(No Model.)

# E. F. MAUL.

## DEVICE FOR TRUING WHEELS.

No. 306,502. Patented Oct. 14, 1884.

Fig. 1.

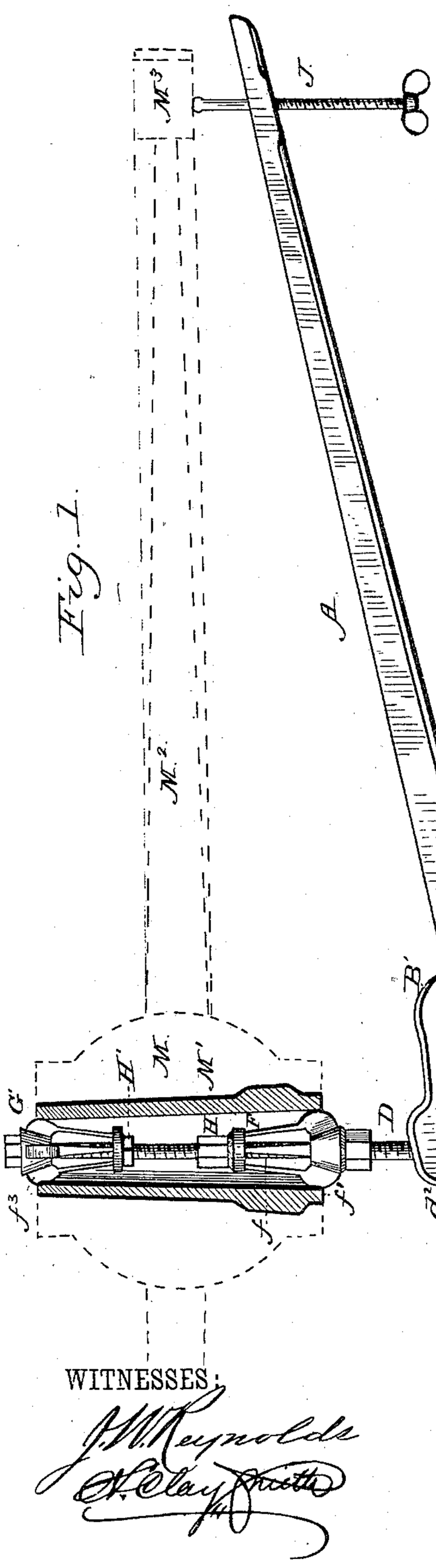



Fig. 2.

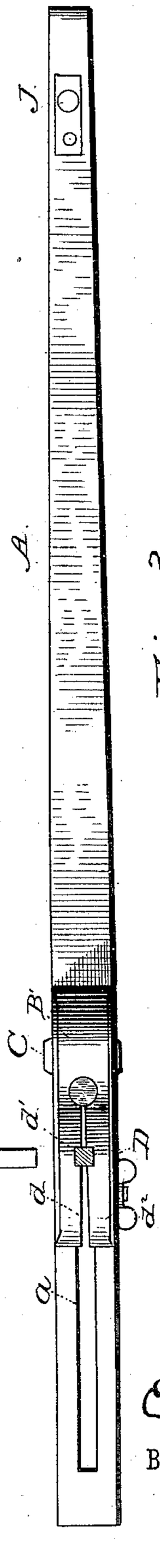
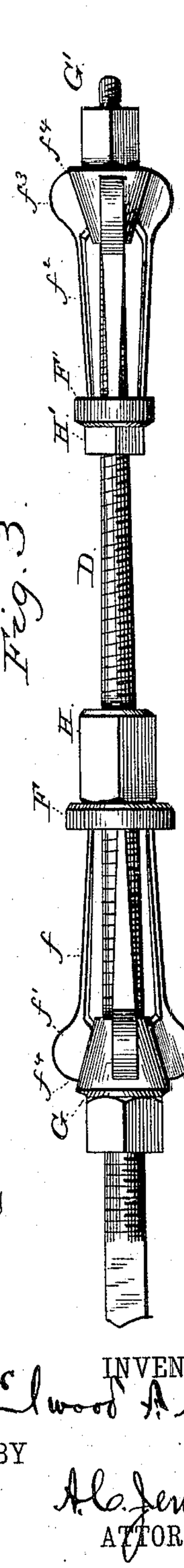



Fig. 3.

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## DEVICE FOR TRUING WHEELS.

SPECIFICATION forming part of Letters Patent No. 306,502, dated October 14, 1884.

Application filed July 8, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ELWOOD F. MAUL, a citizen of the United States, residing at Bridgeton, in the county of Cumberland and State of New Jersey, have invented certain new and useful Improvements in Devices for Truing Wheels; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a device for centering boxes in vehicle-wheels and for "truing" such wheels in their relation to their spindle-bearings; and the novelty consists in the construction and arrangement of parts, as will be more fully hereinafter set forth, and specifically pointed out in the claims.

The essential object of the invention is to provide a device by which wheelwrights or others may readily adjust the ordinary boxes into wheels, so that their axial bores shall maintain a uniform relation with all parts of the periphery of the wheel, one which shall be inexpensive of manufacture, simple in operation, efficient in service, and of ready adjustment to different sizes and forms of wheels.

To these ends the invention consists in the mechanisms and combinations of mechanisms fully illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of the device, the box being in section to show the internal relation. Fig. 2 is a side elevation of the body of the device, with the threaded arm in section; and Fig. 3 is an enlarged detail elevation of the box-clamping parts and the adjusting-nuts.

To enable others skilled in the art to which the invention relates to make and use the same, I will describe the construction and uses, referring for that purpose to the drawings, in which similar letters of reference indicate like parts in all the figures.

A designates the body of the machine, having a longitudinal slot, *a*, in which operates a threaded arm, B, said arm being rigid with a clamping-carriage, B′, and operating through a block, C, flanges *c* of which embrace the body A, as shown. The carriage B′ may be adjusted to any desired point within the limit of the slot *a* and locked firmly by friction at such point by means of thumb-screw *b′*. The carriage B′ is provided with a clamping-slot, *d*, and a rectangular socket, *d′*, arranged in a plane corresponding to the slot *a*. The socket *d′* is adapted to receive the correspondingly-formed shank of the arm D, and this shank passes through the slot *a* of the body A, a thumb-nut, $d^2$, serving to clamp the shank firmly at any desired point of adjustment, and the bearings of the shank being such that the shank and arm D will stand at less than a right angle with the body, so that a line drawn at right angles with the arm D would intersect the body. The main portion of the arm D is threaded, and carries two thimbles, F and F′, as shown. To the thimble F are secured spring-arms *f*, carrying heads *f′*, and to the thimble F′ are secured similar arms, $f^2$, carrying heads $f^3$. These arms extend in opposite directions, and the heads have inclined inner surfaces, $f^4$, arranged at an angle corresponding to the angles of wedge-nuts G and G′, as shown. Each thimble F and F′ has a jam-nut. (Shown at H and H′, respectively.) The nut H′ may be stationary, if desired; but the nut H is adapted to be moved up and down the spindle-arm D, to throw the clamping devices F *f f′* out or in to accommodate boxes of different lengths.

For purposes of this description I have designated the spindle-box by the letter M and the wheel by the letters M′, $M^2$, and $M^3$—the hub, spokes, and periphery. As shown in Fig. 1, the box M is engaged by the heads *f′* $f^3$, and the periphery $M^3$ of the wheel is adjacent to the body A. At this point I provide a threaded pin, *j*, which works through an aperture, J, also threaded in the body A. This pin may be turned out or in at will, to bring the point into proper juxtaposition with the peripheries of different wheels.

The device may be employed for the purpose of properly centering the boxes in wheels or for testing wheels after the boxes have been placed. In the former operation its advantages are most apparent.

The jam-nut H having been set to correspond with the length of box to be treated, and the box at M having been placed over the

expanders, the nuts G and G′ are turned to bring their inclined surfaces against the inclines $f^4$ of the heads. When these heads have engaged the interior of the box, the construction is such that the axial center of the box is parallel with the center of motion of the expanders. The wheel having now been placed in position and the pin *j* properly adjusted, the rotation of the wheel will turn the expanders, the thimbles F and F′ turning freely on the arm D and the heads turning on the nuts G and G′. The pin denotes any irregularity, and when such irregularity is indicated the box is properly wedged or otherwise treated to overcome any disposition to wabble. When the box is properly secured, a complete revolution of the wheel will maintain its periphery at a uniform distance from the point of the pin *j*.

To release the finished wheel it is only necessary to unscrew the nuts G and G′, when the expanders will collapse and the wheel may be removed bodily.

Modifications in details of construction may be made without departing from the principle or sacrificing the advantages of my invention, the essential features of which are the expanders and the means of adjustment of the several parts, all of which will be readily understood from the foregoing description, taken in connection with the drawings.

It is an important feature that the expanders may be entirely removed when similar devices of another size are required, and that any part broken or worn may be readily replaced by a new one.

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

1. In a machine for centering boxes in wheels, the combination, with a body having an adjustable guide-pin, as J, of a threaded arm having means for adjusting its relation to the body, and adjustable expanding clamps hung upon said threaded arm, and adapted to be moved up or down upon said arm, and to engage and turn with the box, as and for the purposes set forth.

2. In a machine for centering boxes, the combination of a threaded arm, with threaded thimbles having spring-arms carrying wedge-blocks, the said thimbles being engaged with the threads of the arm, and adapted to be adjusted in either direction to suit boxes of various sizes, and beveled nuts, also hung upon the arm and adapted to engage and expand the wedge-blocks, as and for the purposes set forth.

3. In a machine for centering boxes, the combination of the threaded arm, the threaded thimbles F F′ hung thereon, and having spring-arms carrying wedge-blocks, the bevel-nuts for expanding the said blocks, and the jam-nut adapted to lock the clamp in position, as and for the purposes set forth.

4. In a box-centering device, the combination of a threaded arm and expanding clamps, as described, with a body arranged at an angle to the plane of the arm, a carriage adapted to engage the arm, and means for adjusting said carriage upon the body, as and for the purposes set forth.

5. The combination, with the body, adjustable pin J, and threaded arm, having expanding clamps, as described, of the carriage having clamping-jaws and a rectangular seat to engage and firmly hold the arm, the arm operating through a slot in the body, the bracket and thumb-nut for locking the carriage to the body at any desired point of adjustment, and the nut for clamping the arm to the carriage, as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ELWOOD F. MAUL.

Witnesses:

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