J. FERGUSON.

MACHINES FOR POINTING HORSESHOE NAILS.

No. 194,769. Patented Sept. 4, 1877.

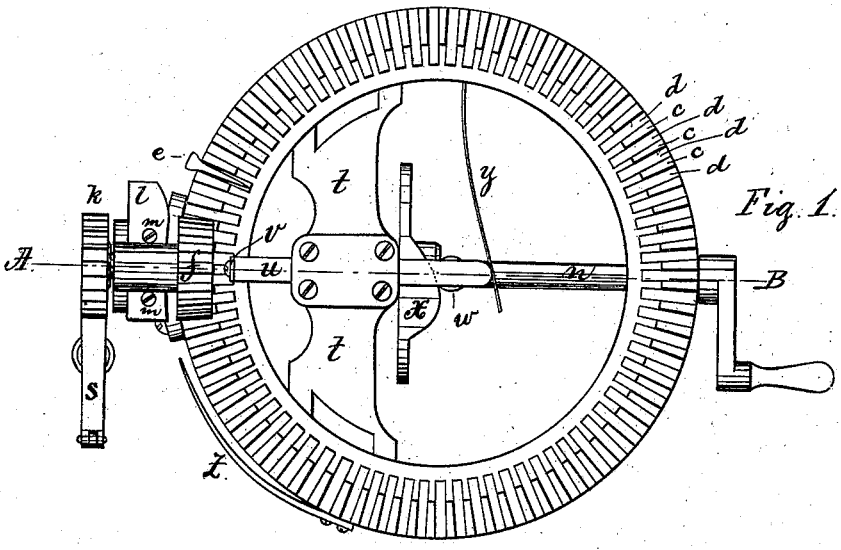

Fig. 1.

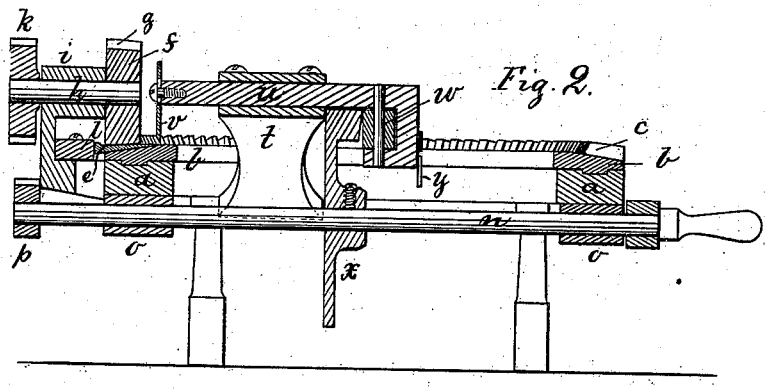

Fig. 2.

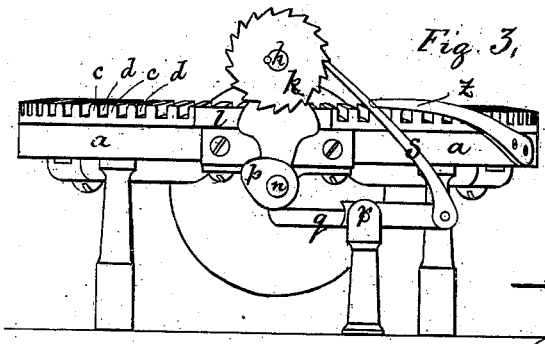

Fig. 3.

Witnesses:

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his atty.

UNITED STATES PATENT OFFICE.

JAMES FERGUSON, OF BRIDGEWATER, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO JOHN TURNER AND JAMES H. FERGUSON, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR POINTING HORSESHOE-NAILS.

Specification forming part of Letters Patent No. **194,769**, dated September 4, 1877; application filed June 15, 1877.

To all whom it may concern:

Be it known that I, JAMES FERGUSON, of Bridgewater, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Machines for Pointing Horseshoe-Nails; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in machines for pointing horseshoe-nails; and consists of an intermittent rotary cog-ring, that is set in motion by a pinion that is secured to a shaft provided with a ratchet-wheel, and operated by a pawl from a cam or eccentric on the driving-shaft, which latter has a rotary motion in bearings on a suitable stationary frame.

Above the driving-shaft is arranged a tool-holder that is set in a reciprocating motion, in a stationary guide or bearing, by means of a cam-wheel on the driving-shaft, and a spring or suitable mechanism. To the outer end of said tool-holder is secured a planing or cutting tool, by which the point of the nail is planed off and sharpened, during which operation the nail is firmly held in position between two successive cogs on the intermittent rotary cog-ring and a cog on the pinion above.

It will thus be seen that the cog-ring and its pinion serve two purposes—namely, first, to convey an intermittent rotary motion from the pinion to the cog-ring; and, secondly, the spaces between the teeth of the cog-ring serve as receptacles for the nails, in which they are laid by hand or fed by machine, and the teeth of the pinion also serve for the purpose of confining the nail that is acted upon by the planing-tool firmly in its proper position. For this purpose a suitable space is left between the extreme portion of the teeth on the pinion and the bottom of the spaces between the cogs on the cog-ring, which space is about equal to the thickness of the shank of the nail that is operated upon. The nails are laid in the spaces between the teeth of the cog-ring in such a manner that the points thereof all converge toward the center of said ring, the heads projecting outward. Beneath the pinion-shaft is located an adjustable guide-piece, with which the heads of the nails come in contact when approaching the pinion, by which arrangement each nail is arranged in its proper position on the intermittent rotary cog-ring before it is clamped between the teeth of the pinion and cog-ring, ready to be acted upon by the reciprocating planing or cutting tool.

After the nails have thus been pointed they are automatically tipped out from the spaces on the cog-ring by coming in contact with a stationary inclined finger that is secured to the stationary frame-work, or other stationary part of the machine.

The length of the teeth of both pinion and the cog-ring is less than the length of the nails, so as to allow for the forward and back motion of the planing-tool, without coming in contact with the said teeth.

On the accompanying drawings, Figure 1 represents a ground plan of my improved nail-pointing machine. Fig. 2 represents a longitudinal section on the line A B, (shown in Fig. 1;) and Fig. 3 represents an end view. (Seen from A in Fig. 1.)

Similar letters refer to similar parts wherever they occur on the drawings.

a represents the stationary frame of the machine, having a suitable groove on its upper side, in which the cog-ring *b* is movable. The cog-ring *b* is provided on its upper surface with a number of teeth, *c c c*, and spaces *d d d*, as shown. *e e* represent the nails resting in the spaces *d d* on the ring *b*. *f* is the pinion, with its teeth *g g*. *h* is the shaft for the pinion *f*, which shaft is movable around its axis in the stationary bearing *i*. *k* represents the ratchet-wheel, secured to the outer end of the shaft *h*. *l* represents the adjustable guide for the heads of the nails, which guide is adjustable by means of the set-screws *m m*. *n* represents the driving-shaft, movable in stationary bearings *o o*, and provided in its rear end with a cam or eccentric, *p*, as shown in Figs. 2 and 3. *q* represents a rocking lever, operated by the cam *p*, and made to rock on

the fulcrum *r*. To the outer end of said lever *q* is jointed the pawl *s*, by which the ratchet-wheel *k* is operated. *t* represents a stationary guide or bearing for the tool-holder or bar *u*, that is provided in its forward end with a suitable cutting or planing tool, *v*, and in its rear end with a friction-roll, *w*, as shown in Fig. 2. The tool-holder *u* is set in a reciprocating motion, forward and backward, in its bearing, by means of the cam-wheel *x* on the driving-shaft *n* acting on the friction-roll *w*, and by means of the spring *y* acting upon the rear end of the bar *u* as soon as the cam-wheel *x* ceases to act upon the friction-roll *w*. *z* represents the stationary inclined finger, by which the nails are automatically tipped out from their places on the cog-ring *b* as soon as they are pointed.

The operation of my invention is as follows: The nails are placed by hand or otherwise in the spaces *d d d* of the cog-ring *b* during the rotation of the latter, and the tool *v* is moved outward from the center of the cog-ring *b* by the action of the spring *y*, during which time the said cog-ring is held stationary. When the tool *v* is pushed outward to its farthest position, the pinion *f* is turned a cog's width around its axis by means of the pawl *s* and ratchet-wheel *k*, and the nail that is to be pointed is now held firmly in the space on the cog-ring *b*, directly under the center of the pinion *f*, and secured in its proper place by the lower tooth of the said pinion *f* pressed upon it, the outer end of the head of the nail resting against the adjustable guide *l*. The cutting-tool *v* is now moved toward the center of the cog-ring *b* by the action of the cam-wheel *x*, and in so doing planes off a portion of the nail, by which operation the nail is properly pointed and sharpened, ready for use. Before the pinion *f* commences to revolve the tool-bar *u* is again forced outward to its farthest position, when the pinion *f* is again turned one cog's width, and thus presenting another nail for the operation of the tool *v*, and so continuously.

After the nails have been pointed, ready for use, as described, they continue in a circular motion in the spaces on the cog-ring *b* till they reach the stationary inclined finger *z*, by which they are automatically tipped out from the cog-ring *b*, to be collected in any desired way.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In combination, the intermittent rotary cog-ring *b*, intermittent rotary pinion *f*, adjustable guide *l*, and the reciprocating tool-holder *u* with its cutting-tool *v*, as and for the purpose set forth and described.

2. In combination with the intermittently rotary cog-ring *b*, the stationary inclined finger *z*, as and for the purpose set forth and described.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

JAMES FERGUSON.

Witnesses:
ALBAN ANDRÉN,
HENRY CHADBOURN.