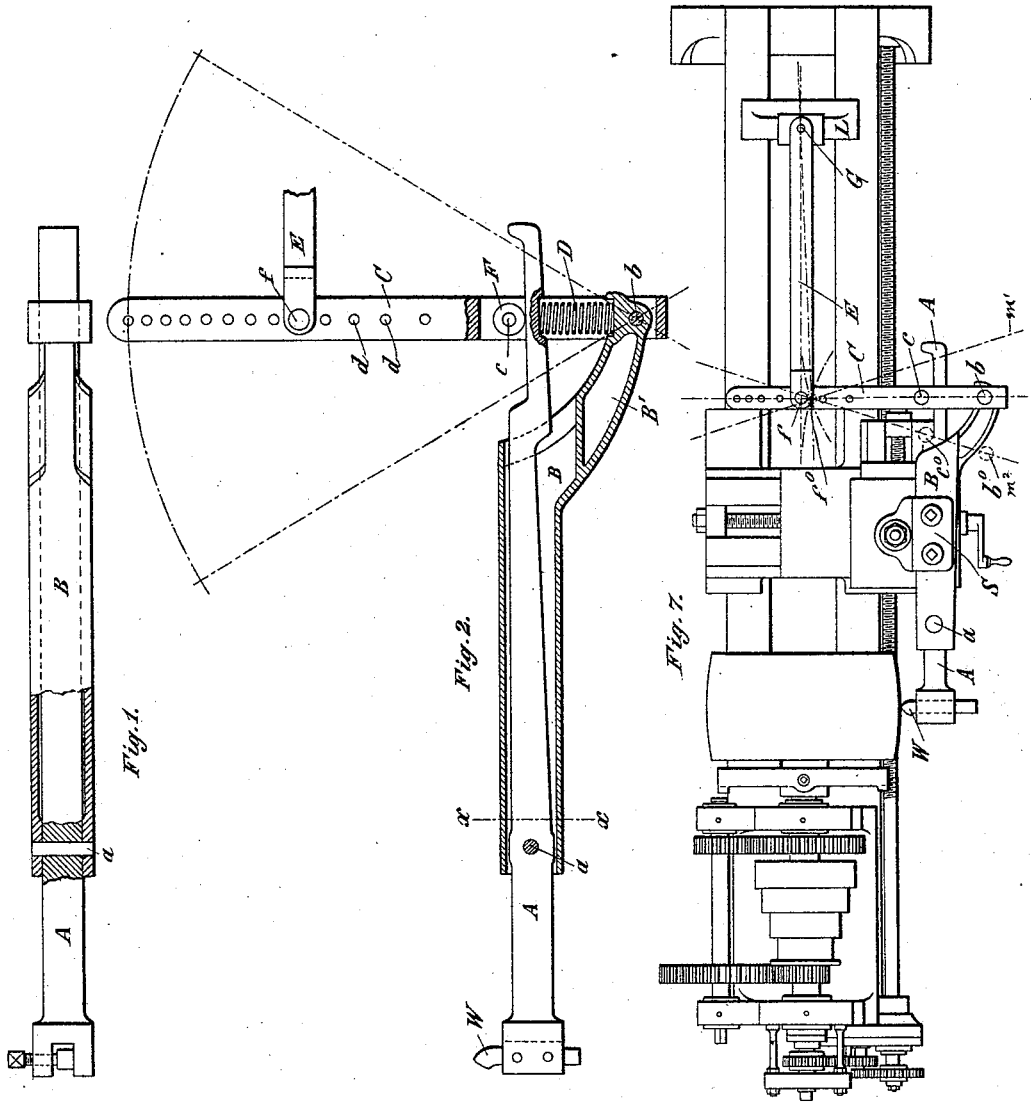
(No Model.) 2 Sheets—Sheet 1.

R. WAGNER.

TURNING LATHE.

No. 538,304. Patented Apr. 30, 1895.



Witnesses
Jos. H. Milans.
J. S. Barker.

Inventor,
Richard Wagner,
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Asso. Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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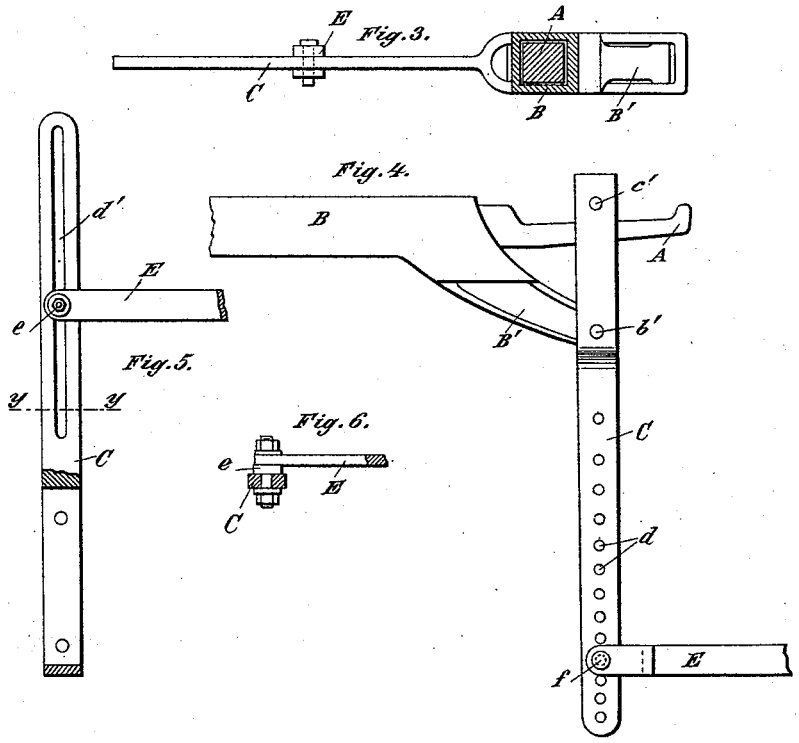

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UNITED STATES PATENT OFFICE.

RICHARD WAGNER, OF BÖBLINGEN, GERMANY.

TURNING-LATHE.

SPECIFICATION forming part of Letters Patent No. 538,304, dated April 30, 1895.

Application filed November 7, 1894. Serial No. 528,152. (No model.)

To all whom it may concern:

Be it known that I, RICHARD WAGNER, mechanic, of 449 Stuttgarterstrasse, Böblingen, Würtemberg, Germany, have invented new and useful Improvements Connected with Turning-Lathes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to mechanism for turning convex pulleys and the like, especially large sized pulleys and fly wheels, and it is characterized by extreme simplicity. The mechanism can be readily applied to lathes without subjecting them to structural alteration.

On the annexed sheet of drawings, which illustrate my invention, Figure 1 is a side view partly in section of the device. Fig. 2 is a plan view with a part in horizontal section. Fig. 3 is a vertical section on the line *x*—*x* Fig. 2. Fig. 4 shows a modification of Fig. 2. Fig. 5 is a detail plan view. Fig. 6 is a cross section on the line *y*—*y* Fig. 5. Fig. 7 shows the apparatus as it appears when fitted to a lathe.

The main feature of the invention consists in so guiding a two armed lever movably secured to the slide rest of the lathe, and one arm of which carries the turning tool, by the aid of a second lever also secured to the slide rest, and hence compelled to follow its motion, that, as the said slide rest is moved along, the turning tool is brought nearer to or moved farther from the mandrel according to the amount of convexity which it is desired to produce on the surface of the pulley. The stroke of the second lever is produced by fixing one of its ends to the lathe bed in such a manner that it cannot follow the slide rest in its movements.

The invention is carried into effect or practice in the following manner: A hollow quadrilateral support box or shell B which is fixed to the slide rest by means of a clamp, S, has fulcrumed on the bolt *a* in its front end a two armed lever A. The front end of this lever has a clamp in which the turning tool W is secured while its rear end has a recessed guide surface against which the roller F bears. This roller F is carried on a bolt *c* in the forked end of the lever C which latter is pivotally connected by the pin *b* to the arm B′ of the shell B. The oscillating back end of the lever C is provided with holes *d* through any one of which, as desired, the pin *f* on the forked end of the link E can be passed. The opposite end of the link E is pivoted to any suitable part of the lathe bed.

In the example shown at Fig. 7 the link E is secured to a block L by a pivot pin G. A spring D (Fig. 2) bears at one end against the arm B′ and at the other against the end of the lever A in such manner that the latter is constantly pressed against the roller F.

The *modus operandi* is as follows:—After the shell B has been firmly secured to the slide rest by the clamp S (Fig. 7) the apparatus is so arranged, that, when the turning tool is in the central plane of the pulley requiring to be turned, the lever C assumes a position (as shown) at right angles to the axial line of the mandrel. When the slide rest is drawn back the lever C moving on the pins *f* and *b*, is drawn into an oblique position relatively with the axial line of the mandrel as indicated by the dotted line *m′*, and, as a consequence, the roller F is caused to press the recessed end of the lever A back against the action of spring D and thereby force its other end forward, in this manner causing the tool W to approach nearer to the centers of the lathe. The movement or stroke of the lever C can be regulated by shifting the pin *f* (and thereby the bar E) in the holes *d* of the lever. The greater the stroke the greater will be the curve along which the tool is guided, that is to say, the greater will be the convexity given to the pulley being turned. After having in this manner properly set the tool the slide rest is moved forward regularly so that the lever C gradually approaches a position at right angles to the axial line of the mandrel which it attains when the tool W has arrived at the center of the pulley as shown at Fig. 7. During this movement the tool has gradually moved from its minimum distance from the line of the lathe centers to its maximum distance from them, and as a consequence, one half of the pulley has been turned with a convex surface. As the movement of the slide rest proceeds the tool W is again gradually brought back again from the maximum to the minimum distance from the lathe centers and the other

half of the pulley is, as a consequence turned with a convex surface. When the turning of the pulley is finished the lever C is in the position represented by the dotted line m^2 while the pin f is at f^0, the roller pin c at c^0 and the pin b which moves in a line parallel with the screwed spindle n, is at b^0.

It may be necessary with some constructions of lathe to fit the lever C on the other side of the lathe bed. This may be effected in the manner shown at Fig. 4. In this arrangement the pin b' takes the place of the pin b, by which the lever is pivoted to the arm b', while the pin c' takes the place of the pin c of the pressure roller F. The operation is exactly the same as before.

Figs. 5 and 6 show a modification of the lever C wherein a slot d' takes the place of the holes d (Fig. 2). The link E is secured to the lever C by a clamping bolt or screw e passed through the slot. On slackening the nut of the bolt e the link E can be shifted up and down the slot as desired in order to regulate the amount of convexity desired to be given to the work.

A graduated scale may if desired be cut on the lever C in order to facilitate the setting of the link E.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A lathe attachment consisting of the combination with the slide-rest of a lever having means for carrying a tool and pivotally mounted on said rest, a second lever at an angle to the former, engaging one arm thereof, and mounted on the slide-rest, and a connection between the second lever and the lathe bed, substantially as set forth.

2. A lathe attachment consisting of a box or support adapted to be carried by the slide-rest, a lever mounted on said support and having means for carrying the tool and provided with a guide surface, a second lever pivotally mounted on said support, at an angle to the first lever and engaging said guide surface, and a connection with the lathe bed for limiting the movement of one arm of said second lever, substantially as set forth.

3. A lathe attachment consisting of a box or support adapted to be carried by the slide-rest, a lever mounted on said support and having means for carrying the tool and provided with a guide surface, a second lever pivotally mounted on said support, at an angle to the first lever and engaging said guide surface, a spring acting upon said levers to maintain their engagement and a connection with the lathe bed for limiting the movement of one arm of said second lever, substantially as set forth.

4. A lathe attachment consisting of the combination of the box B having the arm B', the lever A pivotally mounted in said box and having means for carrying the tool and provided with a guide surface, the second lever C pivotally mounted on said arm and provided with a roller for engaging said guide surface, a spring D interposed between said arm and the said lever A, and a connection with the lathe bed for limiting the movement of one arm of the lever C, substantially as set forth.

5. The combination with the bed and slide-rest of a lathe, of a lever pivotally mounted upon the slide rest and having means for carrying a tool, a second lever at an angle to the former, engaging one arm thereof and pivotally connected with said slide rest, and a connection for limiting the movement of one arm of said second lever, from the lathe bed, substantially as set forth.

In witness whereof I hereunto set my hand in presence of two witnesses.

RICHARD WAGNER.

Witnesses:
WILLIAMS ATALLY,
WM. HAHN.