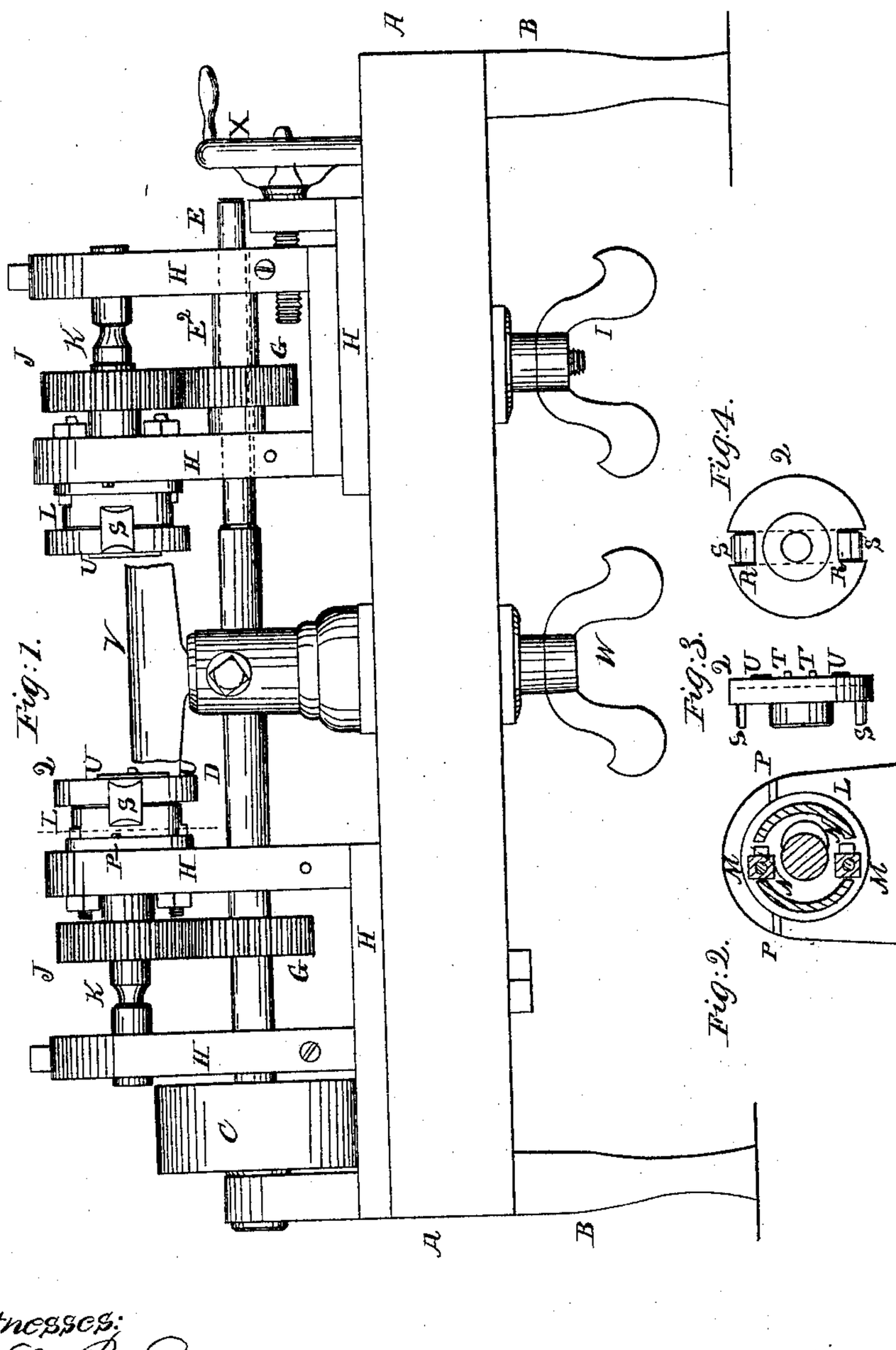
J. Ball,

Turning Orals.

No. 44,503. Patented Oct. 4, 1864.

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# UNITED STATES PATENT OFFICE.

JONATHAN BALL, OF NEW YORK, N. Y.

## IMPROVEMENT IN TURNING-LATHES.

Specification forming part of Letters Patent No. **44,503,** dated October 4, 1864.

*To all whom it may concern:*

Be it known that I, JONATHAN BALL, of New York city, in the State of New York, have invented new and useful Improvements in Turning-Lathes for Turning any Oval Shape; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention is the arrangement of two heads, forming two live-centers, and the combination of those two heads with an adjustable coupling-shaft, for the purpose of cutting ovals of any shape.

To enable others skilled in the art to make and use my invention, I will proceed to describe the operation and construction, as follows:

Figure 1 represents a side elevation of the machine; Fig. 2, a view of the adjustable circular head or collar and head-stock; Fig. 3, a side elevation of the face-plate; Fig. 4, a view of face-plate.

A represents the oblong square bed or frame, resting on feet B, that contains the devices of the machine; C, the band-wheel that drives the coupling-shaft D, that is a double shaft, the one end, E, operating inside of the other end, D, so as to shorten or lengthen the machine, according to the length of the piece to be turned, the end E having a flange or rib, $E^2$, on one side that fits in the cylinder F, so as to drive the cylinder and its pinion G. Another pinion, G′, is at the other end of the machine on the shaft D, and also in the head-stock H. The shaft D extends through both of the head-stalks H. The one head-stock H is made to shift and be adjusted on the bed A, and is fastened by a thumb-screw, I, underneath. The head stocks H H, with their devices, are similar, and are right and left hand head-stocks. The pinions G G gear into the toothed wheels J J, which drive the arbors K K. The pinions G G are to be made smaller or larger than the wheels J J, for the purpose of increasing or diminishing the speed of the shaft D with the speed of the arbors K, as may be required. The heads or collars L L are circular and are bolted to the head-stocks H H by two screw-bolts, M M, passing through two slots, N N, in the collars, to set the collars to one side of the center of the arbor K and shift or adjust the collars that slide upon a horizontal ribbon, P, on the head-stocks H, playing into a groove in the collar.

The face-plate Q has a groove on its face across the center, in which a slide, R, operates, the slide having a flange, S S, on each end, and center pins or driving-spurs T T. Two straps, U, are screwed across the face of the plate Q to keep the slide R in its place. The plate Q is screwed onto the left-hand arbor K with a right-hand thread and onto the right-hand arbor K with a left-hand thread, for the purpose of preventing the face-plate from being turned off in doing the work, the flanges S S passing over the face of the collar L and moving the slide R, according to the position of the collar L.

V is a common hand-rest fastened by thumb-screw W underneath, but I use a hand-rest or sliding rest, as I deem proper, according to the kind of work I am turning.

X is the hand-wheel and screw, also to move the head-stock H back or forward sufficiently to put in or take out the piece to be turned.

By my machine I turn ovals of any proportion required, almost round or very flat, or a flat oval—say a sword-handle or wheel-spoke—rounding at one end and flat oval at the other, or round in the center and oval at each end. After placing the piece of wood or any material to be turned between the arbors K K, I set or adjust the collars L L both forward in proportion to the oval required to be turned at each end, and thus I have two live-centers operating at the same time and same speed, turning both ends alike or one end larger or flatter than the other, or a flat oval at both ends and round in the middle.

If I operated but one collar, of course it would turn an oval picture-frame or something of that kind, but my machine has the advantage of turning a piece of wood of any length by two opposite collars or live-centers

working at the same time and speed, hence I do not claim cutting an oval on a single head on this principle of producing an oval; but

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

1. The arrangement of two heads, forming two live-centers for cutting ovals, as herein described.

2. The arrangement of the devices of the head—viz., the face-plate Q, with its slide R, flanges S, and straps U, in combination with the adjustable collars L, as herein described, and for the purposes set forth.

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Witnesses:
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