

J. Kierlan.

Sheet 1. 2 Sheets.

Lathe

N^o 95694.

Patented Oct. 12. 1869.

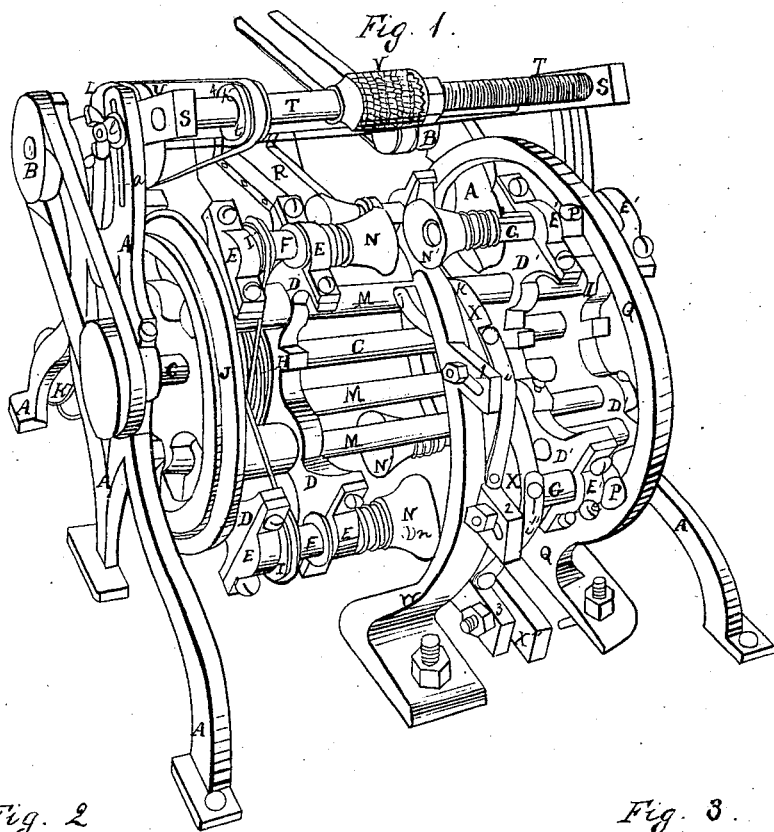


Fig. 2

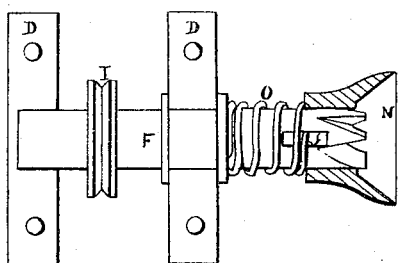


Fig. 3

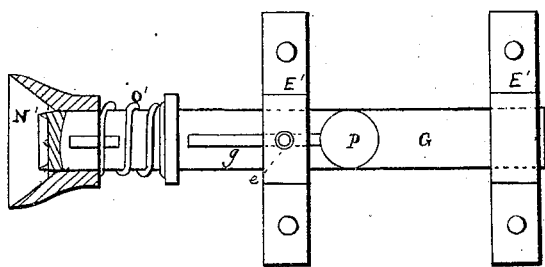


Fig. 4

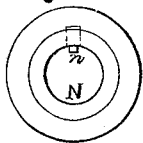
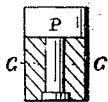


Fig. 5



Witnesses.

H. F. Eberts
 Jas. J. Day

Inventor

James Kierlan
 Per Attorney
 Thos. Sprague

J. Hewlan
Lattre.

Sheet 2 of 2 Sheets.

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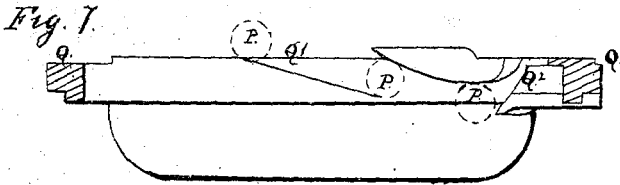
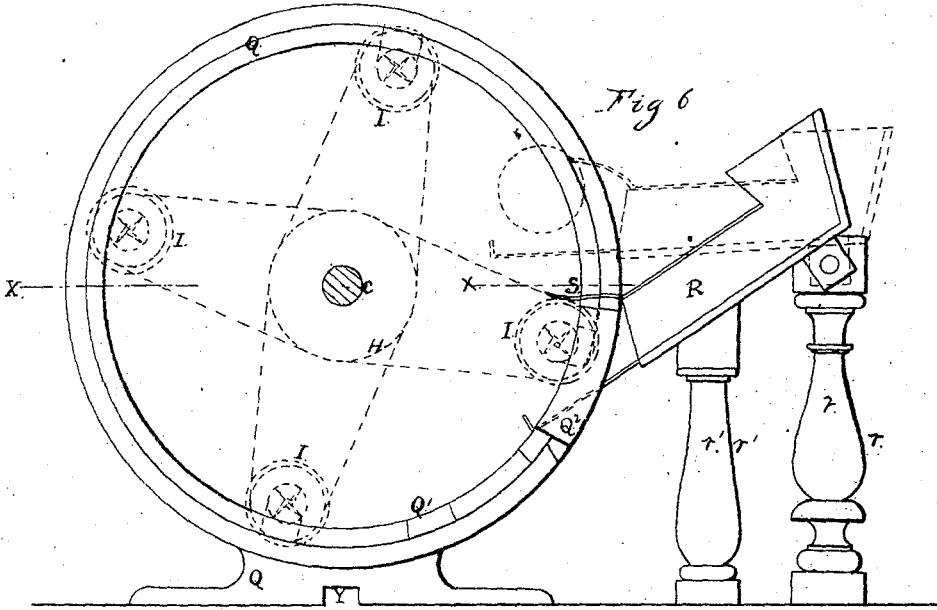


Fig. 8

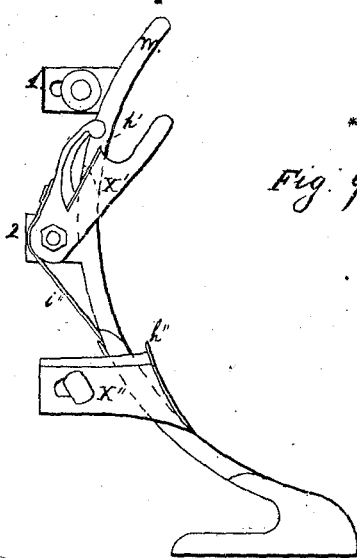


Fig. 9

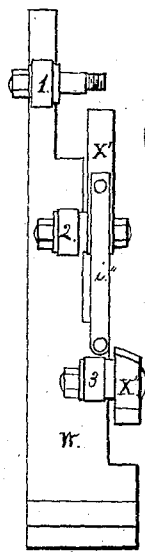
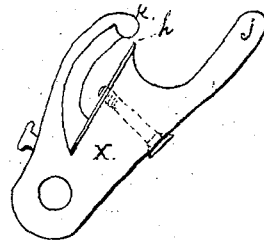


Fig. 10



Witnesses.

W. F. Ebert.
 Jas. J. Day

Inventor

James Hewlan
Per Attorney
Thos. S. Sprague

United States Patent Office.

JAMES KIEVLAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF
AND WILLIAM WISDOM, OF SAME PLACE.

Letters Patent No. 95,694, dated October 12, 1869.

IMPROVEMENT IN LATHE.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern:

Be it known that I, JAMES KIEVLAN, of Chicago, in the county of Cook, and State of Illinois, have invented a new and useful Improvement in Wood-Turning Gang-Lathes; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a perspective view of my invention;

Figure 2 is a view of one of the head-blocks, with caps removed, and its chuck in section;

Figure 3 shows the construction of the tail-blocks;

Figure 4 is an end view of one of the conical chucks;

Figure 5 shows the construction of the guiding-pin on each tail-spindle;

Figure 6, sheet 2, is a side elevation of the cam-ring for guiding the tail-spindles in their lateral movement; also, of the vibrating feed-spout, for delivering the bolts to the lathes, which are shown in red lines;

Figure 7 is a horizontal section of the cam-ring, on the line $x\ x$, fig. 6, with the guiding-pins shown in outline;

Figure 8 is a side elevation of the stationary rest;

Figure 9 is a rear elevation of the same; and

Figure 10 is a side elevation of one of the steady-rest tool-holders, pivoted to the stationary rest.

Like letters refer to like parts in each figure.

The nature of this invention relates to an improvement in automatic lathes for turning wood, and consists in combining in one machine several lathes revolving on a concentric shaft, said lathes being automatically furnished with the bolts to be turned; the turning of said bolts being effected by bringing them, while revolving at a high speed, into contact with a series of cutters pivoted to a stationary rest; also, in a new, novel, and ingenious arrangement of its parts, as hereinafter more fully shown and set forth.

In the drawings—

A represents metallic frame-standards, bolted to a proper bed-plate, (not shown.)

B is a driving-shaft, provided with the usual fast-and-loose pulleys, and is journalled in brackets projecting from the rear upper sides of the frame.

From a pulley on the end of the driving-shaft, motion is communicated, by a belt, to a pulley on the central shaft C.

D and D' are pairs of four-armed spiders, rotating loosely on the shaft C, and are provided at their outer ends with bearings E and E', in the former of which are journalled the head-spindles F, and in the latter the tail-spindles G, which have only a lateral motion therein.

A key-way, g , in the spindle, and pin e in the bearing, prevent the spindle from rotating, as shown in fig. 3.

Rigidly secured to the shaft C, between the spiders D, is a four-grooved drum H, from which a rapid motion is communicated, by proper belts, to the head-spindles F, the grooved pulley I of each spindle being secured to it opposite its corresponding groove in the drum, as fully shown in fig. 1 of sheet 1, and in outline in fig. 6 of sheet 2 of the drawings.

J is a pulley, whose axis is concentric with that of the spider D, to which it is secured.

This pulley, through the countershaft and pulleys K, receives motion from a pulley, L, on the driving-shaft B, which thus gives a slow forward motion to the spiders D, while the spindles they carry revolve at a high speed.

M are rods, rigidly secured to and projecting from the spiders D, through apertures in the arms of the spiders D', which are secured thereto at the proper points by set-screws or other suitable means, the distance between the head and tail-blocks varying with the length of the bolts to be turned.

Each head-spindle F is provided, at its spur-end, with a cup-shaped chuck, N, for centrally guiding the material to be turned to the spurs.

The chuck has a lateral movement on the head-spindle, being guided in such movement by a pin, n , in the chuck, projecting into the recess f in the spindle, and pressed outward by a spiral spring, O, on the spindle, between a collar thereon and the base of the chuck.

Similar chucks N' and springs O' are arranged and operate on the tail-spindles, for a like purpose.

P are guide-pins, pivoted in transverse openings in the tail-spindles G, and rotate with the spiders D', in contact with the cam-ring Q, which is bolted to the bed-plate between the spiders D, and is adjustable laterally, by means of its bolts passing through slots in said bed-plate.

The cam-ring is further guided, in its lateral movement, by a recess, Y, on its under side, embracing a rib on the bed-plate, (not shown.) The guide-pins revolving against the cam-ring keep the tail-spindles from pressing outward and dropping the bolt which is being turned.

Q¹ and Q², fig. 7, are cam-grooves in the bottom and rear sides of the cam-ring. After the bolt in each lathe has been turned to the proper shape, after passing the cutters, the guide-pin of tail-spindle enters the cam-guide Q¹, and as the spider continues its revolution, the tail-spindle is drawn laterally through its bearings E', away from the turned baluster, chair-round, or object which has been turned, which then drops down out of the chucks, the spider continuing its revolution, with the tail-spindle drawn back, until the chucks are level with the bottom of the hopper-spout R containing the bolts to be turned, when the guide-pin, passing through the cam-groove Q², compels the tail-spindle to move inward and press the

spurs of both spindles into the ends of the lowermost bolt in the spout, the bolt being automatically centered on the spurs by the action of the conical chucks.

The vibrating feed-spout is pivoted, at its rear end, to the posts *r*, and rests, when inclined forward, upon posts *r'*, as shown in fig. 6.

The hopper is provided with projecting arm *s*, with which the chuck *N* on the head-block comes in contact, in its upward passage, and raises the feed-spout until it has reached a point above the horizontal plane, when the arm *s* is released, and the spout drops down to its support *r'*, shaking the bolts contained therein down against a stop in the lower front end, ready to be taken by the succeeding lathe.

S is a vibrating frame, pivoted to the upper and rear part of the main frame, and is adjustable vertically, and secured in position by proper set-screws *b* in the quadrant *d* of said frame.

In the front ends of this vibrating frame is journaled a shaft, *T*, provided with a pulley, *t*, to which motion is communicated through a belt from the pulley *U* on the driving-shaft.

V are saws, of any required diameter, and in any number, secured between collars on the shaft *T* by a jam-nut, *y*, one end of the shaft being threaded for this purpose. The office of these saws is to roughly shape the bolt, before it is submitted to the action of the cutters. Where deep grooves are to be turned in particular spots in the bolts, saws of greater diameter than the rest in the series may be used for the purpose.

W is a stationary rest, bolted to the bed-plate, opposite the chucks.

Pivoted to a lug, 1, fig. 8, is a steady-rest tool-holder, *X*, fig. 10, in which is secured a cutter, *h*, which reduces one-third of the bolt in the chucks to the desired shape.

A light rubber or other spring, *i*, attached to the stationary rest and the heel of the tool-holder, draws it upward, until the bolt, coming forward, engages with the thumb *j* of the tool-holder, and, while being turned, bears against the base of the thumb and the steady-rest *k*, which prevents "chattering" in the bolt.

The tool-holder *X* is drawn down with the bolt until its cutter ceases to operate thereon, when it is re-

leased, and the bolt engages with a second tool-holder, *X'*, similarly arranged, and pivoted to a lug, 2, on the stationary rest, when another portion of the bolt is reduced to the desired form.

X'' is a tool-holder, secured to the lug 3, near the bottom of the stationary rest.

On the face of this tool-holder, a cutter, *h'*, is arranged, to give a drawing cut to the remaining portion of the bolt, when passing in contact with the same, which completes the operation of turning.

To accommodate the cutters to the varying diameters of the articles to be turned, the tool-holders may be adjusted to or from the work, in the slots in the studs 1, 2, and 3.

The operations of this mechanism are automatic throughout. Bolts of uniform length being placed in the vibrating feed-spout, each lathe takes a bolt, chucks it, passes it under the saws, where it is roughly shaped, finished by the cutters, and finally discharged at the bottom, in the continuous rotation of the machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The stationary rest *W*, provided with a series of slotted studs, 1, 2, and 3, for sustaining and operating the cutters *h*, when constructed and operating as described.

2. The tool-holder *X*, provided with cutter *h*, thumb *j*, and steady-rest *k*, in connection with spring *i*, attached to stationary rest *W*, when constructed and operating as and for the purposes specified.

3. The arrangement of the several devices of the head-spindle *F*, consisting of the chuck *N*, the spring *O*, the pin *m*, and the recess *f*, when constructed and operating as shown and described, and for the purposes set forth.

4. The combination of the several devices of the tail-spindle *G*, consisting of the chuck *N'*, the spring *O'*, the key-way *g*, the pin *e*, and the guide-pin *P*, when constructed and operating as and for the purposes described.

JAMES KIEVLAN.

Witnesses:

H. S. SPRAGUE,
JAS. I. DAY.