

(No Model.)

W. DUNN.
MACHINE FOR MAKING NUT FASTENERS.

No. 531,305.

Patented Dec. 25, 1894

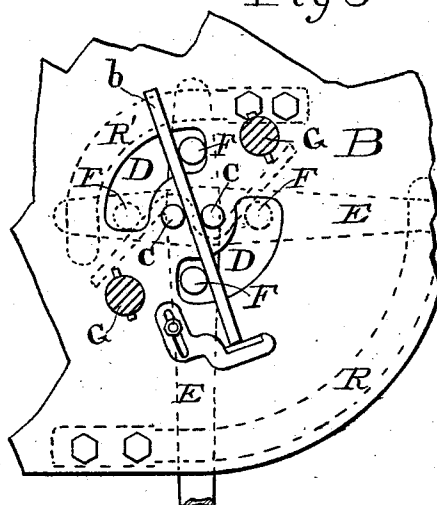
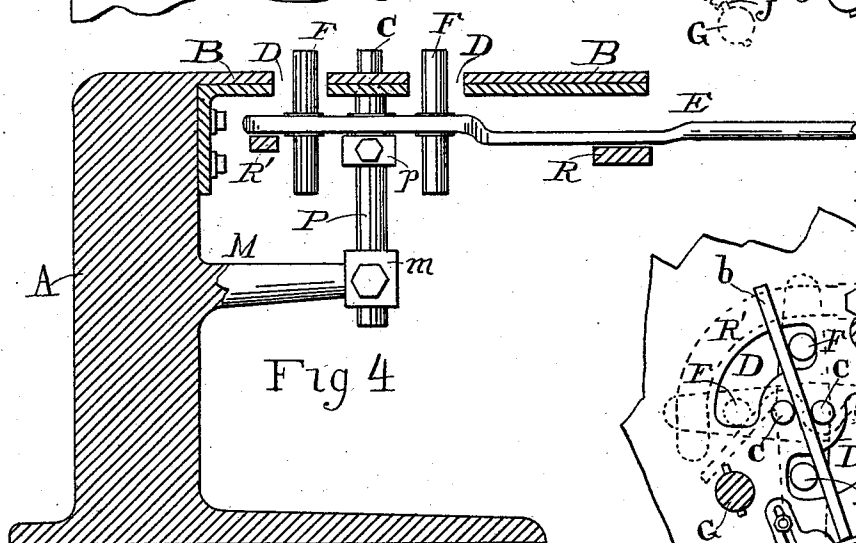
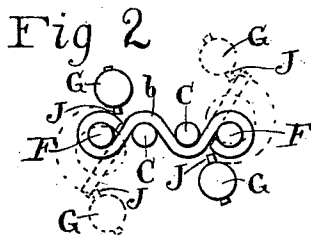
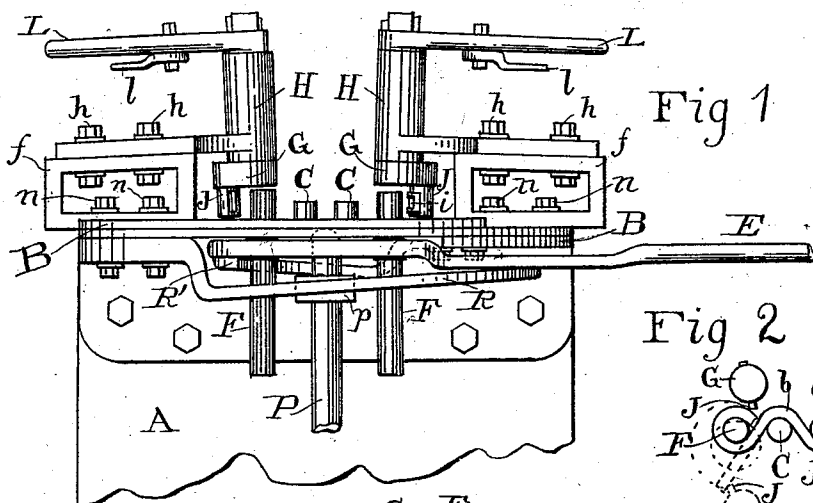


Fig 5



Witnesses

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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING NUT-FASTENERS.

SPECIFICATION forming part of Letters Patent No. 531,305, dated December 25, 1894.

Application filed September 5, 1894. Serial No. 522,161. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DUNN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Machines for Making Nut-Fasteners, of which the following is a specification.

My present invention is an improvement upon a machine for the same purpose formerly invented by me for which I obtained Letters Patent of the United States No. 356,279, dated January 18, 1887, and has for its object the production of a completed nut fastener at one operation.

Referring now to the drawings accompanying this specification and forming part thereof, Figure 1 is a front view of my improved machine. Fig. 2 is a diagrammatic top view of a portion of the same. Fig. 3 is a top view of a portion of the same, partly in section. Fig. 4 is a vertical sectional side view of the same; and Fig. 5 is a side or edge view of a finished nut fastener as made upon the machine.

A is the frame of the machine, and B the bed. Rising vertically from the bed and stationary thereon are two studs C, separated a sufficient distance to permit the introduction loosely between them of the blank *b*. In the bed are segmental slots D, and below the same is a lever E, pivoted on a vertical shaft P, upon which it may be rotated horizontally through an angle of approximately ninety degrees, and upon which it may slide vertically up or down. A collar, *p*, adjustably fastened by a set screw on the shaft P, limits the downward sliding of the lever E. The upper end of the shaft P, is held in a socket in the under side of the bed plate B, and the lower end is fastened by a set screw in a collar *m*, supported by an arm M, projecting from the frame of the machine; the object of this arrangement being to avoid journaling the lever E, on a pivot riveted to and supported by the bed plate as in my former patent above referred to, and also to provide convenient means for removing the shaft P, and lever E, for repairing or dressing or changing to a lever of different size.

The lever E, carries two studs, F, which pro-

ject upward through the slots D, to substantially the same height as the studs C, when the lever E is at its lowest position. These studs F, are made long and extend through the lever E, so that they may be knocked upward through the same, the ends cut off and fresh parts presented when worn or broken.

Upon the underside of the bed plate B, are bolted two inclined ways R, and R', upon which the lever E, also rests and slides and which force it upward toward the bed plate when it is rotated to the right.

G, represents rotary shafts, fitted in bearings H, the latter being supported by frames *f*, bolted to the bed plate. The shafts G, are of crank form and carry on their lower limbs fingers J, and are rotated by levers L. To the latter are adjustably attached laterally projecting toes *l*, adapted each to abut against the side of the opposite bearing H, whereby the motion of the levers is limited.

The shafts G and bearings H and their connections are slightly inclined as shown for a purpose hereinafter explained, by making the inner side of the frame *f* higher than the outer side. The amount of this inclination may be regulated by loosening the bolts *h*, and inserting wedges between the arm of the bearings H and the top of the frame *f*. The fingers J each contain a shallow slot as shown at *z*, Fig. 1.

The old machine as described in the patent referred to made a nut fastener of the shape shown at *b*, Fig. 2 but substantially flat in the plane of the paper, and, while still hot, it had to be given the proper form shown in Fig. 5 by striking in a die. It is understood that the nut fasteners are shaped while hot and then tempered in oil. My present machine however makes the fastener complete and ready for the oil bath.

Referring to Fig. 5 it will be seen that the nut fastener is bent upward in both directions from the center, also that the ends of the blank forming the eyes of the nut fastener are bent continuously upward in screw or helix fashion.

The operation of the machine is as follows: The lever E, is moved to the position shown in Fig. 4, being at right angles to that shown in Fig. 1. The blank *b*, is then placed on the

bed between the studs C, in the position shown in full lines in Fig. 3. The lever E, is now turned to the right, the studs F, bearing against the blank and bending the central portion thereof in opposite directions around the studs C, as shown in dotted lines in Fig. 3. At the same time, the lever E, sliding upon the inclined ways R and R', rises bodily carrying the studs F and, by friction against studs F and C bends upward both ends of the blank b. To prevent the studs C and F slipping on the blank, they might have been formed with slight shoulders, but I find in practice that this is not necessary and therefore not desirable. The lever E is now secured in position by any suitable catch, not here shown though illustrated in my former patent above referred to. The levers L are now moved, and the fingers J, bear against the ends of the blank, and bend them around the studs F, forming the eyes on the ends of the fastener, as illustrated diagrammatically in Fig. 2.

By reason of the inclination of the shafts G and their connections, the fingers J will rise during this rotation and being provided with the shallow slots i, they carry up the ends of the blank in a screw or helix fashion while bending the same around the studs F. The levers L are now returned, the lever E, unfastened from the catch and partly returned, when the finished nut fastener may be easily removed and thrown in the oil tank. For nut fasteners of different size, I now remove entirely the lever E, from the machine and substitute another lever having the studs F, nearer or farther apart as desired, and then adjust the shafts G and their connections, by loosening the bolts n and knocking the supporting frames f slightly inward or outward as required, the bolt holes in the same being slotted for that purpose.

By loosening the set screw in collar p, and fixing the collar a little higher I can reduce the vertical play of the lever E, and consequently the bend near the center of the nut fastener.

Having thus described my invention and the best method known to me of operating the same, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for making nut fasteners, the combination of a bed plate having two studs thereon, a pivoted lever carrying two studs adapted by the movement of the lever to revolve partially around the studs on the bed plate, and means for causing said lever to rise toward the bed plate during its rotation.

2. In a machine for making nut fasteners, the combination of studs C, lever E with studs F, and inclined ways R and R', substantially as shown.

3. In a machine for making nut fasteners, the combination of the two studs C, on the bed plate the pivoted lever E, with its two studs F, inclined ways R and R', shaft P, and adjustable collar p, as shown and described and for the purpose specified.

4. In a machine for making nut fasteners, the combination of a bed plate, with studs C, thereon, a pivoted lever E, beneath the bed plate, carrying two studs F, adapted to partially revolve around the studs C, inclined ways R and R', adjustable collar p, two inclined shafts G and fingers J, adapted to revolve partially around the studs F, and rise during their revolution, substantially as shown and described.

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Witnesses:

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