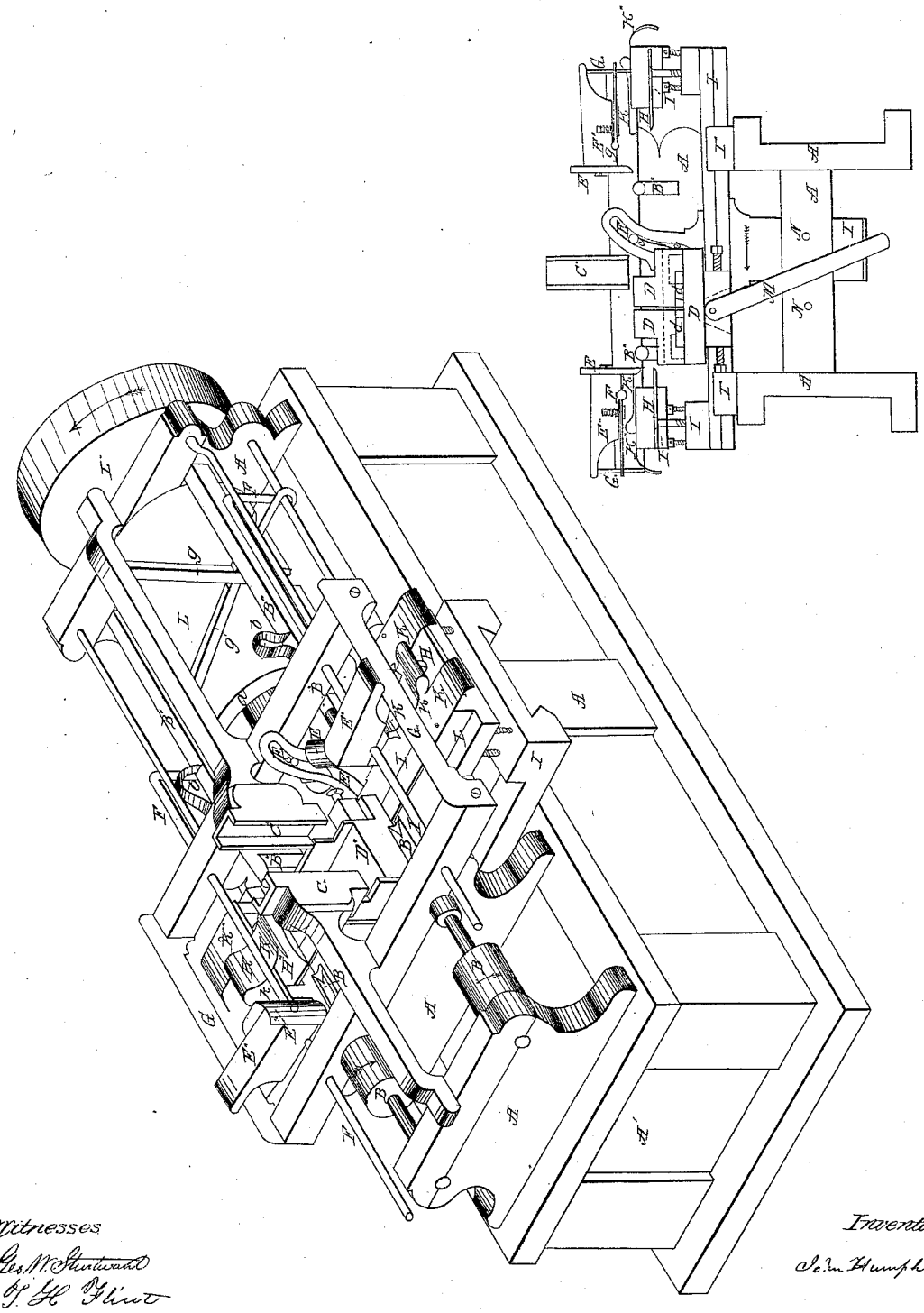
J. Humphrey,

Clothes Pin Machine,

No. 18,268, Patented Sep. 22, 1857.



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LATHE FOR MANUFACTURE OF CLOTHES-PINS, &c.

Specification of Letters Patent No. 18,268, dated September 22, 1857.

To all whom it may concern:

Be it known that I, JOHN HUMPHREY, of Keene, in the county of Cheshire and State of New Hampshire, have invented certain new and useful Improvements in Lathes; and I do hereby declare that the following is a full and exact description of the same, reference being made to the annexed drawings, making a part of this specification.

These improvements are designed for lathes used in making articles of a small size, such as clothes-pins, bed-pins, pail and knife-handles, spools, &c.

They consist, first, of a device for feeding the billets, or pieces to be turned, to the spindles of a lathe. The nature of this consists in having a notched or forked piece or pieces, of a suitable shape and size to hold the billets to be turned, the same being arranged (in relation to the spindles of the lathe) so that it will be in a position sufficiently distant from, and lateral to, their axes, to receive a billet while they are occupied by a preceding piece, and then to have a position to hold the billet so that it may be centrally pierced and taken by the spindles, these positions being alternately changed, either by a lateral motion of the feeder to and from the spindles or of the spindles to and from the feeder. Any suitable means may be employed to cause the proper motion. The billets may be received by the feeder from a spout or conductor, or from the hand of the attendant. Notched or forked pieces, not having a lateral change of position, are now used for centering and holding billets to lathe spindles, but the utility of having these changes of position is obvious, as it allows ample time for the billet to be placed upon the feeder while the other parts are acting, and it is then in readiness to change its position so as to hold the billet to the spindles the moment the preceding piece is removed. This change of position can be made in less time than would be required to deposit a billet in a stationary holder. Therefore it is more expeditious, and it is also easier for the attendant. Another advantage is, that it is out of the way of the other parts while they are acting.

Secondly, as a device for removing the turned or finished pieces from the spindles, I employ a hook or cover, which is thrown over them by any suitable means, so that when a piece is released from the spindles it is made to enter a mouth, passage or opening which is provided to receive it. This is made to occupy a proper position for receiving the piece the instant it is released from the spindles, and at other times it must be out of the way for the other parts to act. It may have a motion to and from the spindles or the spindles to and from that as described for the feeder. It is an automatic and expeditious means for the purpose requiring no labor of the attendant.

My improvements consist, thirdly, in operating the gages or cutters for rounding the sticks, so that they will pass but once across to each piece turned, or for each advance of the finishing cutters. Thus when the gage has passed over and rounded a stick I have it remain at the end thereof a sufficient time for the other parts to act, to finish and remove the piece and place a new one in the spindles, when it passes across again in a contrary direction to the other end and remains there a like time, the gage being made to cut in opposite directions on alternate pieces. This saves the time ordinarily expended by the return passage of the gage, which would be at least one-fourth of the whole time required for turning each piece.

Although I am enabled by the use of these improvements to do work much faster and easier than with other lathes heretofore in use, yet it is desirable to do the greatest amount of work possible in a given time with the least labor and expense, and it is necessary in order that the work may be done well that sufficient time be allotted each operation, and by having each part operated in its turn by mechanical power the only labor required of the attendant is to supply the billets to the feeder. Consequently it would be an easy task (on many kinds of turning) for a man to supply the billets twice as fast as a lathe could turn them. Therefore, a fourth and an important feature of my improvements consists in having two sets of spindles and their appendages arranged together, so that both may be attended at the same time by one person—the various parts of each being connected with suitable mechanism for operating them at proper times, so that each set may receive and turn alternate pieces. By this arrange-

ment a man would be enabled to perform double the amount of labor which he could with a single lathe (and with little extra exertion).

Having thus explained the object and nature of my invention, I will now describe the mode of constructing and using the same, connected with other parts necessary to make a complete machine.

In the drawings Figure 1 is a perspective view of the lathe, and Fig. 2 a vertical transverse section showing the relative positions of the different parts.

The same letters refer to similar parts.

A, A, A, is the frame or bed piece with standards or pieces for holding the various parts.

B, B, and B″, B″, are the spindles. B, B, have a rapid motion in the directions shown by the arrows on each, B″, B″, move a little endwise to clamp and release the pieces.

C, C, is a conductor to conduct the billets to the feeder.

D is the feeder having a pair of notches for each set of spindles. It moves to and from the spindles of each side alternately carrying one piece from C each time the notched pieces are spread apart by the projecting pieces under spindles B″. Each time a billet is taken from them, so that it may be free to whirl when held by the spurs, they are thrown into place again by the spring *d*, when removed from the spindles.

E, E, are the gages or cutters for rounding the sticks. They are secured to the pieces E″, E″, which are fastened to and slide with the rods F, F.

G, G, are rests or patterns for guiding E, E.

H, H, are cutters for shaping or finishing the pieces. They are made of a shape corresponding with that of the article to be turned, and are fastened to a sliding frame I, and are alternately brought into action by its motion.

K, K, are the hooks for removing the finished pieces. They are made to spring over the pieces as they are finished by H. The pieces pass through the opening or passage between the cutter H and piece K″, and drop out at the outside of the lathe.

L is a cam-wheel for operating spindles B″ B″, gages E, E, and frame I. It receives a comparatively slow motion by a band on its pulley in the direction indicated by the arrow.

a, is a projecting cam-shaped ledge for throwing B″, B″, forward and holding them while a piece is being turned. They are thrown back when released by springs *b*, *b*.

g, is a groove for operating the gages E, E. It extends twice around the wheel, its course each time around being in a spiral direction a part of the way, and direct the remainder, and one time counter to the other. It operates E, in the manner which I have described, the spiral portions moving it across in opposite directions by alternate revolutions of L, the direct partitions allowing it to remain stationary at each end for the action of the other parts. Pieces attached to the ends of rods F, F, work in the groove. The spindle and gage of one set are connected with the wheel at opposite points from those of the other set, so that they act alternately.

e, is a crank-pin attached to the wheel L. It works in a double-curved slot *e*, giving a reciprocating motion to the frame I, in a direction transversal to the axis of the spindles. Its motion is slower while the cutters H, H, are advancing to act on the pieces than it is when receding. The frame I, slides in the grooved pieces I″ I″. The feeder D, is made so as to slide on I, and receives motion from it by mechanism seen in Fig. 2.

M, is a lever. One end of it is connected with D, and the other end is worked by a piece projecting from I, against the fulcrum pins N, N. This causes D, to be moved (alternately each way) in a direction contrary to that of frame I, until it meets the advanced cutter H, when the motion of I, changes, and D, moves with it, (following the receding cutter H,) until it is in the right position, in a line with the spindles. Its motion is then arrested by the screw *s*, which hits the piece I″. The pins N, N, are placed so far apart as to allow D, to remain stationary while the spindles are taking the billet and while a piece is being received from C, by the notches when in that position.

It operates as follows: The billets of wood to be turned are placed in the conductor C, C, and they drop into the notches of feeder D, which carries them one at a time, and holds them in a position so that the points of the spindles will pierce their centers. The spindle B″ advances and clamps the billets between itself and the spur of spindle B, which causes it to whirl. Then the gage E passes across and rounds it. The cutter H, advances next and cuts the piece to the proper form, and with it the hook K, comes along and springs over the piece ready to remove it. Spindle B″ now releases the piece and it is removed by the receding movement of cutter H and hook K. This finishes the operation for one piece. In the meantime feeder D, has received a new billet from C, C, and returned with it for the spindles as soon as the preceding piece is out of the way. The operation of each set is alternately the same.

The parts for holding the cutters and the feeders may be made so that they can be readily adjusted to a proper position by any

means commonly employed for such purposes.

The proper motions of the various parts may be produced by different means from that which I have described, as a variety of mechanism suitable for the purpose might be found by any intelligent mechanic.

The forms, and arrangement of the different parts are susceptible of variations, in constructing the same, without producing any material change in the principle of the invention.

I claim—

The method of feeding the pieces to be turned, to the spindles, when their relative positions are changed as shown, and in combination with the above, removing the finished pieces, from the spindles, the whole being arranged and operated in the manner, and for the purposes set forth.

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