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a top view of the die. Fig. 2 is a section at line *x* of Fig. 1; Fig. 3, a section at line *y* of Fig. 1. Fig. 4 is a section at line *z* of Fig. 1. Fig. 5 is a section at line *w* of Fig. 1. Fig. 6 is a plan of the former used in making the die; Fig. 7, a side elevation of the same. Fig. 8 is a section at line *x* of Fig. 6; Fig. 9, a section at line *y* of Fig. 6; Fig. 10, a section at line *z* of Fig. 6; Fig. 11, a perspective showing the shoe which I make with my die. This figure is also a correct representation of the part C of the former used in making the die.

The leading object of my invention is to provide a die to be used in manufacturing horseshoes, which die I manufacture by the use of an improved process, which is also my invention. The horseshoes which I manufacture by the use of my new die are of peculiar construction, having a series of calks on each side, with peculiar heel-calks as well as the ordinary toe-calk. The manufacture of these shoes of proper quality by methods known prior to the making of my new die was difficult and expensive, owing to the peculiar construction of the shoe, and hence they could not come into general use. By means of this new die I am able to readily and cheaply make very perfect shoes of this kind of the best quality, provided with all the calks mentioned and with proper nail-holes.

In the drawings, A represents the completed die, formed in a block of steel, D. It is provided with recesses *a*, *b*, and *c*, differing from each other in form, and with projections *d* on each side. In the recess *a* the toe-calk of the shoe is formed. In the recesses *b* the heel-calks are formed. In the recesses *c* the side calks are formed. The projections *d* form the nail-holes in the shoe.

In manufacturing these dies I use a former, which has been previously prepared, of the proper size and shape to make a die which will form the shoe. This former is represented in Figs. 6, 7, 8, 9, 10. It consists of a block of metal, B, on which is superposed a former, C, of the exact form of one of my horseshoes, as shown in the drawings; indeed, that portion of the former marked "C," if removed from the block B, would correctly represent one of my horseshoes, *e* being the toe-calk, *f* being the heel-calks, *g* being the side calks, and *h* being the nail-holes. I then take a steel block and heat the same to the temperature required for working steel. Then I place the former on such heated block and force the former into the face of the block by means of more or less blows, or other suitable force, until the calks are forced down into the block. This operation will also force some of the metal of the block up into the depressions or holes *h* of the former, but not sufficiently to form points upon the die-block of suitable length for making the nail-holes in the shoe. Therefore I then plane down the face of the block or partially-formed die to the top of the points partially formed by the process described, which are designed, when complete, to form the nail-holes in the shoe, and I then continue to plane down the block about one quarter of an inch more. I then heat the block as before, and place the former therein, and again stamp or force the same into the block, which operation will usually complete the die. If it does not complete it, the process must be repeated.

I prepare dies of different sizes for different sizes of shoes. In manufacturing shoes I first prepare blanks of suitable size, corresponding to the size and general form of the desired shoe, but without projections or holes. Each shoe is made by placing one of the heated blanks in or on the die and submitting the same to such power as may be required to force the blank into the die, so that a part of the metal of the blank will be forced into the recesses *a* *b* *c*, forming the calks. At the same time the projections *d* of the die will be forced into and through, or nearly through, the metal of the blank, forming the nail-holes. I prefer not to force these points *d* entirely through the blank, lest the points might be injured. The thin scale remaining can be easily punched out to complete the nail-holes.

I use any suitable press or known means for forcing the blanks into the die.

I use either steel or iron blanks for the shoes,

and find that Bessemer steel is well adapted to the purpose.

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

1. The die herein described for making horseshoes, the same being constructed with the recesses *a* and *b* to form the heel and toe calks, and on its opposite sides with the recesses *c c* and projecting punches *d d* to form the side calks and punch the nail-holes at the sides of the shoe, substantially as set forth, whereby a horseshoe can be constructed from a single piece of metal with the toe, heel, and side calks and nail-holes simultaneously formed at one operation.

2. The herein-described process of forming a die to be used in the manufacture of horseshoes, consisting, first, in heating a steel block and forcing into the same the former corresponding in size and form with the shoe to be made; second, in planing down the face of the block or partially-formed die, and then forcing the former again into the block, completing points in the die of sufficient length to form the nail-holes of the shoe, all substantially as herein specified.

GERARD DUNNING.

Witnesses:
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ALBERT H. ADAMS.