

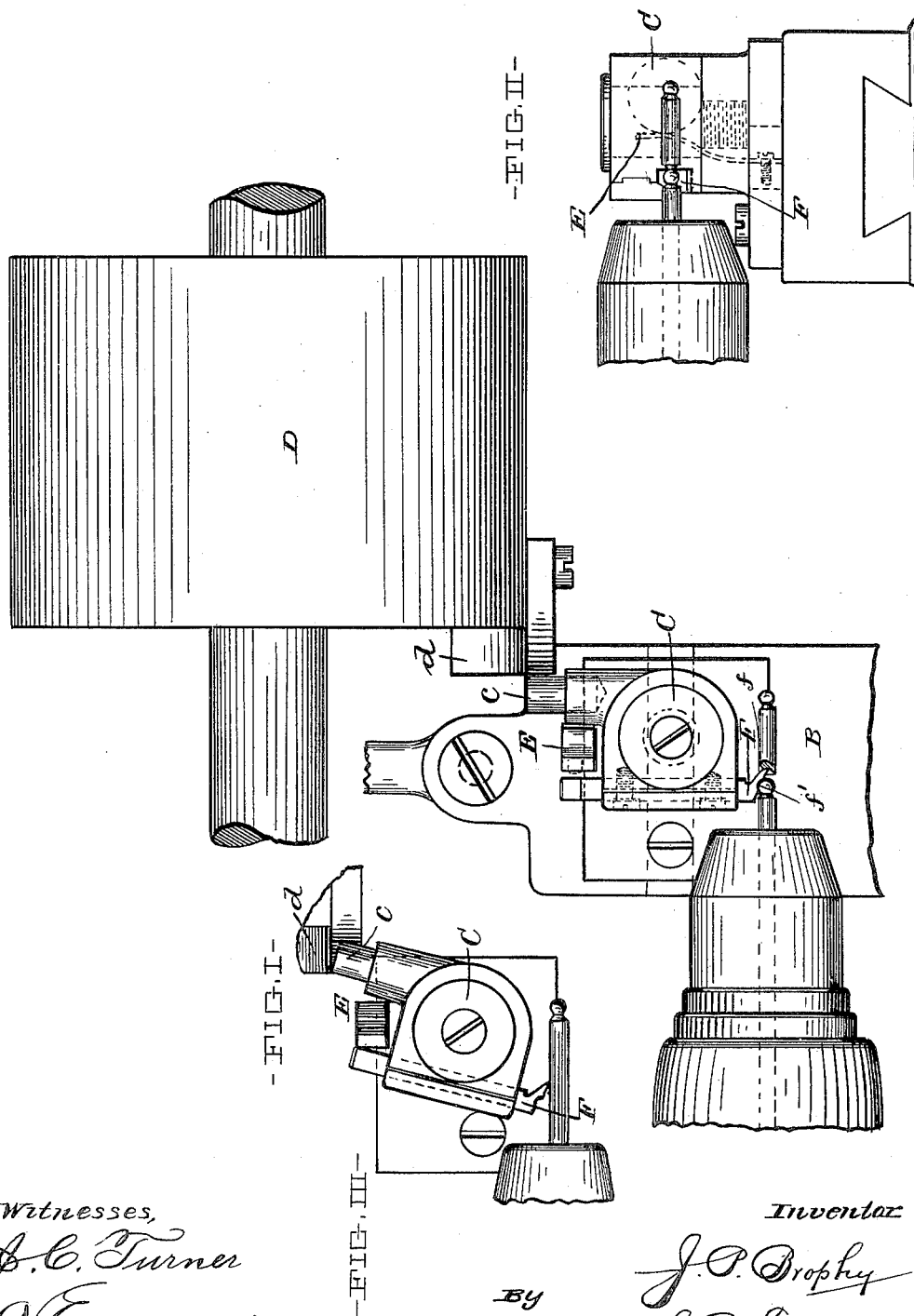
No. 649,906.

Patented May 22, 1900.

J. P. BROPHY.
AUTOMATIC LATHE ATTACHMENT.

(Application filed July 17, 1899.)

(No Model.)



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By

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UNITED STATES PATENT OFFICE.

JOHN P. BROPHY, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND MACHINE SCREW COMPANY, OF SAME PLACE.

AUTOMATIC LATHE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 649,906, dated May 22, 1900.

Application filed July 17, 1899. Serial No. 724,093. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. BROPHY, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Automatic Lathe Attachments, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

My invention relates to attachments for automatic lathes for performing special work upon a blank; and it consists of means for cupping out the end of a cylindrical or other blank and subsequently cutting off the same.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a plan view of a cross-slide of an automatic lathe having mounted thereon my improved attachment, a plan view of a cam-drum on such lathe, and a plan view of the end of the head-stock, illustrating a finished piece and the relative position of the above-named parts at the end of the operation. Fig. II represents a front elevation of the end of the head-stock, cross-slide, and attachment; and Fig. III represents a plan view of the attachment end of the head-stock and a blank gripped therein, illustrating the relation of the parts during the first stage of the operation.

The lathe is provided with the usual means for gripping a metal rod or bar and automatically feeding same at intervals through the head-stock toward the turret.

In order to perform the above-mentioned special operation, the cross-slide B has pivoted upon its upper face a tool-holder C, whose pivotal plane is parallel with the axis of rotation of the head-stock or the blank-rod. Secured to or formed on said tool-holder is a rearwardly-projecting lug c. A cam-drum D is suitably mounted and driven and is provided with a cam d, placed so as to contact the lug c and periodically partially rotate the

holder upon its pivotal axis. A spring E, secured to the holder, actuates the latter in the direction opposite that of the movement imparted by said cam to assume a normal position, as shown in Fig. II. The cross-slide is advanced toward and retracted from the blank at proper intervals by the usual means employed in this class of machines. A cutting-tool F is eccentrically secured in the holder and normally inclined to the blank-rod, as shown in Fig. I, and is provided with a laterally-extending cutting edge f, of convex form, as shown in said figure.

The device operates as follows: The rod G being rapidly rotated and the tool and tool-holder having been permitted to assume their normal positions—that is, the cam d being located in a part of its path in which it is not engaging the tool-holder c—the cross-slide is advanced and caused to cut into the metal in lines perpendicular to the axial plane at right angles with the direction of travel of the cross-slide, as in the ordinary machine-lathe. The cam d and the slide-reciprocating mechanism are so timed that after the cutting edge of the tool has entered the blank a proper predetermined distance said cam engages the lug c and swings the holder upon its pivot, thereby causing the convex cutting edge to cut in lines transverse to the above-mentioned perpendicular lines, such action, due to the eccentricity of the tool, being such as to cause the said edge to sink into the blank a distance sufficiently great to cut off a portion of the rod and at the same time cup out the inner extremity of such cut-off portion by means of the convex edge f, as shown in Fig. 1. If it be required that the opposite end of the cut-off portion have a specified form, a second cutting edge f' may be provided to give such form to said end, as is shown in the drawings, the particular form being spherical. After severing of the finished piece the slide is withdrawn and again assumes its normal position. The two ends of the blank are thus finished, the operation upon the outer end of one and upon the inner end of the other taking place during one reciprocating movement of the slide.

Other modes of applying the principle of my invention may be employed instead of the

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one explained, change being made as regards the mechanism herein disclosed, provided the means covered by any one of the following claims be employed.

5 I therefore particularly point out and distinctly claim as my invention—

1. The combination of a rotary head-stock provided with blank-gripping means, a cross-slide, a pivotal tool having a laterally-extending convex cutting edge, means for advancing
10 said tool toward the axis of rotation of the head-stock and means for swinging the tool upon its pivotal axis, substantially as set forth.

15 2. The combination of a rotary head-stock provided with blank-gripping means, a cross-slide, a pivotal tool normally inclined to the

axis of rotation of said head-stock and having a laterally-extending cutting edge, means for advancing said tool toward said axis and
20 means for swinging said tool upon its pivotal axis, substantially as set forth.

3. The combination of the pivotal tool-holder C, the cam-drum D, the normally-inclined tool F having the cutting edge *f*, the
25 rotary head-stock provided with gripping means, said holder mounted upon the transversely-reciprocable cross-slide, substantially as set forth.

Signed by me this 5th day of July, 1899.

J. P. BROPHY.

Attest:

D. T. DAVIES,
A. E. MERKEL.