H. Locke,

Gage Lathe,

No. 107,513. Patented Sep. 20, 1870.

Fig. 1.

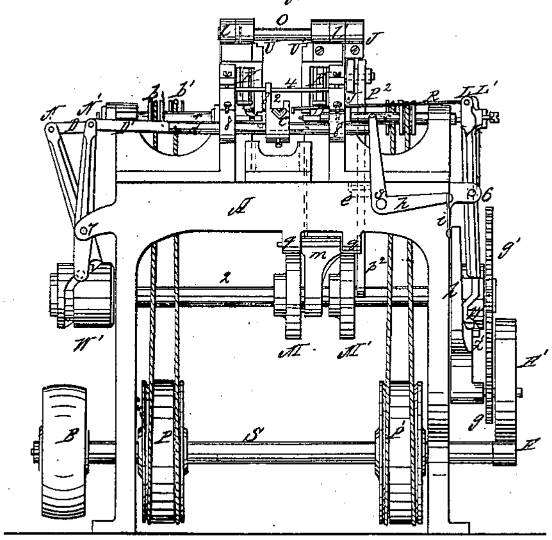


Fig. 3.

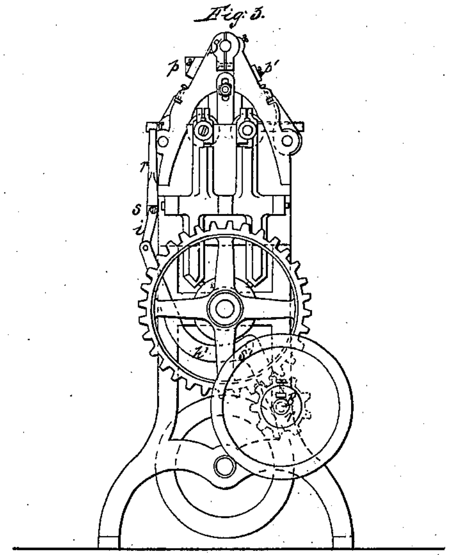


Fig. 9.

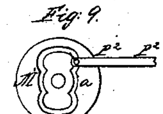


Fig. 2.

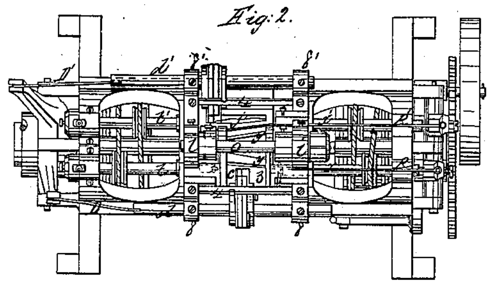


Fig. 4.

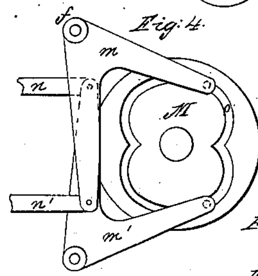


Fig. 6.

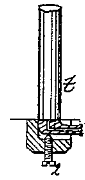


Fig. 5.

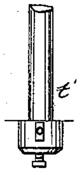


Fig. 7.

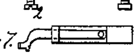
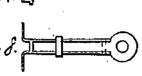


Fig. 8.



Witnesses:

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United States Patent Office.

HARVEY LOCKE, OF GRAND RAPIDS, MICHIGAN.

Letters Patent No. 107,513, *dated September* 20, 1870.

IMPROVEMENT IN TURNING-LATHES.

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

To all whom it may concern:

Be it known that I, HARVEY LOCKE, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in "Turning-Lathes;" and I do hereby declare the following to be a full, clear, and exact description thereof, sufficient to enable any one skilled in the art to which my invention appertains to make, construct, and use the same, reference being had to the accompanying drawing forming part of this specification.

In the drawing—

Figure 1 is a general side view of my invention.

Figure 2 is a top view of the same, showing the arrangement of the feed-spout, arms, and cutters, hereinafter described.

Figure 3 is an end view of my invention, designed to show the arrangement of friction-pulleys and gearing which operate the machines.

Figure 4 shows the arrangement of the cam-wheel M, levers *m* and *m'*, and levers *n* and *n'*.

Figure 5 is a portion of one of the spindles, showing the device for oiling the bearing when attached ready for use.

Figure 6 is likewise a portion of the same spindle, with a sectional view of the oiling device.

Figure 7 is one of the forks attached to the arms K or K'.

Figure 8 is another view of the same fork.

Figure 9 is a view of the cam-wheel M', showing the construction of the groove *a* and the operation of the lever P^2 P^2.

This invention relates to that class of devices known as turning-lathes; and

It consists in the combination and arrangement of certain parts, all of which will hereinafter be more fully set forth.

In fig. 1 of the drawing—

A represents the frame-work of the machine, constructed of iron or any suitable material.

S is a horizontal shaft, provided with the band or belt-pulleys B and P P^1. The power used in operating the machine is applied to the pulley B.

The band-pulley P is provided with two bands or belts, one at either end, as shown in fig. 1. One of these belts passes over the pulley *b*, and thus revolves the turning-spindle *t*, and the other belt is crossed and passes over the pulley *b'*, thus operating the turning-spindle *t'*.

The pulley P^1 is in like manner provided with belts operating the turning-spindles *x* and *x'*.

The shaft S is provided with the small friction-pulley F, which is pressed against and operates the large friction-pulley F'.

The pulley F' and cog-wheel or pinion *g* are fitted upon the metallic collar *r*, the pinion immovably and the pulley F' so as to move with it when the machine is in operation.

The pulley F', pinion *g*, and collar *r*, all turn upon a pin affixed in the lower end of the lever *h'*.

The pulley F' is provided with a friction-block, 13, as shown in fig. 3, adjusted by means of a set-screw. This friction-block is designed to be so adjusted as to press upon the collar with sufficient force to cause the collar *r*, pulley F', and pinion *g* to move together when the machine is in operation, and at the same time to allow the pulley F' to slip upon the collar *r* whenever any portion of the machinery operated by this pulley meets with an obstruction, thereby preventing breakage or injury to the more delicate portions of the machine.

In fig. 1, L and L' represent two levers, both moving or turning upon the pivot 6 as a fulcrum.

The upper end of the lever L is attached to the rod R, and also to the turning-spindle *x*.

The lever L' is in like manner attached to the rod R' and the turning-spindle *x'*.

The lower end of each of these levers is provided with a pin fitting into the groove in the cam-wheel W, as shown in fig. 1.

The groove is so formed that, as the cam-wheel revolves, the levers L and L' are alternately pressed outward and drawn back, and, turning as they do upon the pivot 6 as a fulcrum, the upper ends of these levers move the spindles *x* and *x'*, and rods R and R' backward and forward alternately. The groove is so formed that each lever is moved backward and forward twice to each revolution of the wheel W.

N and N' are two levers, attached to the rods *d* and *d'* by means of the springs D and D'.

These levers turn upon the pivot 7 as a fulcrum, and are operated by means of the cam-wheel W' in the same manner as the levers L and L' are operated by the cam-wheel W, excepting the groove in the cam-wheel W' is a single cam, moving each of the levers N and N' backward and forward only once at a single revolution of the cam-wheel.

M is a cam-wheel attached to the shaft 2, and revolves with it.

This cam-wheel is provided with the groove 10, as shown in fig. 4.

m is a crooked or bent lever, one end of which is provided with a pin designed to move in the groove 10.

The other end is attached to the lever or bar *n'* by means of a pivot or movable rivet.

This lever turns upon the pivot or rod passing through the projections 9 9', as shown in fig. 1, and the elbow *f* of the lever.

The bar *n'* is attached to the perpendicular cutter 3.

The cutter 3 is attached to a block or holder, which

moves upward and downward in slides or grooves provided for that purpose.

The lever m', bar n, and cutter 3', are constructed and arranged in the same manner, and together they are so arranged that the cutters 3 and 3' are alternately raised and lowered as the cam-wheel M revolves.

In fig. 1, P^2 P^2 is a lever, turning upon a fulcrum near its center, and near the center of a horizontal bar, the end of which is shown in the figure (1) by *e*.

The lower end of this lever is provided with a pin, which engages with the groove *a* in the cam-wheel M', as shown in fig. 9.

The upper end of this lever is attached to the part J by means of a bolt. This bolt passes through a slot in the lower part or arm of the part J, and moves freely in the same. The upper end of the lever may be slotted, if desired.

The object in having the arm of the part J slotted, as described, is to furnish a ready means of regulating the oscillations of the arms K and K', by raising or lowering the bolt passing through this slot, and attaching the arm of the part J to the lever P^2 P^2.

The groove *a* in the cam-wheel M' is so constructed that, as the wheel revolves, the lower end of this lever is moved backward and forward, thus giving an oscillating motion to the upper end, and also to the part J, to which it is attached.

K and K' are arms, attached to the shaft O in such a manner as to move with it and have the same oscillating motion as the part J, already described.

The arms K and K' are each regulated as to the length of stroke or oscillation by means of two gauges, one on either side of the arm, adjusted by means of the screws *p* and p^1, as shown in fig. 3.

The arms K and K' are also each provided with a fork, one of which forks is shown in the drawing by figs. 7 and 8. These forks are bent at their lower ends, as shown in fig. 7, and the crooked portion of each provided with a prong, as shown in fig. 8.

The fork which is attached to the arm K turns upon a pivot at its upper end, in a direction opposite from the oscillations of the arms. It is also provided with a spring, which brings it back to its proper place after it has been pressed out by the rod R or R', as hereinafter described.

The gouge-cutters *c c'* are each held in place by means of a holder, so constructed as to clasp the rod *d*, as shown in fig. 1.

This holder has an arm, 8^2, extending upward and resting upon the pattern-bar 4.

The springs D and D' are so arranged with reference to the rods *d* and *d'* as to turn the rods inwardly, thereby pressing the arms 8^2 8^2 upon the pattern-bars 4 and 4'. The holders are each adjusted by means of a set-screw.

The feed-spout is constructed of two pieces of wood or metal, shown in fig. 1 by U U'.

These pieces are grooved nearly perpendicularly and entirely through them. They extend downward in the direction of the pieces *y y*, and their lower ends are at such a distance therefrom that one block or piece of stock may be removed at a time by the forks on the arms K and K', as hereinafter described.

In fig. 1, *h* represents a bent lever, turning upon the pivot *s*, and attached, by means of the bar *i*, to the lever *h'*.

The lever *h'* moves upon the pivot *s'* as a fulcrum, as shown in fig. 3.

The friction-pulley F' being attached to the lower end of the lever *h'*, as hereinbefore described, by operating the lever *h* the pulley F' is raised or lowered, and is thus connected with or disconnected from the friction-pulley F at pleasure.

The part J is constructed of two pieces, so as to clasp the shaft O, as shown in fig. 3. It is adjusted by means of a screw, and should be so set as to move the arms K and K' with sufficient force to perform the work for which they are designed, and at the same time so as to slip on the shaft O whenever the arms or either of them meets with an obstruction.

The parts 8 8 and 8^1 8^1, through which the shafts *d* and *d'* pass, and also the parts *i i'*, through which the shaft O passes, are each provided with a device similar to the device used in connection with the pulley F' and collar *r*, already described and shown in fig. 3 by 13.

The device as applied to the shafts *d* and *d'* and shaft O is for the purpose of taking up the wear of the parts, and always giving a steady, even movement.

Fig. 5 shows a portion of one of the turning-spindles, with the device for oiling the bearing, attached as it appears when ready for use.

Fig. 6 represents a portion of the same spindle with a sectional view of the oiling device. The device as shown in fig. 6 consists of a block of metal or any suitable material, provided with the cavity 1 and 1, extending through the same, and opening at its lower end directly against the center of the end or bearing of the turning-spindle. The oil is placed in the upper end of this cavity, and passes down against the center of the bearing of the spindle, and, when the spindle revolves, the oil is carried outwardly and around the entire bearing, thus keeping it properly oiled and in good working order. The spindles *x* and *x'* are each provided with a similar device.

The spindles *t* and *t'* are each provided with a spur and dog at their inner ends, to hold the stock while being operated upon, and the spindles *x* and *x'* are also provided each with a spur.

In using my invention, the stock is first sawed into blocks of the required size and length, and placed in the feed-spout U U', the ends of blocks being held in the grooves above described. The stock passes downward until the lower block rests upon the bed-piece *y y*, and is entirely below the lower end of the feed-spout.

The machine being put in operation, the arms K and K' pass over the bed-piece *y y*, carrying upon their forks the lower block, and placing it between the spurred ends of the spindles *x* and *t*.

The spindle *x* and rod R are now pressed forward by means of the lever L, the spur of the spindle *x* penetrating one end of the block, and the spur and dog of the spindle *t* the other end. The rod R at the same time presses back the fork on the arm K, thus leaving the block upon the spindles ready to be turned.

The gouge-cutter *c* now quickly passes over the stock as it is revolved upon the spindles, cutting away the corners, and leaving it nearly round.

After the cutter *c* has passed over the block as described, the perpendicular or finishing-cutter 3 is moved upward by means of the lever *m* until it is brought in contact with the rounded stock, and quickly cuts it into the desired shape. The forks have in the mean time carried a block upon their crooked prongs to the opposite spindles, to be operated upon in the manner described in reference to the first block.

The arms now return with another block for the spindles *x* and *t*. The spindle *x* and rod R are withdrawn. The finished article drops into a spout provided for that purpose, and passes off, and the new block is inserted in its place.

The blocks are thus placed upon the spindles on either side, finished, and pass off in the spout, as as above described.

I deem my invention especially adapted to the turning of clothes-pins, but it may be used with equal advantage in turning any similar article.

Having thus described my invention,

What I claim to have invented, and desire to secure by Letters Patent, is—

1. The construction and arrangement of the grooved feed-spout U U′, arms K and K′, provided with the forks and springs, when used and operated substantially as above set forth.

2. The arrangement of the arms K and K′, shaft O, gauges p p^1, part J, and lever P^2, all constructed and operated as herein described.

3. The spindles x and x', rods R and R′, in combination with the forks on the arm K, when constructed, arranged, and operated as described.

4. The springs D and D′, in combination with the rods d and d', for the purpose of holding the arms 8 8^1 upon the pattern-bars 4 and 4′, all arranged as described.

5. The construction and arrangement of the levers m and m', n and n', in combination with the cam-wheel M, when used for the purpose of raising and lowering the cutters 3 and 3′ alternately, as herein described.

6. The adjustable bearings, provided with the oil-cavity 1 1 opening against the center of the end bearing, substantially as shown in fig. 6, and as above described.

7. The arrangement of the levers h and h', and bar i, constructed as described, in combination with the friction-pulley F′ and pinion g, when used as herein set forth.

8. The arrangement of the collar r, friction-block 13, and pulley F′, when constructed as described.

In testimony that I claim the above, I have hereunto subscribed my name this 19th day of May, A. D. 1870.

HARVEY LOCKE.

Witnesses:

CHAS. O. SIMONDS,

EDWARD TAGGART.