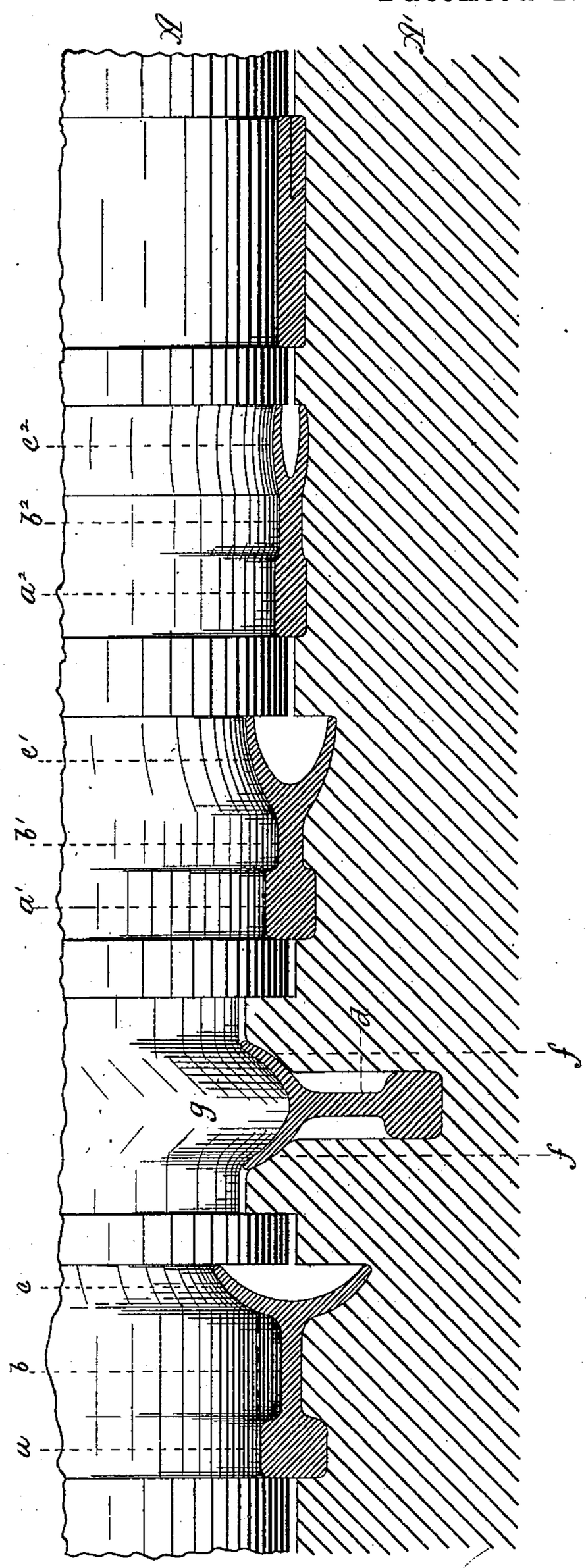
(No Model.)

W. GARRETT.

MANUFACTURE OF SPLIT BLANKS.

No. 308,250. Patented Nov. 18, 1884.



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MANUFACTURE OF SPLIT BLANKS.

SPECIFICATION forming part of Letters Patent No. 308,250, dated November 18, 1884.

Application filed October 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GARRETT, a citizen of the United States, residing at Beaver Falls, county of Beaver, State of Pennsylvania, have invented or discovered a new and useful Improvement in the Manufacture of Split Blanks, &c.; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which like letters indicate like parts.

The figure 1 shows a pair of rolls having a series of suitable-shaped grooves formed in their surfaces.

The object of my invention is to produce blanks, bars, or rods having a split or division extending into one or both edges thereof, and incidentally in the manufacture of such blanks to utilize old steel rails, I-beams, or the fag ends or sections of such rails, beams, or other structural irons having flanges on one or both edges of the web portion; and in general terms my invention consists in the construction and combination of parts, all as more fully hereinafter described and claimed.

In a previously-filed application I have described and claimed a method of forming split blanks or bars, which consists in first forming the split or division in a bloom by rolling or cutting, and then reducing the bloom and closing together the sides of the split or division by reducing or rolling the split bloom in a direction parallel to the sides of the split or division.

I now propose to form a partially-split or divided blank, bar, or rod by bending over and outward the flanges of T-rails, I-beams, or other structural irons having two flanges at one or both edges of the web, and to simultaneously reduce said rails, beams, or irons to the desired shape by rolling.

I will describe the construction of the rolls used in reducing T-rails to a partially-divided or split blank or bar, it being understood that I-beams and other suitable structural irons can be similarly reduced by changing the forms of grooves in the rolls, without departing from the spirit of my invention. To effect this reduction of T-rails I form a pair of rolls, a series of suitably-formed groups or set of grooves, as shown in the drawing.

For the first pass or reduction each roll is provided with grooves or recesses *a* and *c* and a straight portion, *b*. The sides and bottom of the groove *a* correspond in shape to the head of the rail, and the straight portion *b* has a length equal to the width of the web. These parts *a* and *b* serve, when the rolls are properly adjusted, to only guide and feed the rail at this pass. The groove or recess *c* has one straight side. The other side of the groove is formed by a curve starting from the straight portion *b* and ending at the vertical wall of the groove, at the bottom thereof. This groove serves to give the first outward bend to the flanges of the rail, as shown.

During the next pass not only should the flanges be further bent toward each other, but the web of the rail should be upset or thickened, and to these ends I form in the lower roll a groove or recess, *d*, having a depth sufficient to receive the rail with its partially-bent flanges, as shown. The upper ends of the sides of the grooves are curved outwardly, as shown at *f*, their curvature being more nearly parallel with the web of the rail than the curve of the groove *a*, for the purpose of further bending the flanges of the rail toward each other. The width of this groove *d* is equal to the width of the head of the rail.

On the upper roll, A, is formed a collar, *g*, whose sides have a curvature corresponding to that of the curves *f*. This collar *g*, when the rolls are properly adjusted, projects into the groove *d*, and, as the distance between the central part of this collar and the bottom of the groove *d* is less than the height of the rail, the web of the rail is upset during its passage between this part of the rolls, and also during this passage the flanges of the rail are further bent toward each other, as shown.

The next set or group of grooves are so formed as to reduce the head of the rail in width and to lengthen it in a direction at right angles to the height of the rail, and also to bend the flanges still further toward each other, as shown. To effect these functions, the grooves *a* in the rolls A A are made of a less depth but of a greater length than the groove *a* of

the first group of grooves, and the working-face of the groove *c* of each roll, which has a depth less than that of the groove *c*, is so constructed that the flanges of the rail are caused to approach each other still further during the passage of the rail, and the straight portion *b* serves to guide and support the flange during this pass.

For the next pass the groove or recess *a* in each roll is increased in length and reduced in depth so that the head of the rail is still further thickened or increased in width in a direction parallel to the height of the rail and correspondingly reduced in thickness. The curved recess *c* in each roll is made quite shallow, as shown, so as to cause the flanges to closely approach each other, having between them a deep narrow split or division.

For the final pass the rolls are made plain, so that the head and web portions are merged into each other, and the flanges are caused to meet, thus forming a blank of uniform thickness and width, having in one of its edges a slit or division, as shown.

Care should be taken that the heat of the blank during this final pass is not so great as to allow of the welding together of the flanges when they are pressed together.

I have described and shown the sets or groups of grooves as formed in one pair of rolls; but it is obvious that I may employ a train of rolls, each pair of rolls in the train having one set or group of grooves formed in them.

In so far as relates to the shape of the grooves, it is obvious that they may be so shaped as to produce a split bar, round in cross-section, without departing from the spirit of my invention.

In carrying out my invention the flanged rail or beam is formed in the manner usual in the art for producing T or I beams by rolling bloom or slabs in suitably-shaped rolls, and these beams are then reduced to split blanks in the manner above described; or in case it is desired to utilize old rails or I-beams or the fag ends or sections thereof, such rails or beams are suitably heated and then passed through the rolls.

For the purposes of this invention the head of the rail may be considered as a flange. In rolling I-beams the grooves of the rolls are shaped so as to bend outward the flanges on both edges of said beam, and thereby produce a double-split blank.

I claim herein as my invention—

1. The method of forming split or divided blanks, bars, or rods, which consists in forming flanges on a bloom or blank by ordinary known processes and then bending said flanges over so as to lap one upon the other by passing them through between suitably-grooved rolls, substantially as set forth.

2. The method of utilizing T-rails, I-beams, or other structural irons, or the fag ends or sections thereof by passing them through suitably-grooved rolls and thereby reducing the flanges on one edge of said rails or beams, and simultaneously bending the flanges on the other edge over so as to lap one upon the other, substantially as set forth.

3. The method of utilizing the fag ends of I-beams and other structural irons by passing them through between suitably-grooved rolls, and thereby bending the flanges on the edges of said beams outward and over so as to lap one upon the other, thereby producing a double-split blank, substantially as set forth.

4. A pair or train of rolls having a series of grooves suitably proportioned for the folding together of the flanges on one side of a structural bar or rail and for the progressive reduction of the same to the form of a split blank, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM GARRETT.

Witnesses:

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DARWIN S. WOLCOTT.