

R. COWLES.

Watchmakers' Lathes.

No. 134,787.

Patented Jan. 14, 1873.

Fig. 1.

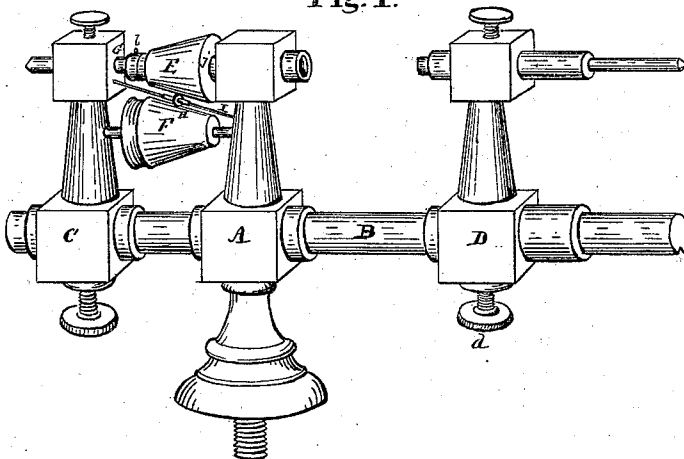


Fig. 2.

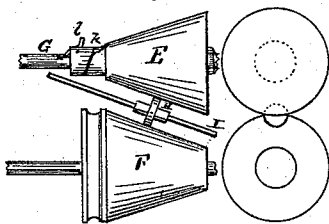
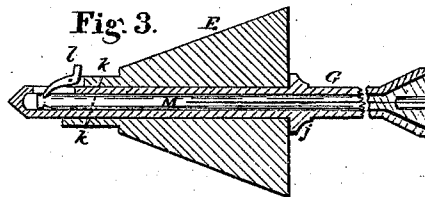


Fig. 3.



WITNESSES

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ROYAL COWLES, OF CLEVELAND, OHIO.

IMPROVEMENT IN WATCH-MAKERS' LATHES.

Specification forming part of Letters Patent No. 134,787, dated January 14, 1873.

To all whom it may concern:

Be it known that I, ROYAL COWLES, of Cleveland, county of Cuyahoga, State of Ohio, have invented an Improvement in Watch-Makers' Lathes, of which the following is a specification:

This invention relates to certain improvements in the manner of constructing small lathes for watch-makers' and others' use; and consists, first, in the plain and simple form and manner of making the several parts, all being turned and flat surface-work, readily and economically constructed; second, in the arrangement of cone-pulleys with an intervening friction-roller, whereby the speed of mandrel may be increased or diminished at pleasure without stopping the lathe; third, in the manner of securing the chuck in the mandrel; fourth, in the manner of attaching the tail-stock.

Referring to the drawing, Figure 1 is a perspective view of my improved lathe; Fig. 2 is a detached view of the cone-pulleys; and Fig. 3 is a detached sectional view of the upper cone-pulley and hollow mandrel.

A, Fig. 1, is the main post of the lathe, supporting all the other parts, and has a turned base and a screw, by which it may be secured to a work-bench. Through the lower square portion of said post A is a hole or pipe, through which is placed the round straight lathe-bar B, having a triangular groove in the lower side, by means of which the head-stock C, tail-stock D, and post A are fastened on it in a straight line. In the upper end of the post A and head-stock C are arranged two cone-pulleys, E and F; the upper one, E, is free to move on the hollow mandrel G, the lower one, F, having its bearings directly under the mandrel G, and is the pulley to which the driving-belt is attached. Between the two pulleys E and F is placed a small friction-roller, H, revolving on a rod, I, fixed in a diagonal line between the post A and head-stock C, and parallel to the surfaces of the pulleys E and F. The roller H is free to move on the rod I, and may be slid on the rod, when desired, for increasing or diminishing the velocity of the pulley E. The pulley E is placed on a hollow mandrel, G, having a shoulder, *j*, against which the large end of the pulley bears; its small end is cut in two parts diagonally across,

in line *k k*, as seen in Fig. 3, the small part having a slot in one side in which a dog, *l*, is pivoted, its point also passing through a slot in one side of the mandrel G. Within the hollow mandrel G is placed a chuck, M, having a notch around the small end, in which the point of the dog *l* engages. The outer end of this conical split chuck M fits in a conical opening in the end of the hollow mandrel G. The object of the dog *l* and the diagonal cut *k k* is to cause the chuck to be drawn forcibly into the hollow mandrel, which is done by the pulley E bearing against the shoulder *j* when the cone E is partially revolved, which pushes the small end with the dog *l* against the notch in the chuck, thus holding it firmly. The tail-stock D is slipped on the lathe-bar B like the head-stock C and post A, and is secured in place by a set-screw, *d*, the groove in the under side of the bar B insuring its being in line with the lathe-mandrel. The object of having the tail-stock fitted on a round bar is, that it may be turned forward and back, out of line with the lathe, thus enabling the arbor which it carries to be used as a hand-rest for ordinary turning, and also permitting it to be used as a tool-holder for such manipulations as are usually performed by a slide-rest upon other lathes.

I claim—

1. The combination, with the divided and loose pulley E, of the dog *l* and hollow mandrel G, for securing the chuck M, substantially as and for the purpose set forth.

2. The combination of the divided and loose pulley E, hollow mandrel G, driving-pulley F, inclined rod I, and adjustable friction-pulley H, mounted between the standards A C on the lathe-bar B, all constructed, arranged, and operating substantially as herein described.

3. The lathe-bar B, fixed in the support A and carrying the adjustable head-stock and tail-stock, in combination with the loose pulley E, hollow mandrel G, driving-pulley F, and the adjustable friction-pulley H on the inclined rod I, all arranged and operating substantially as and for the purpose set forth.

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Witnesses:

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