(No Model.) 3 Sheets—Sheet 1.

J. R. PROUTY.

MACHINE FOR LOADING NAIL STRIPS.

No. 383,910. Patented June 5, 1888.

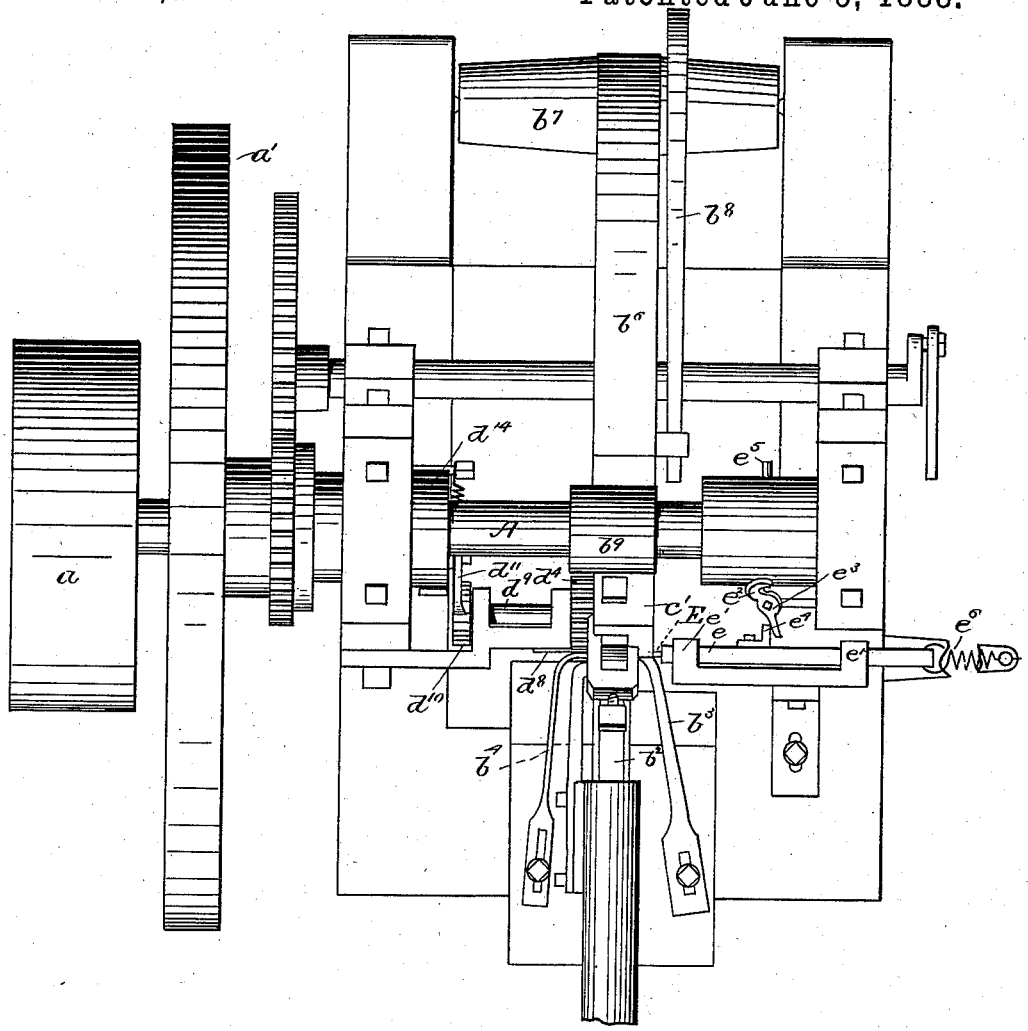

Fig. 1.

WITNESSES.
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INVENTOR.
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by his attys
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(No Model.) 3 Sheets—Sheet 2.

J. R. PROUTY.

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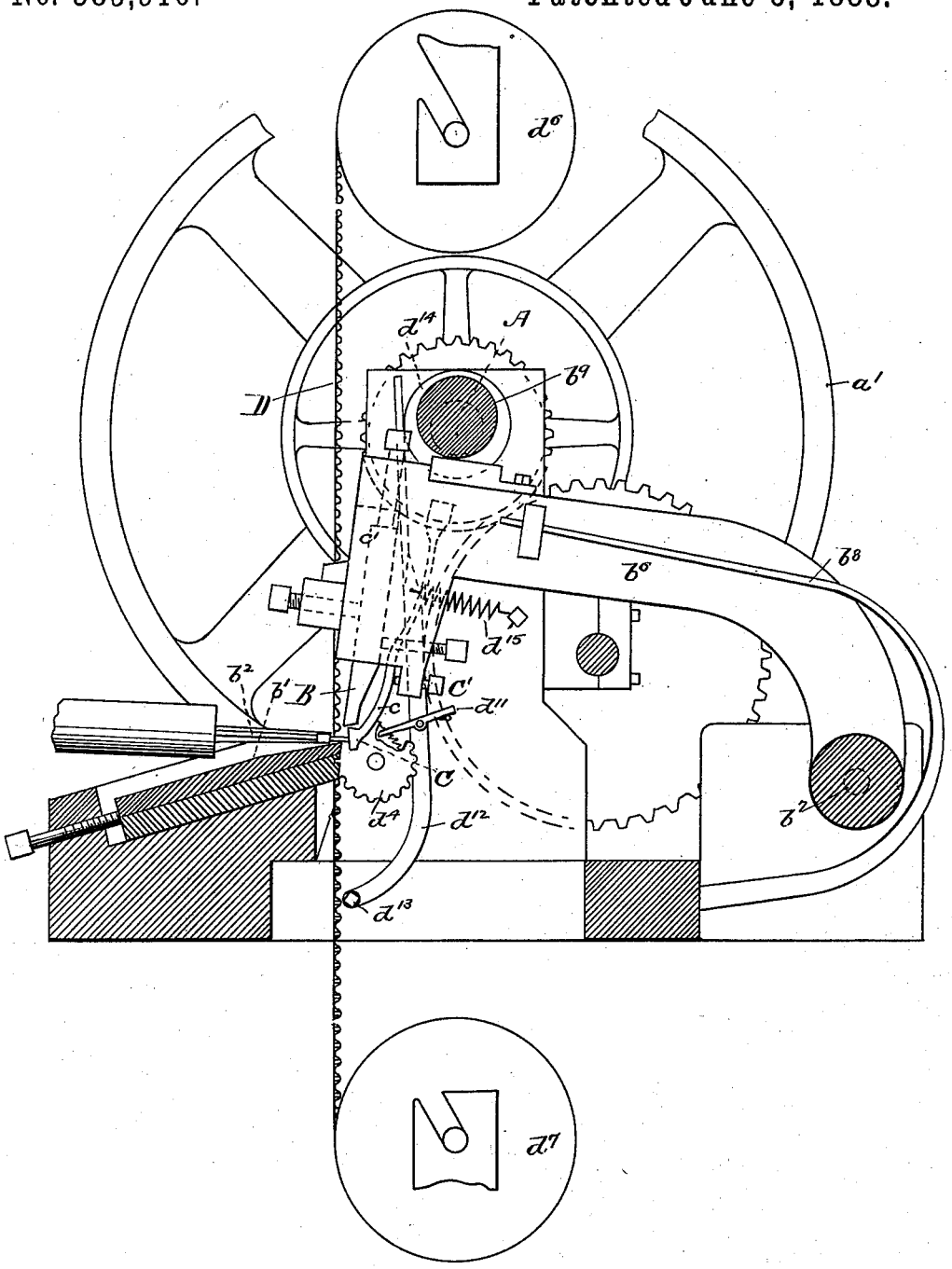

Fig. 2.

WITNESSES.
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(No Model.) 3 Sheets—Sheet 3.

J. R. PROUTY.

MACHINE FOR LOADING NAIL STRIPS.

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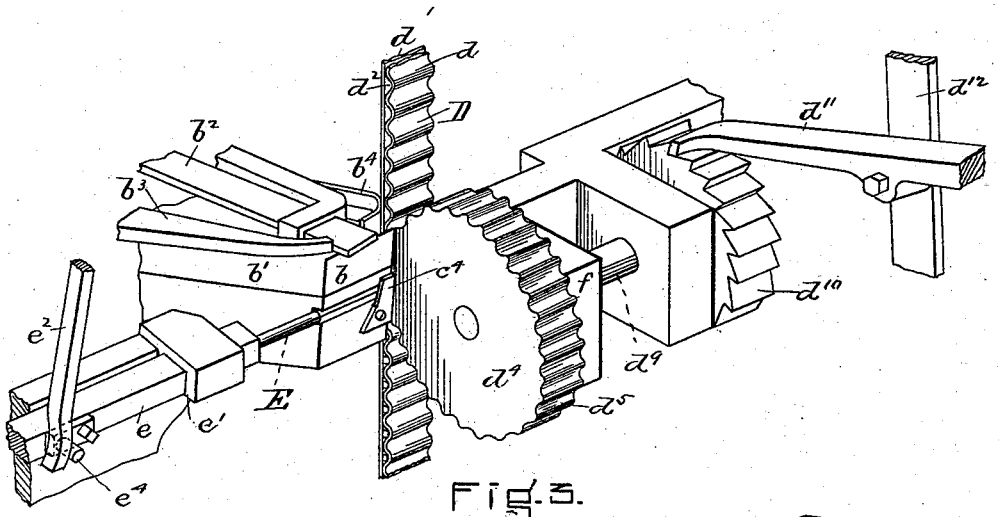

Fig. 3.

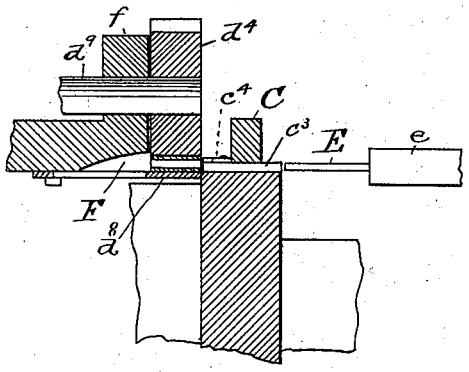

Fig. 4.

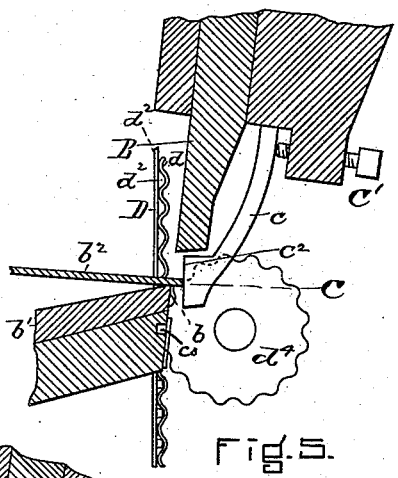

Fig. 5.

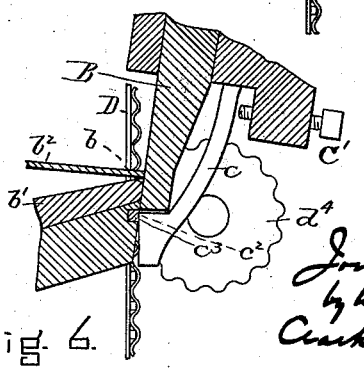

Fig. 6.

WITNESSES.

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UNITED STATES PATENT OFFICE.

JONAS R. PROUTY, OF SPENCER, MASSACHUSETTS.

MACHINE FOR LOADING NAIL-STRIPS.

SPECIFICATION forming part of Letters Patent No. 383,910, dated June 5, 1888.

Application filed October 27, 1887. Serial No. 253,494. (No model.)

To all whom it may concern:

Be it known that I, JONAS R. PROUTY, of Spencer, in the county of Worcester and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Machines for the Manufacture of Nail-Strips, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to a machine organized to make nails and to feed them as they are made to a flexible nail-carrying strip having a series or line of pockets or nail-holders extending across it, each of which is closed, excepting at the top, or top and bottom.

This improvement is represented in the drawings as organized in a machine for punching or cutting wedge-shaped nails, or nails having two long tapering edges, from a nail-plate, and commonly known as the "Blanchard Tack or Nail Machine."

In the drawings, Figure 1 is a plan view of the machine. Fig. 2 is a vertical section thereof. Figs. 3, 4, 5, and 6 are detail views, to which reference will hereinafter be made.

Referring to the drawings, A represents the shaft of the machine, *a* the pulley, and *a'* the balance-wheel. B is the punch or knife, which operates, in conjunction with the front edge, *b*, of the bed-block *b'*, to sever, cut, or punch nails from the nail-plate b^2. (See Figs. 3, 5, and 6.) The nail-plate is guided by the guides b^3 b^4, (see Fig. 3,) and is fed and turned by mechanism common to that class of machines. The punch or cutter B is mounted at the front end of the lever b^6, (see Fig. 2,) which is hung at b^7, and it is given a vertical movement in opposition to the spring b^8 by means of the eccentric or cam b^9 upon the shaft A, which bears against the upper surface of the lever or a wearing-block placed thereon. All these parts are common to the so-called "Blanchard Tack-Machine."

Heretofore the nails as they have been cut or severed have generally been allowed to drop into a box or pan placed to receive them. Instead of so doing in this case, each nail as it is cut is guided or delivered to a pocket or recess below the bed, and from said pocket or recess fed into a holder or pocket of the nail-carrying strip. To accomplish this, I have arranged below the punch or cutter B a holder or presser, C, which is supported at the lower end of a spring-arm, *c*, attached to the head *c'* of the lever b^6. This holder or presser C has a flat face, c^2, which in its normal position is substantially in line with the cutting-edge of the cutter or punch B. (See Fig. 6.)

Below the cutting-edge *b* of the die-block *b'* is a horizontal recess, c^3, cut across the face of the block and of substantially the size in cross-section of the nail which is severed. (See Figs. 3, 4, 5, and 6.) This cross-recess is open at its front and both ends, excepting for a short distance near its delivery end, or end through which the nails are delivered, where it is partially closed by a plate, c^4, (see Figs. 3 and 4,) which plate acts in connection with the remainder of the recess to guide the point end of the nail as it is being delivered to the nail-carrying strip. The nail-carrying strip D is made, preferably, from a straight strip, *d'*, of paper or other flexible material, and a corrugated strip, *d*, of paper or other flexible material, united to the side of the strip *d* by mucilage, glue, or cement, to form in connection therewith a series of nail holders or pockets, d^2, (see Fig. 3,) and the carrying-strip thus prepared is fed automatically in the machine to bring each of its pockets d^2 successively in line with the nail-receiving recess c^3. (See Figs. 3, 4, 5, and 6.) The strip forming a rack is adapted to be treated as a rack, and is fed by a rack-feed—namely, the spur-gear d^4, the teeth d^5 of which enter the cross-recesses of the nail-carrying strip, and by meshing with the cross-projections thereon feed it very uniformly and accurately.

I have represented the strip as fed downwardly and vertically from a wheel, d^6, and as being wound upon a reel, d^7, below the machine, and the strip is maintained in contact with the feed-gear d^4 by the plate d^8. (See Fig. 4.)

The plate may be a yielding plate, if desired, and it is placed in relation to the feed-wheel to keep the nail-carrier up against the feed-wheel and to support it while it is receiving nails.

The feed-wheel d^4 is mounted upon the shaft d^9, (see Fig. 3,) which also carries a ratchet-wheel, d^{10}, and an interrupted or intermittent rotation is provided the wheel by means of the

feed-pawl d^{11}, which engages the ratchet-wheel, and is mounted upon the lever d^{12}, (see Fig. 2,) which is pivoted at d^{13} at its lower end, and is moved in one direction by an eccentric or cam, d^{14}, upon the shaft A and in a reverse direction by the spring d^{15}. (See Fig. 2.)

To insert nails into the pockets d^2 of the nail-carrying strip, or, in other words, to feed them from the recess or pocket c^3, I use a plunger, E, mounted upon a block, e, and provided with a reciprocating movement at a given interval of time, whereby it is caused to enter the end of the recess c^3, (see Fig. 3,) traverse its length, feed the nail therefrom, and insert it into a pocket, d^2, of the nail-carrying strip, which is in position to receive it, (see Fig. 4,) the feed-roll d^4 and plate d^8 being so arranged as to cause the pockets on the strip D to be brought successively in line with the recess c^3. (See Figs. 3, 4, and 5.)

The block carrying the plunger E is supported in a suitable guideway, e', and is moved inward by means of the lever e^2, pivoted at e^3, the lower end of which comes in contact with the pin e^4 upon the block e. This lever is operated by a cam-pin, e^5, upon the shaft A to move its lower end to cause the plunger to be moved inward, and a spring, e^6, withdraws the block e and plunger E to the original position, and also maintains the upper end of the lever e^2 in position to be operated by contact with its operating cam-pin.

The operation of the machine is as follows: The nail-plate b^2, being fed forward to present enough of its end beyond the edge b of the block b' to form a nail, comes in contact with the surface c^2 of the holder or die-block C and presses it away from the face of the die-block to the position represented in Fig. 5. The cutter or punch B is then moved down to sever or cut the nail from the nail-plate, the holder or presser C of course moving with it, and the nail being severed by the punch or cutter is still moved downward by it and is held from falling by the presser or holder C, which bears against it with such force that it keeps it in contact with the face of the block b during the continued downward movement of the cutter or punch B until the nail reaches the recess c^3, to which it is fed by the punch or cutter B, (see Figs. 5 and 6,) when the holder or presser C throws the nail into the recess c^3. The parts then bear the relation to each other represented in Fig. 6. The plunger E is then immediately operated and feeds or removes the nail from the recess c^3 and inserts it into the pocket d^2 of the nail-carrying strip. The nail-carrying strip is then moved by the feed-wheel d^4 to bring another pocket in line with the recess c^3, and the punch or cutter B and the holder or presser C moved upward to their original positions. The nail-plate is then turned and fed forward and the operation of making another nail, feeding it to the recess, and inserting it in the strip continued. The position to which the holder or presser C is movable by the nail-plate is varied by the set-screw C', (see Fig. 5,) which bears against the arm c.

It will be seen that each nail as it is severed and delivered to the recess c^3 is held by the holder in the same way—that is, it is not allowed to turn after it is cut or punched by the punch B, and while it is being delivered to the recess or holder c^3, and that the recess or holder being of the substantial shape of the nail holds it and guides it, and prevents it from turning while it is being fed into the pocket d^2, so that all the nails of the nail-strip bear the same relation to each other and to the strip—that is, they are all placed squarely in the holes or pockets, with the same flat surface bearing against the flat side of the pocket.

In an application executed October 6, 1887, I have shown and claimed a nail-carrying strip such as herein described, and therefore do not claim it in this application.

If for any reason the nail-carrying strip D is not fed by the feed-wheel d^4 after the pocket d^2, which is supplied with the recess or holder c^3, has received a nail therefrom and another nail is inserted in the pocket, no injury is done to the strip, because the nail previously inserted in said pocket is permitted to escape through the pocket or holder of the strip into and to fall from the recess F in the block or bracket f, holding the feed-wheel, which is formed in line with the pocket and recess c^3, and is open at its bottom to permit any nail pushed into it from the carrying-strip to drop. (See Fig. 4.)

It will be seen, also, that the teeth d^5 of the wheel d^4 not only serve to feed the nail-carrying strip, but they also act, in connection with the plate d^8, to form a metal-holding block, which incloses and supports the pocket practically upon all sides while it is receiving a nail.

It will be noticed that the holder or presser C and the under surface of the punch or cutter B act as a carrier in transferring nails, after they are severed from the nail-strip, to the pocket or recess c^3.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a machine for loading a nail-carrying strip, the combination of nail-making devices, a recess or holder into which nails as they are made are fed in successive order by a nail-carrier, the nail-carrier, a plunger for removing the nail from the pocket or holder, and nail-strip-feeding devices for feeding a nail-carrying strip, having a series of pockets intermittingly to bring each pocket in line with the recess or holder, as and for the purposes described.

2. In a machine for loading nail-strips, the combination of a block having a recess or pocket into which nails are fed in succession, a reciprocating plunger to traverse said pocket or holder and remove nails therefrom, and a feeding mechanism for feeding the nail-carrier,

having a series of pockets comprising the movable spur-teeth d^5, and the plate d^8, the teeth engaging the projections upon the carrier-strip and moving the pockets successively in line with the recess or holder, and holding each pocket of the strip while it is receiving a nail, as and for the purposes described.

3. The combination of the punch or cutter B, the holder or presser C, the die-block *b*, the recess or holder c^3, the roll d^4, having the teeth d^5, adapted to have intermittent periods of rotation imparted to it, and the plate d^8, as and for the purposes described.

4. The combination, in a machine for feeding nails into pockets of a nail-carrying strip in successive order, of a reel, d^7, upon which the complete filled strip is wound, the feed-roll d^4, having the teeth d^5, having intermittent periods of rotation, the plate d^8, a pocket or recess, c^3, in which nails are automatically fed, and a plunger, E, for feeding the nails from the recess or holder to the pockets of the nail-carrying strip in successive order, substantially as described.

5. The combination of the shaft A, the head c', carrying the cutter or punch B, and a cam or eccentric upon the shaft A, for moving the head downward, the presser or holder C, the die block or bed having a recess or holder, c^3, the plunger E, and a cam-pin or eccentric upon the shaft A, for moving the same, the feed-roll d^4, its shaft d^9, the ratchet d^{10}, the feed-pawl d^{11}, and a cam or eccentric for moving the same, and a plate, d^8, substantially as described.

6. The combination of a block having a pocket or recess, c^3, the plunger E, the feeding device having teeth d^5, and a plate, d^8, the bracket for supporting the feeding device cut away in line with the holder or recess c^3, to form a nail-escape passage, F, as and for the purposes described.

JONAS R. PROUTY.

Witnesses:
FRANK A. DRURY,
CHESTER T. LINLEY.