

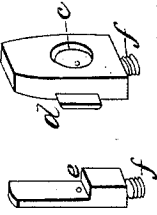
*E. Harris,*

*Watchmakers Lathe,*

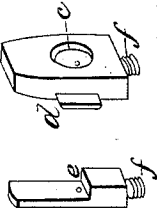
*N<sup>o</sup> 23,370.*

*Patented Mar. 29, 1859.*

*Fig. 3.*



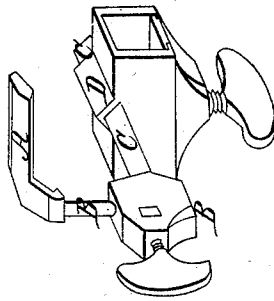
*Fig. 4.*



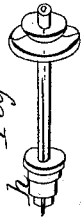
*Fig. 5.*



*Fig. 2.*



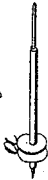
*Fig. 8.*



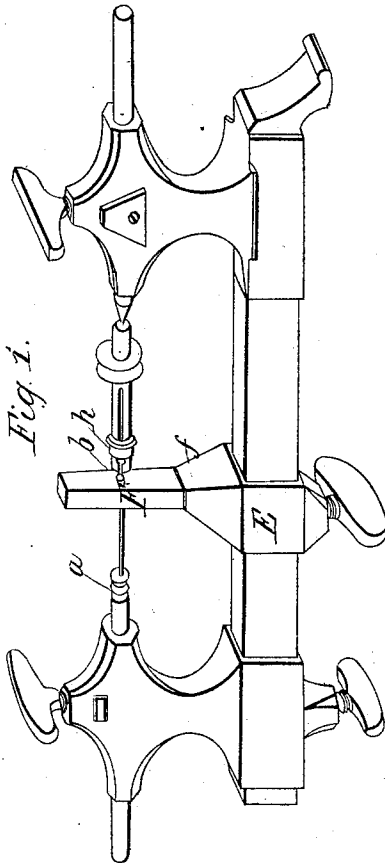
*Fig. 7.*



*Fig. 6.*



*Fig. 1.*



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# UNITED STATES PATENT OFFICE.

ELIJAH HARRIS, OF PRINCETON, ILLINOIS.

## WATCHMAKER'S LATHE.

Specification of Letters Patent No. 23,370, dated March 29, 1859.

To all whom it may concern:

Be it known that I, ELIJAH HARRIS, of Princeton, in the county of Bureau and State of Illinois, have invented a new and useful Improvement in Lathes for Drilling and Turning; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a lathe complete for drilling; Fig. 2, slide head or rest for turning; Fig. 3, detached standard for turning; Fig. 4, detached standard with dove-tail slide; Fig. 5, dove-tail slide in standard shown at Fig. 4; Fig. 6, drill; Fig. 7, rimmer; Fig. 8, slide tongs.

Letter A represents rest for turning; B, cylindrical slide by which the rest is adjusted perpendicularly; C, triangular slide by which the rest is adjusted horizontally; D, prismatic slide in movable head for slide "C;" E, slide head for receiving the different standards; F, standard for drilling; a, head of drill; b, rimmer in standard; c, hole in dove-tail slide; e, hole in standard for turning; f, screws by which standards are attached to slide head "E;" h, head of slide tongs; h' same on duplicate, Fig. "8."

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

I construct my lathe in the ordinary form with fixed and slide heads, center slides and other appendages of such lathes; but I make and use an extra slide head, which is represented at "E" and which is constructed at the base like an ordinary slide head truncated at the top and provided with a screw socket for the reception of the standards shown at Figs. 3 and 4, and letter F in Fig. 1. The standard, F, used for drilling is pierced at a point corresponding with and parallel to the center slides in the stationary and slide heads, and at its perforation is provided with a cylinder or rimmer which is made longer than the hole in the standard and has a head or flange on one end into which end the substance to be drilled is placed, the other end projecting through the standard nearly one third the length of the drill supporting it in its weak parts, thus enabling me to drill into very minute and hard substances with rapidity without danger of breaking the drill or cracking the

substance and invariably at an exact center, thereby avoiding the difficulty of centering incident to other machines. The whole being accomplished in the center of the standard and rimmer displacement or variation is almost impossible. When using the standard F with rimmer b and Fig. 7 different rimmers corresponding with the drills are used. When using the standard shown at Fig. 4, one end of the substance to be drilled is seized in the slide tongs and forced into a hole c in the dovetail slide d and Fig. 5 and the drilling done in the slide as in the rimmer; but if very small, the substance will be held wholly in the tongs which rest in the hole in the standard and the drill is supported and held in place by the hole in the dovetail slide e. The standard shown at Fig. 3 is used for turning and has a portion of the inner surface cut away, the remaining portion being thin, the point or pivot to be turned is secured in the slide tongs and inserted in the hole, e, the slide tongs being used also as a mandrel. The pivot to be turned forms one point of its support. The point or pivot to be turned thus revolving upon its own axis is from necessity turned at an exact center. When the substance to be turned is very small or short it is placed in the slide tongs; the standard shown at Fig. 4 with its dovetail slide removed is inserted in the slide head E, when the smaller portion of the head of slide tongs h and h' is inserted in the large hole to which it is fitted and the head h being turned on the tongs supported by a point in the slots made for that purpose brings the points in the slot at an exact center when the head h becomes the axis or gudgeon the point or pivot is then turned on the opposite side of the standard but so close to it that there is no perceptible vibration and being held firmly is not liable to be broken.

The dovetail slide d and Figs. 7, 5, is made as its name indicates and may have a number of holes in it differing in diameter. Such holes being made laterally on a line with the proper center are brought to place by simply moving the slide thus avoiding a frequent change of standards.

The slide tongs shown at Fig. 8 are made of a rod split to the bow or pulley wheel, with which they are provided and the split portion is made hollow down very near the end and at the end a small slot is made in each portion or half. Thus with the aid of

a slide head *h* which is forced down to that end a very strong clamp is formed. The tongs also operate both as a mandrel and a chuck; as a chuck an exact center is always obtained and the difficulty of centering in wax, as in the ordinary chucks, obviated entirely. When used as a mandrel in drilling the substance is placed in the hollow and the drill operates through the slots, the tongs revolving—as in turning—upon the smaller part of the slide head and the ordinary slide mandrel.

The rest shown at Fig. 2 differs somewhat from the usual rest, but any ordinary one will answer.

The whole lathe is made of steel or other suitable metal and after being fastened in a vise is operated by a bow in light work.

The nature of my invention consists in constructing a lathe for drilling and turning which will efficiently combine both and do the work of either, to be used chiefly in the repairing and construction of watches or other fine work, by which exact centering in drilling is obtained with ease, facility and certainty and points or pivots turned to a true center with a great degree of fineness

without the usual danger of breaking; and in constructing different standards to be used in the same slide head; in furnishing them with perforations or holes; with rimmer to support the substance and the drill and with dovetail slide, and also in constructing an instrument which I call slide tongs which combines the rimmer, mandrel, and ordinary cylinder chuck.

I do not claim the base bar the fixed or slide heads with slide mandrels, nor the rest, as they have heretofore been known and used, nor do I claim broadly the extra slide head E; but

What I do claim as my invention and desire to secure by Letters Patent is:

The standard F with rimmer *b*; the standard shown at Fig. 3 and the standard shown at Fig. 4 with dovetail slide *d*; the extra slide head E in combination with the standard F, Figs. 3 and 4, and the slide tongs shown at Fig. 8 substantially as shown and described.

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