

W. F. DURFEE.  
Piles for Bar-Iron.

No. 162,159.

Patented April 20, 1875.

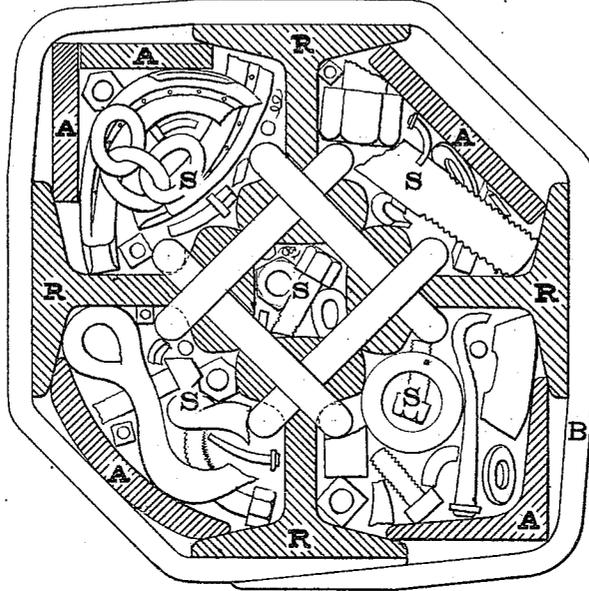


Fig 1.

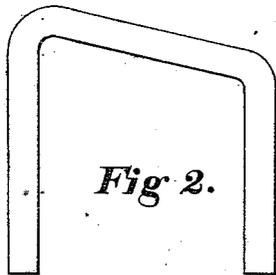


Fig 2.

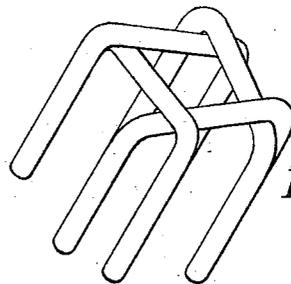


Fig 3.

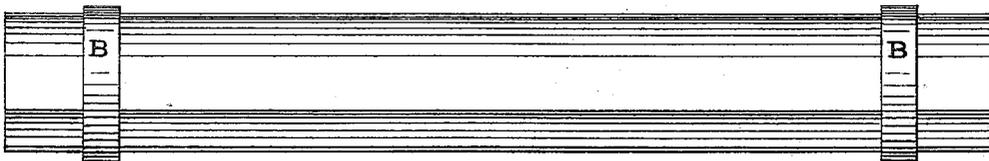


Fig 4.

Witnesses

*Edward St. Jones.*  
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# UNITED STATES PATENT OFFICE.

WILLIAM FRANKLIN DURFEE, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF HIS RIGHT TO JAMES JOHN HAGENNAN, OF SAME PLACE.

## IMPROVEMENT IN PILES FOR BAR-IRON.

Specification forming part of Letters Patent No. **162,159**, dated April 20, 1875; application filed March 16, 1875.

*To all whom it may concern:*

Be it known that I, WILLIAM FRANKLIN DURFEE, of the city of Milwaukee and State of Wisconsin, have invented an Improved Method of Piling Old Rails, in combination with scrap-iron and pieces of bar-iron, of which the following is a specification:

The object of my invention is to utilize, in an economical manner, in the manufacture of bar-iron, old railroad-bars, fine scrap-iron, and pieces of bar and angle iron, by combining them into a pile, substantially as herein described, reference being had to the accompanying drawing, forming part of this specification, said pile being properly heated and then drawn either by rolls or under a hammer into the form of bar desired.

The old rails forming part of the pile are so arranged that their "heads," (which are usually of a hard and crystalline texture, more or less brittle or cold-short in character,) are in the interior of the pile, and their flanges, which are of a soft, fibrous, and tough iron, are on the outside of the pile, as shown in the drawing—

Figure 1 being an end view of the pile, and Fig. 2 being a view of one of the staples used to fasten the pile at the ends, by which its several parts are held together. Fig. 3 shows an isometric view of the peculiar combination of four staples, so arranged as mutually to confine each other, as is also shown in the end view, Fig. 1. Fig. 4 shows the exterior view of the pile.

In Fig. 1 the rails are indicated by the letters R R R R. The spaces between the flanges of the rails aforesaid are filled by pieces of scrap bar-iron, or by bars rolled for the purpose, of any suitable form or size, as indicated by the letters A A A A. The spaces inclosed by the bars last named and the rails aforesaid, as well as the central space inclosed by the heads of the rails, are filled with pieces

of loose scrap-iron of any form that will pack together in a solid and compact manner, which spaces are lettered on Fig. 1 S S S S.

The several parts of the pile are held together, and retained in the proper relative positions, during handling and heating, by means of two or more bands or hoops, marked B B in the drawings, or by the peculiar combination of staples shown in Fig. 3, and which are shown in their places at the end of the pile in Fig. 1.

When a pile, constructed substantially as hereinbefore described, is heated and rolled into a bar of iron, it is found that the hard brittle iron forming the heads of the rails in said pile arranges itself in or near the center of the said bar of iron, while the fibrous iron of the flanges of said rails arranges itself on the outside of said bar, and is thoroughly united by welding with the iron A A A A and S S S S, filling the spaces in the pile between said flanges, while the whole iron of the pile is thoroughly welded together, and the resulting bar is found to be tougher, and to be less liable to crack when bent, than iron made from the same materials disposed in any other way than substantially as shown.

I claim as my invention and desire to secure by Letters Patent—

1. A pile for the manufacture of bar-iron, composed of railroad-bars, arranged in combination with other bars and scrap-iron, substantially in the manner and for the purpose hereinbefore described.

2. The peculiar combination of staples, or their equivalents, for holding the pile together, arranged substantially in the manner and for the purpose before described.

WILLIAM FRANKLIN DURFEE.

Witnesses:

EDWARD H. JONES,

WILLIAM H. OSBORNE.