

J. Stone.

Mach. for Welding and Cutting R. R. Rails.

N^o 91,178.

Patented Jun. 8, 1869.

Fig: 1.

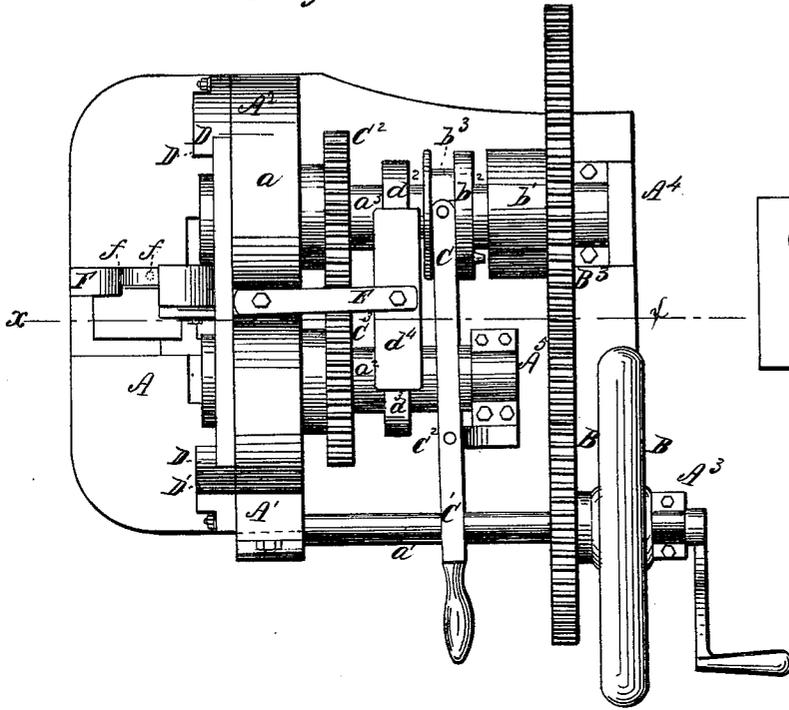


Fig: 3.

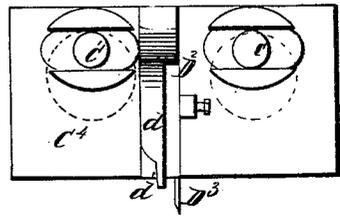


Fig: 2.

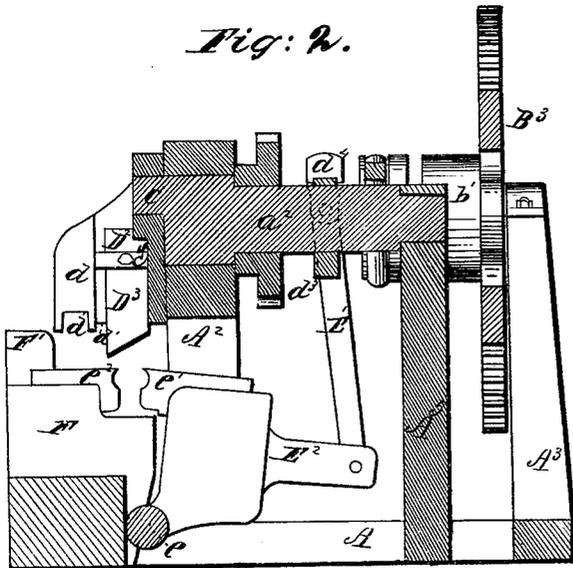
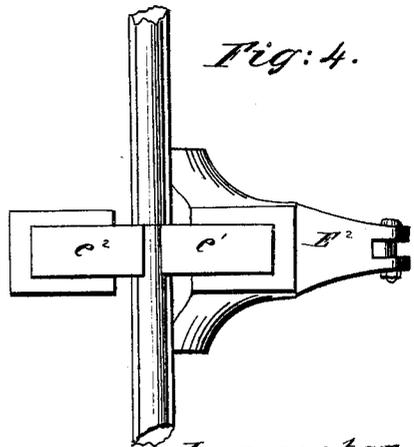


Fig: 4.



Witnesses

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United States Patent Office.

JOSEPH STONE, OF KEESEVILLE, NEW YORK, ASSIGNOR TO HIMSELF, C. S. BAUM,
M. T. CONRO, E. W. REYNOLDS, AND G. T. THOMAS, OF SAME PLACE.

Letters Patent No. 91,178, dated June 8, 1869.

IMPROVED MACHINE FOR WELDING AND CUTTING RAILROAD-RAILS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSEPH STONE, assignor to myself, C. S. BAUM, and others, of Keeseville, in the county of Essex, and State of New York, have invented a new and improved Machine for Cutting and Welding Railroad-Rails; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention consists in certain details of construction, whereby the several operations of welding, cutting, and punching rails are effected, the construction and operation of which will hereinafter more fully appear.

In the drawings—

Figure 1 is a plan view of my invention;
Figure 2, a vertical section through line xz , fig. 1;
Figure 3, a side elevation of cross-head; and
Figure 4 represents the clamps as used for welding.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and operation.

A represents the foundation of the machine, provided with the standards $A^1 A^2$ and $A^3 A^4$, the two former of which are connected by the cross-beam or span a , in which are the bearings of the driving-shaft a^1 and shafts $a^2 a^3$, the opposite bearings of the same being respectively in the standards A^3, A^4 , and A^5 .

The driving-shaft is provided with the balance-wheel B, and outside the standard A^3 , with a pulley or other suitable means of receiving power.

In close proximity to the balance-wheel B is the pinion B^2 , which meshes with the gear-wheel B^3 , which is loosely attached to the shaft a^3 , and revolves freely thereon. It is provided with the disk b^1 , rigidly attached thereto, the inner side of which engages with a clutch of any description on the sliding collar b^2 , the latter being provided with the annular groove b^3 , in which the fingers of the bifurcated arms C operate.

The arms C form a part of the lever C^1 , which is pivoted at C^2 to a projection on the standard A^5 .

I attach my collar b^2 to the shaft in any convenient manner, preferably by forming longitudinal projections on the latter, which engage with corresponding grooves or slots in the bore of the former.

Near the cross-beam a is the cog-wheel C^3 , which meshes with the wheel C^2 , on the shaft a^2 , both of which wheels are of the same diameter, and have their bearings in the cross-beam a , their ends being nearly flush with the outer side of the same.

$c^1 c^2$ represent two pins or projections, eccentrically attached to the ends of the shafts a^2 and a^3 , which project horizontally through the elongated orifices $c^3 c^4$, in the sliding cross-head c^4 , and when the shafts

revolve, impart reciprocating vertical motion to the cross-head c^4 , which moves in the grooved channels D D, in the projections $D^1 D^2$.

D^2 represents a projection on the cross-head, which is provided with a suitable recess for the movable knife or chisel D^3 , and has an additional projection, d , on the lower end of which are the vertical punches $d^1 d^2$, which, when depressed by the cross-head, enter suitable orifices in a plate beneath.

In the shafts $a^2 a^3$, and about midway of the same, are the eccentrics $d^2 d^3$.

d^4 represents a cross-head, extending between the eccentrics d^2 and d^3 , and provided on its under surface with fingers that clasp the sides of the same.

E represents an elastic strip of metal, whereby the cross-head d^4 is held in position. A vertical motion is imparted to the cross-head by means of the eccentrics, which motion is imparted by the connecting-rod E^1 to the rock-shaft E^2 , between the standards A^1 and A^2 , which shaft is held by the adjustable pointed pivots $e e$, which transform the reciprocating motion of the cross-head d^4 to a vibrating motion, having its centre at the pivots $e e$.

In the upper part of the rock-shaft E^2 is a recess, in which is placed the die e^1 , the outer end of which, and the inner end of the die e^2 , are of the form of a cross-section of rail.

The die e^2 is located in a recess in the bed-plate F, upon which are the projection F^1 and holes $f f$.

The operation of my invention is as follows:

When the rail is to be cut, it is placed transversely upon the projection below the knife.

The clutch being thrown into gear by means of the sliding collar b^2 , the driving-shaft is set in motion, which operates the gear-wheel B^3 by the above-described connection.

Motion is thence communicated to the shafts $a^2 a^3$, with their eccentric attachments, by means of which the cross-head c^4 , with the knife D^3 , is operated, which latter descends with sufficient force to cut the rail transversely, as shown in red, fig. 4, the same being firmly held between the die e^1 , on the rock-shaft, and the die e^2 .

To weld the rails, the knife is removed, and the ends of the rails are bevelled in any suitable manner, heated to a sufficient degree, lapped together, and placed in the peculiar-shaped space between the dies $e^1 e^2$.

During this operation the gear-wheel B^3 has been thrown out of connection by the lever C^1 , in order that the welding-mechanism may remain quiet during the preparation of the rails.

Let the connection be again formed, when the eccentrics $d^2 d^3$, on shafts $a^2 a^3$, will impart the reciprocating motion to the cross-head d^4 , which will impart

the vibrating motion to the rock-shaft E^2 , and force the die e^1 firmly against the heated ends of the rails, compressing them into the form of the ends of the dies.

When it is desired to punch the spike-holes in the flanges of the rails, they are placed under the punches $d^1 d^1$, the upper part of the rail passing between the same, and, by the above-described operation, the punches are brought down and form the holes.

The form of the dies may be varied to adapt the arrangement to different styles of rails, as also the other operating-devices, as described.

The construction of my invention must necessarily be one of great strength, to compensate for the hardness of the material employed. The rails must also be held securely when being cut; if otherwise, the knife would speedily be ruined by the strain to which it would be subjected.

I claim to have secured these advantages, in an eminent degree, by my construction.

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

The arrangement above described, consisting substantially of the cross-head c^1 , with attachments, eccentrics $c c^1$, $d^2 d^2$, cross-head d^1 , rocking-lever B^2 , connecting-rod E , and dies $e^1 e^2$, as and for the purpose set forth.

This specification signed and witnessed, this 19th day of January, 1869.

JOSEPH STONE.

Witnesses:

ABNER SHELDON,
GUSTAVUS PERKINS.