

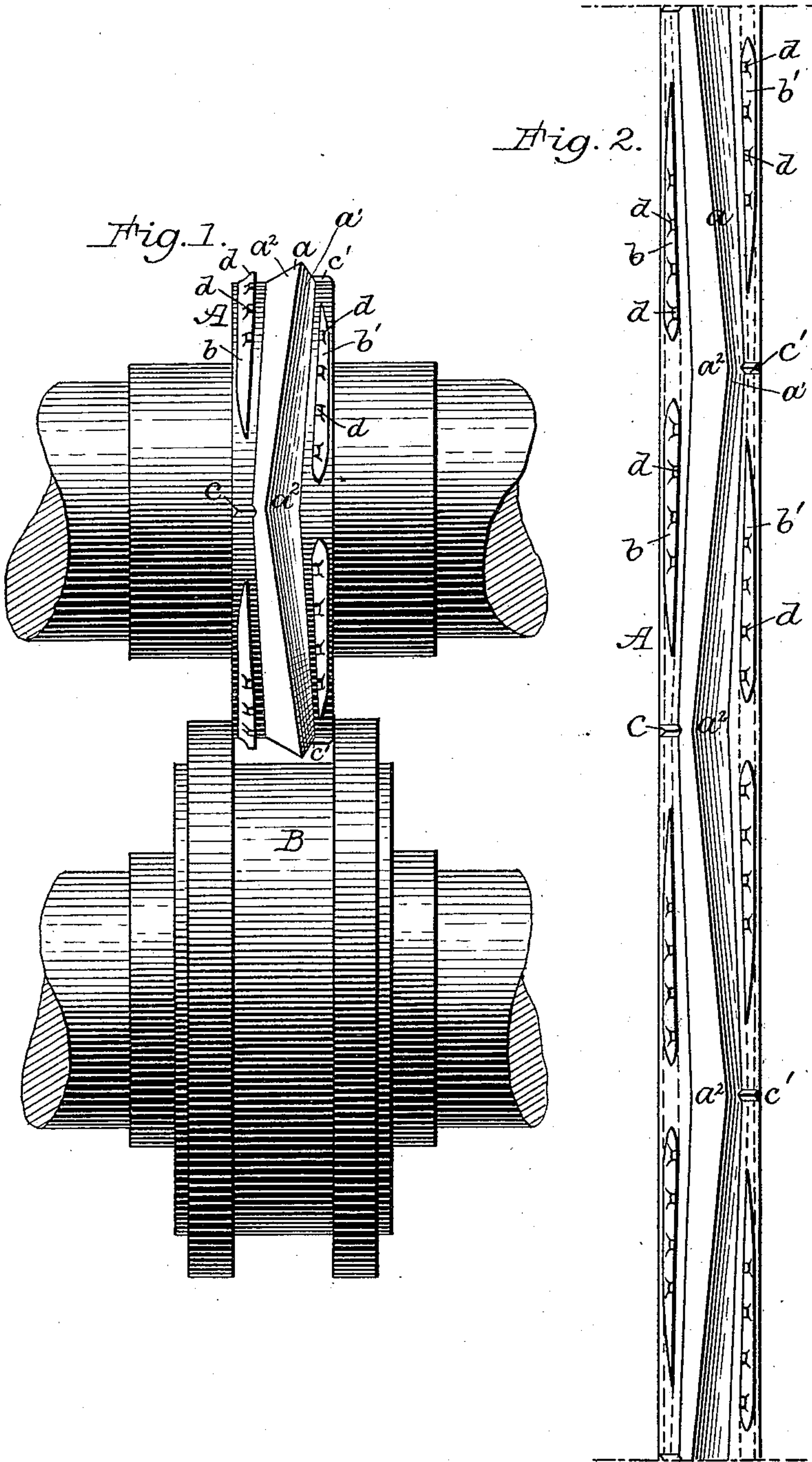
(No Model.)

C. H. PERKINS.

DIE ROLLS FOR MAKING HORSESHOE BLANK BARS.

No. 449,052.

Patented Mar. 24, 1891.



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# UNITED STATES PATENT OFFICE.

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## DIE-ROLL FOR MAKING HORSESHOE-BLANK BARS.

SPECIFICATION forming part of Letters Patent No. 449,052, dated March 24, 1891.

Application filed September 24, 1890. Serial No. 365,939. (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 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 an application for Letters Patent, Serial No. 361,963, filed by me August 14, 1890, I have disclosed a certain method or process of manufacturing blanks and blank-bars, and among other forms of mechanism I disclosed therein, for the purposes of that specification, the die-rolls which are made the special subject of my present application. Said blanks and blank-bars have been devised by me with special reference to their use in the manufacture of what are known as "toe-weighted" shoes, and die-rolls embodying my present invention are employed for producing blanks and blank-bars suited to the manufacture of two varieties of horseshoes of that class. My novel die-rolls convert a plain straight-edged bar of metal into blank-bars which are readily divisible on diagonal lines in such a manner that each blank will have a wide toe portion and two narrow ends or heel portions, and these blanks lie in two parallel series in the bar. These bars are therefore "double blank-bars;" but they are radically unlike such prior double blank-bars as have been devised by me—as, for instance, those disclosed in my Letters Patent Nos. 174,924 and 192,127—and consequently my present die-rolls are also radically unlike any prior rolls for producing double blank-bars.

The prime feature of novelty in a die-roll embodying my present invention consists in providing the working-face of the roll with two series of creasers so disposed in pairs in each series that each pair will operate in forming the nail creases or scores in each blank; but these pairs in either series alternate in position with the pairs of creasers in the other series as distinguished from having each creaser in one series exactly opposite another creaser in the other series, as in all prior die-rolls for

producing double horseshoe-blank bars. By this novel arrangement of the creasers the blanks are properly scored, although they so lie in the bar that the toe portion of any one blank lies laterally opposite two heel portions of two other blanks, as distinguished from prior horseshoe-blank bars of the double form, in all of which each two blanks lie side by side.

A second and equally important feature of novelty in my present rolls consists of a peculiar grooving-tongue for forming a zigzag groove between the lines or series of blanks. This grooving-tongue has an edge which is truly circular in its peripheral outline; but its edge inclines in straight lines to and fro, each straight line being equal to one-half of the length of any particular blank required for forming a given size of shoe. This tongue may be uniform in its cross-section, as is desirable in making certain varieties of blanks; but for producing a preferred form of blank used in making fancy shoes the tongue is varied in its form, so as to produce a wide flat bevel at the toe portion of a blank and narrow steep bevels at its two ends or heel portions.

A further novel feature in my die-roll consists in providing it with spurs for marking the parting-lines between the abutting heel portions of each two blanks, said spurs at one edge of the roll alternating in position with spurs at the opposite edge, as distinguished from having such spurs in pairs exactly opposite each other, as heretofore.

All of these features are employed by me in one die-roll; but I also employ them separately, according to the particular form of my blank-bars which may be desired.

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

Figure 1 in front view illustrates rolls embodying all of the features of my present invention. Fig. 2 illustrates the working-face of the die-roll in plane projection.

For securing the best results I employ two co-operative rolls, the die-roll A and the roll B. The roll B is either grooved or it is in substance (as is common with such rolls) provided with a groove by means of collars, ad-



justable or otherwise, said groove being of proper width to correspond with the width of blank-bars desired, and said two rolls are geared together. The die-roll A possesses several novel features, and, inasmuch as it may be employed with fairly good results with a reciprocating grooved bed or table, my invention is not to be restricted to the combination of said die-roll with a co-operating roll.

My die-roll is novel, in that it has a zigzag grooving-tongue  $a$ , which inclines to and fro with respect to the edges of the working-face of the roll. In its best form said tongue has a varied sectional contour, being broadly beveled, as at  $a^2$ , and having a narrow bevel, as at  $a'$ , and each two of its peripheral inclined portions equals in length the length of the horseshoe-blank desired. The broad bevels are located at the inner side of each two angles or lateral inclinations, thus affording a broad bevel on the blank at the inner side of its toe portion. The narrow bevels are located at the outer side of each two angles for affording narrow bevels on the heel portions or ends of each blank. In some cases the grooving-tongue is made quite thin and uniform in its sectional contour, this variation constituting no departure from certain portions of my invention. This grooving-tongue also performs the function of so far dividing the blanks of one series in a bar from those of the other that a zigzag slitting-machine can readily cut through the thin metal at the bottom of the groove. Such a machine has been devised by me and is to be made the subject of a separate application for Letters Patent. (See Serial No. 367,171.) Even if this die-roll should have on its working-face only a zigzag grooving-tongue, the roll would possess practical value for the production of tapered blanks to be creased by hand or by separate tools, as in a drop-press.

My said die-roll has also two series of nail-scores  $b$   $b'$ , which are arranged in a novel manner in pairs, which in one series alternate in position with the pairs of creasers in the other series, as distinguished from having, as always heretofore, two series with the creasers of each directly alongside of those in the other series. This peculiar arrangement of the creasers in my roll causes them to properly locate nail-scores or creases in a bar wherein the blanks are tapered both ways from the center to the ends and lie in the bar with two heel portions or ends of two blanks opposite the central or toe portion of a laterally-adjacent blank. Inasmuch as the variably-beveled zigzag grooving-tongue is of special value in forming blanks for high grade shoes, and as a grooving-tongue need not be employed at all for developing blanks for plain toe-weighted shoes, it will be obvious that a roll having only the peculiar creasers described will possess practical value.

My said die-roll is further novel in connection with the arrangement of the heel-marking spurs, which are in two series,  $c$  and  $c'$ ,

and instead of having, as heretofore, the spurs of one series exactly opposite those in the other series they alternate in position with each other, so as to define the lengths of blanks in two lines in a bar wherein, opposite each toe portion, there are two heel portions of two laterally-adjacent blanks. These heel-marking spurs or studs may alone be relied upon for forming the simplest form of blank-bar containing metal so rolled and proportioned that by means of suitable cutting or shearing tools the bar may be readily converted into separate plain tapered blanks, the heel-marks in the bar as made by said studs or spurs serving as reliable gage-marks during the angular cutting operation. For obtaining the most satisfactory results, however, in the production of blank-bars containing plain tapered blanks a roll having the nail-creasers and the heel-studs should be employed. It will, however, be observed that inasmuch as the location of the nail-scores in a blank bar will always be uniform, each nail-creaser, when provided with the usual nail-head prints  $d$ , will afford depressions in the blank which can serve a good purpose for properly gaging each blank in a bar with relation to such blank-cutting mechanism as is required for developing plain tapered horseshoe-blanks.

It is sometimes deemed desirable to crease a blank throughout its length, and such a variation in the character of the creasers would involve no departure from certain portions of my invention, because the continuous nail-creasers, as indicated in dotted lines in Fig. 2, would still have those portions thereof for the reception of nail-heads arranged in pairs, as described, even if the head prints  $d$  were not present; but if the latter were present the embodiment of this portion of my invention would only be still more apparent. The usual object of the crease in a horseshoe is to properly house the nail-heads; but in some varieties of shoe a continuous, wide, deep crease is provided, not only for housing the nail-heads, but also for affording a peculiar cutting or holding effect in contact with the ground, and it is therefore to be understood that my die-roll may be widely varied with respect to the character and arrangement of the nail-creasers without departing from certain portions of my invention, in accordance with which the first die-roll has been produced which is capable of developing double blank-bars containing tapered blanks for making toe-weighted shoes.

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

1. A die-roll for forming bars containing toe-weighted horseshoe-blanks, having adjacent to each edge of its working-face a series of nail-score creasers arranged in pairs, and with the pairs of creasers in either series alternating in position with the pairs in the other series.

2. A die-roll for forming tapered horseshoe-



blanks in bars having a zigzag grooving-tongue, which at its periphery for a distance equal to the length of blank desired is inclined to and fro with respect to the edges of the working-face of the roll.

3. In a die-roll, a zigzag grooving-tongue which is variably beveled at its sides, substantially as described, for variably beveling one edge of each horseshoe-blank in a blank-bar.

4. In a die-roll for forming tapered horseshoe-blanks, two series of heel-marking studs or spurs located at the edges of the working-face of the roll and having the spurs of either series alternating in position with those of the other series, the distance between the spurs in each series being equal to the length of blank desired.

5. A die-roll for forming bars containing toe-weighted horseshoe-blanks, having the two series of nail-creasers arranged in pairs, the pairs in one series alternating in position with those of the other series, and also having a zigzag grooving-tongue located between the two series of creasers.

6. A die-roll for forming bars containing toe-weighted horseshoe-blanks, having a zigzag grooving-tongue located between the edges of the working-face of the roll, and two

series of heel-marking studs or spurs located at the edges of said face, the studs in one series alternating in position with those in the other series for defining the length of the blanks.

7. A die-roll having between the edges of its working-face a zigzag grooving-tongue, two series of nail-creasers, and two series of heel-marking studs or spurs.

8. A die-roll having a zigzag grooving-tongue which at its periphery inclines to and fro once within the length of a horseshoe-blank, in combination with a grooved co-operating roll.

9. A die-roll having a zigzag grooving-tongue and two series of nail-creasers arranged in pairs, the pairs in one series alternating in position with those in the other series, in combination with a grooved co-operating roll, substantially as described.

10. In combination with a grooved roll, a die-roll co-operating therewith, provided with a zigzag grooving-tongue, two series of nail-creasers, and two series of heel-marking studs, substantially as described.

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Witnesses:

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