

W. Acheson,

Forming Horse Shoe Blanks.

No. 112,668.

Patented Mar. 14, 1871.

Fig. 1.

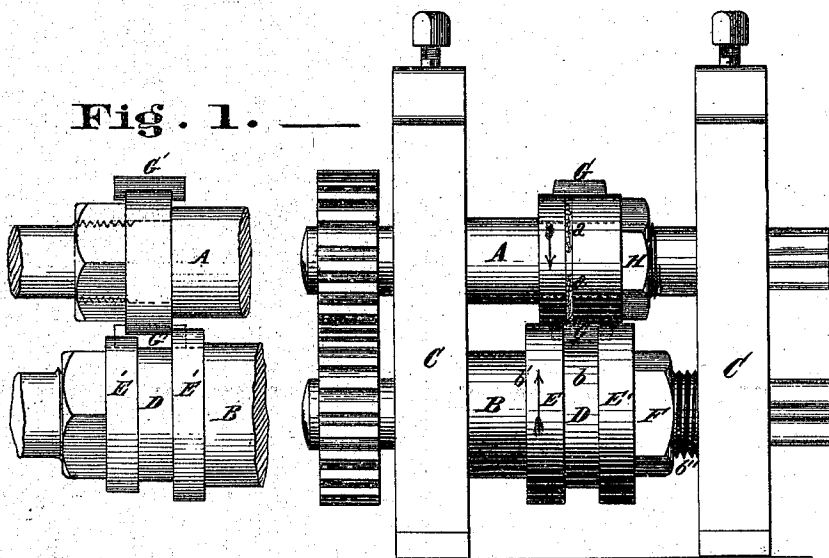


Fig. 2

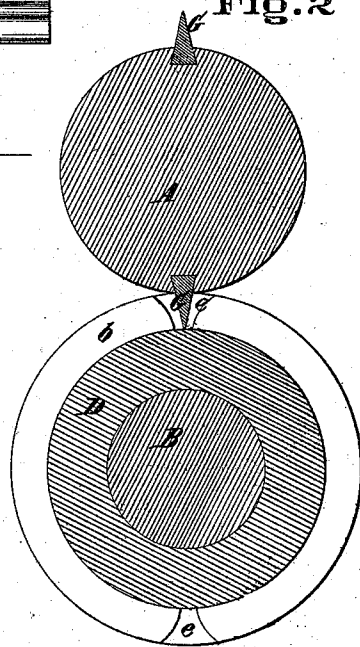


Fig. 3

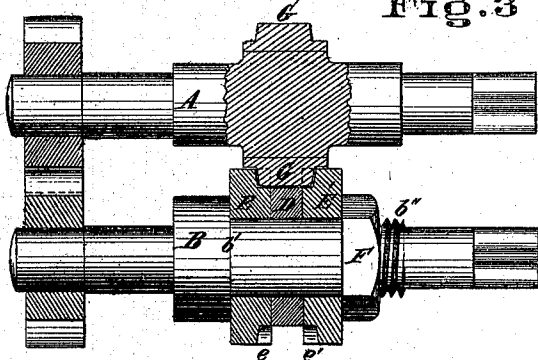


Fig. 4

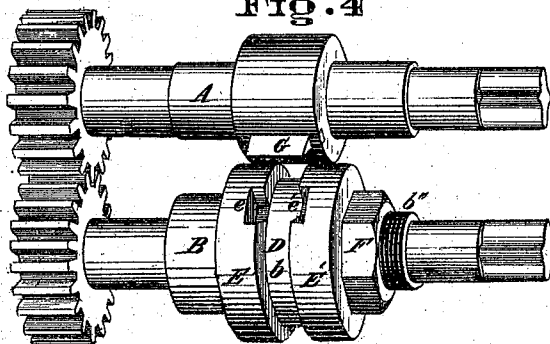


Fig. 5

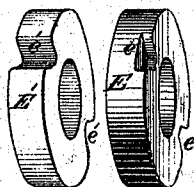
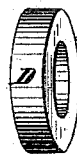


Fig. 6



Attest

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UNITED STATES PATENT OFFICE.

WILLIAM ACHESON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO
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IMPROVEMENT IN ROLLS FOR FORMING HORSESHOE-BLANKS.

Specification forming part of Letters Patent No. **112,668**, dated March 14, 1871.

To all whom it may concern:

Be it known that I, WILLIAM ACHESON, of Pittsburg, Allegheny county, State of Pennsylvania, have invented certain new and useful Improvements in Rolls for Forming Horseshoe-Bars, Muck-Bars, &c.; and I hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable one skilled in the art to which my invention appertains to make and use it, reference being had to the accompanying drawing, making part of this specification.

Nature and Objects of Invention.

My invention relates to the construction of bar-rolls, one of which of a pair is formed with a groove, to give the finished size and shape to a bar; and my invention consists in a peculiar construction of cutting-off devices in the said grooved roll for severing a horseshoe-bar into blanks, or a muck-bar, into uniform lengths for the heating-furnace piles, and other kindred work; the object of this part of my invention being to so construct the knives or cutters, and the sides of the groove for receiving the same, that the knife be thereby rendered more effective in completely accomplishing the work, more durable, and less liable to break in use than the knives heretofore used in the cut-off rolls patented by Charles L. Fitzhugh, December 20, 1870, upon which patented invention this part of my invention is an improvement.

Description of the Accompanying Drawing.

Figure 1 is a side elevation of a pair of horseshoe-rolls embodying my invention. Fig. 2 is a cross-section, showing the construction of the side flanges of the groove for the reception and clearance of the knives. Fig. 3 is an elevation of the rolls detached from the housings—the rings, a portion of the upper roll through the knives, and the gearing being in section. Fig. 4 is a perspective view of the rolls detached from the housings, designed to exhibit clearly the construction of the side rings, and the manner in which the knives or cutters are fitted to the upper roll. Fig. 5 exhibits, in perspective, one of the rings form-

ing the sides of the groove, detached. Fig. 6 exhibits, in perspective, the ring which forms, when in place, the bottom of the groove.

General Description.

A and B are, respectively, the upper and lower roll, both being fitted to and journaled within the housings C C' in the ordinary way. The lower roll, B, is constructed with the groove *b*, in which the bar is formed. The bottom of the groove I form by the ring D, and the sides by the rings E E'. The body of the roll B is constructed with a shoulder, *b'*, against which the ring E is forced, and is turned down to fit snugly into the accurately-bored holes in the rings D E E'. The roll B is also screw-threaded at *b''*, and fitted with a tightening-nut, F, which serves to force all the rings together and against the shoulder *b'*. If this roll is used for cutting off the bar in addition to rolling it, keys should be employed between the rings E E' and the body of the roll to prevent displacement of the rings. If the rolls are revolved in the direction indicated by arrows in Fig. 1, the nut F and screw-thread upon the roll B must be left hand.

The roll A, when it is required that the bar shall be cut off into uniform lengths for horseshoe-blanks, muck-bar scrap, and other purposes, is provided with a knife or knives, G, properly secured by dovetailing or otherwise to the body of the roll.

In order to adapt the knife or knives for cutting cleanly and completely, and render the same more durable and less liable to break than the knives used in the Fitzhugh patented cut-off rolls aforesaid, I construct the knife or knives of much greater length than the width of the groove *b*, so as to make the same overlap the sides of the groove equally on each side. To provide for the reception into the groove *b* of the overlapping knives G, I construct the rings E E' with side recesses, *e e'*, the configuration of which in the plane of motion is such as to give proper clearance to the knife. The knife or knives project sufficiently from the body of the roll to touch the periphery of the ring D, or nearly so.

In the operation of the rolls the bar is sev-

ered and forcibly thrown off by the knife, the outer edge of the latter having a greater velocity than the bottom of the groove *b*.

Owing to the overlapping character of the knife *G*, the corners are never in contact with the iron, and therefore cannot wear off in the way incident to knives exposed the entire width to the material to be cut. The knife *G* can also be made thinner than a narrow knife, owing to its greater length, and is not liable to heat beyond the desired maximum, or to break off in use.

The rings *D E E'* being detachable, rings of of larger or smaller size, to form a larger or smaller groove, *b*, may be inserted in their places. The rings *E E'* may also be taken off and faced when worn, and be replaced without increasing the width of the groove *b*. The body of the roll *B*, therefore, answers for many sizes of iron, and never wears except at the journals.

The upper roll, *A*, if used for horseshoe-blanks, may be provided with the well-known creasing projections *a*, for forming the nail-crease in the rolled blank, and may also have beveling projections, for chamfering the blank between the toe and heels, if desirable. To provide for the insertion or formation of these projections, the roll may be constructed of detachable pieces secured by nut *H*.

The bottom of the groove *b*, especially at the points below the cut-off knives, is found to wear rapidly, and the detachability of the ring *D* permits of this being made of steel hardened—a very important consideration in cut-off horseshoe-rolls.

Various modifications may be made in the construction of the rolls without changing the nature of the invention—as, for example, the cutters, as shown in *G'*, Fig. 1, may overhang the collar of the roll, and one or both of the side rings of the grooved roll may overlap the collar of the upper roll, as shown in *E'*, Fig. 1. The recesses in the side rings of the groove may also extend the whole width of the ring, as shown in *E' e'*, Fig. 5.

Claim.

I claim as my invention—

The construction of the collars *E E'* with the recesses *e e'*, jointly with the cutters *G G*, of sufficient length to cross the groove *b* and extend into said recesses *e e'*, as shown and described.

In testimony of which invention I have hereunto set my hand.

WM. ACHESON.

Witnesses:

FRANK MILLWARD,

FRANCIS TORRANCE.