

(No Model.)

P. ECKEL.

ROLLS FOR SIDE BEARING SUSPENSION RAILS.

No. 517,687.

Patented Apr. 3, 1894.

Fig. 1.

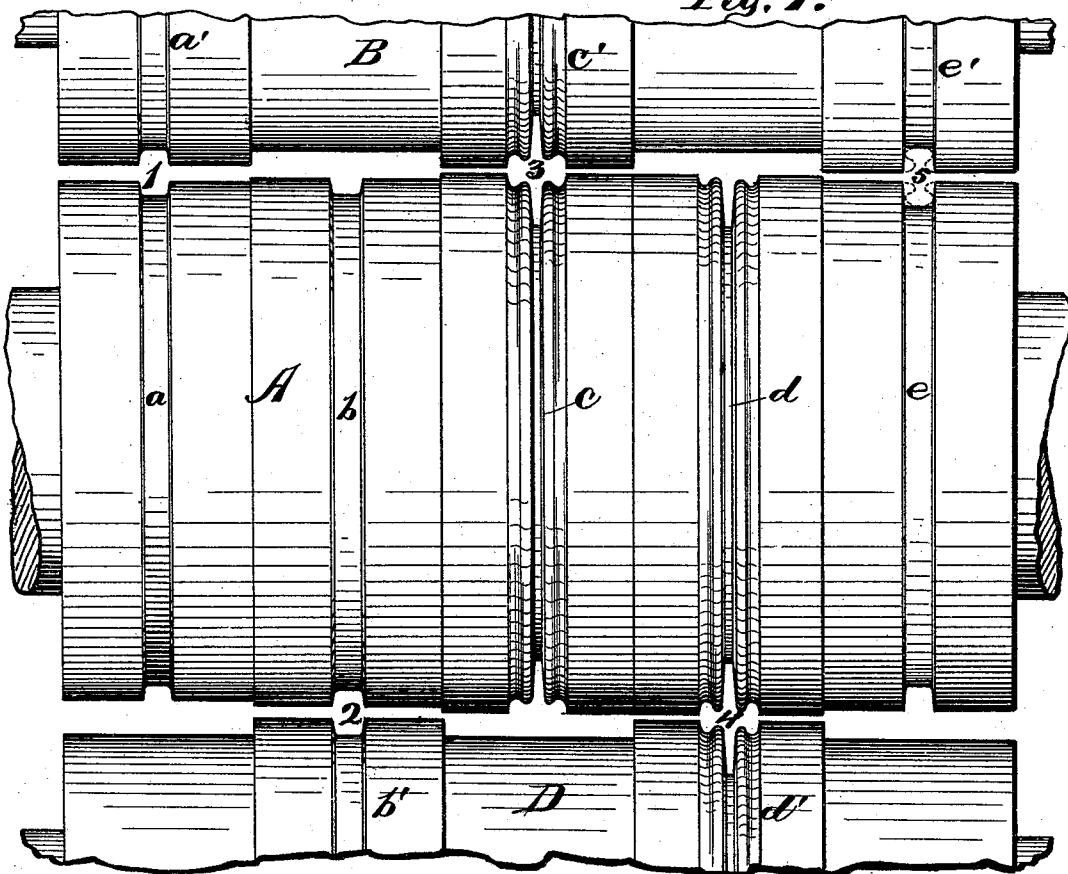
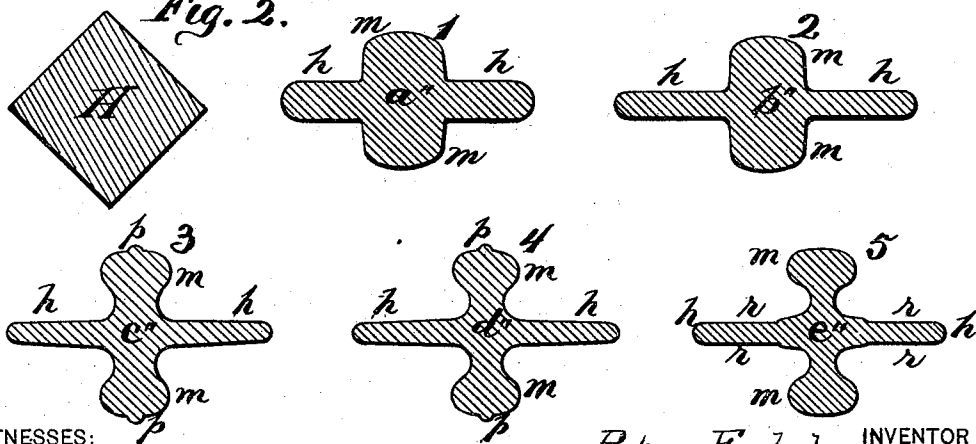


Fig. 2.



WITNESSES:

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ROLLS FOR SIDE-BEARING SUSPENSION-RAILS.

SPECIFICATION forming part of Letters Patent No. 517,687, dated April 3, 1894.

Application filed May 10, 1893. Serial No. 473,661. (No model.)

To all whom it may concern:

Be it known that I, PETER ECKEL, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful
5 Improvements in Rolls for Side-Bearing Suspension-Rails, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to rolling mills, and
10 particularly to the rolls for rolling bars of complex pattern or design, such as a rail having T-shaped ribs projecting from its lateral faces, and side bearings upon each side of the ribs on each face.

15 Heretofore, it has been exceedingly difficult, if not impossible, to roll side bearing rails having flat faces and having T-shaped longitudinal ribs projecting from both of said flat faces, chiefly on account of the great difficulty
20 in rolling the shanks and heads of the T-ribs simultaneously with the rolling of the flat faces.

The rolls shown in the drawings are provided with grooves or passes for rolling a
25 square bar down to produce a side bearing rail for use in a hay-carrier system, or in any system in which the rail is suspended from above and rollers traverse the flat surfaces on each side of the center, the rollers being
30 mounted in the arms of a Y-shaped frame which carries the load, below or under the rail; the rail so produced being reversible, in that it can be used either side up, and is suspended by clamps which engage with the upper
35 T-rib, or in any other suitable manner, whereby the rollers can traverse the rail without engaging with or striking the rail supports.

My object is, therefore, to produce a set or
40 train of rolls provided with passes of such shape, form or configuration that a square bar is reduced by the successive passes, to produce a rail provided with flat longitudinal trackways or bearings, on either side of
45 T-shaped longitudinal ribs.

The rolls are constructed as follows, reference being had to the accompanying drawings in which—

50 Figure 1, is a front elevation of a three high train or set of rolls, omitting their mountings, and part of each of the upper and lower rolls

are broken away. Fig. 2, represents in transverse section the bar in its original form, and the same in the different forms to which it is rolled by each successive pass through each
55 pair of passes, consecutively.

A, is the middle roll in a three high train; B—, is the upper roll; and —D— is the lower roll—all of which are erected or mounted in the cheeks in the ordinary manner and are
60 driven or rotated by any ordinary means. In the middle roll, the pass grooves *a, b, c, d* and *e* are cut with sloping walls for the flat pass grooves —*a-b-e*— and for the edge pass grooves —*c-d*—. In the upper roll, pass
65 grooves —*a'-c'-e'*— are cut, which are the counterparts of the pass grooves —*a-c-e*— in the middle roll; and the pass grooves —*b'-d'*— in the lower roll are counterparts of the pass grooves —*b-d*— in the middle roll;
70 so that the pass-grooves —*a-a'*— constitute the first pass, the grooves —*b-b'*— the second pass, the grooves —*c-c'*— the third pass, the grooves —*d-d'*— the fourth pass and the grooves —*e-e'*— the final or finishing pass.
75 For greater perspicuity, these passes are numbered consecutively, 1, 2, 3, 4 and 5, and will hereinafter be referred to as pass No. 1, 2, &c.

H, represents the rough bar, usually of rectangular form, and by pass No. 1 it is reduced
80 and rolled to the form shown at —*a''*— in Fig. 2, having the flat sides —*h*— and the more or less rounded ribs —*m*— projecting opposite to each other from the faces of the sides. By the second pass the sides —*h*— are
85 drawn out and rolled down thinner than by the first pass, while the stock in the ribs is very little reduced, except that they are reduced in width to give them greater outward
90 projection, as shown at —*b''*— in Fig. 2. Both of these passes are flat passes. By pass No. 3, which is an edge pass, the sides of the bar enter the deep and tapered central pass grooves and are reduced in thickness and made wedging and simultaneously therewith
95 the ogee of the pass groove on each side of the center roughs out the shank of the T of the ribs on both sides and at the same time a supplemental rib —*p*— is created on the top of each T-rib, as shown at —*c''*—
100 in Fig. 2. By the fourth pass, which is also an edge pass, the inclined or wedging sides

of the rail are somewhat more reduced and left still tapered, and the T-ribs are further perfected, as shown at d'' , in Fig. 2. By the final or finishing pass, No. 5, the T-ribs are perfected, the supplemental ribs rolled down and the sides are flattened so that their faces are parallel for a certain distance from their edges inwardly to a point adjacent to the base of each of the T-ribs, all as shown at e'' ; and the rail is finished, having flat trackways or side bearings r on each face on each side of each of the T-ribs, having T-ribs by which the rail can be centrally suspended, the rail being reversible, and adapted to be used either side up, and at the same time is strongly reinforced in strength by said T-ribs.

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

1. A set of rolls provided with a series of passes comprising two flat passes, followed by two edge passes, and a final flat pass, of the respective shapes shown in the drawings and numbered from 1 to 5 inclusive, whereby a

rectangular billet is swaged and rolled down into a reversible side bearing rail having longitudinal T shaped suspension ribs between the side bearings.

2. A set of rolls having a series of flat and edge passes, adapted by the first pass to swage a rectangular billet and partially produce the side bearings and the longitudinal ribs; by the succeeding flat pass to further produce said side bearings and ribs; by the succeeding edge pass to further finish said bearings and to partly concave said ribs, by the succeeding edge pass to further finish said side bearings and complete the concavities in said ribs; and by the succeeding final flat pass to finish the heads of the T-shaped suspension ribs and finish the side bearings.

In witness whereof I have hereunto set my hand this 2d day of May, 1893.

PETER ECKEL.

In presence of—

HOWARD P. DENISON,
J. L. DENISON.