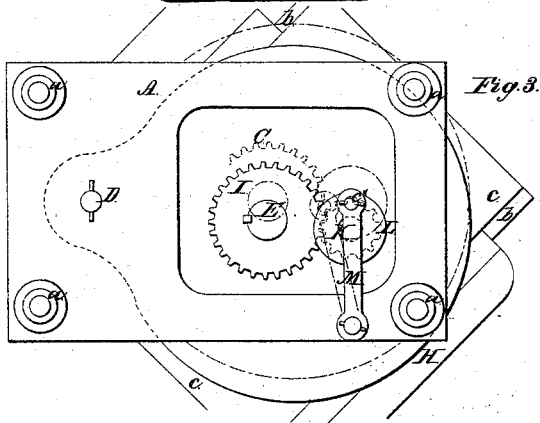
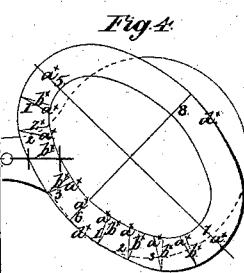
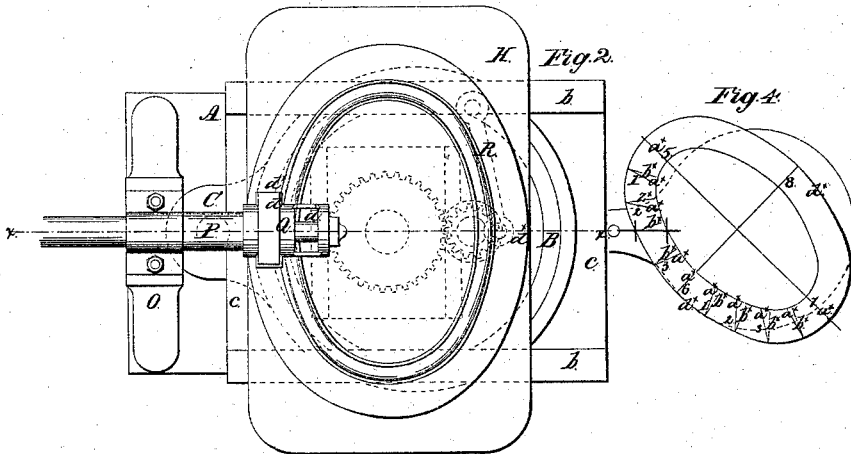
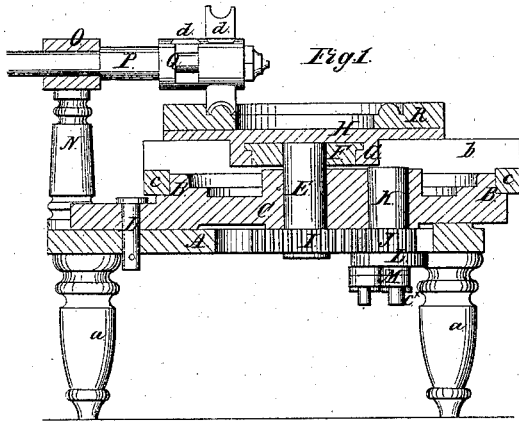


# I. P. Tice, Turning Orals.

N<sup>o</sup> 31,837.

Patented Mar. 26, 1861.



Witnesses.  
C. N. Constantine

Inventor  
I. P. Tice

# UNITED STATES PATENT OFFICE.

ISAAC P. TICE, OF BALTIMORE, MARYLAND.

## MACHINE FOR TURNING OVAL FRAMES.

Specification of Letters Patent No. 31,837, dated March 26, 1861.

To all whom it may concern:

Be it known that I, ISAAC P. TICE, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and Improved Machine for Turning Oval Frames; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a 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, an inverted plan of the same; Fig. 4, a diagram showing different positions of the frame in the course of its rotation.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to admit of a rotary cutter or a stationary chisel being used to cut out oval frames automatically or without the usual manipulation of a cutter as used with the ordinary oval lathes.

In order to turn or cut out oval frames with a rotary cutter head or a stationary chisel, it is necessary that the cutter or chisel have a position at right angles with the face of the work at all points of the rotation of the latter in order that the moldings or beads may be cut perfectly. This result cannot be attained by an ordinary oval lathe, as the work in such a machine has a rotary motion only and the cutter head would have at certain points of the rotation of the frame, an oblique position with the face of the work and the moldings and beads of the latter would be destroyed. To obviate this difficulty I give the bed of an ordinary oval lathe a vibratory movement simultaneously with its rotating one, substantially as hereinafter described, whereby the position of the work changes relatively with the cutter head or chisel so that the latter will at all times have a position at right angles with the face of the former.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a platform which is supported at a suitable height by legs *a*, and B, is an annular guide or way which is formed on or attached to a plate C, said plate being secured at one end by a bolt D, to the bolt or platform E, is a vertical shaft which passes through the plate C, eccentrically with the annular guide or way B, and to

the upper end of the shaft E, there is attached a rectangular block F, which is fitted in a guide G, that is attached to the under side of a bed H, on which the work or stuff to be operated upon is placed. The bed H, is fitted on parallel ways *b, b*, which are secured to traverse bars *c, c*, the inner sides of which are curved or are made concave and are fitted on or to the circular guide or way B. The guide G, which is at the under side of the bed H, has a position at right angles to the ways *b, b*, on which the bed H, is placed.

To the lower end of the shaft E, there is attached a toothed wheel I, and into this wheel a pinion J, gears, said pinion being on a shaft K, which has a crank pulley L, at its lower end, a rod M, being attached at one end concentrically to pulley L, and the opposite end attached to the platform A, see Fig. 3. The shaft K, is fitted in the plate C.

At one end of the platform A, there are two uprights N, N, which are connected at their upper ends by a cross piece O, on which the bearing of a horizontal shaft P, is placed. On this shaft P, a cutter head Q, is placed, said cutter head extending over the bed H. The cutters *d, d*, may have their cutting edges of any form corresponding to the desired form of the work to be cut.

The operation is as follows. The shafts E, and P, are rotated by any convenient power, and the stuff R, to be operated being got out in proper form is secured to the bed H, in a proper relative position with the cutter head. As the shaft E, rotates the bed H, has an elliptical or oval movement given it in consequence of the eccentric position of shaft E, with the annular guide B, and the sliding movement which is allowed the bed on the ways *b, b*, in connection with its rotary movement. Besides these movements of the bed a vibratory movement is given it through the medium of the pinion J, and rod M. This vibratory movement is given the plate C, and it changes the position of the work or stuff R, relatively with the cutter head so that the latter will always have a position at right angles with the face of the work. This will be fully understood by referring to Fig. 4, in which the black lines *a\** show the position of the cutter head if the bed H, had the usual elliptical movement only. These lines *a\**, it will be seen at certain parts of the work, indicated at 1, 2, 3, are quite oblique with the face of the work,

while at other points, indicated by 4, 5, 6, 7 and 8, they are at right angles with the face of the work. This oblique position of the cutter head relatively with the work prevents the work being properly done, the beading or molding would be marred or cut away so as to completely destroy the work. By giving the vibrating movement however to the bed, the cutter head is always kept at right angles with the face of the work as indicated by the red lines  $b^x$ , the work R, assuming such a position relatively with the cutter head to produce such a result. The shifting of the position of the work R, relatively with the cutter head varies, or in other words, the vibratory movement of the bed H, is not constant. This result, which is wanted, is due to the changing of the position of the wrist pin  $e^x$ , of the pinion J, relatively with the bolt D, as the pinion rotates, the pin  $e^x$ , being nearer the shaft E, and bolt D, (as shown in red, Fig. 3,) as the long sides  $d^x$ , of the work pass underneath the cutter head, and the motion of the bed will be quicker while the long sides of the oval are passing under the cutter head.

Thus it will be seen that by this very simple arrangement oval frames may be turned with a rotary cutter head or with a stationary chisel without the usual handwork, for a chisel or tool may be made with a cutting edge to correspond in form with the desired form of the work to be done, and said chisel or tool secured to the cross piece O.

I do not claim the bed H, arranged to rotate and slide so as to work in an elliptical path, for that is an old and well known device commonly termed an "oval lathe"; but,

I do claim as new and desire to secure by Letters Patent,

The giving of the bed H, of an oval lathe a vibratory movement simultaneously with its rotating and sliding movements so as to admit of a rotary cutter or a stationary chisel having at all points of the rotation of the work R, a position at right angles with the face thereof substantially as described.

I. P. TICE.

Witnesses:

M. M. LIVINGSTON,  
C. W. COWTAN.