

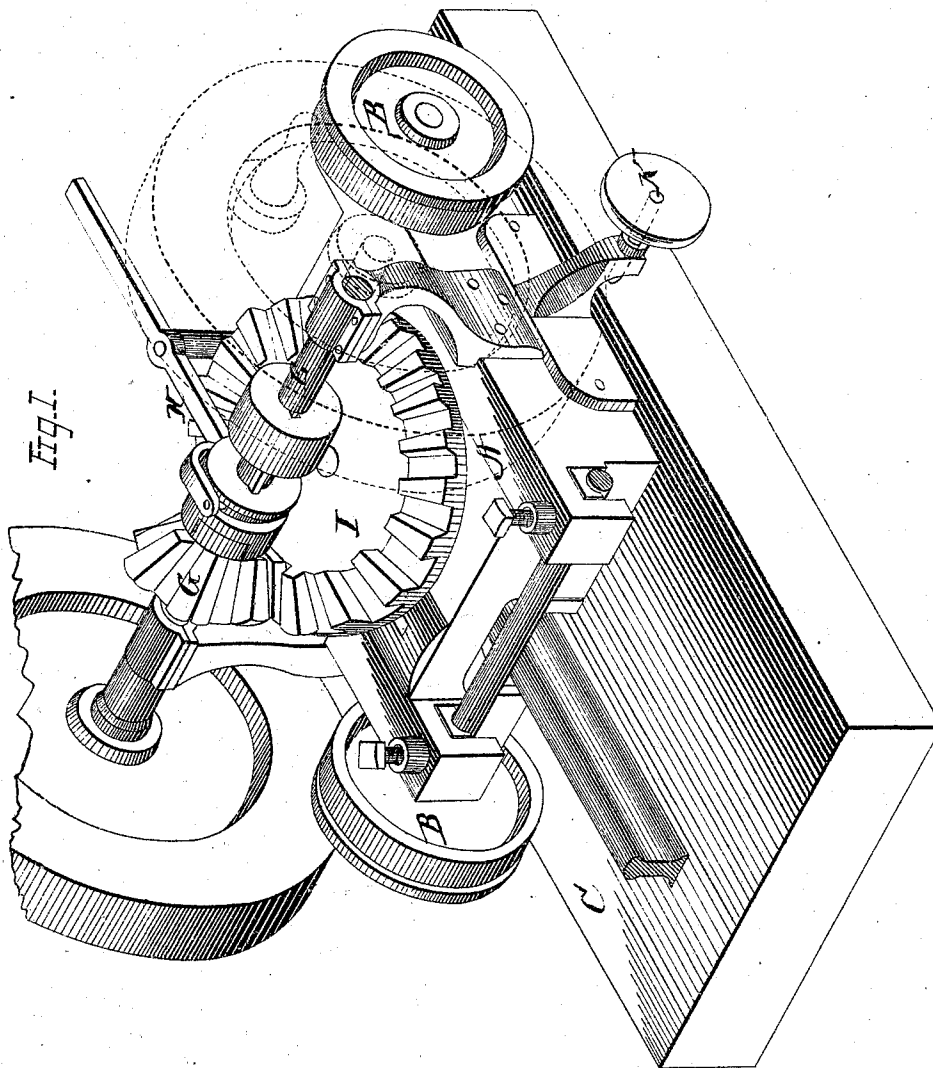
2 Sheets--Sheet 1.

T. CRITCHLOW.

Manner of Punching Bolt-Holes in Steel Railroad Rails.

No. 136,037.

Patented Feb. 18, 1873.



Witness:
Geo. E. Hutchinson
G. L. Ewert.

Inventor.
Thomas Critchlow.
per *Charles Thason*

Attorneys.

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Fig. 2.

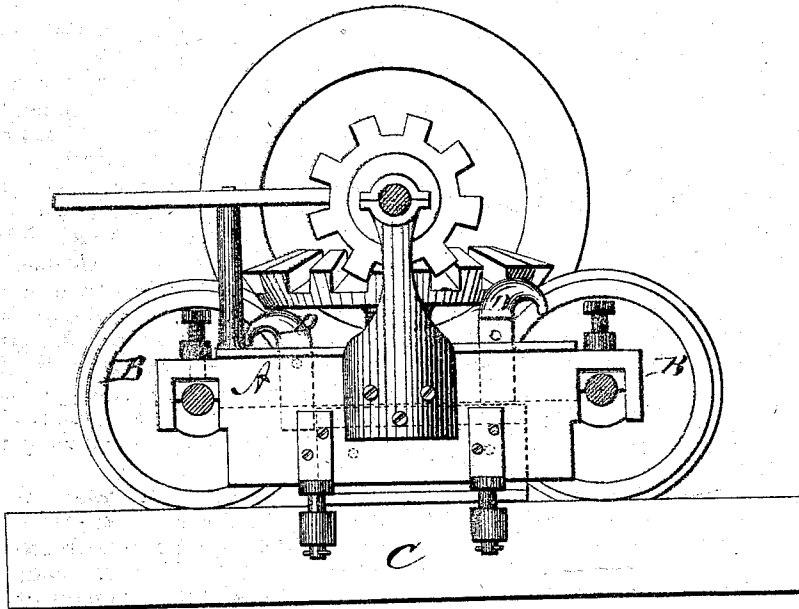


Fig. 3.

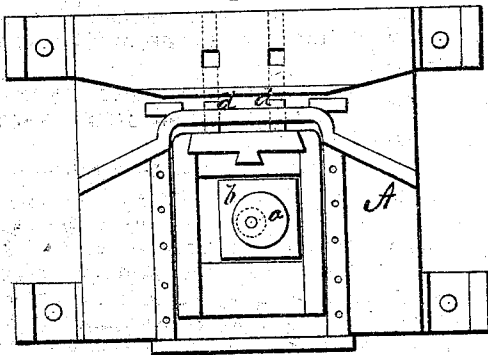
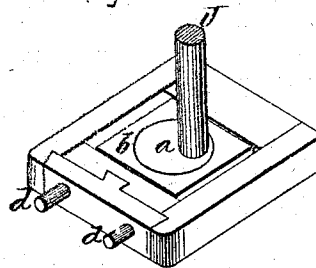


Fig. 4.



Witness:
Jas. C. Hutchinson
C. L. Evers

Inventor
Thomas Critchlow
per Alexander Thomson

Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS CRITCHLOW, OF BALDWIN, PENNSYLVANIA.

IMPROVEMENT IN THE MANNER OF PUNCHING BOLT-HOLES IN STEEL RAILROAD RAILS.

Specification forming part of Letters Patent No. 136,037, dated February 18, 1873.

To all whom it may concern:

Be it known that I, THOMAS CRITCHLOW, of Baldwin, in the county of Dauphin and in the State of Pennsylvania, have invented certain new and useful Improvements in Process for Puncturing Bessemer-Steel Railroad Rails; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention relates to the puncturing the orifices in the sides of Bessemer-steel railroad rails, as will be hereinafter set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe my machine and the manner in which I propose to employ it, referring to the annexed drawing, which represent the same.

Heretofore the orifices in railroad rails made of Bessemer steel have been drilled after the rail is cooled. This has been found to be a very expensive and laborious process, and it has been found impracticable to punch the holes in the rails after they are cold.

By my mode of operation the holes necessary for the passage of the fish-plate bolts are punched while the rail is hot, and directly after the rail is sawed the requisite length and while it is on the straightening plate or table. In manufacturing these rails the heated metal is rolled into shape and then sawed the required length. The rail is then more or less crooked when it is straightened on the straightening-table, in the usual manner. At this stage of the process for manufacturing the Bessemer-steel rails the metal may be easily punched. The punching-carriage used by me is then run to the rail, and the rail instantly punctured while the rail is yet hot. This operation must be quickly done, for if the rail becomes cooled it cannot be afterward bent to the required sweep, which latter is always necessary on account of the unequal contraction of the metal in the manufacture of all rails.

In the annexed drawing, I have represented a carriage, A, mounted upon wheels B B, and moved upon the straightening-table C to the

rail, when in the heated state before described. Across the carriage A is a driving-shaft, E, provided with the usual fly-wheel, and a pulley to connect with the power employed. On this shaft E is a miter-pinion, G, which gears with a miter-wheel, I, on an upright shaft, J, passing through the carriage. On the shaft E is also any of the known and usual shipping devices H, to throw the pinion G in and out of gear with the wheel I. On the lower end of the shaft J is an eccentric, a, moving a slide, b, to which the punches d d are attached. K represents set-screws to hold the carriage on the table. The carriage A is also provided with movable stops or gages D D, to work against the ends of the rails, so that the holes made will be always at the same distance from the ends.

By this mode of operation the rail is not bent out of shape or otherwise injured, and the operation is quickly performed at a greatly-reduced expense from the mode of operation now employed. The puncturing is also accomplished without interfering with the additional handling or the other necessary treatment of the rail.

I do not wish to be understood as confining myself to the precise mechanism above described.

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

In combination with a railway-rail straightening-table or saw-carriage, a punching-machine located thereon, and stop-gages connected with said machine to regulate the relative positions of machine and rail, jointly with the method of applying said machine to the punching of rails while the same lie upon the table or saw-carriage, and while still retaining the heat previously imparted to the metal to effect the rolling of the same to the form of a rail, all substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of October, 1872.

THOS. CRITCHLOW.

Witnesses:

C. L. EVERT,
A. N. MARR.