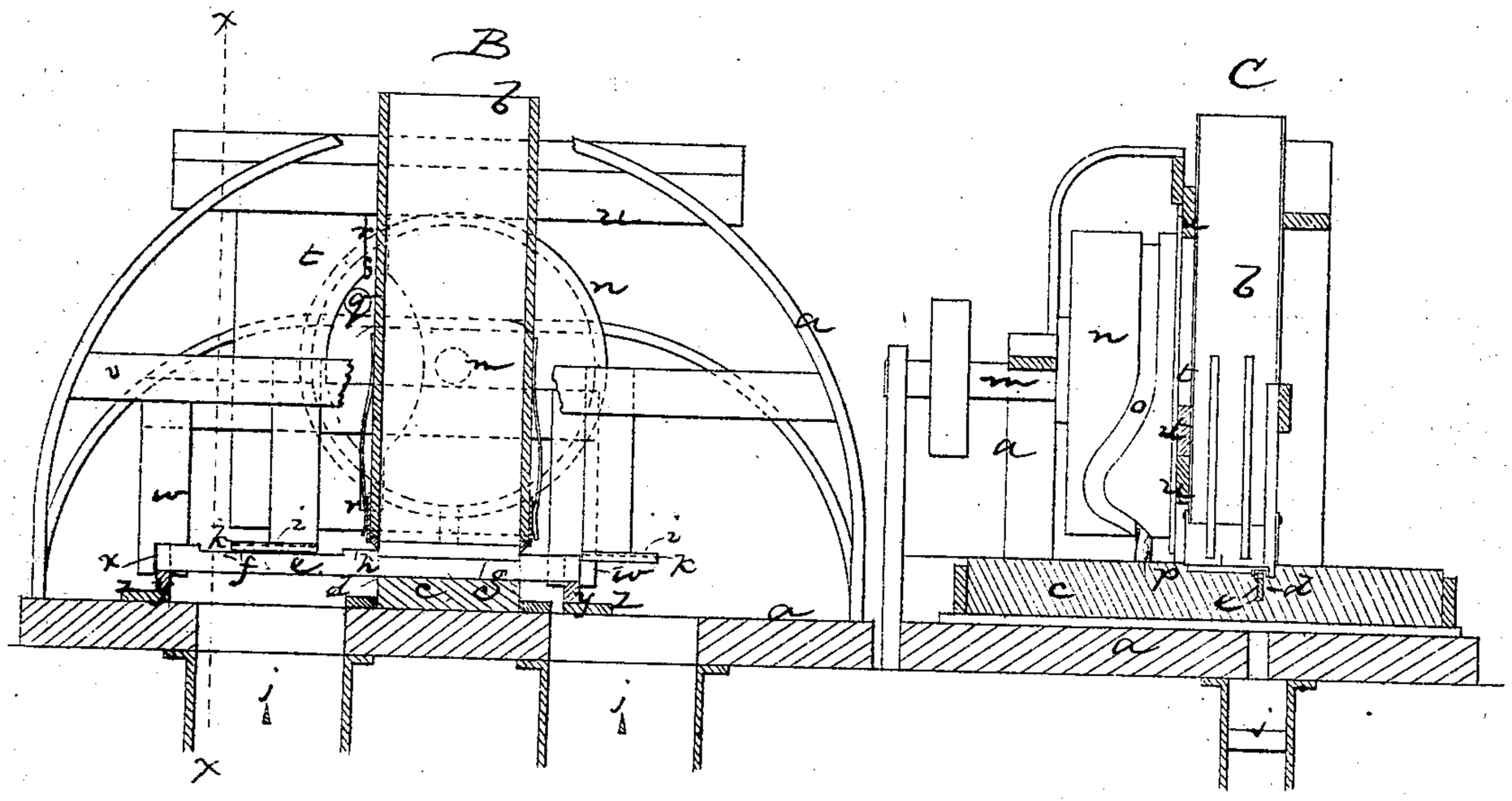
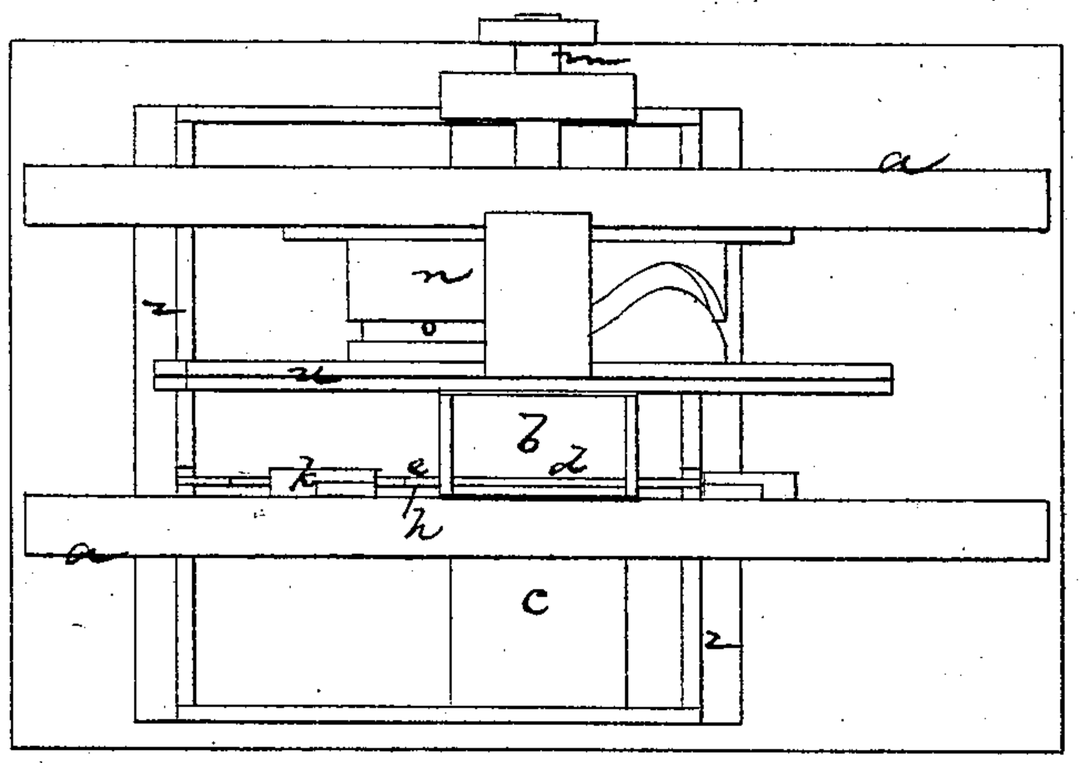
A. KNOWLTON.

Machines for Selecting and Delivering Nails.

No. 135,345. Patented Jan. 28, 1873.





Witnesses.
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Inventor.
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By his Attys.
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UNITED STATES PATENT OFFICE.

ALBION KNOWLTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR SELECTING AND DELIVERING NAILS.

Specification forming part of Letters Patent No. **135,345**, dated January 28, 1873.

To all whom it may concern:

Be it known that I, ALBION KNOWLTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Nail Selecting and Delivering Mechanism; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

United States Letters Patent No. 118,250, dated August 22, 1871, have been granted to me for certain improvements in machines for selecting and arranging nails. In such patent nails embraced in a loose assemblage are automatically taken, one by one, and delivered upon a pivotal edge, over which each tips and drops head foremost.

My present invention relates to an arrangement of mechanism particularly intended for selecting and presenting nails one by one to such a pivot; but the invention may be used in connection with other means, for arranging the nails side by side with their heads together, or with any mechanism to which nails are to be delivered, one by one, from a loose assemblage.

In my present invention I employ, in connection with a vertical box or chute, for containing a pile of nails, arranged parallelly, a reciprocating block placed beneath the chute or box, and having a deep vertical groove, in which plays a slide fixed to a carriage. In horizontal cross-section the box corresponds in length to the length of the nails, and is of any suitable width, and the block has a movement crosswise of the box and relatively thereto, in which movement the nails (which rest upon the top of the block—the block forming the bottom of the box) are scraped over the nail-groove extending from the top surface of the block, causing some one of the nails to enter the groove, in which it will lodge upon the top of the slide, which slide is made of more than double the length of the box, and has a central stud or shoulder extending up to the top of the groove. At each movement of the block it has a complete forward and back movement, (the slide moving with it,) and at the end of each complete reciprocation of the block, the end or part of the slide beneath the box slides from the groove and beyond the box, and the shoulder takes with it the nail which has dropped into the groove and rests upon the plate—this movement of the plate to carry the nail from the box bringing the other end of the slide beneath the box into position to receive another nail. The nail, lodged upon the top of the plate and thus removed from the box, is carried under a stationary catch which is grooved, or has a lip before which the nail-shank stands when the plate has completed its outward movement, and when the block next starts to move beneath the nail-box this lip strikes the nail and knocks it from the top of the plate, and it then falls upon the pivot before alluded to, or into or upon any suitable receptacle or guide designed to receive it, the plate thus taking and delivering a nail at each movement in either direction.

It is in this method of selecting and delivering nails that my present invention primarily consists.

The drawing represents a machine embodying the invention.

A shows a plan of the machine. B is a sectional elevation; C, a section on the line *x x*.

a denotes a stationary frame-work, in which is mounted a vertical and stationary box, *b*, of any suitable height and width, and having a length a little in excess of the length of the nails to be contained within it. Beneath this box is the block *c*, which forms the bottom of the box, but which has a slide movement under the box. This block is made with a straight groove, *d*, situated under the box and extending across the block in the direction of the length of the box. The groove is of a size to just receive one nail; and in the slide movement of the block the groove passes across or partially across the bottom of the box, and by its movement always become charged with a nail, if empty to receive one. The nail thus dropped into the groove lodges upon the upper edge of the slide or carrier-plate *e*, this plate *e* fitting the groove *d*, and having its top so far below the top of the groove as to leave space over it in the groove sufficient to contain the nail. As before remarked, the slide is twice the length of the box above it, or has two rail-receiving surfaces *f g*, one of which is

always brought under the nail-box, in position to receive a nail, by a slide movement that carries the other away from under the box. At the center of the plate is a stud or projection, *h*, and when the carrier-plate starts in either direction this stud pushes the nail forward with it. As the nail emerges from the box its forward end passes between two lips, *i i*, of a stationary guide and catch-piece, *k*, the lips keeping the nail from falling off or moving laterally while the carrier-plate is moving forward. As soon as the plate completes its slide movement the block is moved in a direction at a right angle to the movement of the slide; and this movement carries the nail-plate with the block, when one of the stationary lips or catches *i* dislodges the nail from the top of the plate, the nail falling upon a knife-edge, *j*, or to or upon any other suitable receptacle. The block is thus moved and is then returned to its first position before the carrier-plate starts back—the plate being thus brought to position for the nail carried out by the opposite part of the plate to pass between the other stationary lips, *i i*, to be in turn dislodged—there being thus two places for dislodgment of the nails, and the carrier carrying a nail out at its slide movement in each direction.

The respective movements may be imparted to the block and slide-plate as follows: *m* denotes a shaft carrying a wheel, *n*, in the periphery of which is a cam-groove, *o*. Into this groove a stud-pin, *p*, extends from the top of the block *c*, and at each rotation of the shaft the cam imparts two reciprocations to the block—one to lodge a nail upon the part *f* of the nail-carrier plate, and the other to lodge a nail upon the part *g* of said plate. At the end of the cam-wheel is a crank-pin, *q*, that, as the wheel rotates, works in two slots, *r s*, of a plate, *t*, sliding horizontally in guide-ways *u;* this plate being fixed to a cross-bar, *v*, having projections *w* slotted, as seen at *x*—the slots straddling the bars *y* of a carriage, *z*, the slots *x* causing the carriage to move forward and back, (to actuate the carrier-slide,) by the movement of the plate effected by the crank-pin *q*, and permitting the carriage to move, with the block *c*, in a right-angular direction to the slide movement of the plate—a complete rotation of the shaft moving the carrier-plate first in one direction and then in the opposite to effect the lodgment of nails upon the respective ends of the plate within the nail-box, and their dislodgment therefrom outside of the nail-box.

I claim—

The combination of the nail-containing box *b*, the block *c* with its groove *d*, and the nail-carrier plate *e* with its nail-lodging edge or edges *k*, and devices for effecting dislodgment of the nails therefrom, all substantially as shown and described.

Executed this 25th day of September, A. D. 1872.

ALBION KNOWLTON.

Witnesses:

FRANCIS GOULD,

M. W. FROTHINGHAM.