

Machine for Making Box-Nuts.

No. 162,838.

Patented May 4, 1875.

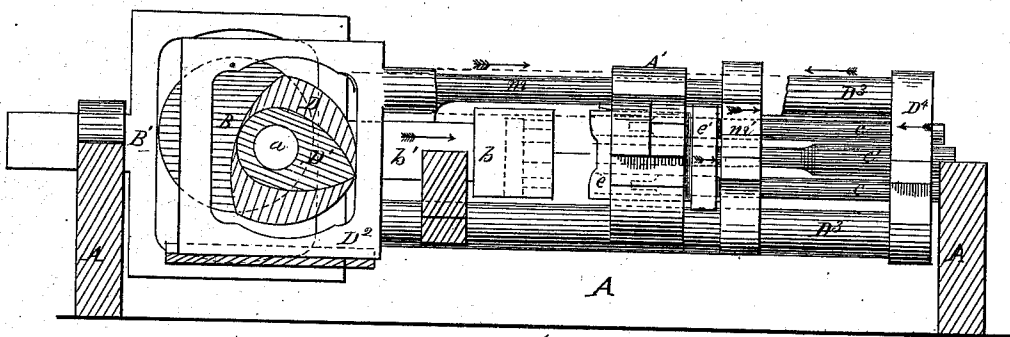


Fig. 1

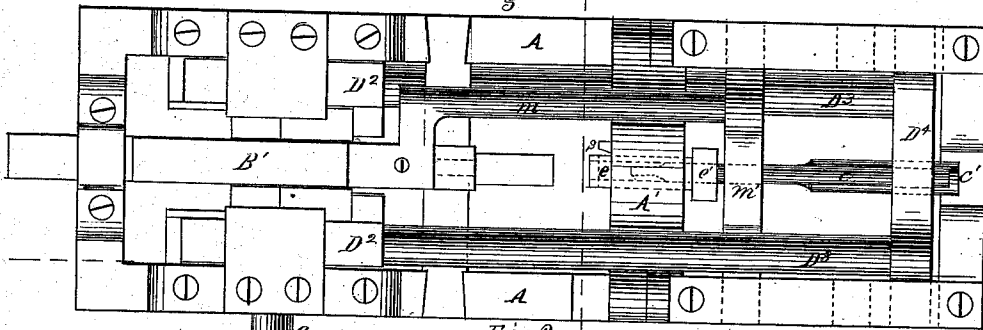


Fig. 2

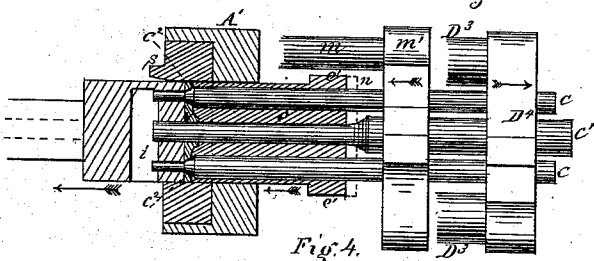


Fig. 4.

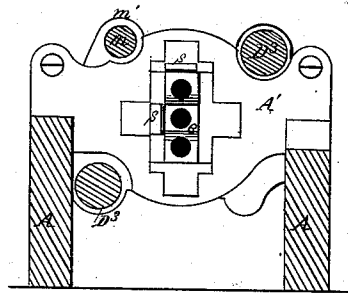


Fig. 3

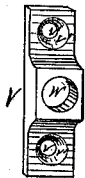


Fig. 5.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR MAKING BOX-NUTS.

Specification forming part of Letters Patent No. 162,838, dated May 4, 1875; application filed April 2, 1875.

To all whom it may concern:

Be it known that we, ALFRED MARLAND and WILLIAM J. LEWIS, of Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Machines for Making Box-Nuts, said improvement consisting in particular combinations of devices for cutting off and punching and countersinking the holes in box-nuts, said devices being adapted to the frame and actuating parts of an ordinary nut-machine, interchangeably with certain other analogous devices for cutting off and punching the holes in plow-caps, described by us in an application of even date herewith for a patent for improvements in machines for making plow-caps, in which application the machine to which the combinations of devices named in this application are adapted is more particularly described and represented; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which like letters indicate like parts.

Figure 1 is a sectional elevation of our machine just inside the front part of the frame. Fig. 2 is a top or plan view thereof. Fig. 3 is a transverse sectional view across in front of the die-box. Fig. 4 is a vertical longitudinal sectional view through the die-box and main dies, and showing the punches, stripper, and punch cross-head in elevation; and Fig. 5 is a perspective view of the article made.

Our present invention relates to the manufacture of "box-nuts," so called in the trade, one of which is shown in Fig. 5, and to the construction of a machine for cutting off the blanks, punching the screw-holes and box-rod hole, and also countersinking the screw-holes by pressure, and discharging the same, complete, all at the one operation.

In the drawings, A represents the main frame of the machine, having any suitable construction. The cross-head, in which is the die-box, is shown at A'. The main shaft *a* has affixed to it a series of cams or eccentrics of suitable form for giving the motions desired, one of which, B, operates in a yoke, B', so as to operate the cutting-die and stripper. On each side of this eccentric are two cams,

D D¹, (a single pair being shown in Fig. 1,) which coact in operating the punches. These cams operate in the cam-yokes D², which latter are connected by draw-bars D³ to the sliding cross-head D⁴, and in this cross-head are secured the outer punches *c c*, for punching the screw-holes *v v* in the box-nut V, and also the middle punch *c*¹, for punching the box-rod hole *w*. The yoke B' has two connections, one by a stem, *b'*, to the cutting-die *b*, for cutting off the blanks, carrying them into the die-box, and holding them while being punched, and the other is by a draw-bar, *m*, to a sliding cross-head, *m'*, which, on the reverse stroke of the die *b* and punches *c c*¹, operates as a stripper to remove the punched box-nut, and discharge it from the machine. In the fixed cross-head A' is the die-box, of a height and width in cross-section equal to the length and width of the box-nut to be made. The feeding side being from the right in Fig. 3, the usual feeding stops or guides *s s* are attached. The rear die *e* is inserted in the cavity in the usual way, but so that its rear end *e'*, Figs. 1, 2, and 4, may be engaged by the stripper *m'* at the proper time. The punches *c c*¹ pass through this rear die, the holes for such purpose being shown in Figs. 3 and 4. The cutting-die *b*, which, in operation, constitutes the front die of the die-box, Fig. 4, has the usual cavity *i*, for the entrance of the forward ends of the punches, and the discharge of the punchings.

In operation, the devices all being in the position they occupy at the end of their reverse stroke, the heated bar is fed in, the die *b* advances, cuts off the blank, and forces it into the die-box, forcing back the rear die *e* at the same time. The cross-head D⁴ then advances, and, carrying the punches *c c*¹, forces the latter through the blank, the die *b* being at the same time held up to its work, so as, whether standing or moving in either direction, to hold the blank up against the punches. The outer punches *c c* have, however, at the proper distance back from the point, each a conical flare or enlargement, as at *c*², the face of which, just at the completion of their stroke, acts as a swaging-die, so as to form a countersink, *v'*, around the punched screw-hole *v*, Fig. 5, at the outer end of said hole, the bar being fed in with that side or face toward the punches.

The punchings pass out at *i*. The reverse action of the machine then commences. The stripper *m'* comes forward against the base *e'* of the die *e* at the same time that the die *b* moves back, and the cross-head *D*⁴ and punches *c c'* begin their back stroke, whereby the box-nut *V* is stripped off the punches, and, by the still-continued forward movement of the die *e*, is delivered from the machine complete, and, after the removal of the fin, if any, by the usual means, and the tapping of the eye *w*, if so desired, it is ready for sale or use.

To adapt the machine for the making of box-nuts of different thicknesses, a short length of motion may be allowed to the stripper *m'* before it engages the base *e'* of the die *e*; but such space (shown at *n*, Fig. 4) may be filled up wholly or in part by removable plates suitably slotted or recessed for the purpose, the position of one such being shown by dotted lines.

We claim as our invention—

1. In a machine for making box-nuts, the combination of the die-box, the front and rear dies *b e*, the outer punches *c c'*, for punching the screw-holes, the intermediate larger punch *c'*, for punching the box-rod hole, and the stripper *m'*, substantially as set forth.

2. In combination with the die *b* and die-box, the punches *c*, having each a punching or perforating point for making the screw-hole, and at the base thereof a conical flare or enlargement, *c*², for swaging a countersink around the screw-hole at its outer end, substantially as described.

In testimony whereof we have hereunto set our hands.

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WILLIAM J. LEWIS.

Witnesses:

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