

T. COOPER.  
MACHINE FOR ROLLING CAR AXLES.

No. 50,458.

Patented Oct. 17, 1865.

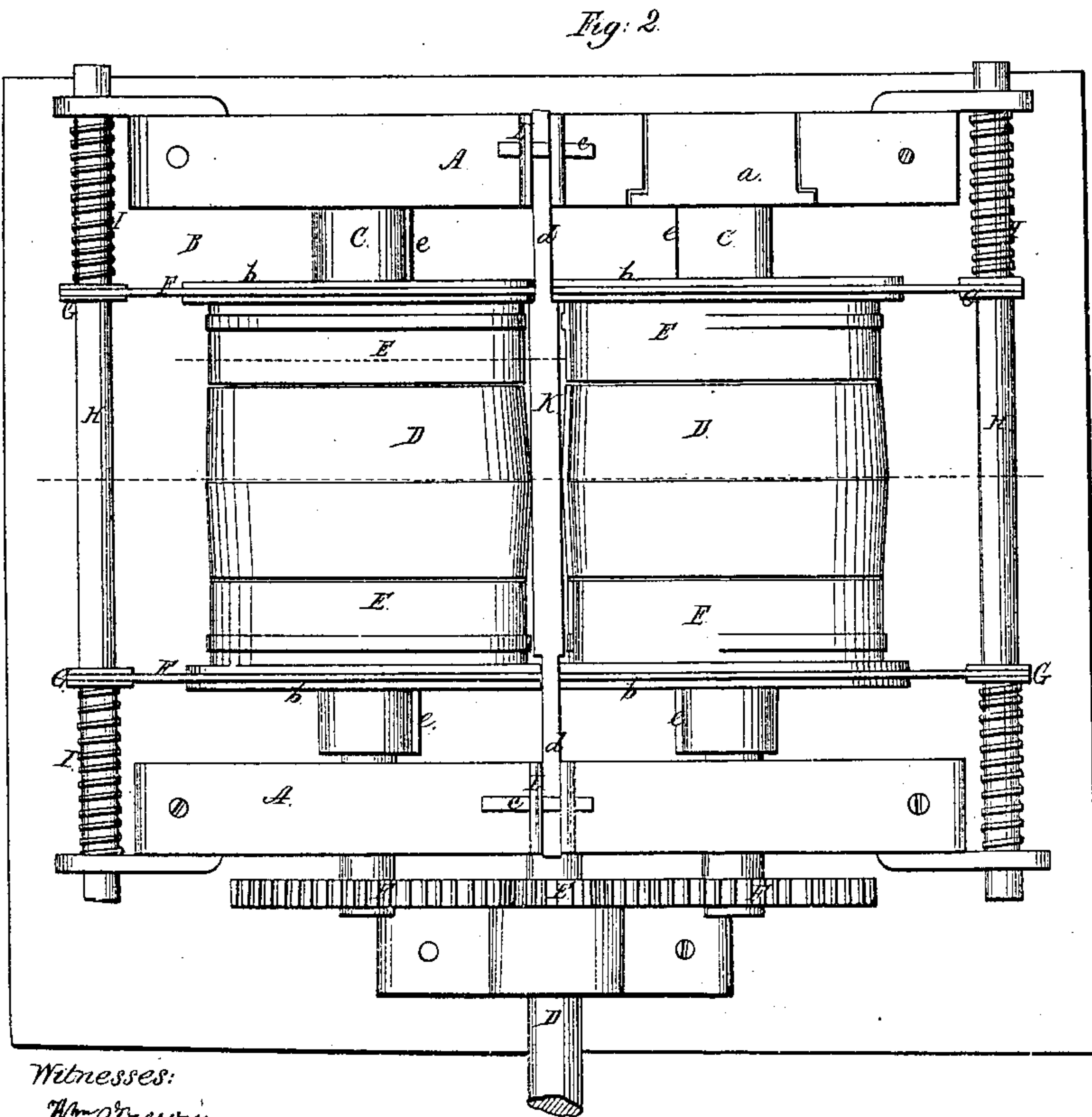
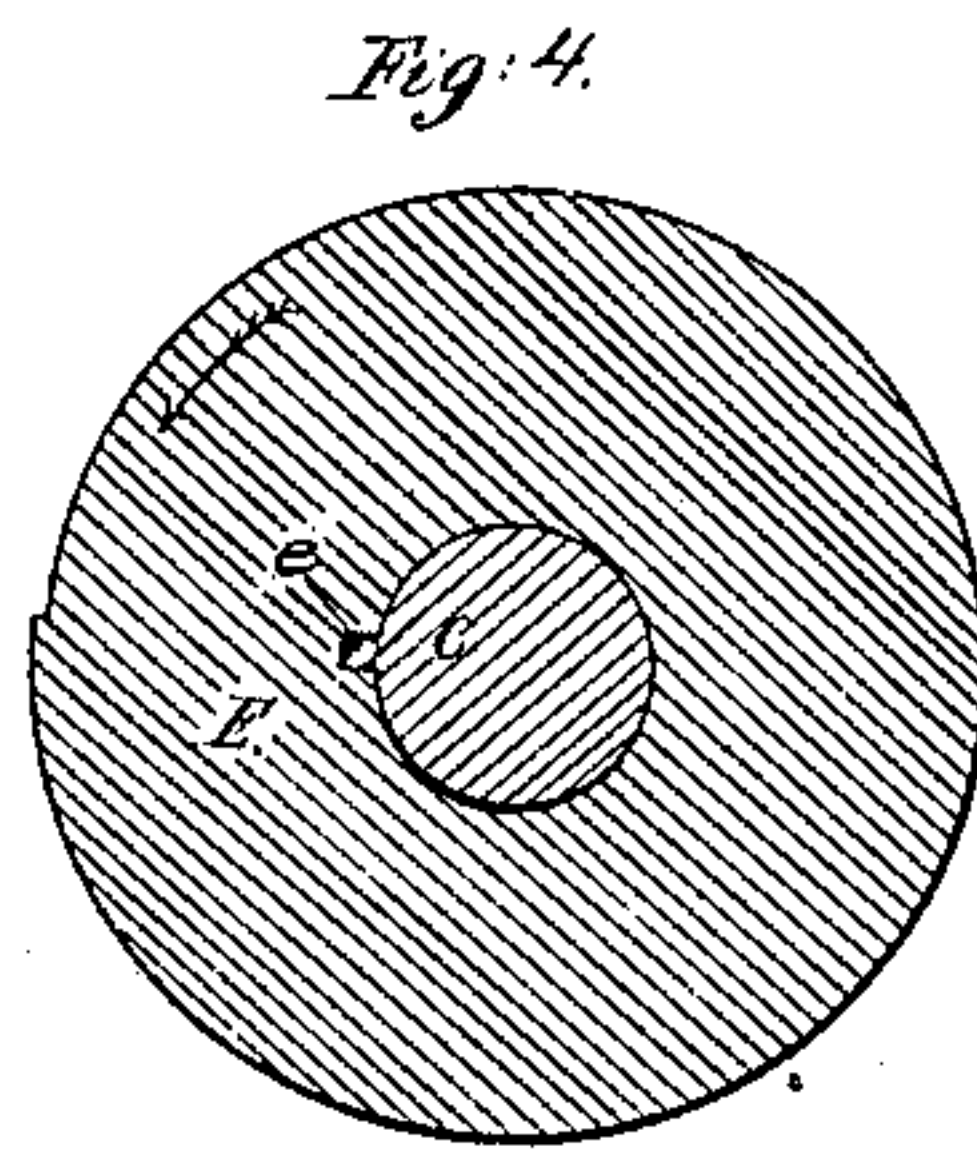
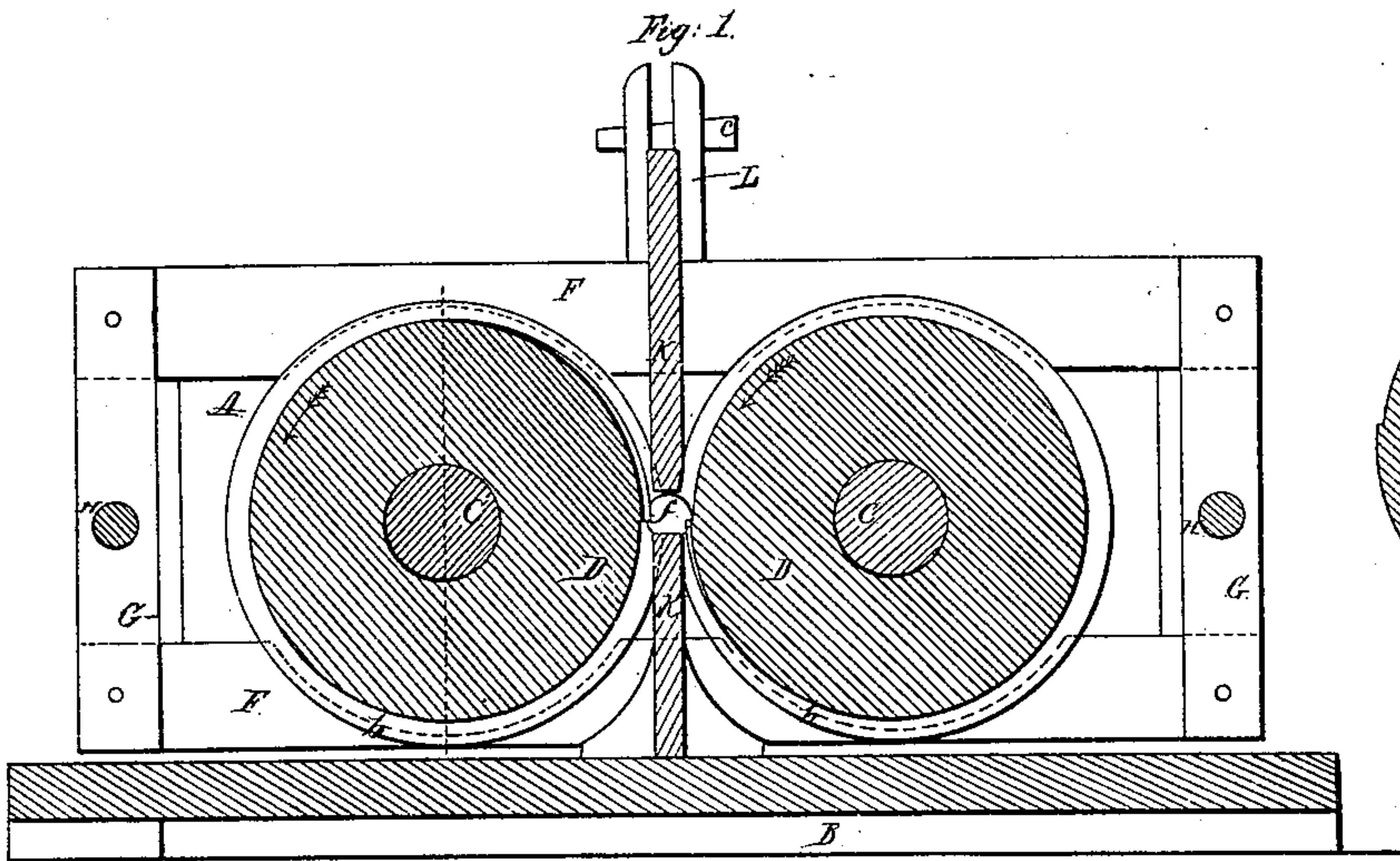
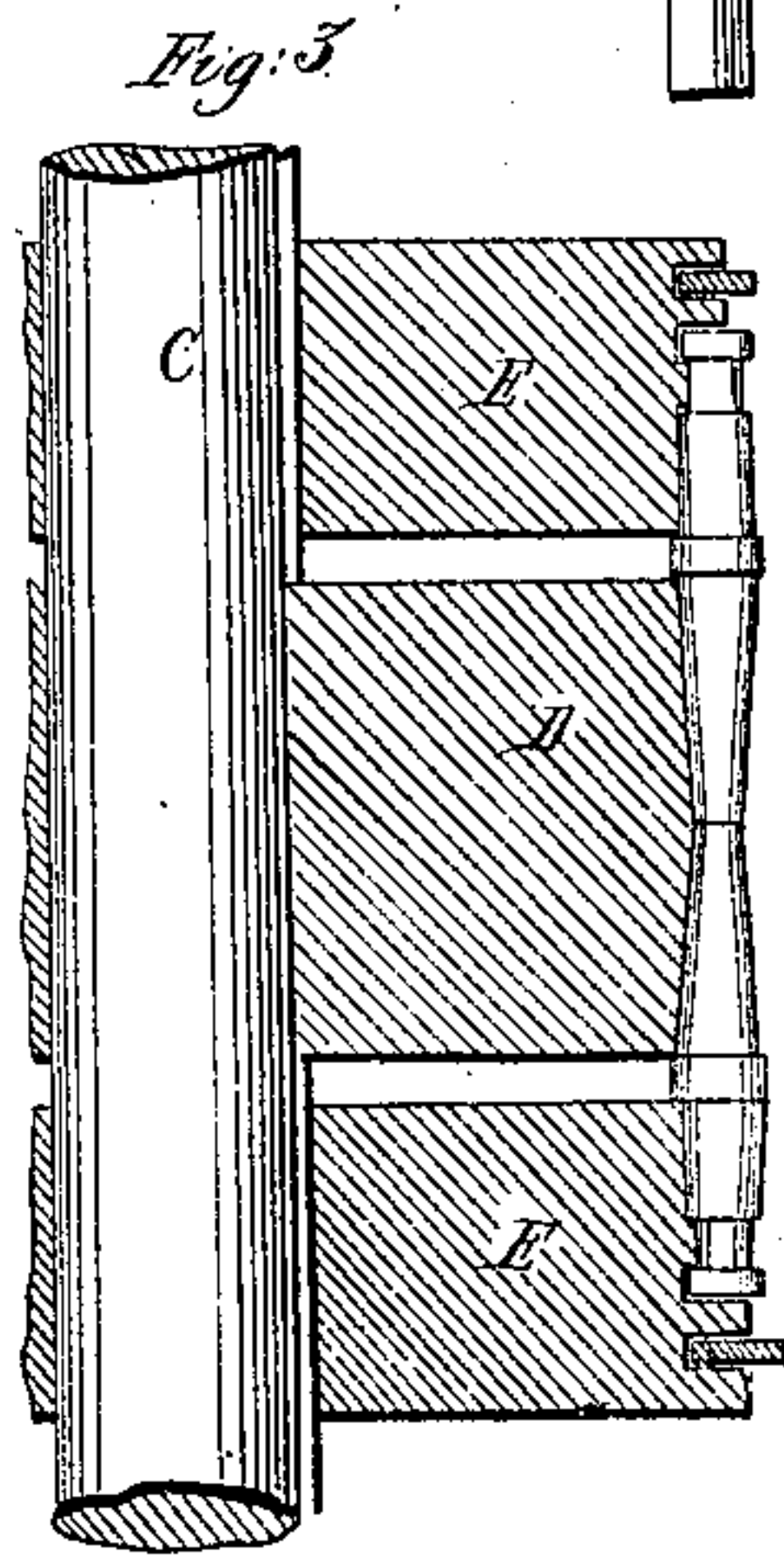


Fig. 5.



Witnesses:

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# UNITED STATES PATENT OFFICE.

THOMAS COOPER, OF CINCINNATI, OHIO.

## IMPROVED MACHINE FOR ROLLING CAR-AXLES.

Specification forming part of Letters Patent No. 50,458, dated October 17, 1865.

*To all whom it may concern:*

Be it known that I, THOMAS COOPER, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and Improved Machine for Rolling Car-Axles, Shafting, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a plan or top view of the same; Fig. 3, a vertical section of a portion of the same, taken in line *y y*, Fig. 1; Fig. 4, a transverse section of one of the rollers, taken in line *z z*, Fig. 2; Fig. 5, a detached view of a bar to be rolled.

Similar letters of reference indicate like parts.

This invention relates to a new and improved machine for rolling car-axles, shafting, &c., into the proper or desired form and at one operation.

A A represent two vertical head-pieces, which are securely attached to a base-plate, B, and have the bearings *a* of two horizontal and parallel shafts, C C, fitted in them.

D represents a driving-shaft, which has a pinion, E, keyed firmly upon it, said pinion gearing into wheels F F, keyed on the shafts C C, and cause said shafts to rotate in the same direction, as indicated by the arrows in Fig. 1. On each shaft C there is firmly keyed or secured a roller, D, and the longitudinal profile of these rollers are made to correspond inversely with that of the axle or shaft to be rolled. For instance, the drawings represent a machine for rolling car-axles, and as the latter gradually diminish in diameter from their ends toward their centers, the rollers D are made with a corresponding convex exterior, as will be understood by referring to Fig. 3. On the same shafts C C there are placed rollers E, two on each shaft, and one at each end of the roller D. These rollers E may be considered as continuations of the rollers D, and they are made of a form corresponding with that designed to be given the axle or shaft near its ends. The rollers E at their ends are enlarged, as shown at *b*, and are grooved circumferentially to receive parallel bars F' F', the ends of which are connected by uprights or standards G G, one bar F' being

above the shafts C C, and the other below them, as shown in Fig. 1.

H H represent two parallel horizontal shafts, which are secured one at each end of the heads A A, and on which the uprights or standards G of the bars F' are fitted loosely and allowed to slide freely, said shafts having spiral springs I upon them, the inner ends of which bear against the uprights or standards G, the outer ends bearing against the bearings J of the shafts H. The spiral springs I have a tendency to keep the rollers E in contact with the ends of the rollers D, in consequence of the connection of the bars F with said rollers. This will be fully understood by referring to Fig. 2.

The rollers D and E are eccentric, the pressure on the bar or shaft to be formed being obtained by this means, (see Figs. 1 and 4,) and the bar or shaft is retained in proper position between the rollers by means of rests K K', the former being fixed and the latter secured in position by means of keys *c c*, which pass horizontally through standards L L, into which arms *d d*, at the upper part of K', are placed.

The rollers E E are allowed to slide on the shafts C C, but are made to turn with them in consequence of a feather, *e*, on the shafts fitting in grooves in the rollers. (See Fig. 4.)

The bar shown in red in Fig. 5 is inserted between the rollers through an opening, *f*, in one of the heads A, and the rollers in revolving fashion or form the axle or shaft, the pressure, as before stated, being caused by the eccentricity of the rollers.

By having the rollers E arranged so as to slide on the shafts C C the device may be used for rolling axles or shafts of a greater or less length, and the bearings of the shafts C may be adjusted laterally to suit the thickness of the bar to be rolled.

I claim as new and desire to secure by Letters Patent—

1. The combination of the two eccentric rollers D D and rests K K', arranged to operate substantially as and for the purposes set forth.
2. The sliding or adjustable rollers E, placed on the same shafts C as the rollers D, and controlled by springs I, substantially as and for the purpose set forth.

THOMAS COOPER.

Witnesses:

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