2 Sheets—Sheet 1.

E. HALLETT.

Machine for Rolling Car Axles.

No. 242,532. Patented June 7, 1881.

Fig. 1.

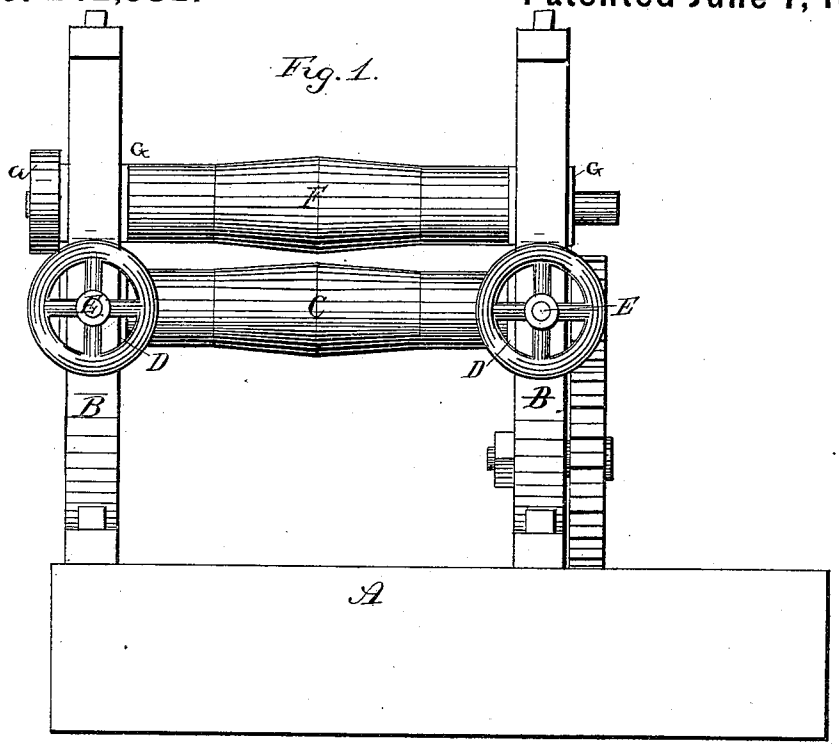


Fig. 2.

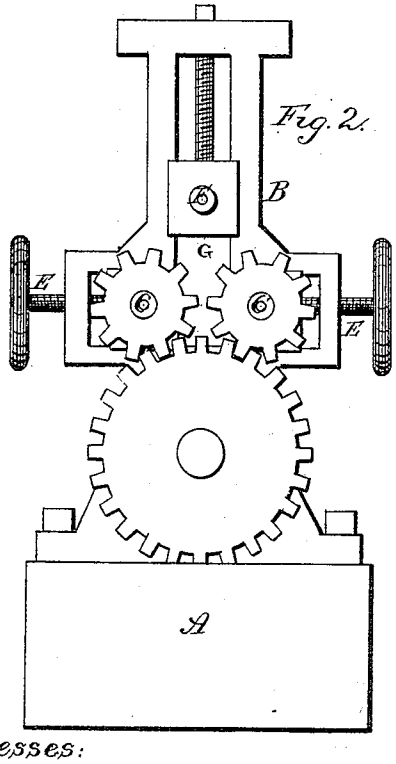
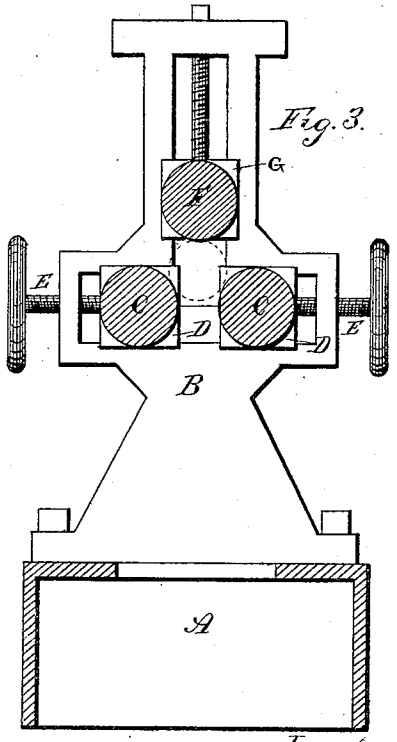


Fig. 3.



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2 Sheets—Sheet 2.

E. HALLETT.

Machine for Rolling Car Axles.

No. 242,532. **Patented June 7, 1881.**

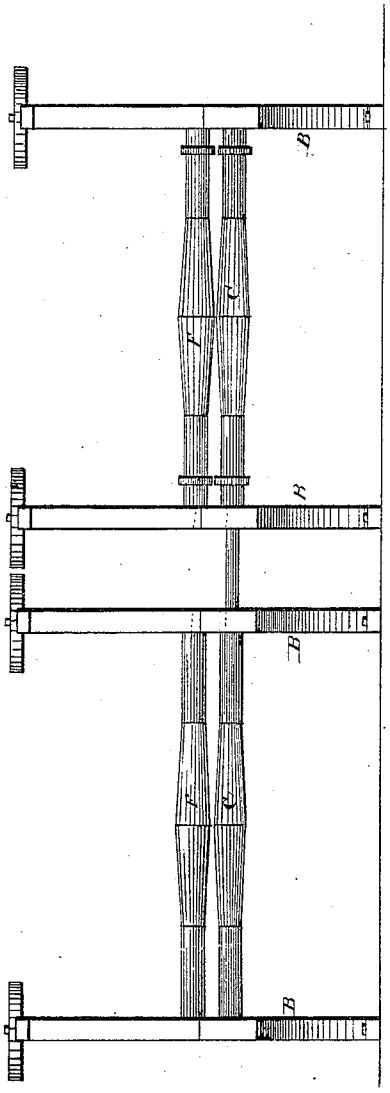

Fig. 4.

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UNITED STATES PATENT OFFICE.

ELIJAH HALLETT, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO RICHARD THOMPSON, OF SAME PLACE.

MACHINE FOR ROLLING CAR-AXLES.

SPECIFICATION forming part of Letters Patent No. 242,532, dated June 7, 1881.

Application filed September 9, 1879.

To all whom it may concern:

Be it known that I, ELIJAH HALLETT, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Machines for the Manufacture of Railroad-Car Axles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in machines for the manufacture of railroad-car axles; and it consists in the construction of two sets of rollers, by which the axles are rolled and turned out finished in one heat, instead of being hammered out and requiring from four to five heats, as is now the custom. The advantage obtained by rolling the axles instead of hammering them is not only that in the same length of time a greater number can be made, but also that they are of greater uniformity and of a better finish.

The accompanying drawings represent my invention.

Figure 1 is a side elevation of my invention. Fig. 2 is an end view of the same, and Fig. 3 is a vertical cross-section. Fig. 4 is a side elevation of the roughing and finishing rolls, showing their relative positions.

To the bed-plate A are bolted the housings B, of which there are two pairs, one of them for the roughing-rollers and the other for the finishing-rollers. The number of housings may be increased, if more work is required than two sets of rollers can perform. In each of the housings is a horizontal slot for the retention and guidance of the journal-boxes D of two horizontal rollers, C, which boxes are controlled by the set-screws E to keep the rollers at the required distance from each other. The two sets of roughing and finishing rolls are connected directly together, as shown in Fig. 4, so that when one set is made to revolve the other set revolves also.

On top, in the middle of the horizontal slot, is another, a vertical one, G, also for the retention and guidance of a journal-box of a third roller, F, which, by means of hydrostatic pressure, steam, or other power, may be raised or lowered and held in the required position.

The first-named rollers, C, placed on the same horizontal plane, are geared to revolve in the same direction; but the upper one, F, runs free and revolves by friction, but may, if it be found necessary, be run by a pulley, *a*, at the end of its journal.

As will be seen, the only difference between the two sets of rolls is that one set has flanges upon them for the purpose of shaping the ends of the axle while being rolled.

In the present case the rollers are of a form to give the required shape to axles for railroad-cars; but they may be altered to produce any other form desired.

The operation of the machine is as follows: The upper roller, F, is raised to admit the heated billet, which may be placed upon the rollers C either from the side or through the vertical slot in the housing. The upper roller, now being lowered, begins its revolutions simultaneously with the others, and the billet, compressed by all three of the rollers, is made to assume the reverse form of them. To obtain good work it is necessary that the rollers should be accurately alike and be well adjusted. Having given to the billet the form of the axle in the rough, the upper roller is again raised and the rough axle passed through the vertical slot next to the housing of the finishing-rollers, and there subjected to the action of the finishing-rollers until its form has become perfect. The whole work of making the axle is thus performed in one heat.

The two sets of rollers differ only in this, that the first turn out the axles in the rough without journals, while the finishing-rollers complete the work, not only by adding the journals, but also by smoothing the axles from end to end.

Having thus described my invention, I claim—

In a machine for the manufacture of car-axles, the combination of the housings B B, a set of roughing flangeless rolls, C F, and a set of finishing-rolls provided with flanges for finishing the ends of the axles, the housings

being placed in the relation to each other as shown, and provided with suitable openings in their adjacent ends, whereby the axle can be transferred from one set to the other and finished during a single heat, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of August, 1879.

ELIJAH HALLETT.

Witnesses:
G. W. CARNS,
JAMES NUSON.