

(No Model.)

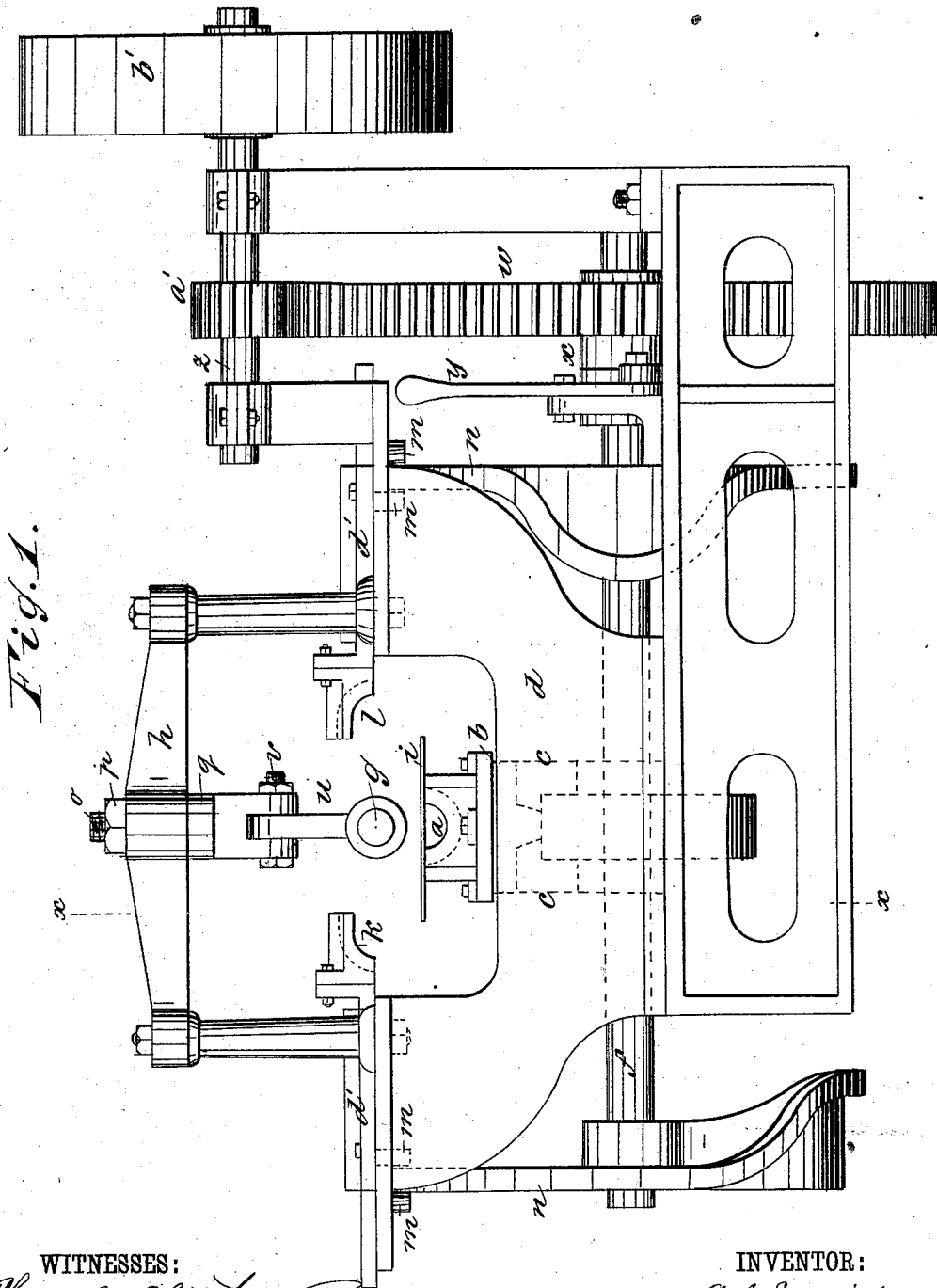
2 Sheets—Sheet 1.

A. C. EMMICK.

MACHINE FOR FORMING AXLE SKEINS.

No. 290,982.

Patented Dec. 25, 1883.



WITNESSES:

Theo. G. Hoar.
C. Sedgwick

INVENTOR:

A. C. Emmick

BY

Munn & Co

ATTORNEYS.

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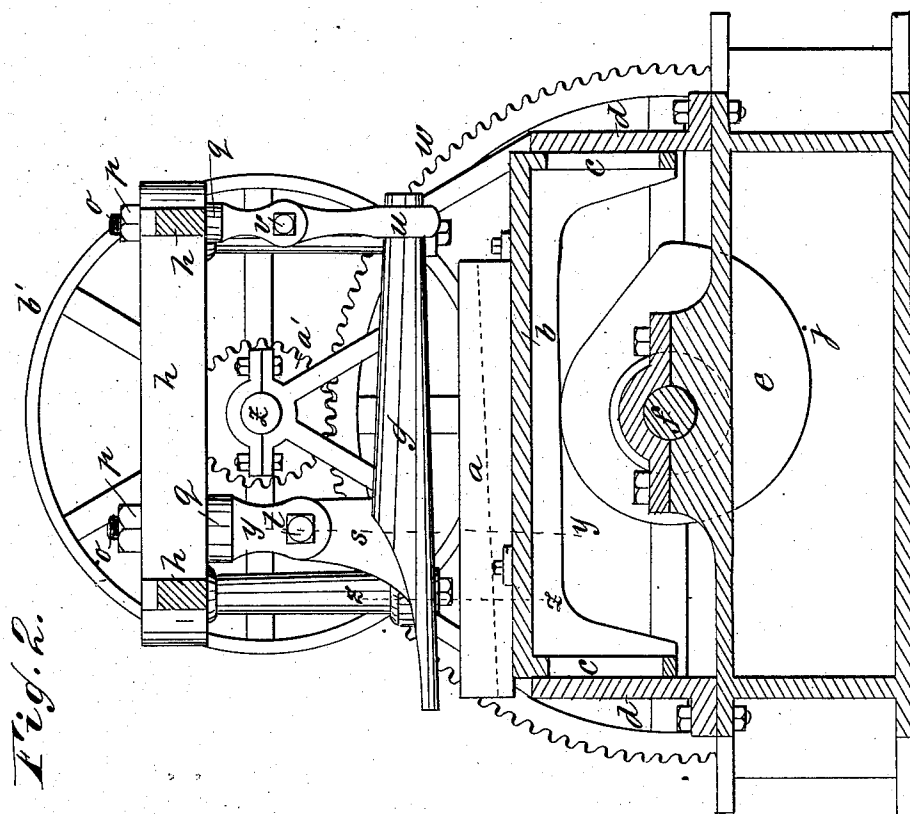
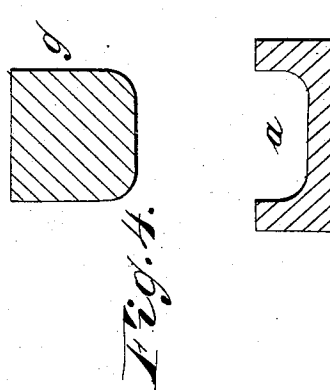
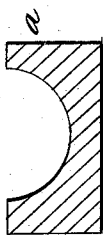
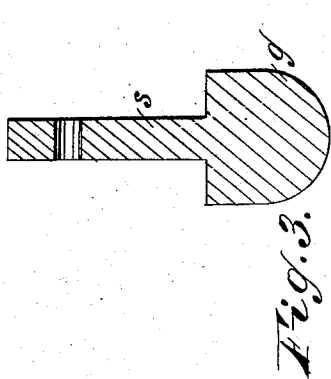
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Thos. G. Heston
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INVENTOR:

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BY

UNITED STATES PATENT OFFICE.

ANDREW C. EMMICK, OF COLUMBUS, OHIO, ASSIGNOR TO HIMSELF AND
EDMUND N. HATCHER, OF SAME PLACE.

MACHINE FOR FORMING AXLE-SKEINS.

SPECIFICATION forming part of Letters Patent No. 290,982, dated December 25, 1932.

Application filed July 6, 1883. (No model.)

To all whom it may concern:

Be it known that I, ANDREW C. EMMICK, of Columbus, in the county of Franklin and State of Ohio, have invented a new and Improved Machine for Forming Axle-Skeins, of which the following is a full, clear, and exact description.

The object of the invention is to improve machines for making axle-skeins, as herein-after described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved axle-skein-forming machine. Fig. 2 is a sectional elevation on the line *x x* of Fig. 1. Fig. 3 is a section of the taper-bending die and forming-mandrel on the line *y y* of Fig. 2; and Fig. 4 a transverse section of the taper-bending die and former at *z z*, where that part of the skein is formed that extends inside of the collar for the inner end of the wheel-hub.

I provide a taper-bed die, *a*, that is half round for the most of its length, but from a point near the larger end the form changes from the half-round to the nearly-square form represented in Fig. 4, for shaping the part of the skein that extends inside of the collar to correspond with the form of that part of the wood axle to which it applies, to avoid dressing off the corners of the axle, which weakens it, and I mount said die *a* on a table, *b*, that is fitted to rise and fall in the ways *c* of the bed-frame *d* with a cam, *e*, on the main shaft *f* to raise said table. The fall is caused by gravity.

Over the die *a*, I arrange a taper-forming mandrel, *g*, which is suspended from the cross-bar *h*, so that when the die *a* is raised up by cam *e*, with a skein-plate, *i*, placed on the top of it, said plate will be bent up into a taper U shape. The cam *e* has a circular section, *j*, of the face that is to hold die *a* for a suitable length of time, while the side benders, *k* and *l*, move forward and bend the upper edges of the plate over the top of the mandrel, and lap one edge over the other suitably for welding, die *k* moving first and die *l* next. These bending-dies *k l* are arranged in suitable

guideways, *d'*, on the top of the bed-frame, and connected by studs or rollers *m* with the cams *n* on shaft *f*, said cams being suitably adjusted on the shaft to work said benders, while the die *a* is held up by the cam *e*, and so that one will not interfere with the other—that is, die *k* will withdraw in time to allow die *l* to lap its side of the plate over the side bent up by die *k*. The forming-mandrel is suspended from the cross-bars *h* by bolts *o* and nuts *p*, the bolts having collars *q* on the under side, over which washers may be placed to adjust the mandrel; but in practice I mean to substitute nuts for these collars as a more ready means of adjusting the mandrel. Near the large end of the mandrel it has an arm, *s*, which is bolted at *t* to the head of the bolt *o*, and near the small end the mandrel rests in a hanger, *u*, which is fitted to slip off from the end of the mandrel when disconnected at *v* to allow the bent skeins to be slipped off the mandrel. The shaft *f* connects with the driving-wheel *w* by a clutch at *x*, to be connected and disconnected by a lever, *y*, to be controlled by the operator for stopping the machine after each skein is formed for allowing time to remove the skein and to supply a new plate, and for starting and running the machine one revolution for bending each skein. The wheel *w* is geared with the driving-shaft *z* by a pinion, *a'*, and the power is applied to the shaft by a belt on the pulley *b'*.

With this improved machine the skeins can be formed ready for welding much more rapidly than they can be by hand as they are now made, also much better and more uniform in shape, especially in the part extending inside of the collar, which part may also be more definitely changed from the round to the square form which is desirable, as before stated, to avoid dressing off the corners of the wood axles to fit the skeins.

The plates are not required to be heated so much to be bent by this machine as by hand, because of the greater power employed and the shorter time in which the work is done, so that the metal is injured less thereby.

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

1. The combination, in a machine for form-

ing axle-skeins, of male and female dies correspondingly tapered, made half round for part of their length, and almost rectangular near their larger ends, whereby the skein may be
5 so made as to fit without dressing off and weakening the axle, as described.

2. The taper-die *a*, arranged on the vertically-moving table *b*, in combination with the taper-forming mandrel *g*, suspended over said
10 die *a*, substantially as described.

3. The side binding-dies, *k l*, in combination with the taper-forming mandrel *g*, sus-

pended between said dies, and with the vertically-moving taper-die *a*, arranged under said mandrel, substantially as described. 15

4. The combination, with the mandrel *g*, of the bolt *o*, the mandrel-arm *s*, secured at *t* to the head thereof, and the detachable hanger *u*, whereby the skeins may be removed from the mandrels, as described.

ANDREW C. EMMICK.

Witnesses:

JOSEPH F. DAVIDSON.

CHAS. G. WILLISON.