

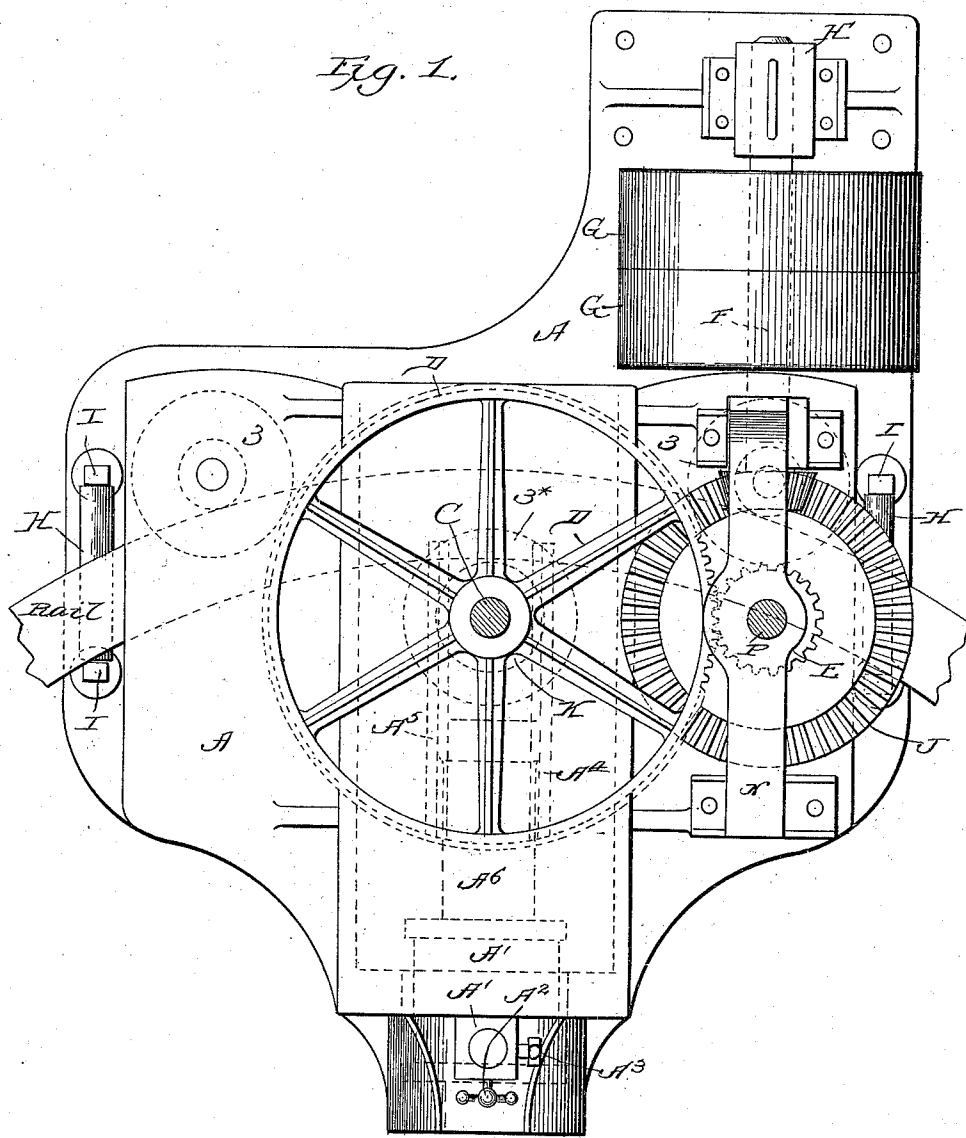
(No Model.)

2 Sheets—Sheet 1.

G. E. SMITH.
RAIL BENDING MACHINE.

No. 558,706.

Patented Apr. 21, 1896.



WITNESSES:

Harry S. Polner
W. A. Redmond

George E. Smith INVENTOR.

John J. Halsted & Low
 Their ATTORNEYS

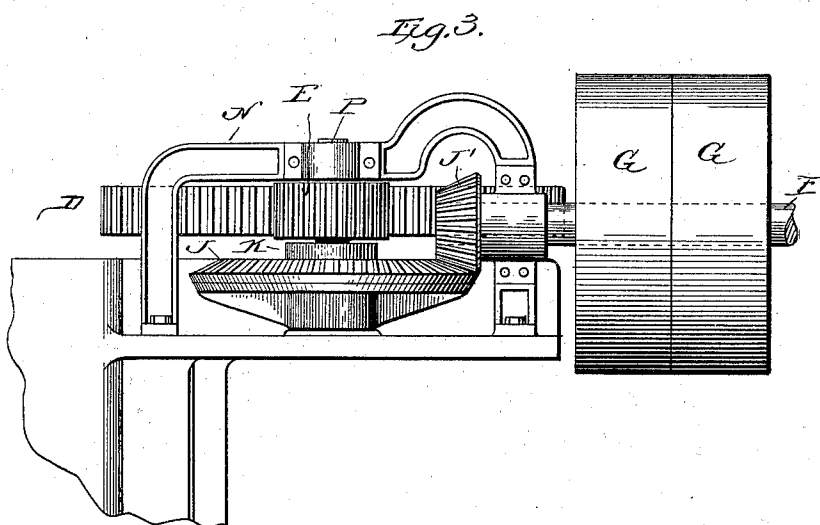
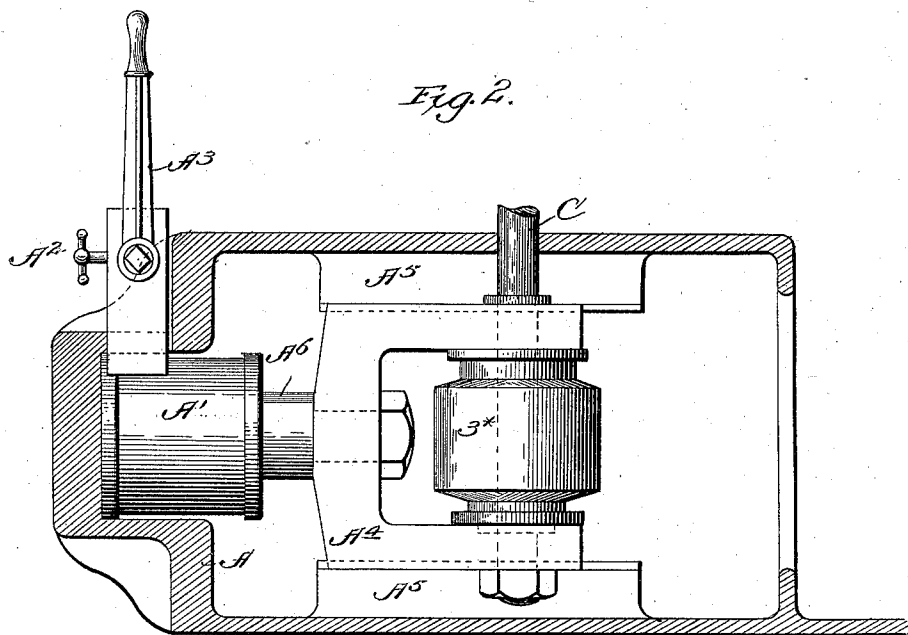
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No. 558,706.

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WITNESSES:

Wm. S. Rohrer
W. A. Redwood

George E. Smith INVENTOR
John F. Halsted & Son BY
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE E. SMITH, OF SHERBROOKE, CANADA.

RAIL-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,706, dated April 21, 1896.

Application filed December 10, 1895. Serial No. 571,688. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. SMITH, of Sherbrooke, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Rail-Bending Machines; 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.

The present invention is a further improvement on my Patent No. 537,790, dated April 16, 1895, and it adapts the machine the better for bending rails for street-railways, rather than those for steam-railroad work. The general operations and functions of the machine are similar to those in said patent. Instead of connecting the middle adjustable bending-roller with a vertical threaded bar or rod, as in that patent, and actuating it by toothed gearing, a hydraulic jack is in my present invention connected to the cross-head or socket-piece; and the remainder of the machine, while it is in the main like in my patent, has its bed or base as if that machine were turned over and rested on one of its sides, thus changing the positions of its several vertical shafts to horizontal ones and of the horizontal ones to vertical ones. In my present improvement the bar or rod above named is not pulled up or lifted as in the patent in order to raise the middle roller, but on the contrary is pushed forward and pulled backward horizontally to effect its needed adjustments by means of said hydraulic jack, which is placed horizontally.

In the drawings, Figure 1 illustrates in plan view sufficient of a machine to show my improvements embodied therein, and showing the jack in the head of the machine in place of a gear; Fig. 2, a vertical section through a part of the frame of the machine, and showing the hydraulic jack applied, the socket-piece or cross-head being shown in a different position in its guides; and Fig. 3, a detail showing in elevation a portion of the machine.

A is the frame of the machine, and A' the hydraulic jack and reservoir, A² indicating its lowering-valve, and A³ its pump-handle,

and which, being well-known features in jacks, need no further description.

A⁶ is the ram of the jack, firmly secured to a cross-head or socket-piece A⁴, which is applied as shown, to be moved as needed in the guides A⁵ in the frame A.

C is a vertical shaft carrying the large gear D, and also beneath this gear the middle friction bending-roll 3*, which, with its shaft C, is adjustable relatively to the stationary rolls 3 3, in order to vary, as may be needed, the degree of curve or bending to be imparted to the rail to be treated.

In Fig. 1 the top or tread of a rail is shown in dotted lines in its passage through the machine, the rolls 3 3 being at one side of it, and the roll 3* at its opposite side, but at the same height as the other two.

E is the pinion on a vertical shaft P, which latter is driven by bevel-gears J and J', gear J being on shaft P, and J' on a horizontal power-shaft F, which shaft is driven by the agency of one of the pulleys G G, one of which is fast and the other loose.

H' is a bracket-box bolted, as seen in Fig. 1, on the frame A.

H H are rollers mounted in vertically-adjustable eyebolts I I, and serve to facilitate the passage of the rail through the machine.

K is a sliding box on the vertical shaft C.

N is a bridge-tree carrying the boxes for supporting the horizontal shaft F and the vertical shaft P.

It will now be seen that my desired position of roll 3* relatively to the two rolls 3 3 may be obtained according to or determined by the amount of force or pressure given by the ram or piston-rod A⁶ of the jack A' to the cross-head A⁴, the resisting force of the water in the ram being controlled in a well-known manner by means of the pump-handle A³ and lowering-valve.

I claim—

1. In combination with two non-driving and non-adjustable vertical rolls, the adjustable power-driven shaft C and its rail-feeding roll 3*, the guides A⁵ in the frame, the socket-piece A⁴, and a hydraulic ram serving to adjust the only feeding-roll 3* to give the required degree of pressure for bending the rail in a line or direction midway between the two non-adjustable rolls.

2. In a machine adapted for bending street-railway rails to a curve and for delivering the bent rails therefrom in a horizontal plane, the combination of two stationary rolls each on a
5 vertical, gearless shaft in non-adjustable boxes and revolved only by the friction of the fed rail, a hydraulic jack, a middle bending-roll on a power-driven vertical shaft mounted in a cross-head adjustable in horizontal guides

and connected with and controlled as to its position and pressure by such jack, a power-driven gear on said shaft, a horizontal power-shaft, and intermediate bevel-gear for actuating such driven gear.

GEO. E. SMITH.

Witnesses:

ED. O'ROURKE,
JAS. R. JACKSON.