W. EYNON.

Piles of Bar of Steel and Iron.

No. 219,629. Patented Sept. 16, 1879.

Fig. 1.

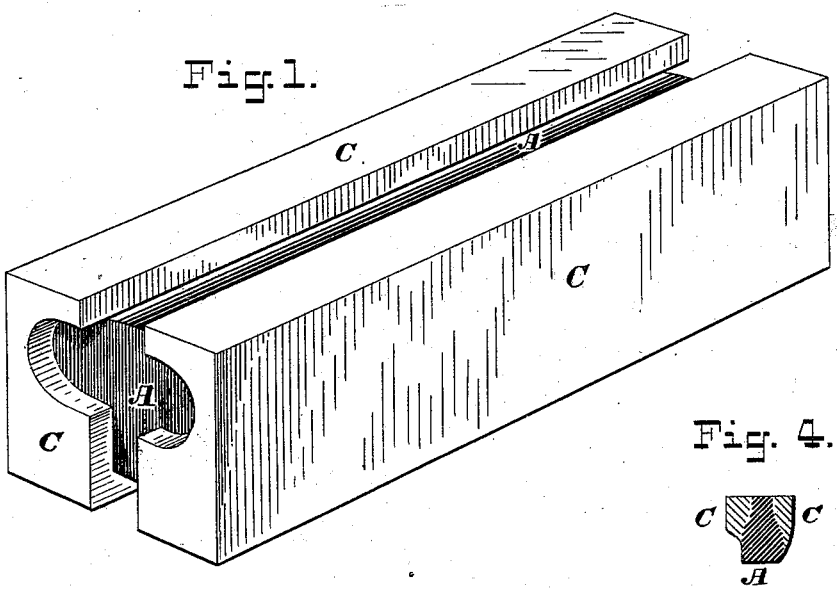


Fig. 4.

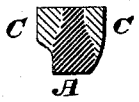


Fig. 2.

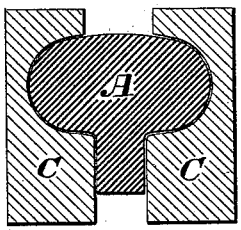


Fig. 3.

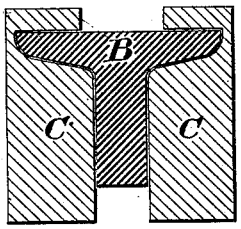
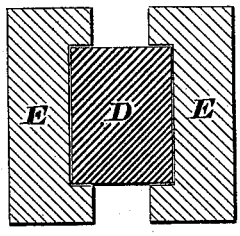


Fig. 5.



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WILLIAM EYNON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO GEORGE H. RUSSELL, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN PILES OF BARS OF STEEL AND IRON.

Specification forming part of Letters Patent No. **219,629**, dated September 16, 1879; application filed April 25, 1879.

To all whom it may concern:

Be it known that I, WILLIAM EYNON, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain Improvements in the Manufacture of Combined Iron and Steel Horseshoe-Bars, of which the following is a specification.

This invention relates to the manufacture of bars for horseshoes having a central or main strip of steel flanked on each side by strips of wrought-iron, the whole being solidly welded or intimately joined together by heating and rolling.

My process is especially adapted to the utilization of old steel railroad-rails, but is not confined to this, as other forms of steel bars may be employed in the manufacture.

In the drawings which serve to illustrate my invention, Figure 1 is a perspective view of a pile or fagot in which the head of a steel rail is utilized, and Fig. 2 is a cross-section of the same. Fig. 3 is a cross-section of a pile or fagot illustrating the utilization of the base of the rail. Fig. 4 is a cross-section of a finished bar rolled from the pile shown in Fig. 1.

In carrying out my improved manufacture of a horseshoe-bar wherein steel railroad-rails are to be utilized, I slip the rail through its web so as to separate the head from its base, A representing the former, and B the latter. These I cut into suitable lengths for piling and insert them between wrought-iron bars C C, rolled with grooves in their faces adapted to fit the contour of the rail head or base, and form a substantially rectangular pile or fagot, as represented in the first three figures.

The iron bars C C are wide enough to project somewhat above and below the steel portion, and are cut in lengths, so that when formed into a pile they will extend somewhat beyond the steel at each end, as clearly shown in Fig. 1. This extension of the iron beyond the steel all around protects the latter in a degree from the direct heat of the furnace, and enables the pile to heat evenly throughout without injury to the steel.

The pile thus formed is heated in the furnace, and then passed through the muck-rolls to thoroughly cement and weld the three elements together and reduce the bar to the proper size. The bar thus formed is then cut into billets of suitable length, and these are reheated and passed through the reducing and finishing rolls until they assume substantially the form shown in Fig. 4.

In the first rolling process the bars are passed through the rolls cornerwise; but in the after process they are passed through flatwise, being turned a quarter of the way round at each passage until the final roll, which gives the finishing bevels, is reached.

The bar thus formed consists of a central strip of steel extending through from one face to the other of the bar, and flanked by strips of wrought-iron, which also extend through, as shown in Fig. 4.

In Fig. 5 I have shown a cross-section of a pile or fagot consisting of a plain bar, D, of steel, sandwiched between flanking bars E E. The same process is employed in manipulating this pile as that just described, and the finished bar will not differ essentially from that shown.

In rolling the fagot or pile shown, the iron which projects above and below the steel will yield more readily to the pressure of the rolls than the steel, and the latter will come to the surface on both sides of the bar, as represented in the section of the finished bar.

By this process I am enabled to produce a horseshoe-bar possessing all the advantages of a steel bar as to strength and wearing qualities, without the disadvantages arising from the employment of an unnecessary amount of expensive material and the difficulty of working. This bar, although especially adapted and intended for use in the manufacture of horseshoes, may also be put to other uses.

Having thus described my invention, I claim—

1. A pile or fagot for the production of a horseshoe-bar, which consists of a central bar of steel and two flanking bars of wrought-iron, the iron bars being grooved to fit the contour of the steel bar, and arranged so as to project both above and below the steel and beyond the ends of the same, as shown, so as to protect the steel in heating, but not cover it, substantially as and for the purposes specified.

2. In a pile or fagot for utilizing steel rails

in the manufacture of combined iron and steel horseshoe-bars, the combination of the steel bar, composed of a base or head of a steel rail and the two flanking bars C C, of wrought-iron, formed on their inner faces to fit the edge of the steel base or head and the web of the same, the three elements being so arranged that the iron flanks project above and below the steel, but stand apart, so as to leave the steel uncovered above and below, for the purposes set forth.

3. The pile or fagot for producing a horseshoe-bar, which consists of the head or base of a steel rail and two flanking strips or bars of wrought-iron, C C, suitably grooved and formed to fit the contour of the steel, the said flanking strips being arranged on opposite sides of the said steel, and so as to project above and below and beyond the ends of the same, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses this 26th day of March, 1879.

WILLIAM EYNON.

Witnesses:
MATHIAS SEDDINGER,
JAMES EYNON.