

No. 620,128.

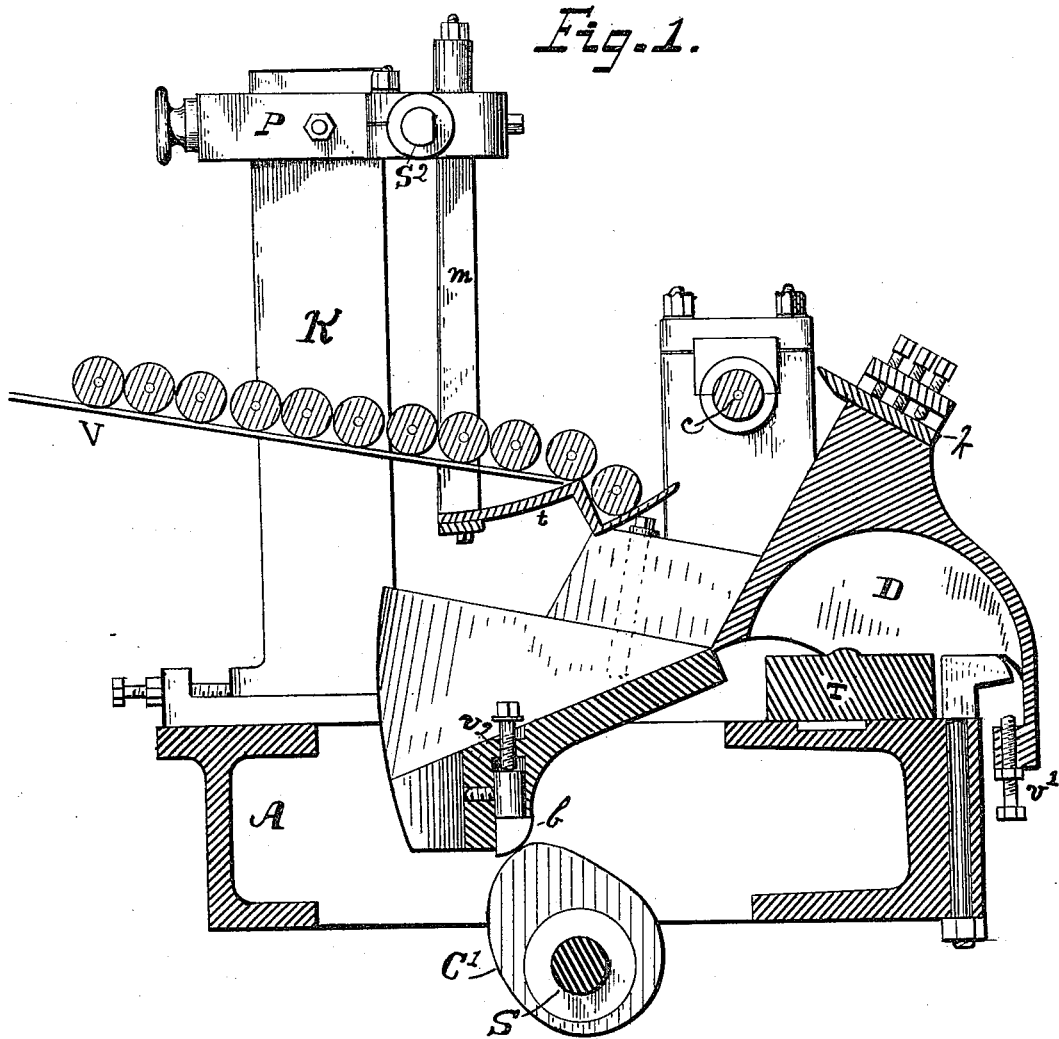
Patented Feb. 28, 1899.

E. A. & G. M. HERRICK.  
AUTOMATIC SPOOL LATHE.

(Application filed Aug. 24, 1898.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:  
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BY Almon Robinson  
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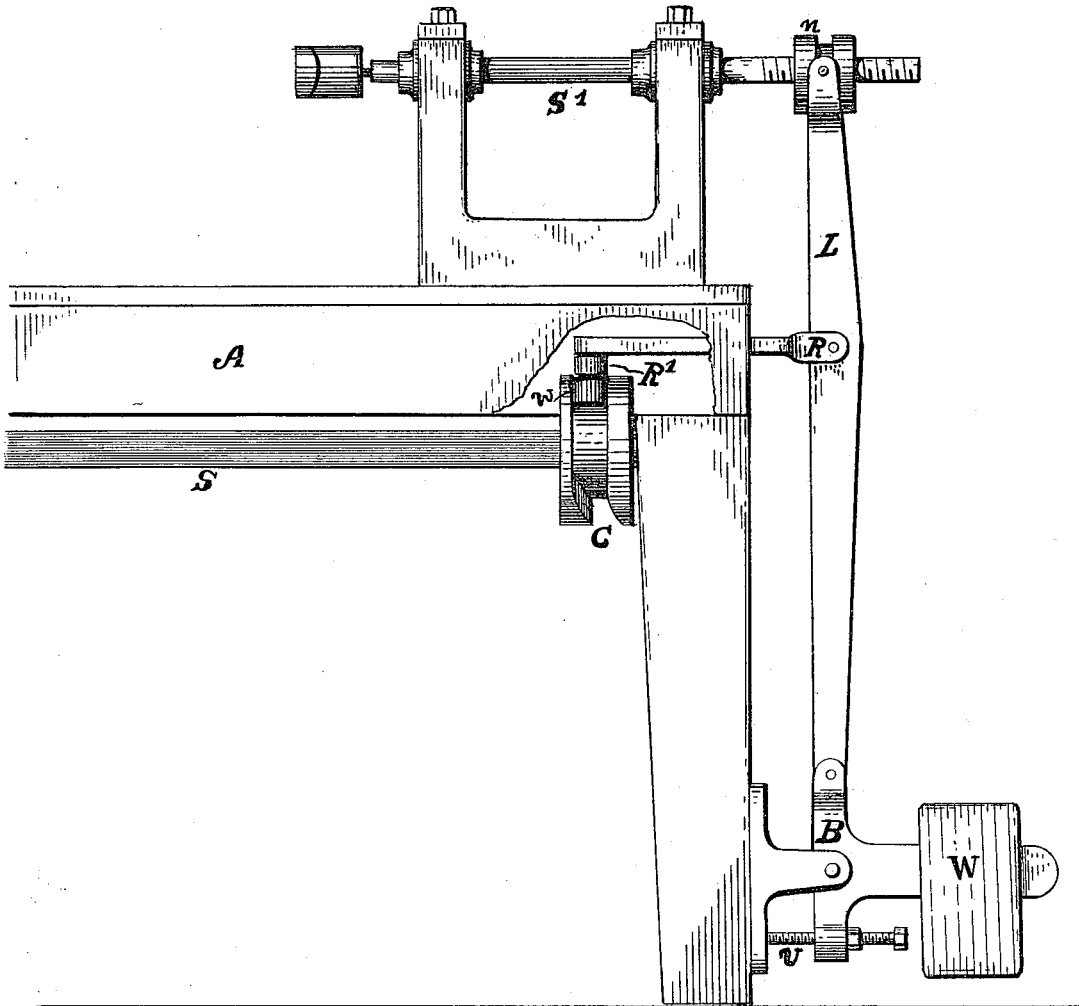
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*Fig. 2.*



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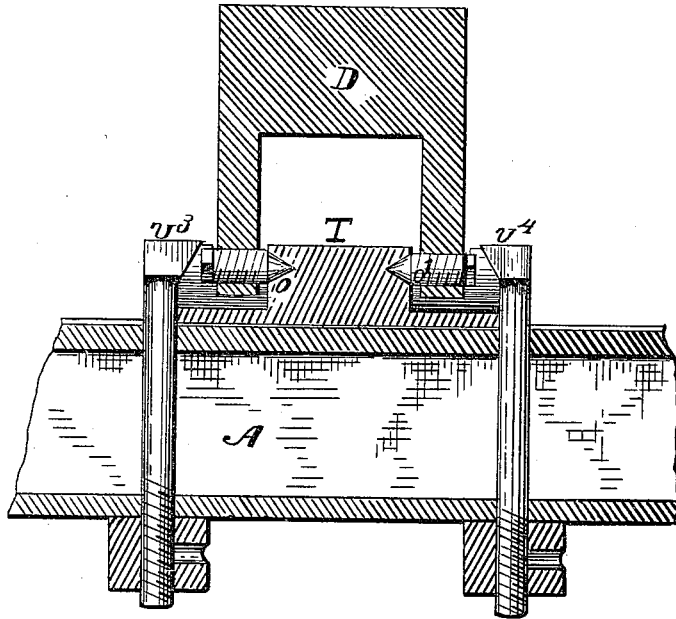
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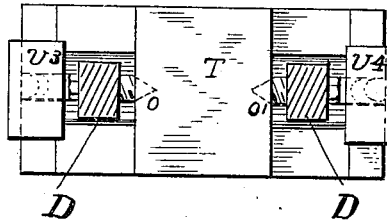
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*Fig. 3.*



*Fig. 4*



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4 Sheets—Sheet 4.

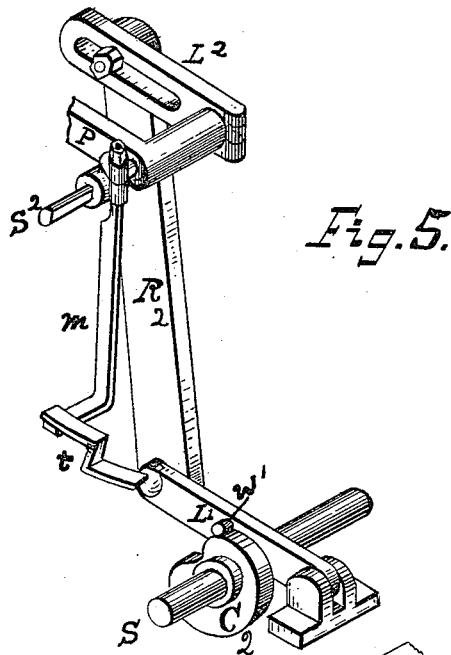


Fig. 5.

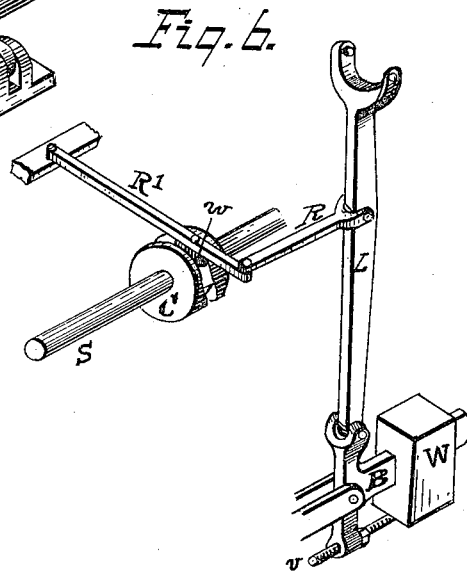


Fig. 6.

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# UNITED STATES PATENT OFFICE.

EDGAR A. HERRICK AND GEORGE M. HERRICK, OF LOCKE'S MILLS, MAINE,  
ASSIGNORS TO E. L. TEBBETS & CO., OF SAME PLACE.

## AUTOMATIC SPOOL-LATHE.

SPECIFICATION forming part of Letters Patent No. 620,128, dated February 28, 1899.

Application filed August 24, 1898. Serial No. 689,441. (No model.)

To all whom it may concern:

Be it known that we, EDGAR A. HERRICK and GEORGE M. HERRICK, citizens of the United States, residing at Locke's Mills, in the county of Oxford and State of Maine, have invented certain new and useful Improvements in Automatic Spool-Lathes, of which the following is a specification.

Our invention relates to that class of spool-lathes in which spool-blanks that have been roughly turned and bored are automatically placed between the centers of a finishing-lathe. A lathe of this sort in which the blanks are taken from the end of an inclined rollway by a swinging carrier has had a limited use. Our invention is herein shown and described as applied to such a lathe.

In the accompanying drawings, Figure 1 is a partial sectional elevation which shows the mode of operation of a lathe of this sort. Fig. 2 is a partial elevation showing the device for feeding and releasing the dead-spindle. Figs. 3 and 4 are detailed drawings showing the support for the swinging frame which carries the finishing-knives. Fig. 5 is an isometric diagram which shows the combination of parts used in lathes of this sort to swing the spool-blank between the lathe-centers. Fig. 6 is a similar diagram showing the combination of parts which transmit endwise motion to the dead-spindle.

In the drawings, A is the main frame of the machine.

S is the cam-shaft; C, the cam from which the reciprocating motion of the dead-center is derived; C', the cam which swings the spool-finishing knives, and C<sup>2</sup> the cam which swings the spools between the lathe-centers, as c.

D is the swinging frame which carries the spool-finishing knives, as *h*.

In lathes of this sort the knives are pushed into the spool-blank by the weight of the swinging frame D. The extent of its motion, and consequently the size of the spool, is regulated by the adjusting-screw *v'*. It is swung back by the cam C' acting against the piece *b*, which is adjusted in position by the screw *v*<sup>2</sup>.

In such lathes as heretofore constructed the piece D has been held down to broad bear-

ings by its weight alone, and the machine has been continually thrown out of adjustment by the chips and sawdust which worked between the surfaces, and as spools have to be made very close to size a small error in adjustment spoils the working of the machine. The construction by which we avoid this is shown in Figs. 3 and 4, where the sides of D are shown projecting downward into semi-circular grooves in the saddle T. Through these downwardly-projecting sides pass the heavy conical-pointed screws *o o'*. The conical points of *o o'* are adjusted to fit in T without shake. The saddle T has a guided motion on the frame A parallel to the lathe-centers. Its ends are formed into inclined planes on which the broad heads of the holding-down bolts *v*<sup>3</sup> *v*<sup>4</sup> fit. By loosening one of these bolts and tightening the other the position of T can be adjusted as accurately as desired. The standard K supports the mechanism for feeding the spool-blanks, which are placed by hand or by an automatic device upon the rollway V, from which they are picked by the piece *t*, mounted on the swinging arm *m*, which is clamped to the rock-shaft S<sup>2</sup>.

P is an adjustable bearing for the rock-shaft S<sup>2</sup>.

L<sup>2</sup> in Fig. 5 is a slotted arm clamped to S<sup>2</sup>.

R<sup>2</sup> is a heavy connecting-rod; L', a lever carrying the roller *w'*, which rests upon the cam C<sup>2</sup>.

S' is a reciprocating spindle.

*n* is a grooved adjustable nut on the rear end of S'.

L is a fork-ended lever engaging with the groove in *n*.

B is a T-shaped lever, to which the lower end of L is pivoted.

W is a weight which acts against the inward motion of the lower end of L. The adjusting-screw *v* limits the motion of L in the opposite direction.

R is a connecting-rod which joins L to the outer end of the swinging arm R'.

The cam-roller *w*, which is attached to R', works in a groove in the cam C.

When we wish to make use of our invention, we adjust the position of S' to correspond

with the length of the spool by means of the nut *n*, preferably making the final adjustment by means of the screw *v*. We now adjust the position of *W* to correspond with the strain which the parts that oppose the forward motion of *S'* will bear. If they should thereafter meet any obstacle, the forward motion of *S'* will stop and the weight *W* will be thrown up.

By adjusting the weight *W* upon *B* the strain at which the forward motion of *S'* will stop can be accurately predetermined and practically is made visible to the eye. Moreover, this strain is not increased by the further pull of the cam, as is the case when a spring is arranged in any way to relieve a strain.

The spool-blank-feeding mechanism shown is not claimed as our invention, and we do not limit ourselves to the use of that precise construction.

The finishing-tools are adjusted to the work in the same general manner as in other spool-finishing lathes. Our improved combination of inclosed conical pivots guards against accidental disturbance of adjustment.

Having now fully described our invention and the manner of using it, what we claim, and desire to secure by Letters Patent, is—

1. In an automatic spool-lathe an adjustable saddle having a longitudinal groove in each end, a tool-carriage having sides which project downward into the longitudinal grooves, and a pair of conical-pointed screws which pass through the downwardly-projecting sides of the tool-carriage and enter conical sockets in the part of the saddle inclosed between the sides of the tool-carriage; all substantially as and for the purpose set forth.

2. In an automatic spool-lathe, a principal lever, a reciprocating dead-spindle which has its outer end attached to one end of the prin-

cipal lever, a right-angle lever having the upper end of its vertical arm attached to the other end of the principal lever, a weight adjustable upon the horizontal arm of the right-angle lever, an adjusting-screw which limits the downward motion of the weight, and means of imparting a horizontal motion to an intermediate point of the principal lever; substantially as and for the purpose set forth.

3. In an automatic spool-lathe, a reciprocating dead-spindle having a screw-thread upon its outer end, a grooved adjusting-nut working in this thread, a fork-ended lever which engages the groove in the nut, a T-shaped lever which has its vertical arm attached to the lower end of the fork-ended lever, a weight adjustable upon the horizontal arm of the T-shaped lever, an adjusting-screw reacting against the weight, and means of transmitting an intermittent motion to the fork-ended lever; all substantially as and for the purpose set forth.

4. In an automatic spool-lathe, a reciprocating dead-spindle, a vertical lever which is connected at its upper end with the dead-spindle, a right-angle lever connected by its vertical arm with the lower end of the vertical lever, a weight upon the horizontal arm of the right-angle lever, a horizontal lever, a rod connecting the vertical and horizontal levers, a cam-roller on the horizontal lever and a cam in which the cam-roller is adjusted to work, all combined with each other, substantially as and for the purpose set forth.

In testimony whereof we have hereunto set our hands this 20th day of July, 1898.

EDGAR A. HERRICK. [L. S.]  
GEORGE M. HERRICK. [L. S.]

Witnesses:

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