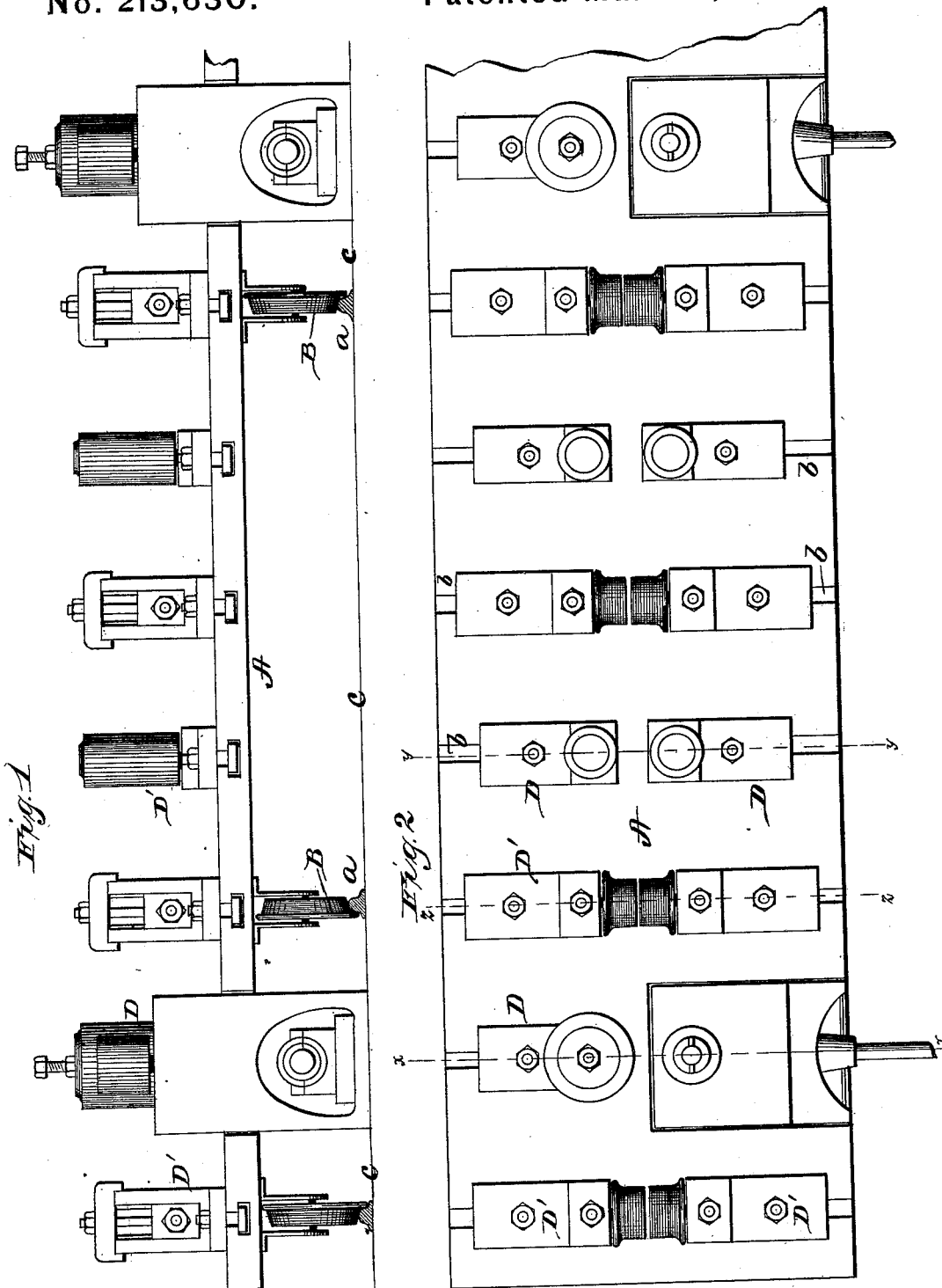


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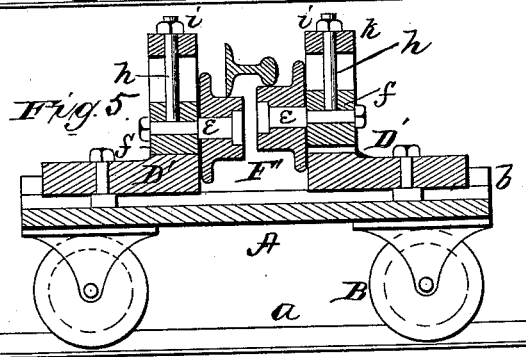
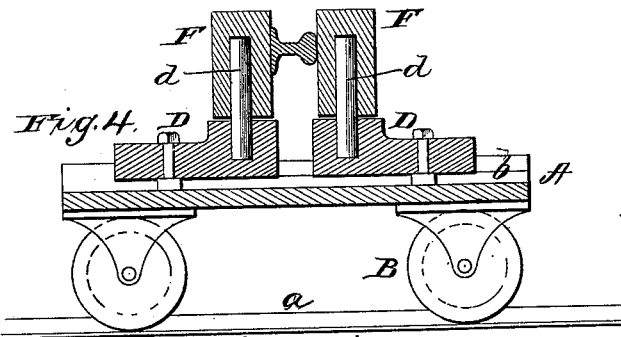
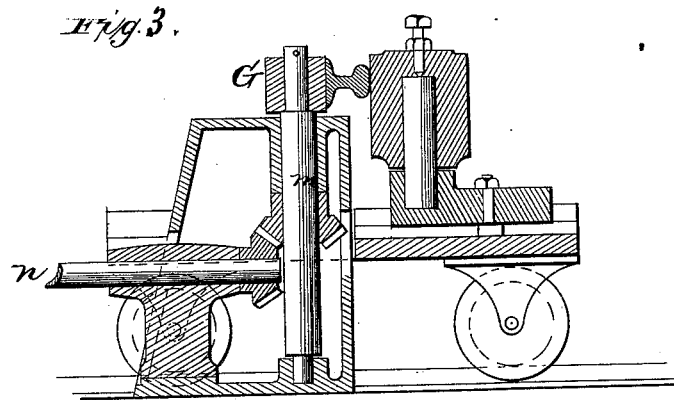


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# UNITED STATES PATENT OFFICE.

THOMAS CRITCHLOW, OF SWATARA TOWNSHIP, DAUPHIN COUNTY, PA.

## IMPROVEMENT IN CARRIAGES FOR RAILROAD-BARS.

Specification forming part of Letters Patent No. **213,630**, dated March 25, 1879; application filed February 1, 1879.

*To all whom it may concern:*

Be it known that I, THOS. CRITCHLOW, of Swatara township, in the county of Dauphin and in the State of Pennsylvania, have invented certain new and useful Improvements in Machinery Used in the Manufacture of Railroad-Bars; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of an apparatus to be used in the manufacture of railroad-bars, which will be hereinafter more fully 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 its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation of my apparatus. Fig. 2 is a plan view of the same. Figs. 3, 4, and 5 are vertical cross-sections thereof on the lines *x x*, *y y*, and *z z*, respectively, of Fig. 2.

In the manufacture of railroad-bars a bloom of steel of the required size—say, seven by seven, and the length suitable for weight and length of rail—is heated in a furnace, from which it is carried on a buggy to a train of revolving rolls, in which are grooves or passes, through which the bloom is drawn, reducing it at each pass until it leaves the finishing-pass of rail, retaining a very great amount of heat, and requiring to be handled with great care to avoid twisting and bending.

In some instances the rail on leaving the finishing-pass is received on rollers supporting only the flange of the rail; the head being unsupported, the rail is liable to twist. In other instances, the rail on leaving the finishing-pass is received on rollers supporting both head and flange, conforming to the shape of the rail. These, however, serve for one section of rail only. With every change of section there is required an entire change of rollers. In other instances one or more pairs of vertical rollers are employed, said rollers being secured to vertical shafts, driven or re-

volved by means of gearing. This arrangement is only serviceable where there is one finishing-pass, delivering the rail in line with the fixed centers of the roller-shaft. This is not always convenient with rail-finishing rolls having two or more finishing-passes, which cause the rail to leave the pass very much out of line from any one fixed point.

The object of my invention is to obviate these difficulties.

In the drawings, A represents a carriage, supported upon wheels B B, arranged to travel on tracks *a a*, secured to foundations *c*, and of suitable length to receive or carry a rail. On the upper surface of the carriage, and at suitable distances apart, are grooves *b*, in which are secured sliding brackets D D', supporting rollers for carrying and guiding a rail. These rollers are of two kinds, arranged alternately in pairs, as shown.

In the brackets D are secured vertical spindles *d*, upon which are vertical rollers F F'. The brackets D' are slotted vertically, and in the slot of each bracket is a box or slide, *f*, from which projects a horizontal spindle, *e*, carrying a horizontal roller, F', having a circumferential flange around its inner end. On the top of the slotted standard F' is a cap, *k*, through which passes a screw, *h*, said screw being fast in the slide *f*, and a nut, *i*, is screwed on the upper end of the screw, by which means the slide and roller can be adjusted up and down, as required.

The two rollers F' F' of each pair are adjusted at different height, so that one roller will support the head and the other the flange of the rail.

G represents a vertical driving-roller, secured on a shaft, *m*, which, by suitable gearing, is connected to a driving-shaft, *n*, as shown.

Of the vertical rollers F, the first set or pair are guide-rollers; then comes a pair of horizontal rollers, F'; then a single vertical bearing-roller, to correspond with the driving-roller G; then, again, a pair of horizontal carrying-rollers, a pair of guide-rollers, &c. All the rollers may be set closer together or farther apart, according to the size of the rail.

In operation, the carriage, resting on the

track with its front guide-rollers in line with the finishing-pass of a set of rolls, receives the rail on its carrying-rollers, guided by the guide-rollers. The carriage is then run along the tracks by any simple and convenient mechanism until the rail is crowded against the driving-roller G by the bearing roller. The rail is then propelled by the motion of the driving-roller to its destination.

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

1. The adjustable two-part carrying-rollers F', arranged in adjustable brackets D', substantially as and for the purposes herein set forth.

2. The combination of the carriage A, provided with grooves b, the adjustable brackets D, provided with the vertical guide and bearing rollers F, and the adjustable brackets D', carrying the adjustable two-part carrying-rollers F', substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of January, 1879.

THOS. CRITCHLOW.

Witnesses:

RICHARD BORCHERS,  
WILLIAM HEMINGWAY.