(No Model.)

G. S. ROBERTS.

TURNING LATHE.

No. 306,525. Patented Oct. 14, 1884.

Fig. 1.

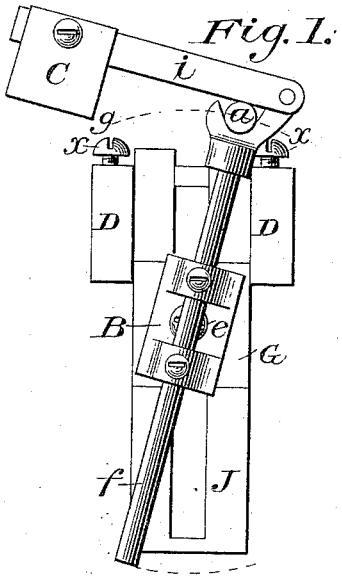


Fig. 2.

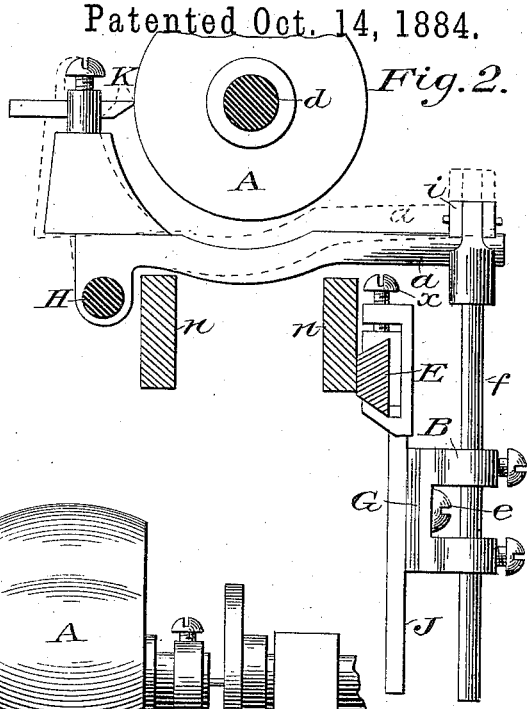
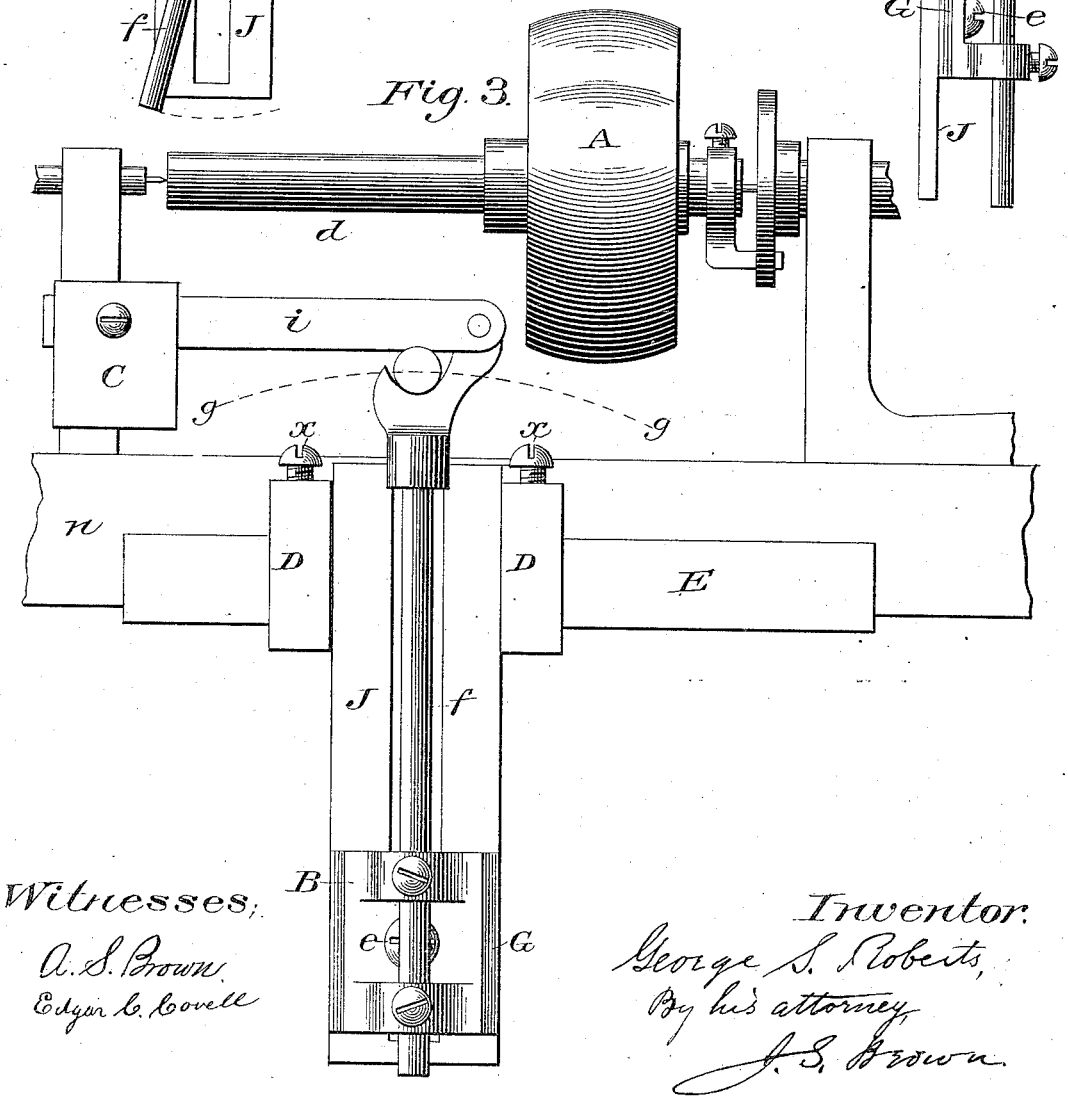


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE SMITH ROBERTS, OF MEREDITH, NEW HAMPSHIRE.

TURNING-LATHE.

SPECIFICATION forming part of Letters Patent No. 306,525, dated October 14, 1884.

Application filed September 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. ROBERTS, a citizen of the United States, residing in Meredith, in the county of Belknap and State of New Hampshire, have invented a new and useful improvement in lathes for turning or finishing the faces of iron pulleys, or other work where a curved contour is desired, of which the following is a specification.

To all mill-men the fact is well known that all pulleys (with a few exceptions) on which a belt is to run must be made with the face rounded, or largest in diameter at the center; and the object of my invention is to so govern the motion of the "turning-tool" or tool-post in a turning-lathe that it may traverse a curved line, thereby giving the desired form in turning a pulley, or where convex surfaces are required. I attain this object by the use of a "sweep" connected with the tool post or carriage, as illustrated in the accompanying drawings. The sweep may be applied to the front or back side of a lathe—preferably I have adapted mine to the latter arrangement, as shown in Figure 3, which gives a view of the sweep applied to the lathe, the latter being partly shown in rear elevation.

Fig. 1 is a view of the sweep independently. Fig. 2 is a vertical cross-section of a lathe with the sweep applied to the back.

Similar letters refer to similar parts throughout the several views.

In the lathe *n*, pulley A, tool K, and feed-screw H, as shown, are embodied a construction and method of operation now in common use, which I do not claim as my invention.

In Fig. 2 the tool post or carriage *a* is supported and held in position on the feed-screw H, on which it may travel backward and forward, the back side or extension of the tool-carriage *a* being left free to receive the required lateral motion, the screw H acting as a pivot or center of motion. By this arrangement a corresponding lateral motion will be conveyed to the tool K, causing it to approach or recede from the center of the pulley A as the back end of the tool-carriage *a* is depressed or elevated. To this back end or extension of the tool-carriage I have applied a sweep-rod, *f*, swinging on the center screw, *e*, and held in position by lugs and set-screws B, and provided with a lever, *i*, at the top, on which a weight, C, is placed, Figs. 1 and 3. The lug-plate B turns on the bed-plate G, and may be adjusted at any desired point on the sweep-carriage J, thereby giving any desired length of sweep-rod *f* from the extension *a* to the center screw, *e*. The extension *a* is held in the saddle on the end of the sweep-rod *f* by the lever *i* and weight C; or any other device may be adopted whereby a universal joint may be secured. The sweep-carriage J is made to rest on a track, E, and is held firmly at any desired point on the said track E by a clamp, D.

In the operation of the pulley-sweep the tool-carriage *a* should be adjusted to a point on the feed-screw H where the tool K may stand opposite to the center of the pulley A to be turned, or where the largest diameter thereof is desired; and then the sweep should be adjusted to a perpendicular position by sliding the sweep-carriage J on the track E to the desired point, where it should be firmly clamped by the clamp D. As the tool-carriage is caused to move on the feed-screw H, the back end or extension, *a*, will move in a curve, as indicated by the dotted line *g g* in Fig. 3, under the guidance of the sweep *f*, thereby causing the tool K to move to and from the center of the pulley in a corresponding curve, the said tool K traversing a curved line in its movements on the work. The curvature of the line may be varied by adjusting the center screw, *e*, to a higher or lower position on the rod *f* and sweep-carriage J.

By arranging the sweep to hang from above the tool-carriage *a* a concave surface may be formed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In combination with the pivoted tool-carriage and tool of a turning-lathe and means for feeding along the tool-carriage, a sweep, *f*, mounted on the frame or a stationary part of the lathe, connected with the tool-carriage, and adapted to receive a lateral motion in a curved path by the movement of the tool-carriage, and thereby to cause the tool-carriage to move in a curved line more or less distant

from the axis of the article being turned, substantially as and for the purpose herein specified.

2. In combination with the tool-carriage and tool of a turning-lathe and screw for feeding along the tool-carriage, a sweep, *f*, pivoted to a stationary holder connected with the tool-carriage, and adapted to be moved laterally in a curved line by the movement of the tool-carriage, and thereby to cause the tool to move in a curved line more or less distant from the axis of the article being turned, substantially as and for the purpose herein specified.

3. In combination with the feed-screw of a turning-lathe and the traveling tool-carriage pivoted on the said feed-screw, a pivoted sweep, *f*, turning on an adjustable pivot, *e*, and attached at one end to the traveling carriage, substantially as and for the purpose herein specified.

4. The combination of the tool-carriage *a*, feed-screw H, tool K, sweep *f*, adjustable sweep-carriage J, adjustable pivot *e*, and pivoted lug-plate B, substantially as and for the purpose herein specified.

5. The combination of the tool-carriage *a*, feed-screw H, tool K, pivoted sweep *f*, lever *i*, and weight C, substantially as and for the purpose herein specified.

GEORGE SMITH ROBERTS.

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