

(No Model.)

C. H. PERKINS.

DIE ROLLS FOR MAKING SIDE WEIGHTED HORSESHOE BLANK BARS.

No. 470,364.

Patented Mar. 8, 1892.

Fig. 2.

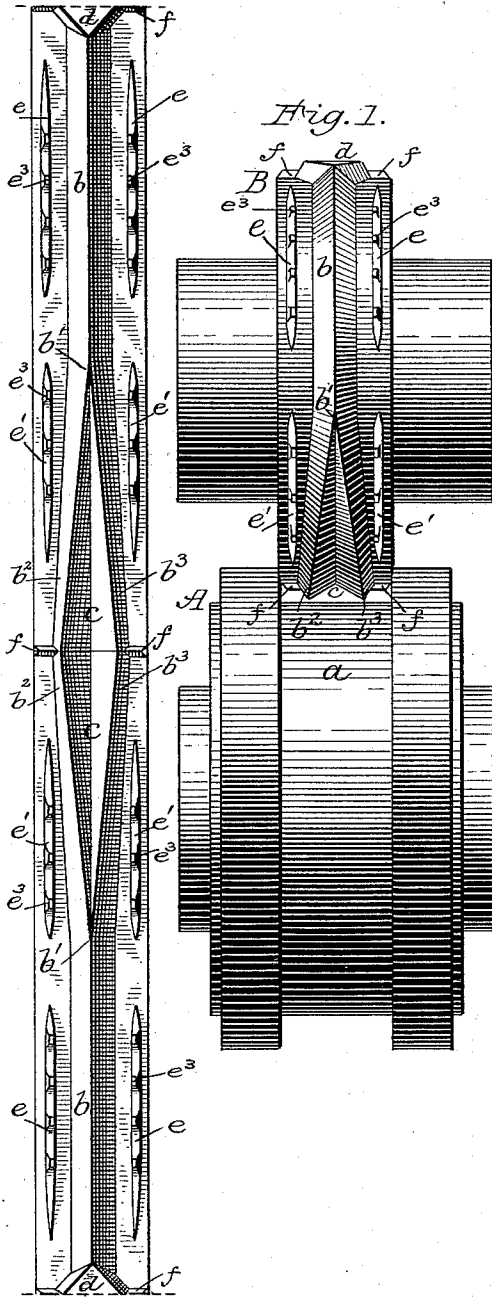


Fig. 1.

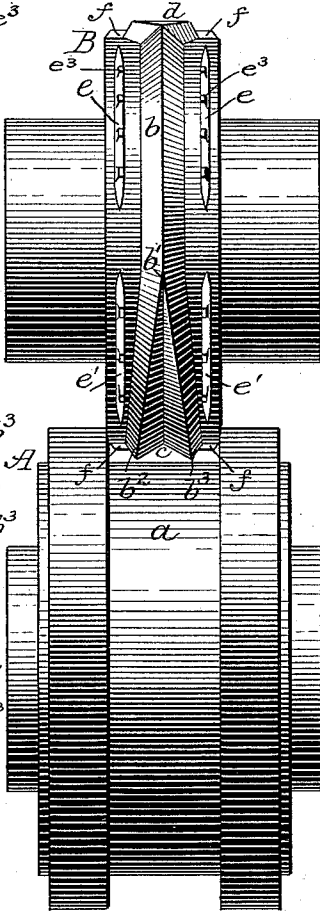


Fig. 3.

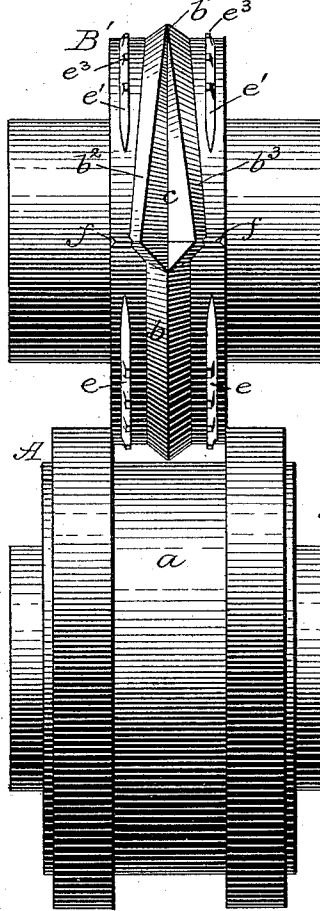
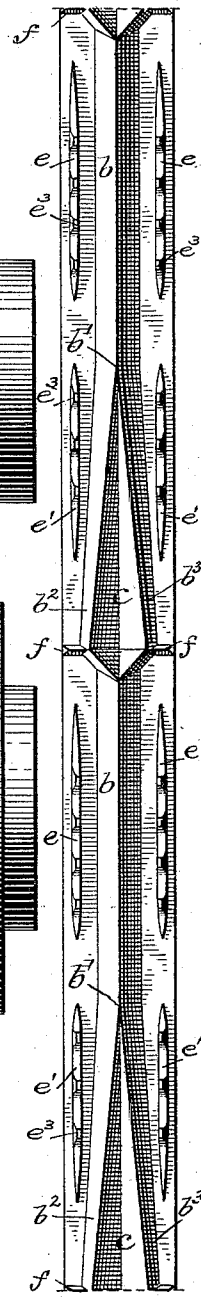


Fig. 4.



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DIE-ROLL FOR MAKING SIDE-WEIGHTED-HORSESHOE-BLANK BARS.

SPECIFICATION forming part of Letters Patent No. 470,364, dated March 8, 1892.

Application filed August 5, 1891. Serial No. 401,753. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HENRY PERKINS, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in Die-Rolls for Making Side-Weighted-Horseshoe-Blank Bars; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of my invention.

In my application for Letters Patent filed May 9, 1891, Serial No. 392,209, I disclosed certain novel bars containing double and single lines of blanks for side-weighted horseshoes, each blank being of uniform width for a portion of its length and then tapered to the end. In my present application I shall disclose the rolls which I have devised for the production of bars containing double-line blanks, certain other rolls for producing single-line blank-bars having been made the subject in part of still another application. (See Serial No. 402,007.)

In the manufacture of bars containing side-weighted horseshoe-blanks in double lines the bars are capable of being divided on longitudinal lines into single-line blank-bars and with one form of double-line bar the blanks in each single-line bar are consecutively "rights" and "lefts," and in another form the blanks in each single-line bar are either all rights or all lefts, notwithstanding the fact that in both forms of double-line blank-bars each two blanks as they lie side by side in the bar constitute a true pair of blanks, one being a right and the other a left. The die-rolls devised by me for producing these two forms of double-line blank-bar are so far precisely alike that both rolls have a working face, which on its curved periphery (to an extent corresponding to the length of the desired blank) is provided with a grooving-tongue, which is straight and for a part of its length is located centrally on said face and for another portion of its length is bifurcated or branched or inclined in two directions or toward the two outer edges of said face, and a roll having such a tongue constitutes the main feature of my invention. The tongued

roll, co-operating with a guiding-support, preferably a suitably-grooved roll, in working upon a suitable stock-bar of metal, forms by the action of the central straight portion of the tongue the inner edges of the wide portions of a pair of blanks, side by side, and with its inclined portions it forms the inside edges of the tapered portion of the same blanks, leaving certain intervening portions of waste metal or scrap. With two or more of said tongues consecutively repeated on the face of a roll and constituting a substantially continuous tongue the best results accrue by forming the tongue in alternately straight and alternately reversely-inclined portions, because then the double-line bar will contain blanks which are in right and left pairs when the bar is divided laterally between the ends of the blanks, and when divided longitudinally into single-line bars the blanks will be successively rights and lefts. My rolls are also provided with creasers for forming nail-head scores, and usually with spurs for indicating the end parting-lines between the blanks.

To more particularly describe my invention, I will refer to the accompanying drawings, in which—

Figure 1 in front view illustrates a pair of rolls, the upper one being a die-roll embodying the special features of my invention in their best form. Fig. 2 illustrates the face of the die-roll, Fig. 1, in plane projection. Fig. 3 in front view illustrates a pair of rolls, the die-roll of which is like that in Fig. 1, except as to the consecutive arrangement of those portions of the tongue which correspond to the length of the blanks to be produced. Fig. 4 illustrates the face of the die-roll of Fig. 3 in plane projection.

It will be understood that some suitable guiding-support for a metal stock-bar will be essential for co-operating with a die-roll, and that a roll A, with its groove *a*, will afford the best results, whether the groove be formed in solid metal or located between collars in a manner well known.

The die-rolls B and B' will be first described with respect of those features which they possess in common. As shown in Figs. 1 and 3

and in Figs. 2 and 4, each roll has a peripheral working face, which appropriately corresponds with the width of the groove *a*. The said working face is provided with a grooving-tongue, which has its straight portion *b* centrally located on said face and is at *b'* bifurcated, thus affording two other portions of the tongue, as at *b²* *b³*, which are respectively inclined toward the two edges of the face of the roll, each straight or central portion, with its two branches or inclined portions, corresponding to or being within the length of the blanks desired. The top of said tongue is sharp and well defined, so that it will in operation penetrate nearly to the thickness of the metal stock-bar to be operated upon. The cross-sectional contour of the grooving-tongue is varied in each case, according to the particular form of groove desired, this being varied with respect of beveling its sides, the latter being the inside edges of the blanks, which in some cases are quite flatly beveled and in others only enough to secure good penetrating effect by the tongue, as well as desirable strength thereof.

At the V-space *c* between the inclined portions of the tongue *b²* and *b³* the construction of the rolls may be indefinitely varied, the principal thing to be considered being the easiest possible working of the roll, coupled with leaving at said V portion as little bulk of waste metal as may be possible. As here shown, the sides of the tongue are quite flatly beveled for producing blanks and shoes of a desirable form. With this symmetrical construction of the grooving-tongue both rolls will develop right and left pairs of blanks side by side in the bar, and when further extensions or prolongations of said tongue are provided on the face of a roll it will depend upon their special arrangement, whether when a double blank-bar is longitudinally divided into single-line blank-bars the blanks will either be consecutively right and left or all of a kind in each bar. When the face of the roll is provided with a continuous tongue, which at intervals is straight and located centrally on said face and has its intervening portions reversely inclined from and toward the center of the face, as shown in Figs. 1 and 2, the inclined portions *b²* *b³* of one part of the tongue merge with succeeding corresponding portions, and it follows that the blanks produced thereby will not only be in pairs side by side, but the blanks in each line will be consecutively rights and lefts. With this construction of the continuous groove the V-spaces at *c c* are merged at their wide ends, and the main portions of the waste metal are therefore in narrow pieces tapered at both ends. The two straight or central portions of the tongue *b b* are in line, as shown; but they are preferably enlarged at their abutting ends by a flat-faced spur *d*, which is relied upon in part to define the wide ends of the blanks, but mainly to secure a desirable shape to the inner sides of the wide portions

of a blank corresponding with the inner sides of the wide heels of right and left horseshoes formed from said blanks. Now on referring to Figs. 3 and 4 it will be found that one end of the straight central portions *b* of the tongue is shown to be adjacent to the ends of the two inclined portions *b²* *b³*, and consequently the blank-bar formed by this die-roll will have each of its longitudinal lines of blanks of one kind, or, in other words, either all rights or all lefts. In the matter of causing waste metal there is little difference between the working results of these two rolls; but inasmuch as blank-bars for sale in the open market will preferably be in single line, thus leaving the waste at the rolling-mill, it is obviously desirable that the blanks in each bar should be alternately rights and lefts. If, however, special machines and tools be used for forming the right blanks into shoes and others for working the left blanks, it will be generally desirable to have the roll, like Figs. 3 and 4, for producing double-line blank-bars, which on being divided longitudinally into single-line bars will require no special assortment of the blanks when separated from each other.

It is to be distinctly understood that a roll having on its face the straight and furcated grooving-tongue constitutes the most important portion of my invention regardless of the form which may be given to those portions of the roll which I have called the "V-space" between the inclined or furcated portions of the tongue, because it is the outer sides of said straight and inclined portions of the tongue that perform the prime service intended, and the other portions of said tongue are relied upon merely for restricting waste metal.

Blanks produced by the rolls as thus far described may be subsequently provided with the usual creases or scores for nail-heads; but it is of course preferable to have this operation performed by the die-rolls, and therefore each is provided with appropriate nail scorers or creasers, which are here shown to be in different lengths, as at *e* and *e'*, the former having four nail-head prints *e³* and the latter but three, thus providing for a shoe to be secured on a hoof with less nails at its narrow or light side than at its wide or heavy side. It will be seen that these creasers or scorers *e* and *e'* are in two rows and that if they were continuous, as is sometimes desired, it would in no matter affect the remainder of the roll, although of course the number and location of the nail-head prints need not then be increased. For defining the end lines of blanks I further provide the rolls with spurs *f* in appropriate positions at or near both edges of the roll.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A die-roll, substantially as hereinbefore described, for forming blank-bars containing

two lines of side-weighted-horseshoe blanks, said roll having a working face provided with a grooving-tongue which within the length of a blank is in part straight and centrally located on said face and is in part bifurcated or inclined from one end of said central portion toward both edges of said face.

2. A die-roll, substantially as hereinbefore described, for forming blank-bars containing two lines of side-weighted-horseshoe blanks, said roll having a working face provided with a continuous grooving-tongue, which at intervals and for portions of its length is located centrally in said face and at one end of each central portion is reversely inclined from and toward the center of the face.

3. A die-roll, substantially as hereinbefore described, for forming blank-bars containing two lines of side-weighted-horseshoe blanks, said roll having a working face provided with

appropriate creasers and with a grooving-tongue which is in part straight and centrally located on said face and in part inclined outwardly from one end of said central portion toward both edges of said face.

4. The combination, with a grooved roll, of a die-roll having a working face appropriately corresponding in width with the width of the groove in said grooved roll and having on said face a grooving-tongue which is in part straight and centrally located on said face and in part inclined from one end of said central portion toward both edges of the face, substantially as described, and organized for rolling bars containing two lines of blanks for side-weighted horseshoes.

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Witnesses:

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CHARLES R. STARK.