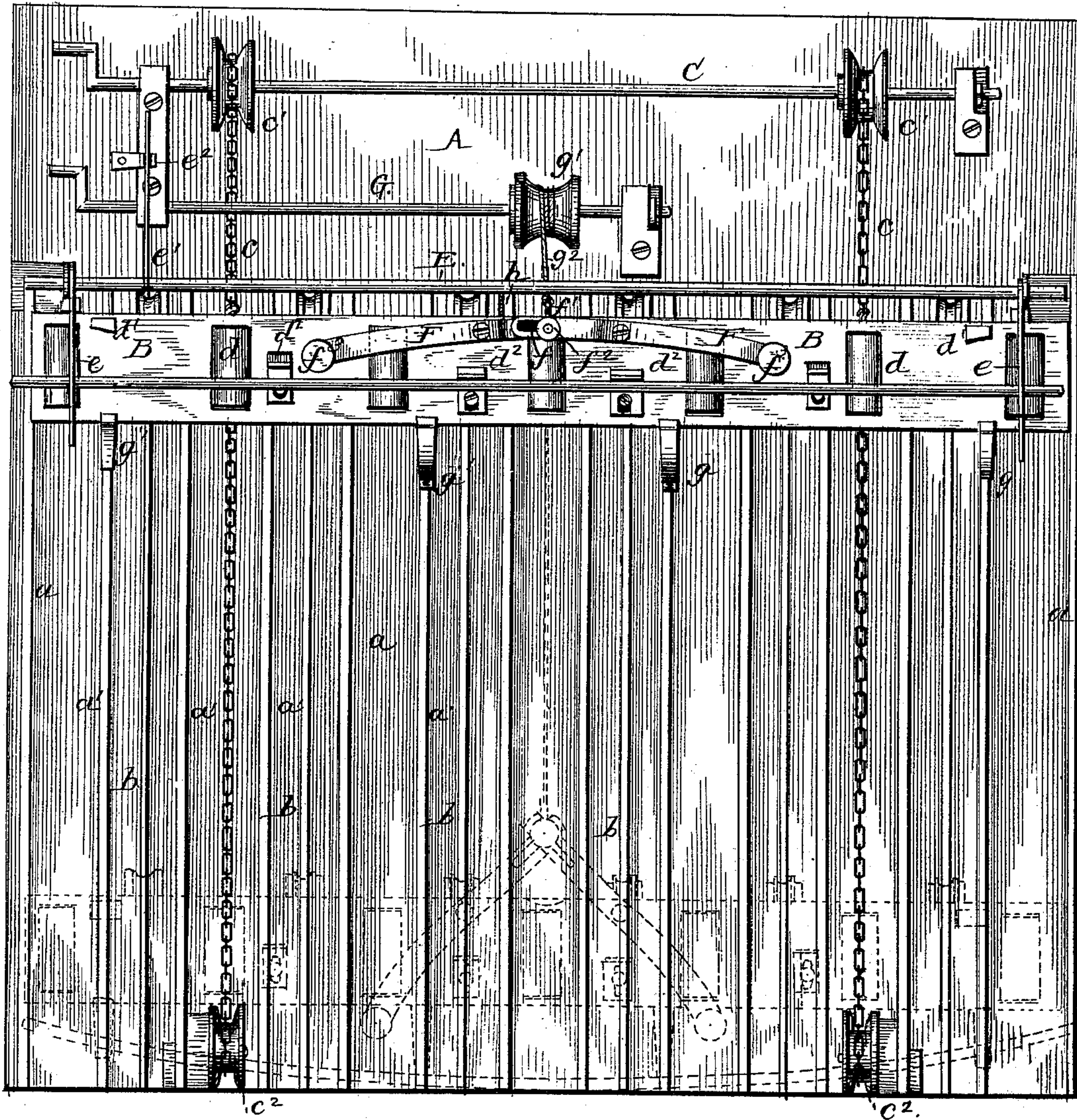


J. M. DUNCAN & G. JONES.
Machine for Curving Railroad-Rails.
No. 222,182. Patented Dec. 2, 1879.

Fig. 1.



Witnesses;

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Inventors

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Fig. 3.

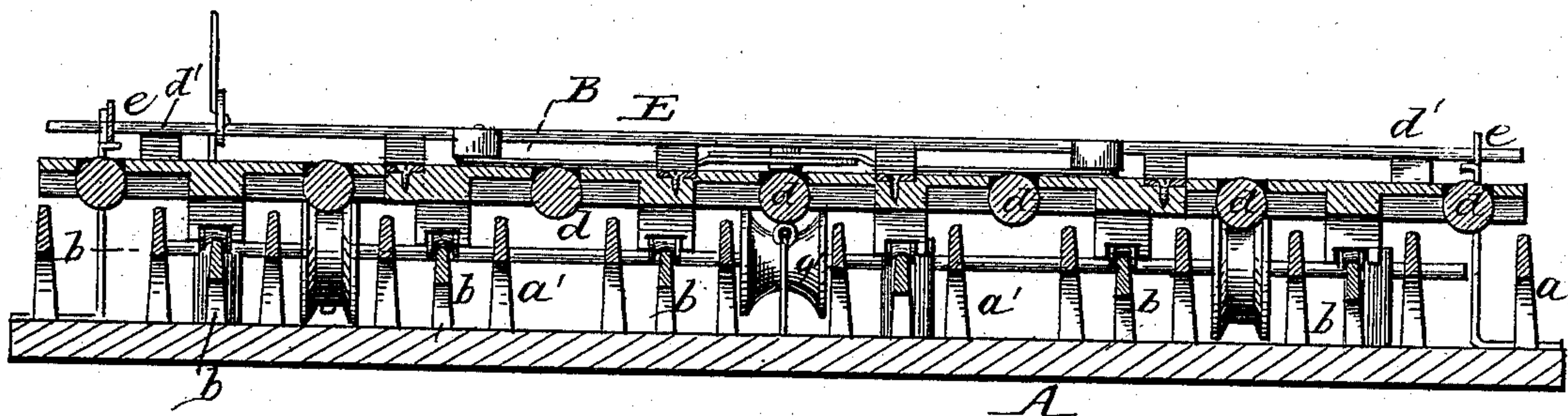
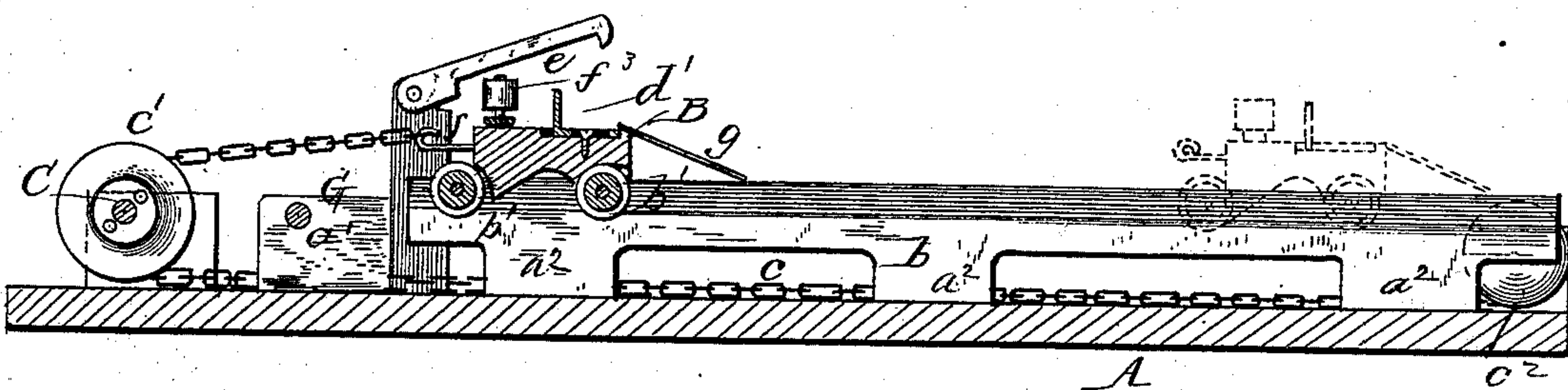


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES M. DUNCAN AND GEORGE JONES, OF CHATTANOOGA, TENNESSEE.

IMPROVEMENT IN MACHINES FOR CURVING RAILROAD-RAILS.

Specification forming part of Letters Patent No. 222,182, dated December 2, 1879; application filed July 11, 1879.

To all whom it may concern:

Be it known that we, JAMES M. DUNCAN and GEORGE JONES, of Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Machines for Curving or Bending and Transferring Railroad-Rails or other Sections of Iron or Steel Bars; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being made to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a top-plan view. Fig. 2 is a longitudinal section, and Fig. 3 is a transverse section taken through the carriage B.

This invention relates to new and useful improvements in machines used in the manufacture of railroad-rails or other sections of iron or steel bars, having for its object the production of a machine whereby railroad-rails or other sections of iron or steel bars can be automatically bent or curved, and subsequently transferred to a cooling-bed; and to this end the invention consists in the general construction and combination of parts, all as will be hereinafter fully described, and specifically pointed out in the claims.

In the drawings, A represents the cooling-bed, composed of a base, *a*, and a series of longitudinal bars, *a'*, supported above the base *a* by standards *a*², so as to permit of a free circulation of air under said bars. Arranged between the bars *a'* are a series of longitudinal rails, *b*, over which the rollers or wheels *b'*, supporting a movable or traveling carriage, B, move, for a purpose to be hereinafter described. This carriage B is moved over the cooling-bed through the medium of an endless chain, wire, or rope, or endless chains, wires, or ropes, *c*, passing over the pulleys *c'*, mounted on the transverse shaft C, which is mounted in suitable bearings at the head of the bed, and pulleys *c*², arranged at the opposite end of the bed.

The carriage B is provided with a series of transverse friction-rollers, *d*, by which the rails or other bars are run onto the carriage at either end thereof. The carriage is further provided with stationary lugs or brackets *d'*, arranged near the ends thereof, and a series of intermediate adjustable brackets, *d*², whereby

they can be so adjusted as to give the proper curve or bend desired to be given to the rails or other bars.

Mounted in bearings just in rear of the cooling-bed is a transverse shaft, E, provided near its ends with curving or bending hooks *e e*, which extend a short distance over the head of the cooling-bed. The shaft E is provided with a lever, *e'*, extending back of said shaft, and engaging with a spring-catch, *e*², for holding said curving or bending hooks in a raised position above the carriage while the rail or other bar is being run onto or off the carriage.

F F represent two levers pivoted to the rear part of the carriage, the inner or meeting ends of said levers being provided with elongated slots or openings *f f*, and connected together by a clevis, *f'*, and bolt *f*², all as clearly shown, the levers being also provided at their outer ends with friction-rollers *f*³ *f*³.

The object of the levers F F is to transfer the rail or other bar off from the carriage onto the cooling-bed after it has been curved or bent into the proper shape and the carriage moved to the rear end of cooling-bed, the carriage being provided on its front side with a series of inclined bars, *g*, over which the rail or other bar slides down onto said cooling-bed.

The levers F F are operated through the medium of a pulley, *g'*, mounted on a shaft, G, and a cord or chain, *g*², connecting said pulley with the clevis *f*². This cord or chain is of sufficient length to permit the carriage to travel the entire length of the bed without operating the levers, when, by turning said shaft, the cord or chain will be wound upon the pulley, thus drawing the connecting ends of the levers inward, which throws their outer ends outward, so that the rail or other bar is forced from the carriage onto the inclined bars *g*, from which it passes onto the cooling-bed.

One of the levers, upon the return of the carriage to the head of the cooling-bed, strikes against a stationary stop, *h*, which forces them back into their original position.

The operation of our improved machine is as follows: The carriage being at the head of the cooling-bed and the brackets adjusted to give the desired curve or bend to the rail or bar, the rail or bar in its heated condition is

run onto the carriage in front of said brackets. The curving or bending hooks are then lowered into position, and upon the carriage being moved forward on the bed said hooks engage with the rail or bar near its ends and draw it up against the brackets d' d^2 , which gives it the proper curve or bend desired. The hooks are then raised out of engagement with the rail or bar, and the carriage permitted to continue its movement to the end of the bed. The shaft G is then turned or rotated by means of a clutch or other convenient mechanism, winding the chain or rope on the pulley g' , thus operating the levers in the manner before described, and sliding the rail or bar from the carriage onto the cooling-bed, when, by any suitable reversing mechanism, the carriage will be returned to the head of the cooling-bed for the reception of another rail or bar.

We are aware that a movable rail-carriage having projections to impinge upon the rail and force it to partake of the motion of the carriage, and vertically-swinging arms having adjustable stops, whereby, when the carriage recedes from the saws, it carries the rail against the stops, and thus imparts the proper curvature, is old, and such we do not desire to be understood as claiming as our invention; but,

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

1. In a machine for curving or bending railroad-rails, or other sections of iron or steel bars, the combination, with a cooling-bed, of

the pivoted hooks $e e$ and a movable carriage having adjustable brackets d^2 mounted thereon, and mechanism, substantially as described, connected with operating mechanism, whereby the rail or other bar is curved or bent, and subsequently transferred from said carriage to the cooling-bed, substantially as specified.

2. The combination of the movable carriage B, having the stationary studs d' d' and intermediate adjustable brackets, d^2 , mounted thereon, and the pivoted shaft E, arranged in rear of the carriage, and having projecting hooks $e e$ extending over said carriage, and adapted to be lowered so as, in connection with and by means of other mechanism, to engage with and draw the rail or bar against the studs and brackets on the carriage as it is moved forward, thus giving the proper curvature to the rail or bar, substantially as herein shown and described.

3. The combination, with the movable carriage B, of the slotted and pivoted levers F F and mechanism for operating said levers, substantially as and for the purpose herein shown and described.

4. The combination of the movable carriage, the pivoted and slotted levers F F, mechanism for operating said levers, and the stationary stop h , substantially as and for the purpose herein shown and described.

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Witnesses:

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