(No Model.) 3 Sheets—Sheet 1.

P. KETTENRING.

SPOKE LATHE.

No. 429,924. Patented June 10, 1890.

Fig. 1.

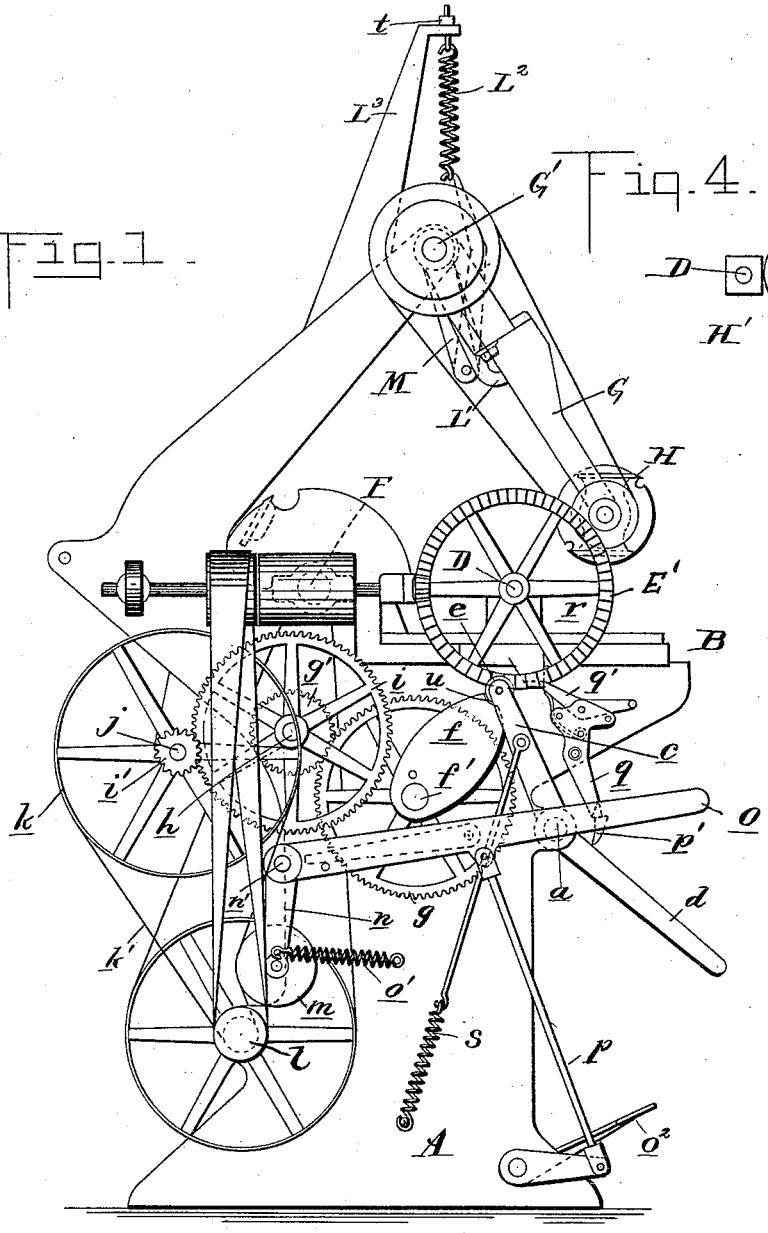
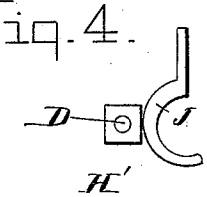


Fig. 4.



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J. M. L. Dougherty.

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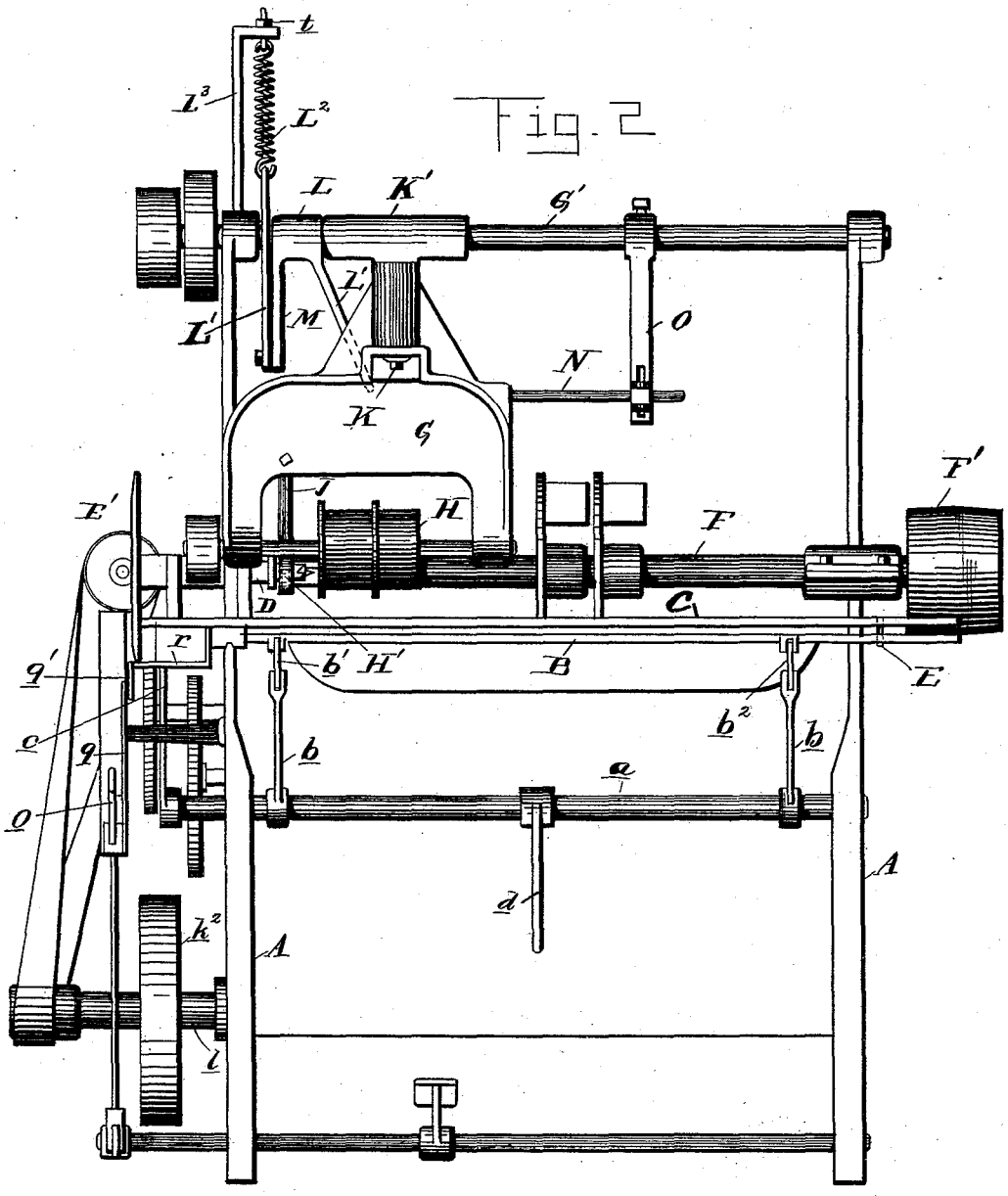
(No Model.) 3 Sheets—Sheet 2.

P. KETTENRING.

SPOKE LATHE.

No. 429,924. Patented June 10, 1890.

Fig. 2



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(No Model.)

3 Sheets—Sheet 3.

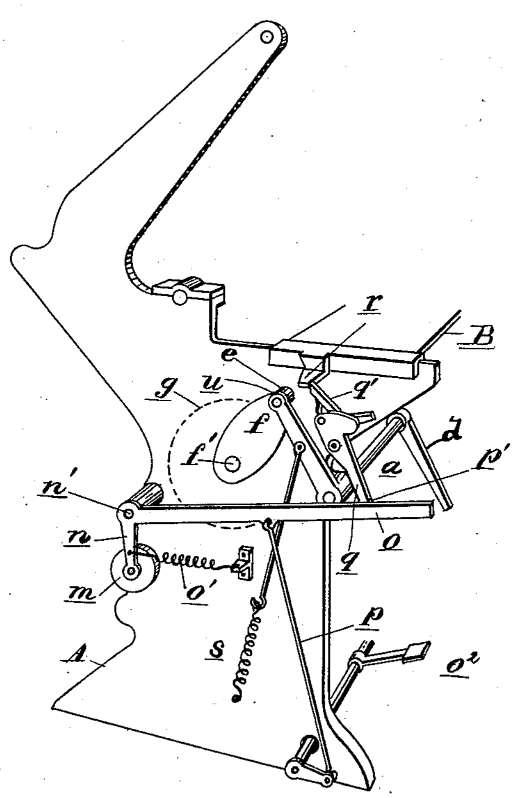
P. KETTENRING.

SPOKE LATHE.

No. 429,924.

Patented June 10, 1890.

Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

PETER KETTENRING, OF DEFIANCE, OHIO, ASSIGNOR TO THE DEFIANCE MACHINE WORKS, OF SAME PLACE.

SPOKE-LATHE.

SPECIFICATION forming part of Letters Patent No. 429,924, dated June 10, 1890.

Application filed January 14, 1890. Serial No. 336,959. (No model.)

To all whom it may concern:

Be it known that I, PETER KETTENRING, a citizen of the United States, residing at Defiance, in the county of Defiance and State of Ohio, have invented certain new and useful Improvements in Spoke-Lathes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in lathes; and the invention is intended to form an improvement upon a previous patent granted to me February 21, 1888, No. 378,322.

The invention consists in the peculiar construction of a device for automatically moving the sliding table which carries the work; further, in the peculiar construction and means of adjustment of the swinging head which carries the cutters; further, in the peculiar construction of the support for said swinging head, and, further, in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings which accompany this specification, Figure 1 is a side elevation of my improved lathe. Fig. 2 is a front elevation thereof. Fig. 3 is a detached perspective of the operating parts of the table-moving mechanism. Fig. 4 is a detail of the cam and shoe.

A is the frame of the machine.

B is the sliding table, secured in suitable guides in the frame.

C is the bed-plate, supported on the sliding table and turning on the pivot E. This bed-plate C carries the spindles, of which the live-spindle D is shown in the drawings, motion being imparted thereto from the gear-wheel E.

F is the shaft carrying the cutter-heads, which in the operation of the machine form the oval or body portion of the spoke, the cutter-head being carried to and from the work by means of a suitable cam secured upon the shaft of the live-spindle and bearing against an arm projecting above the sliding table B, these parts being as shown in my previous patent above referred to, and are not herein shown.

F′ is the drive-pulley for the shaft F and the cutter-heads.

G is a swinging cutter-head frame, pivoted at its upper end upon the shaft G′ and carrying the cutters H, which are moved to and from the blank by means of the squared cam H′ on the live-spindle bearing against the shoe J upon the frame G for the purpose of squaring the butt of the spoke, as described in my patent previously referred to. This head in my previous patent had no means of adjusting it angularly, and to effect such angular adjustment I secure the head G to the shaft G′ by means of a bolt K, engaging into the sleeve K′ on the shaft and at its other end engaging into the head G. It is also arranged that the head G may be turned upon the bolt, so that the cutters will assume any desired angle to the blank.

In order that the entire weight of the cutter-head may not be transmitted to the cutters, I form a spring-bearing L for the head G, having an arm L′, projecting under the body of the frame, and a spring L^2, supported upon the upward extension L^3 of the frame and connecting through the arm M of the bearing L with the arm L′, thus taking a great deal of the weight of the swinging frame upon the spring L^2 and making the operation of the machine much lighter and easier.

In order that the angular position of the head G may not be maintained entirely by the tension of the bolt K, I arrange the arm N to project laterally therefrom and engage with the hanger O, which is adjustably secured in any suitable manner to the shaft G′.

In my previous patent the sliding table was moved in or out by means of a hand-lever. In order to accomplish this movement automatically, I have constructed the following devices: *a* is the shaft, journaled in the frame below the table and connected thereto by means of the rock-arms *b* and links b' b^2. This shaft is provided with an arm *c* and lever *d*. The arm *c* is provided at its outer end with a bearing-wheel *e*, arranged in the path of the cam *f*, which latter is secured to the shaft f', upon which is also secured the gear-wheel *g*, which meshes with the gear-pinion g' upon

the shaft h, which also carries the gear-wheel i, which in turn meshes with the gear-pinion i' on the shaft j. This shaft carries also the pulley k, which is connected by a suitable belt k' with the driving-shaft l. m is a tightener-pulley secured at the lower end of the bell-crank lever n, this lever being pivoted upon the shaft n', and having a hand-lever o extending to the front of the machine. The tightener-pulley is held normally out of contact with the belt by the tension of the spring o'. This lever o may be operated by suitable foot-power through the arm p and foot-lever o''. The lever o is provided on its inner side with the pin or abutment p', with which the lower end of the latch q is adapted to engage. This latch is pivoted to the frame, and is provided at its upper end with a spring-latch q', which is engaged in the path of the arm r of the sliding table B. The lever c, through the means of the shaft a and the rock-arms b and links b' and b^2, acts by the tension of the spring s to normally hold the table up to the cutters in its working position.

The parts being thus constructed and arranged, they are intended to be operated as follows: The head G is adjusted at any desired angle to the blank by means of the bolt K and arm N. The tension of the spring L'' is also suitably adjusted by means of the nut t. The table being in position to insert a new blank, the roller e engaging in the cut-away portion u of the cam, the operator places the blank upon the spindles, and to move the table up to the cutters throws the tightener-pulley m into engagement with the belt by the foot-lever o'', when, through the medium of the train of gearing described, the cam f is rotated. As soon as the roller e is disengaged from the cam the spring s, acting upon the arm c, moves the table toward the cutters, so that they operate upon the blank. As soon as the table moves toward the cutters the latch q engages upon the abutment p' and holds the tightener-pulley against the belt while the cam is making its revolution. The cam f makes a complete revolution, during which time the blank is being operated upon by the cutters. As soon as the cam strikes the roller e of the rock-arm c the latter is rocked, and with it, through the shaft a, the rock-arms b, which draw the table away from the cutters until the arm r on the table strikes the spring-latch q', moving the latch q out of engagement with the abutment p', when the tension of the spring o' withdraws the tightener-pulley m and stops the gearing which operates the cam. The cut-away portion u of the cam engages with the roller e at this point to hold the table firmly in position away from the cutters. In this position it is evident that the table, with the spindles and blank, has been moved out, so that the operator can readily remove the blank and insert a new one. The operation may be repeated, as above described.

What I claim as my invention is—

1. In a lathe of the kind described, the combination, with the sliding table, of mechanism for retracting said table comprising a rock-shaft connected to said table, a rock-arm on said shaft, a bell-crank lever carrying a tightener-pulley adapted to automatically engage with the driving-belt to set in operation a train of gearing, a cam arranged in the path of the rock-arm, a latch locking said lever, and a tripping-arm on the sliding table to loosen said pulley when the table is retracted by engaging with the locking-latch, substantially as described.

2. In a lathe of the kind described, the combination of the following elements: the table B, shaft a, links b, arm c, spring s, cam f, operated by gearing through the belt k', the bell-crank lever n, carrying tightener-pulley m, the abutment p', trip q, latch q', and arm r, substantially as described.

3. In a lathe, a horizontal shaft, a swinging cutter-head frame mounted thereon, an adjustable bolt pivotally securing the head to the shaft, a horizontal arm N, extending out from the head, a pendent supporting-arm O, secured on the shaft and formed with an elongated slot in its lower end, and a connection between the arms, substantially as described.

4. In a lathe, the combination, with a horizontal shaft and a swinging cutter-head frame mounted thereon, of a spring-bearing loosely mounted on the shaft, having an arm L' extending out therefrom in the rear of the cutter-head, an arm M, extending down from the opposite side of the bearing, an extension on the frame, and a spring secured to the extension and arm M for normally holding the arm L' up against the head, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 4th day of January, 1890.

PETER KETTENRING.

Witnesses:

GEO. W. DEATRICK,

C. H. KETTENRING.