(No Model.)

J. REESE.

UTILIZING OLD RAILS.

No. 346,498. Patented Aug. 3, 1886.

Figure 1

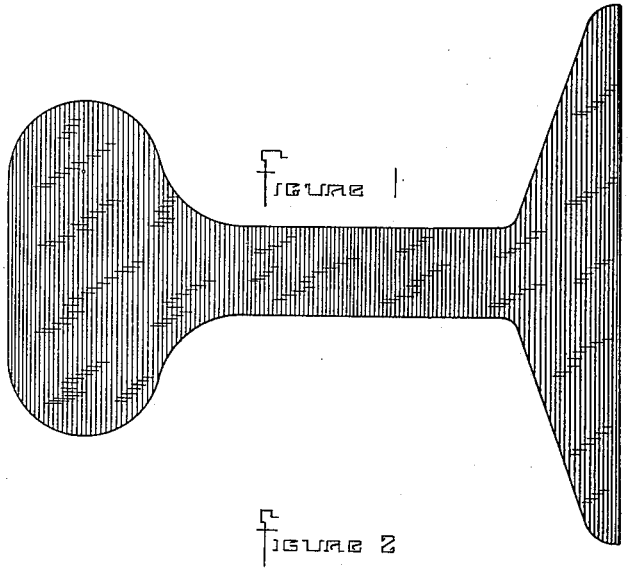


Figure 2

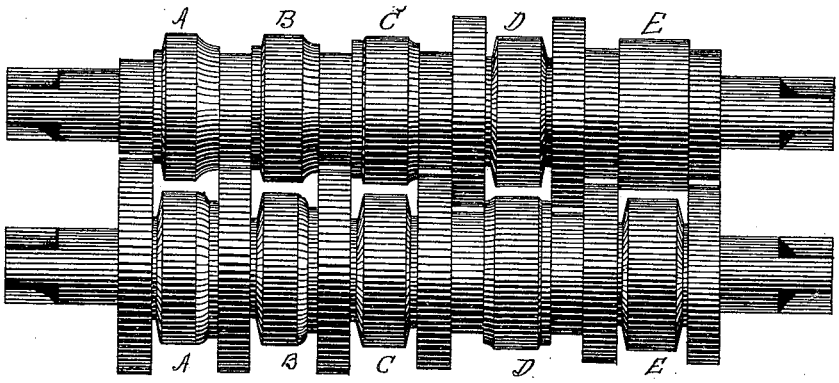
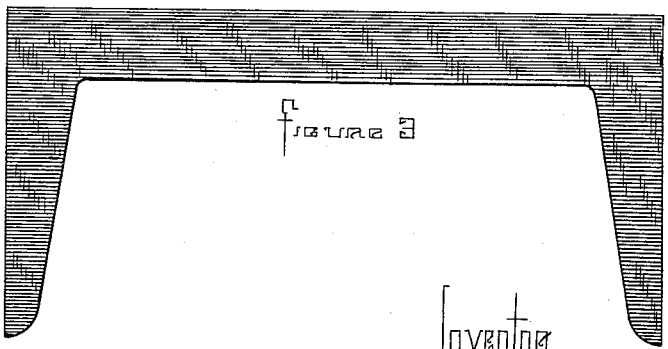


Figure 3



Witnesses.
Martin Reese
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Inventor.
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UTILIZING OLD RAILS.

SPECIFICATION forming part of Letters Patent No. 346,498, dated August 3, 1886.

Application filed February 18, 1884. Serial No. 121,202. (No model.)

To all whom it may concern:

Be it known that I, JACOB REESE, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in the Utilization of Old Rails in the Manufacture of Channel-Bars; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 indicates a cross-section of the rail. Fig. 2 indicates a front elevation of a set of rolls provided with a series of grooves adapted to gradually force the metal from one into the opposite side of the rail-flange, and at the same time force one side of the rail-head into the web and downward, to form the other flange of the channel-blank, and, finally, to reduce the blank so formed into a finished channel-bar of the desired form and size. Fig. 3 indicates a cross-sectional view of the finished channel-bar.

Like letters of reference indicate like parts wherever they occur.

The object of my invention is to utilize old rails in the manufacture of channel-bars, as they can now be bought at about twenty-two dollars per ton, whereas the blooms, piles, and billets now used are worth from thirty-five to fifty dollars.

Another object in using old rails is, the raw material is in such a shape that but little redistribution of the metal is necessary in forming the channel-bar, whereas in the old method a very large part of the work is performed in bringing the material into suitable shape to enable it to be readily made into channel-bars.

My invention therefore consists in utilizing old iron and steel rails in the manufacture of channel-bars by subjecting the metal, while in a properly-heated condition, to a series of passes, which gradually reduce one side of the head and flange and redistribute the displaced, or a large proportion of the displaced, metal into the web and the opposite side of the head and flange, thus producing a channel-blank, which is finished by a subsequent pass or passes to the desired shape, size, and thickness.

In the practice of my invention the rails are properly heated and then passed through the groove A, which is so constructed as to reduce the metal in the top of the flange and drive it down into the opposite side of the flange, while at the same time the bottom side of the head is thinned and the surplus metal flows up into the upper portion of the head and into the web. The metal is then passed through the groove B, which reduces the upper part of the flange and deepens its lower part, and at the same time the lower part of the head is thinned and deepened while the upper part of the head is being reduced, the displaced metal being driven down into the lower section, where the surplus enters the web. The blank is then entered into the groove C, which still further reduces the upper flange and head and deepens the lower flanges. The metal is then turned over and passed through the groove D, in which the surplus is forced upward into the flanges, and the bar is again extended. The bar is then turned and passed into the finishing-groove E and rolled to the desired shape.

In practicing my invention care should be taken in turning and adjusting the rolls that the portions of the grooves A and B which inclose the web of the rail shall permit the web to thicken by the lateral flow of the metal, thus preventing material lengthening of the blank. In the groove C the web may be slightly reduced and the bar elongated, as at this point it is desirable to stop the lateral flow of the metal and force it down into the flanges. In the subsequent pass the metal is elongated to a greater degree.

Channel-bars from four to five inches in width, having flanges from one to three inches, may be readily made as described. When smaller sizes are desired, the height of the rail should be reduced to the desired size before entering the groove A.

The principal advantages are, first, the raw stock costs from thirteen to twenty-eight dollars per ton below the price of blooms, billets, and piles; second, as but little redistribution of metal is necessary, I dispense with "roughing" the material, thus increasing the capacity of the mill, dispensing with a considerable proportion of labor, power, and other incidentals; third, it is difficult to roll out the flanges when working steel blooms in the ordinary mill, but in my improvement it is easy

to get good flanges, on account of the shape of the raw material and my mode of redistributing the metal.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

A pair of rolls having passes, the first conforming to the shape of a rail and the last to the shape of a channel-bar, and the intervening passes shaped substantially as described.

JACOB REESE.

Witnesses:
FRANK M. REESE,
WALTER REESE.