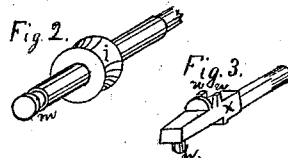
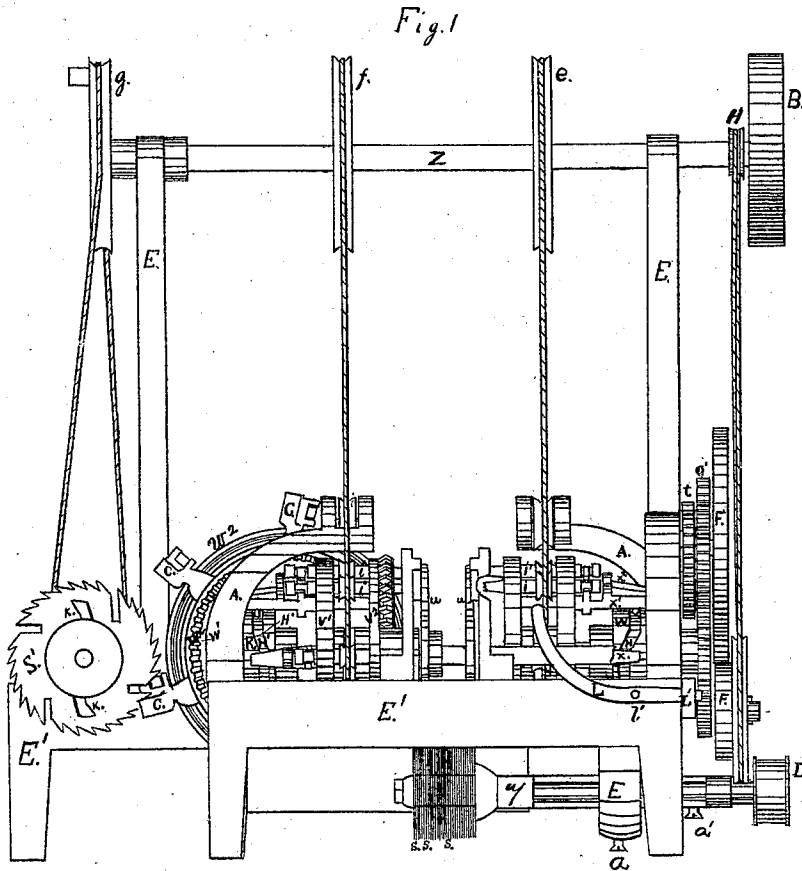


H. & E. W. LOCKE.
Clothes-Pin Machines.

No. 147,277.

Patented Feb. 10, 1874.



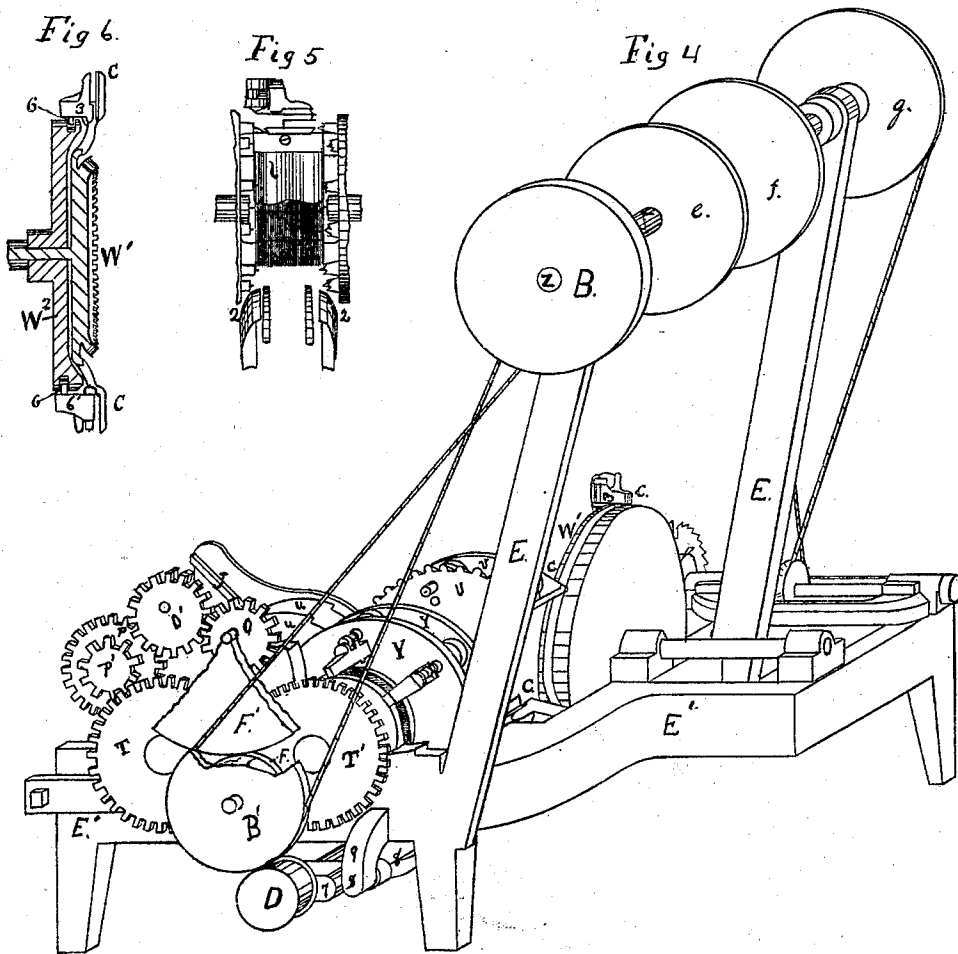
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UNITED STATES PATENT OFFICE

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IMPROVEMENT IN CLOTHES-PIN MACHINES.

Specification forming part of Letters Patent No. **147,277**, dated February 10, 1874; application filed September 8, 1873.

To all whom it may concern:

Be it known that we, HARVEY LOCKE and EDWARD W. LOCKE, both of the city of Grand Rapids, county of Kent and State of Michigan, have invented a new and useful Improvement in Clothes-Pin Machines, of which the following is a specification, reference being had to the accompanying drawings and the letters of reference marked thereon, and the same are made a part of this specification.

The nature of our invention relates, first, to the arrangement of spindles which hold the stock in a circular rotary frame, in combination with a series of circular saws and stationary cutters; second, the combination and arrangement of a rotary feed-wheel with the revolving spindles, for the purposes described; third, the device for slotting the clothes-pins, used in combination with the spindles of the turning-lathe of the machine.

In the drawings, Figure 1 is a front upright view of our invention. Fig. 2 is one of the spindles with pulley rigidly attached. Fig. 3 is a slide, which, in the machine, is attached to the spindle, and with the stationary spindle and with the stationary cam gives it its longitudinal motion. Fig. 4 is a side, upright, perspective view of our invention. Fig. 5 is a top view of a portion of our invention, showing arrangement of the circular saws, stationary cutter, clutch, spindles, and feeding device. Fig. 6 is a sectional view of the clutch-wheel w^2 and the stationary cam which operates the jaws of the clutches C C.

In Fig. 4, Z is a shaft supporting the pulleys B, e, f, g, and 4. The power may be applied to this shaft in any suitable manner. A band is passed over pulley B and pulley D, which last-named pulley is rigidly attached to the arbor of the circular saws S S S, as shown fully in Fig. 1. On the shaft Z, just back of the pulley B, is a pulley, 4, (shown in Fig. 1,) which is connected by means of a cross-band to pulley B', which is rigidly attached to a shaft, upon which shaft is a friction pulley, F. Friction-pulley F engages with and operates friction-pulley F', a portion of which pulley is cut away in Fig. 4 to show the arrangement of the oval gearing. O is an oval cog-wheel

upon the shaft of friction-pulley F', which cog-wheel engages with and operates a similar wheel, O'. The shaft upon which the oval wheel is placed pierces the oval wheel near its smallest part, so that the cogs on the largest part of one engage with those of the smallest part of the other, and the cogs farthest from the shaft of the one engage with the cogs nearest the shaft of the other, the motion being conveyed from O to O'. The arrangement above described causes the shaft of O' to revolve rapidly at one part of its revolution, and slowly at the opposite. It also causes alternate rapid and slow motion to all parts of the machine operated from the shaft O'. To the shaft of O' is attached a small pinion, (shown in Fig. 1 by t), which engages with and operates cog-wheel P, and thereby P' and T. T is attached to the shaft of the feed-wheels $u u$, and thereby the alternate slow and fast motion is conveyed to the feed-wheels. The cog-wheel T engages with and operates the cog-wheel T' and shaft to which it is attached, and thereby the rotary motion is given to the circular frame Y Y and wheel v^1 , and miter-gearing v and the circular frame v^2 . The cog-wheels T and T' are the same size, and therefore the feed-wheels $u u$, frame Y Y, and cog-wheel v , and frame $v^1 v^2$ revolve with the same rapidity, as does also the miter-wheel v^1 , which engages with and is operated by said wheel v . The circular frame Y Y supports a number of spindles, each one constructed with the pulley i , as shown in Fig. 2. $v^1 v^2$ also support the same number of similar spindles, as shown. Fig. 3 is a slide provided with a pin, h , which slides in the groove H of cam-wheel W. (Shown in Fig. 1.) It is provided with the projections $n n$, which fit into the groove m of the spindle—one on either side—in such a manner as to allow the spindle to revolve freely, and yet to prevent the spindle from having any longitudinal motion separate from the slides. W is a stationary cam-wheel, about which the slides revolve. R is a similar cam-wheel, and the grooves H and H' are so constructed that the slides holding opposite spindles are carried forward toward each other at the same instant, and the feed-wheels are provided with

notches, as shown, which notches are so arranged that a block is brought into position to be caught between the spindles at the time they are brought toward each other by the cam movement above described. The blocks to be turned into pins rest between the side pieces of the hopper and upon parallel inclines, one of which is shown in Fig. 4 by J, and slide down upon the feed-wheels, and are carried forward, one at a time, by the notches in the feed-wheels, to the spindle, as described above. On each side of the hopper is a metallic or other spring, which presses against the end of the block, and they together hold it in their grasp, so that it cannot fall or become displaced before it is seized by the spindles. The block is carried downward by the spindles and caused to revolve rapidly, and passes over the saws S S, which cut it into the required form in the rough, when it is carried past the stationary cutter *l*, (shown in Fig. 5,) which finishes it ready for slotting.

The arrangement of the gearing above described is such that cog-wheel O' revolves as many times to one revolution of the shaft carrying the spindle-frame as such frame carries spindles, and as many times to one revolution of the feed-wheels as each feed-wheel has notches.

The number of spindles may be varied in different machines.

The miter cog-wheel *v* engages with and operates the miter-wheel *w*¹. The wheel *w*¹ is provided with a series of clutches, C, equal in number to the sets of spindles. Each clutch is rigidly attached to the wheel *w*¹, and provided with a jaw, as shown in Fig. 6, by 3, hinged to the clutch in such a manner that it is opened and closed by means of the pin 6, which pin 6 slides in the groove of the stationary cam *w*². The cam *w*² is constructed in the same manner as the cams W and R.

By an arrangement of the grooves in cam-wheels W and R, the spindles are withdrawn from the turned clothes-pin shortly after it has passed the saws and cutter.

The cam-wheel *w*² is provided with a groove running entirely around it, a part of the way being nearer the inner side of the wheel, and a part of the way nearer the outer side of the wheel. The pin of the jaw, while passing in the groove toward the inner side of the wheel, closes the clutch, and while passing in the groove toward the outer side of the wheel the clutch is open. The arrangement of the cam-groove is such that the pin of the jaw passes from the outer to the inner side of the cam-wheel at the point where the spindles are withdrawn from the clothes-pin, closing the clutch, which is then in position to clasp the clothes-pin, and the pin in the clasp of the clutch is carried by the revolution of wheel *w*¹ until it is passed by the slotter S', when the pin of the jaw C again passes toward the

outer side of the wheel *w*¹, opening the clutch and releasing the finished pin.

The slotter is provided with two or more knives or cutters, which trim the outer end of the slot into the desired form. The arrangement of wheel *w*¹ is such that the slow motion is given to it as the pin is brought in contact with the slotting-saw, and the arrangement of the revolving frames that support the spindles is such that they have the slow motion as the stock is carried over the saws S S S and cutter *l*. The arbor of the saws S S S is supported by the frame 7 7, which is hinged to the part 9 by means of a rod passing through the part 9, and hung as shown in Fig. 4. This allows the saws to be adjusted to stock of any size by means of the set-screws *a* and *a'*. *a* passes through the part or support E, and against the frame of saw-arbor S S S; and *a'* passes through the frame of the arbor against the frame of the machine. L is a lever turning on a pivot, *l'*, operating the lever L', which is attached to the shaft of friction-pulley F, so that pulley F may be withdrawn or applied to friction-pulley F' at pleasure, the disconnecting of pulleys F and F' causing all the machinery operated from pulley F to cease to work.

This machine may be used for turning many other articles besides clothes-pins.

Having thus described our invention, what we claim to have invented, and desire to secure by Letters Patent, is—

1. The revolving spindles, constructed and operated as described, in combination with the saws S S S and the stationary cutter *l*, constructed and located, relatively to the spindles and the saws, in the manner set forth.
2. The revolving spindles supported by the circular rotary frames, in combination with the feed-wheels *u u* and springs, arranged as described.
3. The revolving and rotating spindles having the grooves *m*, and provided with the slides, Fig. 3, constructed as described, and supported on the rotary frame and operated positively by the stationary cam W, as specified.
4. The wheel *w*¹, provided with a series of clutches operated by cam *w*², in combination with the revolving spindles carrying the pin-blanks for the purpose, by an automatic operation, of taking each turned pin-blank from the spindles and presenting it to the operation of the slotting-saw S'.
5. The combination of set-screws *a* and *a'* with the hinged frame 7, for the purpose of adjusting the saws S S S, for the purpose described.

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