

W. HEWITT.  
Method of Slitting Old Rails.

No. 224,827.

Patented Feb. 24, 1880.

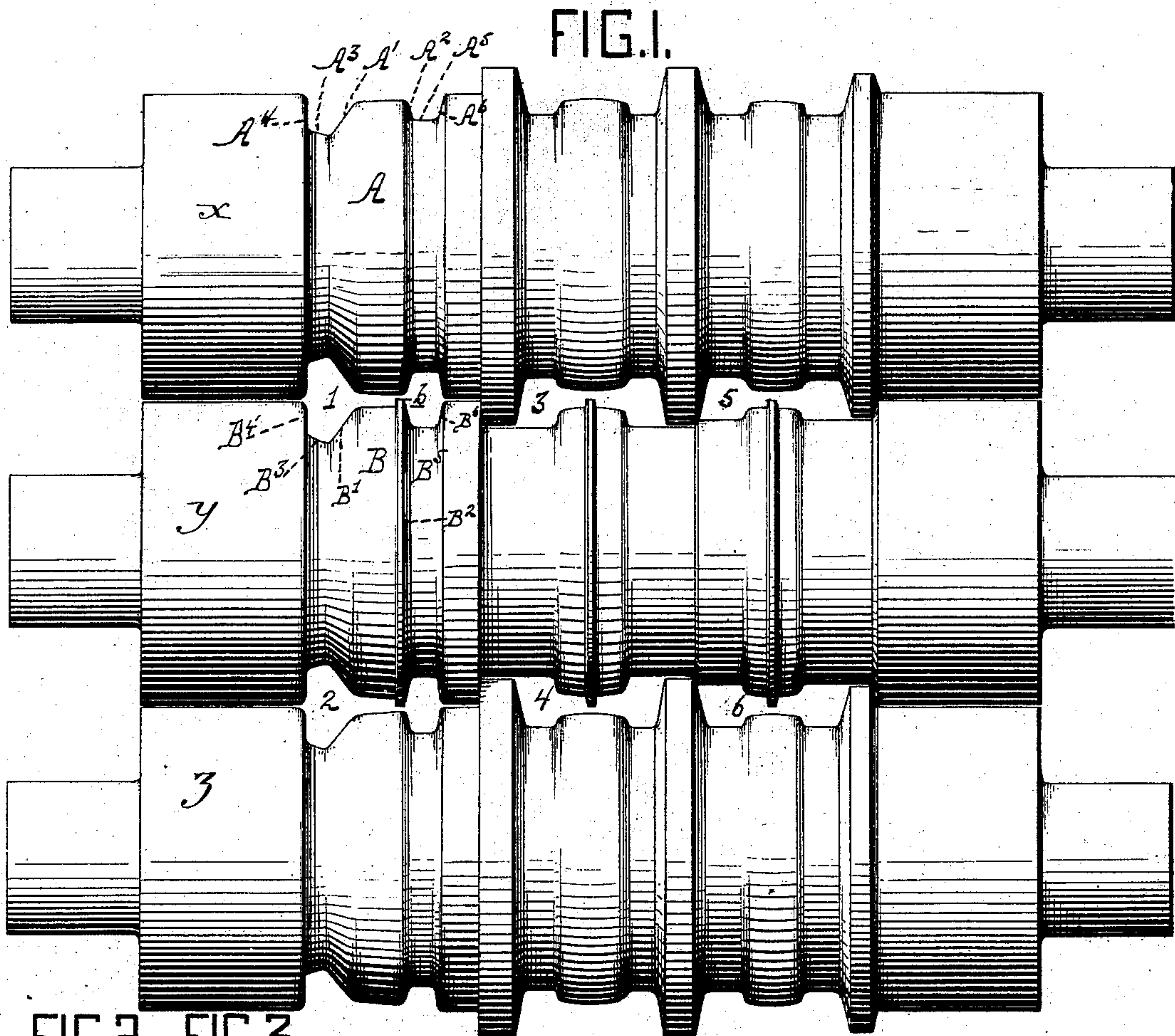


FIG. 2. FIG. 3.

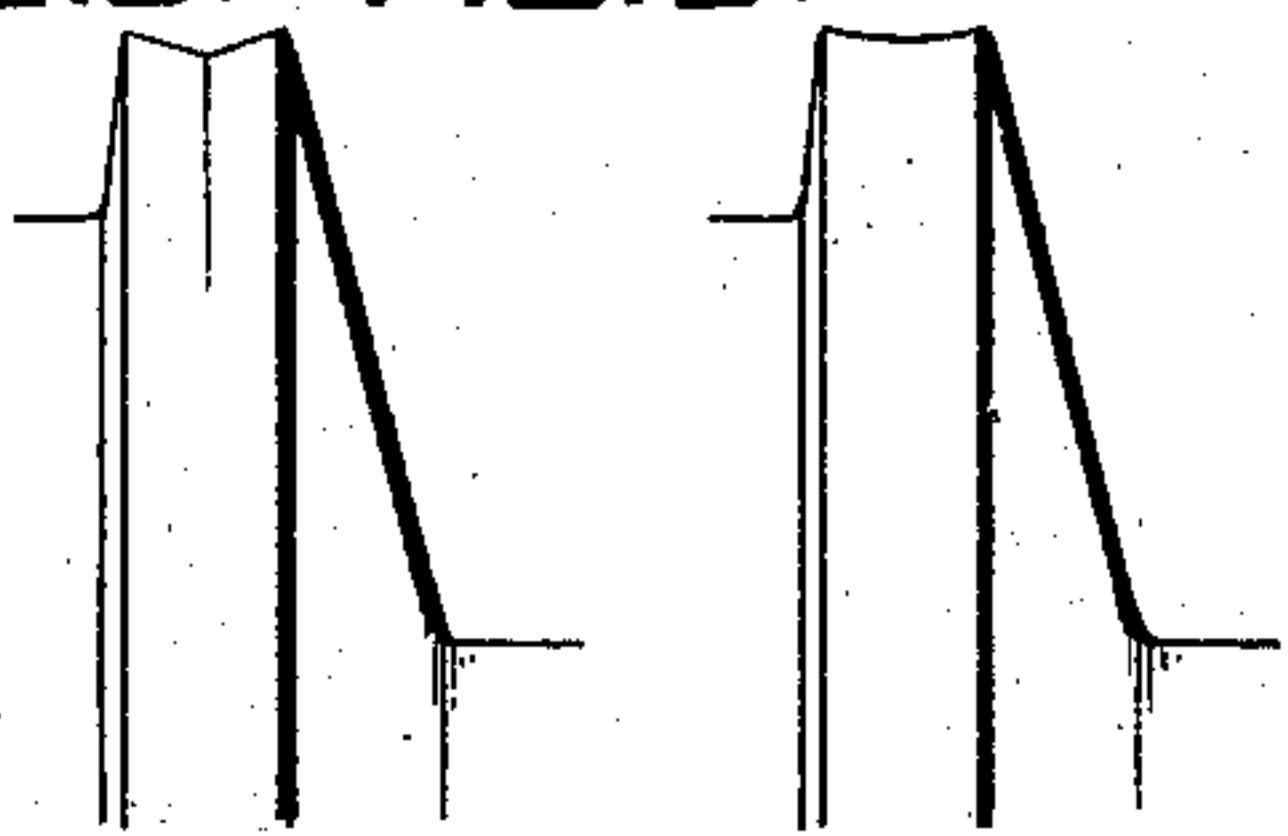
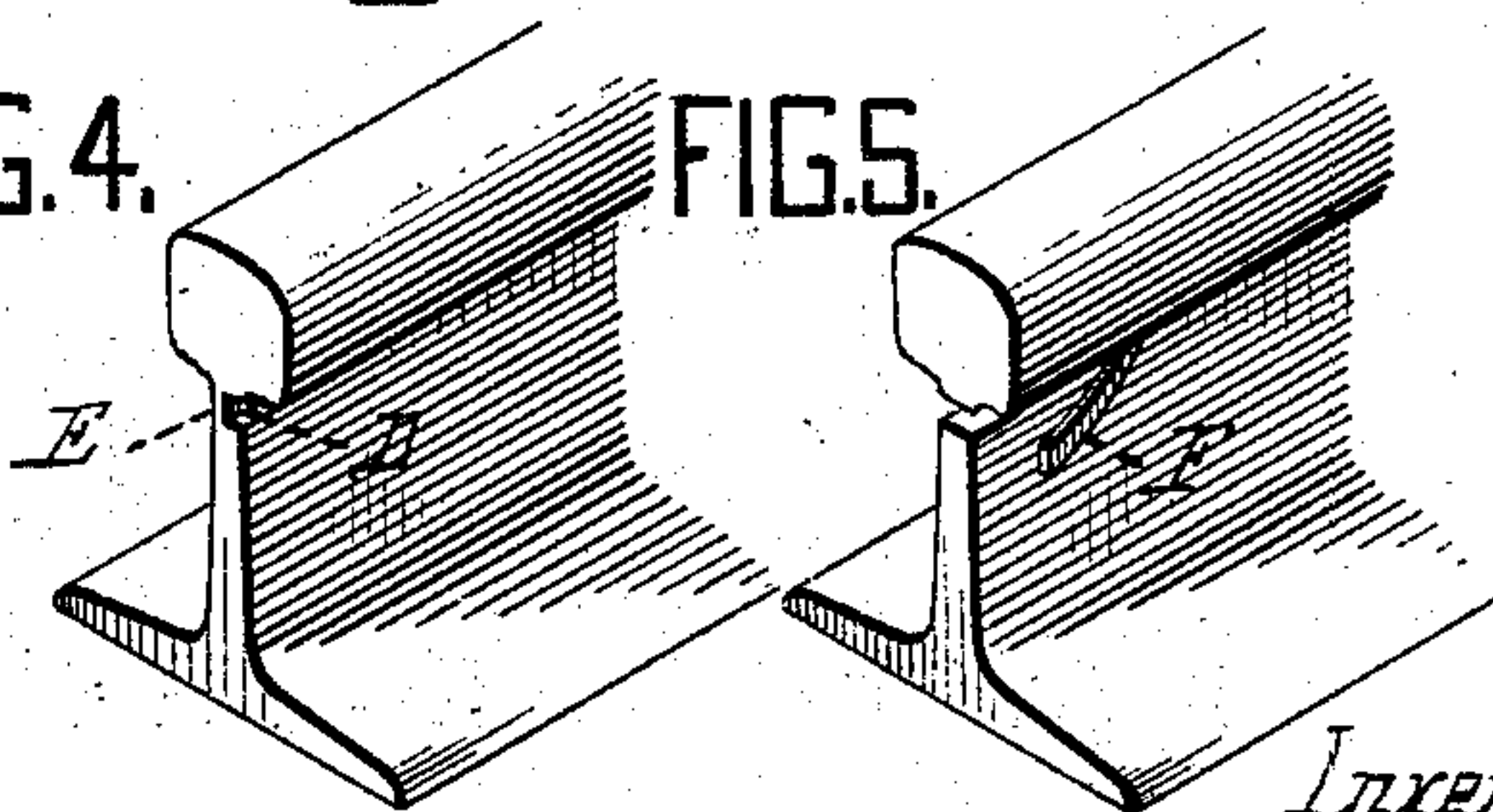


FIG. 4.



Attest,  
John Dolley,  
John Rupertus.

Inventor,  
William Hewitt  
By his Attorney,  
W. C. Strickland,  
Bonsall Taylor.



# UNITED STATES PATENT OFFICE.

WILLIAM HEWITT, OF TRENTON, NEW JERSEY, ASSIGNOR TO THE TRENTON  
IRON COMPANY, OF SAME PLACE.

## METHOD OF SLITTING OLD RAILS.

SPECIFICATION forming part of Letters Patent No. 224,827, dated February 24, 1880.

Application filed November 17, 1879.

*To all whom it may concern:*

Be it known that I, WILLIAM HEWITT, of  
Trenton, New Jersey, have invented a new  
and useful Method of Longitudinally Slitting  
5 Old Rails, and rolls by which said method  
may be carried out, of which the following is  
a specification.

The object of my invention is to provide a  
method of slitting old rails without producing  
10 any fin or burr at the point or points where  
the rail is severed.

Heretofore it has been usual to slit rails by  
means of rolls having V-shaped or knife-edged  
collars, the objection to which method has  
15 been that the cutting-edges of such collars  
wear very rapidly and soon become dull or  
rounded, with the result that when a rail is  
slit in such manner a thin film or fin is left  
along the severed edges of the slitted rail, as  
20 the roll is not sharp enough to cut the rail  
cleanly.

Another method of slitting rails has been  
to employ a roll having collars with flat faces,  
in connection with a second roll having re-  
25 cesses or grooves opposite to the projecting  
collars upon the first-named roll, whereby, at  
one pass, the rail has been severed longitudi-  
nally by rolling or punching the stem bodily  
out of the rail. By this method, however, fins  
30 or burrs are also formed upon the edges of the  
severed rail upon the side toward which the  
stem is punched out.

The objection to the above-mentioned or  
other methods in which fins are produced is  
35 that the slitted rails must subsequently be re-  
heated to a welding-heat, and then passed  
through rolls to weld the fins solidly with  
the body of the metal.

It is obvious that these methods are not ap-  
40 plicable to steel rails, as steel cannot be heated  
to a welding-point without destroying the  
character of the same, and, further, for the  
reason that steel does not perfectly weld upon  
itself.

45 It is necessary, therefore, in the above-men-  
tioned or kindred methods of severing steel  
rails, to first allow the parts of the severed rail  
to cool, then chip off the fins, and then re-  
heat the parts before they can be rolled into

bars or rods—a method both laborious and ex- 50  
pensive.

My improvement consists in severing rails  
by rolling longitudinal grooves of a depth less  
than the thickness of the stem and greater  
than half the thickness of said stem along 55  
one side of the stem of the rail, one or more  
being rolled, according to the number of parts  
into which the rail is to be divided, by means  
of punching-collars upon the roll, and then  
by subjecting them to a second pass through 60  
the rolls, in which second pass a collar or col-  
lars similar to the collar or collars which in the  
first-named pass formed the groove or grooves  
punches out the portion of the stem opposite  
the groove formed in the first pass, said col- 65  
lars in the second pass operating upon the  
other side of the stem of the rail from that in  
which the groove was formed in the first pass.

My invention also consists in the rolls by  
which the above method is carried out. 70

In the drawings, Figure 1 is a front elevation  
of my rolls, the punching-faces of the collar of  
which are flat. Figs. 2 and 3 are front elevations  
of other forms of punching-collars which may be  
employed upon said rolls. Fig. 4 is a perspec- 75  
tive view of a rail, showing the groove formed  
in the stem in pass 1 of the rolls; and Fig. 5, a  
perspective view of a rail, showing the manner  
in which the severing of the same is completed  
in pass 2 of the rolls. 80

In the drawings similar letters denote like  
parts.

Referring to the drawings, the following is  
a description of a form of rolls which conven-  
iently effectuates my method of slitting rails: 85

The rolls represented are three high, and,  
as illustrated, are provided with six grooves  
or passes, 1, 2, 3, 4, 5, and 6. Pass 1 is formed  
upon the uppermost roll in the following man-  
ner: A represents a flat-faced collar of such 90  
form as to register with the upper side of the  
stem of the rail. The sides of this collar are  
beveled, as at A' and A<sup>2</sup>. The face A' is so  
formed as to register against and bend the  
flange of the rail. The face A<sup>2</sup> registers against 95  
the under surface of the head of the rail. A<sup>3</sup>  
is a groove the top of which registers against  
the edge of the flange of the rail. The side A<sup>4</sup>



of this groove registers against the bottom of the flange.  $A^5$  is a groove the top of which registers against the side of the head of the rail, while the side  $A^6$  of said groove registers against the top of the head of the rail.

$B^2$ ,  $B^3$ ,  $B^4$ ,  $B^5$ , and  $B^6$  upon the middle roll are similar to the parts  $A^2$ ,  $A^3$ ,  $A^4$ ,  $A^5$ , and  $A^6$  upon the upper roll.

The collar B upon the middle roll is similar to the collar A upon the upper roll, with the exception that said collar B is provided with an auxiliary punching-collar,  $b$ , having a flat face and being of a height greater than one-half the thickness of the web of the rail.

The lowermost roll is of the same form as the uppermost, and pass 2 is of the same form as pass 1 inverted.

Passes 3, 4, 5, and 6 are shown simply as forms adapted to sever a rail of the old English pattern, and possess the same mode of operation as passes 1 and 2.

In operation, when a rail is passed through pass 1 a narrow groove, D, Fig. 4, is rolled in one side of the stem of the rail by means of the punching-collar  $b$  upon the middle roll, Fig. 1. The rail is then returned through pass 2, whereupon the punching-collar  $b$  upon the middle roll is made to operate upon the part E, Fig. 4, of the stem of the rail opposite to groove D, whereby a strip, F, Fig. 5, is bodily punched from the stem of the rail, and the rail thus divided into two parts, without the formation of a fin or burr upon the parts.

I do not confine myself to the use of a punching-collar having a flat face, as is shown at  $b$ , Fig. 1, as collars with a slightly-concave or angularly-concave face, as shown in Figs. 2 and 3, would effect the same result. I prefer, however, to use a punching-collar with a flat face.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The method of slitting rails which consists in rolling a groove in one side of the rail, and then rolling a groove in the other side of the rail, and opposite and extending into the first-named groove, whereby a portion of metal of the rail is punched out from between the divided parts of the rail, as described.

2. Three-high rolls of which the middle one is provided with a narrow straight collar,  $b$ , of a depth greater than one-half the thickness of the web of the rail to be split, and of which the others have collars opposite the said collar  $b$ , to co-operate with said collar in dividing the rail into two parts, in the manner set forth.

In testimony whereof I have hereunto signed my name this 11th day of November, A. D. 1879.

WM. HEWITT.

In presence of—

J. BONSALE TAYLOR,  
W. C. STRAWBRIDGE.