

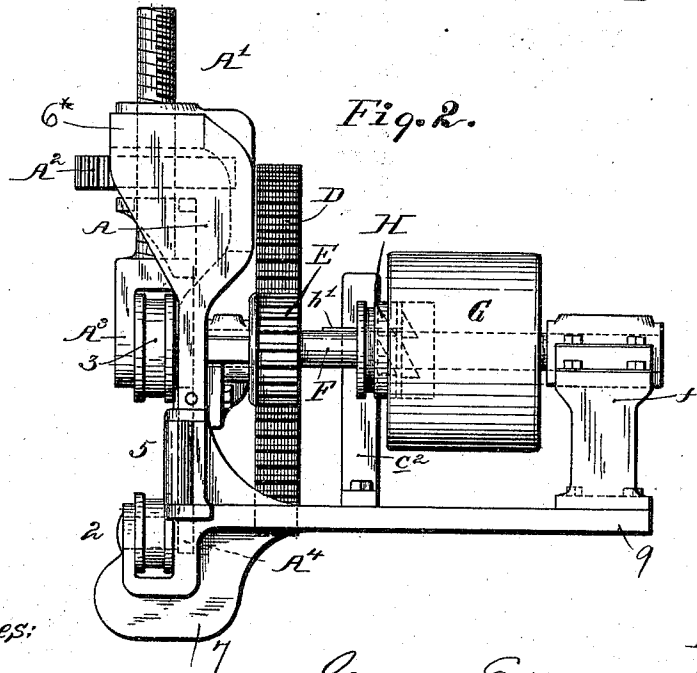
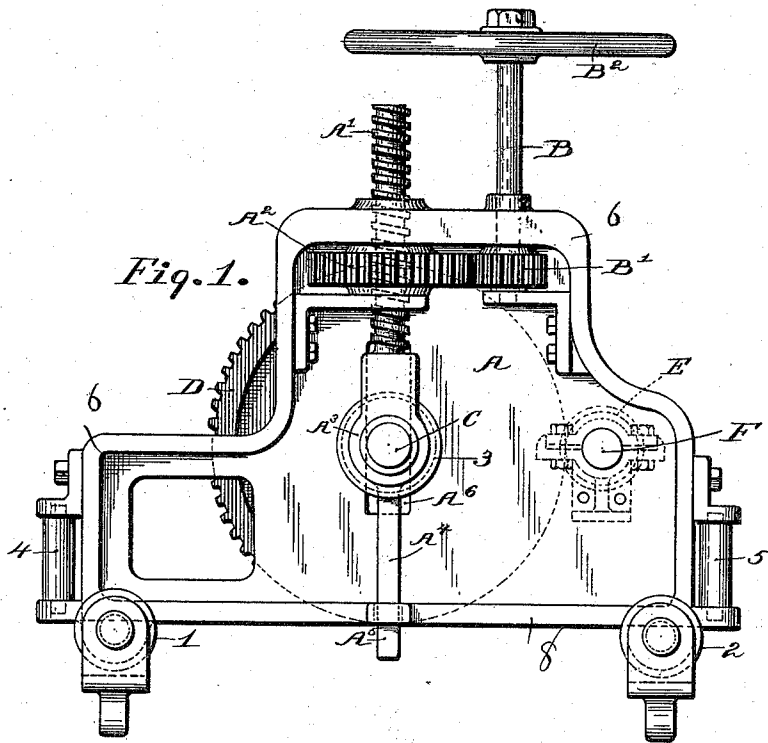
(No Model.)

2 Sheets—Sheet 1.

G. E. SMITH.
MACHINE FOR BENDING RAILWAY RAILS.

No. 537,790.

Patented Apr. 16, 1895.



Witnesses:

Walter Famariss
Herbert Bradley

Inventor:

George Edward Smithy.
By John Malvest & Son.
his Attorneys

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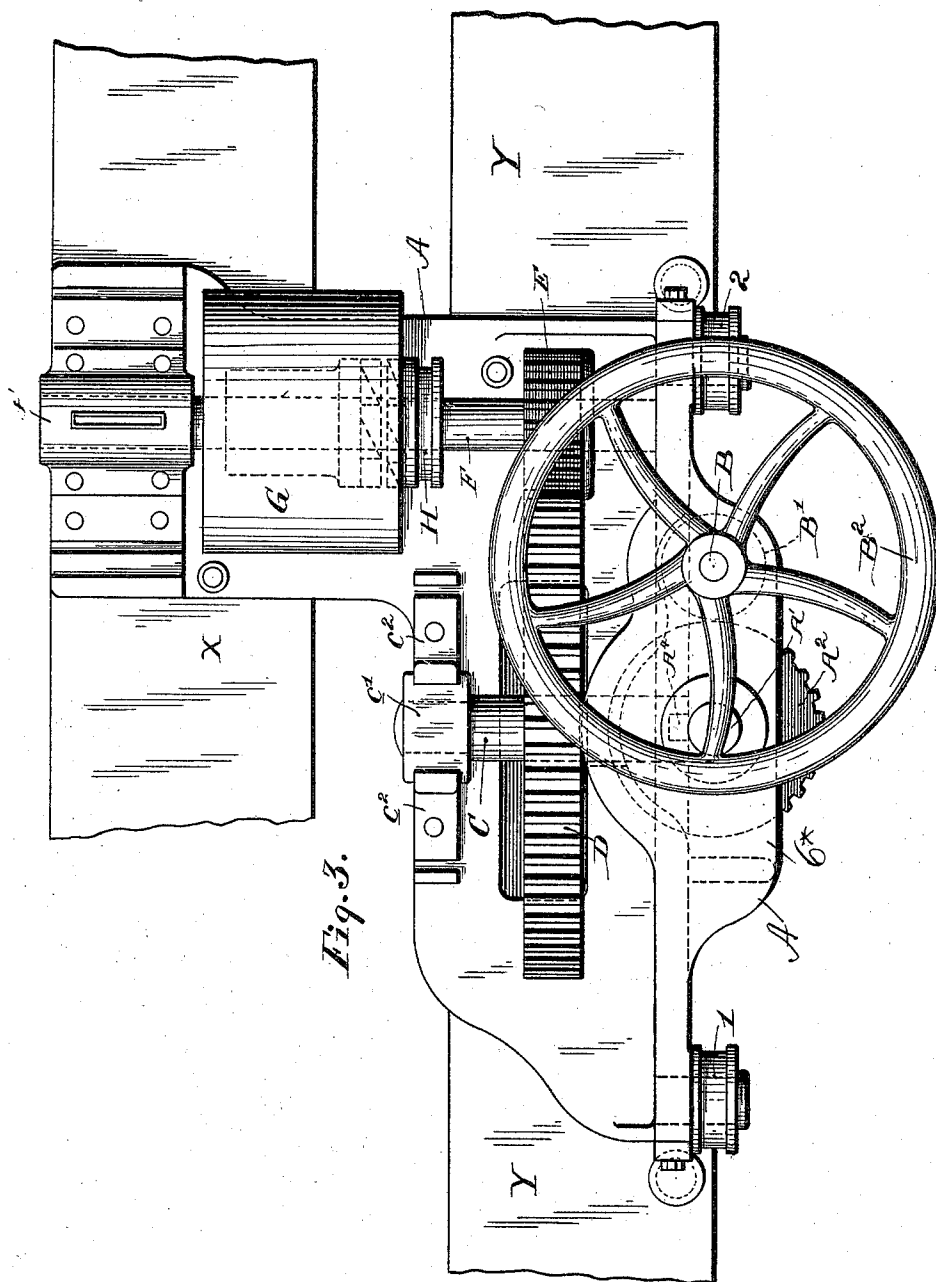


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE EDWARD SMITH, OF RIDGETOWN, CANADA.

MACHINE FOR BENDING RAILWAY-RAILS.

SPECIFICATION forming part of Letters Patent No. 537,790, dated April 16, 1895.

Application filed June 23, 1894. Serial No. 515,517. (No model.)

To all whom it may concern:

Be it known that I, GEORGE EDWARD SMITH, of Ridgetown, Ontario, Canada, have invented certain new and useful Improvements in Power-Machines for Bending Railway-Rails and other Rails; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to metal bar or rail-bending by steam or other power, instead of by hand; and consists in a special construction of machine whereby this may be effected cheaply and very rapidly, and causing the rail to be fed by it through the machine, the latter being at the same time stationary; and consequently capable of giving a uniform bend or curvature to a rail, by means of its capacity for producing a uniform continuous feed throughout its whole length: one man being generally sufficient to manage the machine.

My improved machine is eminently adapted for bending railway rails for curves and switches.

In the drawings illustrating a machine embodying my improvements, Figure 1, represents a front view or elevation, some of the rear parts shown in the other views being omitted; Fig. 2, an end view, and Fig. 3, a top view.

A indicates the main body of the machine and which instead of being, as usual, in several parts liable to loosen or separate, is made inclusive of its bed-piece, all in one strong solid casting, which supports the gears, &c., and the machine can be set up anywhere on two pieces of timber indicated at X and Y. This frame has the following features, namely: a strengthening flange 6, bordering its upright portion,—a forward projection 6*, of such flange or rim at the top of this upright or standard, such top having holes therein for a vertical screw and a vertical shaft as hereinafter described,—downward projections 7, from its base 8, to support the non-adjustable

rollers,—an extension 9, of the base or bed, back from these projections, such extension passing beneath the driving pulley and beyond the outer extremity of the shaft, to permit said extremity to be upheld by a suitable standard or support,—and a guide way or passage in its lower flange, for a vertical guide bar of an adjustable socket-piece. In this solid body or frame A, is mounted in suitable bearings cast with or made in this frame, the vertical screw A', carrying the gear A², and a connecting socket piece A³, which has an extension guide bar A⁴, movable in its guide A⁵; and also the vertical shaft B, carrying the pinion B', and the hand wheel B², for actuating said pinion, which latter engaging with the large gear A², serves upon turning the wheel B², to operate said gear and the screw A', in order to set the rail to be bent, to the desired curvature before applying the power to feed such rails through the machine and to impart to it the same predetermined curvature throughout: without need of stopping as is customary, to re-set the rail while bending it for short portions only of its length, a practice usually resulting in giving the rail different and unequal curves throughout its length.

C, is a horizontal shaft carrying a large gear D, which engages with a pinion E, on shaft F, which is parallel with C. One end of this shaft C, has its bearing in a vertically movable slide block c', movable in the upright guide c², and its other end has its bearing in the socket piece A³, whose extension A⁴, can rise and fall without turning in its guide A⁵. By these means, the gear D, with its shaft, may be raised or lowered as required. A suitable opening a⁶, in the casting A, permits this vertical movement of shaft C.

To the shaft F, the power is applied, say from a steam engine or other source of power, so that the machine may work automatically after the rail shall have been inserted and adjusted to its proper position between the rollers 1, and 2, in fixed bearings on the frame, and the feed roller 3, carried by the adjusting screw A'. 4, and 5, indicate vertical guide or friction rollers.

G, is a driving clutch pulley on shaft F, and is provided as shown with an appropriate

clutch H, movable as need be on said shaft, to which it connects by any suitable feather or spline h'. The rear end of shaft F', is supported in a proper upright f', secured to the solid extended portion of the bed of the main body of the machine frame A, this extension being also cast integral or in one and the same piece with that part of the bed which is beneath the bending mechanism, and also integral with the upright and other parts of the main body of the machine.

From the above it will be seen that the rail having been put in the machine and properly set by means of wheel B², pinion B', gear A², and pressure roller 3, the clutch being in engagement with pulley G, and power applied to drive the pulley, the pinion E, on shaft F, drives the large gear D, on shaft C, and consequently also the feed-roller 3, and which thus carries forward the rail steadily and uniformly until it is discharged with its curvature regular and unvaried from end to end.

If it should be desired in any special case to have a lesser or greater curvature in any part of a rail, this machine permits this to be done by varying the pressure of roller 3, at any part in the length of the rail. Usually however this would not be wanted.

The perfect solidity of the supporting frame and its bed, the rapidity of the work; the uniformity of the final bend or curvature of the rail; the small manual or other labor re-

quired; the lessening of wages for labor, &c., and all in connection with doing the work by power, render this a most desirable and long needed improvement.

It will also be evident that my invention will be just as applicable and efficient for bending metal bars and "channel irons" for bridges or other purposes, as for bending railway rails.

I claim—

1. In combination with a frame, the vertical shaft B, its hand wheel and pinion, the adjustable vertical screw A', its gear A² and the socket-piece and its guide, the shaft supported by said screw, the bending rollers 1, 2, located at the bottom of the frame outside its upright portion, and the feed roller 3, carried by the screw A', all substantially as and for the purposes described.

2. The combination in a rail-bending machine, of a shaft carrying an adjustable feed roller, one end of which shaft is supported in a vertically-adjustable socket carried on the end of the screw, an extension guide-bar on said socket projecting through the bed of the frame, and bending rollers 1, 2, the feed roller being located on the front of the frame, all substantially as shown and described.

GEORGE EDWARD SMITH.

Witnesses:

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