

J. Cunningham,

File Gage.

No. 109,115.

Patented Nov. 8. 1870.

Fig 1

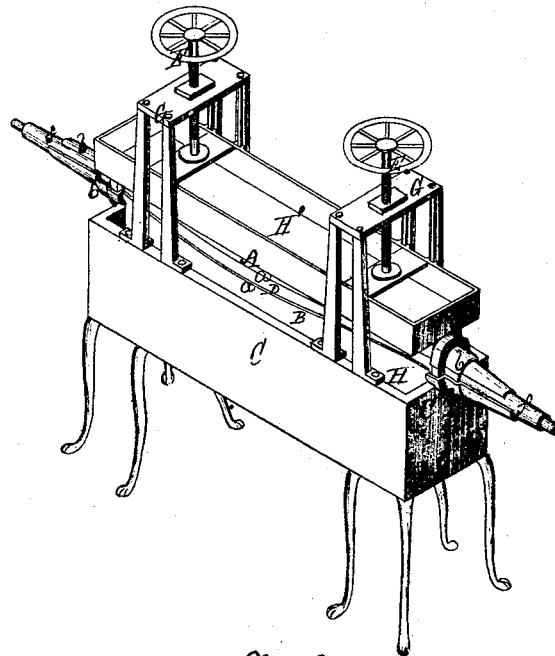
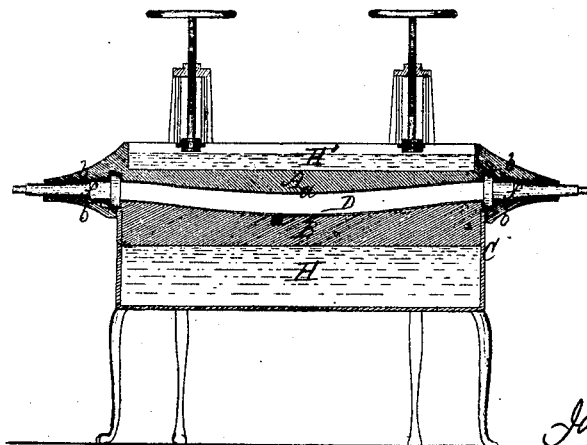


Fig 2



Witnesses.
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JAMES CUNNINGHAM. OF ROCHESTER, NEW YORK.

Letters Patent No. 109,115, dated November 8, 1870.

IMPROVEMENT IN APPARATUS FOR FITTING AND SETTING AXLES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES CUNNINGHAM, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Apparatus for Fitting and Setting Carriage-Axles, of which the following is a specification.

Nature of the Invention

This invention consists of an arrangement of dies for fitting the form of the iron axle to the wood, and for setting the arms or journals in proper position for the wheels at one and the same operation; also, in the combination with the same of a water-tank or tanks, for preventing undue expansion of the dies under heat, as hereinafter described.

General Description.

In the drawing—

Figure 1 is a perspective view, and

Figure 2, a longitudinal vertical section of my improvement.

A represents the upper, and B, the lower die, the latter being fixed rigidly in frame C, while the former is movable vertically to allow the insertion of the axle D.

This vertical movement is produced by means of hand-screws E E, resting in bearings G G of the frame, or by some equivalent mechanical means, which will allow of the proper pressure being given to bend and fit the axle when in place.

The central portions *a a* of these dies are made of that curve or bend which the axle assumes when fitted to the wood-work.

They are also provided with extensions or projections *b b* at the ends, the sockets of which are of that form which will fit the arms or journals *f f*.

The lower die is made of box-shape, or with flanges that rise at the sides to hold the axle in place under the pressure of the upper die.

The axle, as it is taken from the fire, is placed, in its heated state, in the lower die, and the upper die is then pressed down upon it till it assumes the form

necessary to assume to fit the wooden part of the axle.

The extensions or projections *b b* at the ends of the dies, simply serve to keep the journals in proper position, while the bend of the middle portion of the axle takes place.

Heretofore axles have been formed and fitted by hand, which involves a good deal of work, and produces an imperfect fit.

In my device the fit is perfect and invariable, since but one form can be produced in the same machine, and that form adapted exactly to the wood-work, leaving thereby a perfect joint.

The lower die rests in a water-tank, H, a portion of its depth and the upper die has also a water-tank, H', inclosing it in the same manner.

These tanks, combined with the dies, form an essential feature of my invention, as they prevent undue expansion of the dies occasioned by the heat of the axle, which would effect the fit or bend of the latter.

This feature is indispensable, owing to the considerable length and slenderness of the dies, which would be sensitive to heat, and therefore extend the form by lengthening or expanding otherwise out of proportion.

The apparatus above described is designed to take the place of the ordinary hand-work, and produce a much more perfect result than could otherwise be produced, saving greatly in expense and labor.

What I claim, and desire to secure by Letters Patent, is—

1. The dies A B, shaped to the form of the fitted axle, and provided with the extensions *b b*, for setting the arms, the whole operating in the manner and for the purpose specified.

2. In combination with the above, the tank or tanks H H', substantially as and for the purpose set forth.

In witness whereof, I have hereunto set my name in the presence of two subscribing witnesses.

Witnesses: JAMES CUNNINGHAM.

R. F. OSGOOD,

G. WILLM. MIATT.