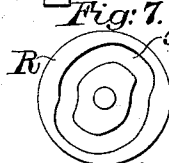
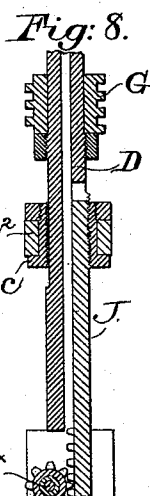
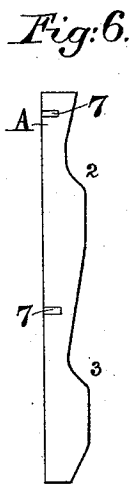
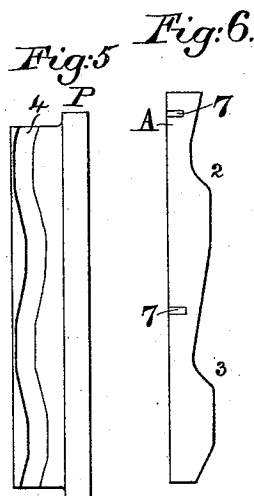
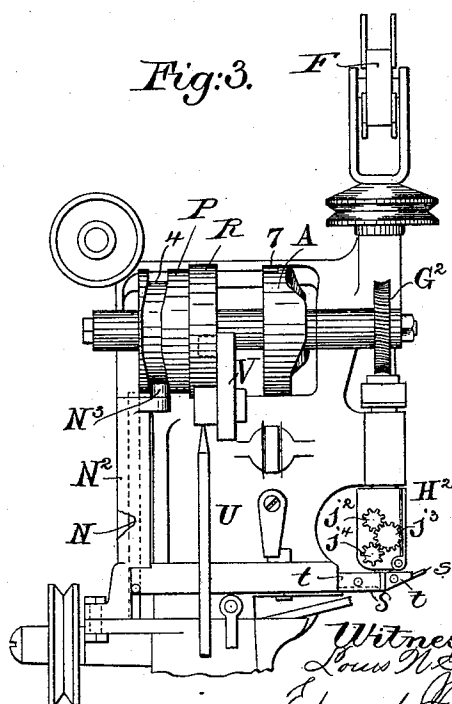
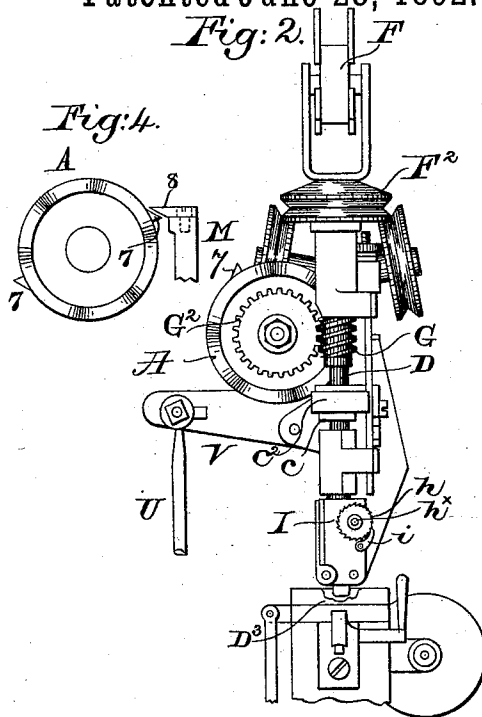
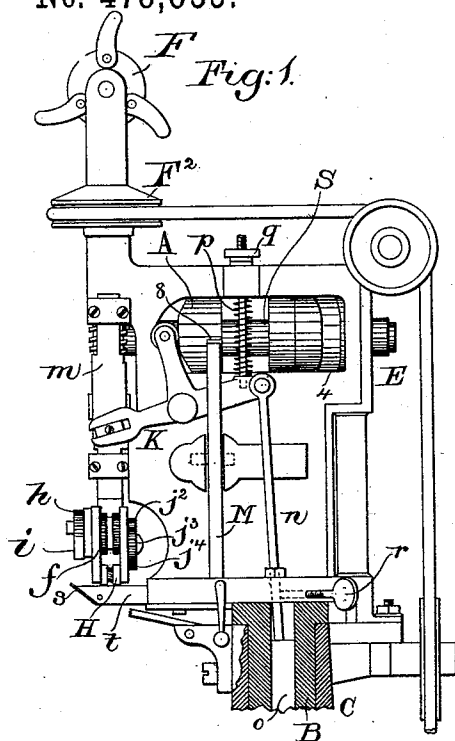


(No Model.)

L. GODDU.
MACHINE FOR INSERTING SCREW THREADED WIRE INTO THE SOLES
OF BOOTS OR SHOES.

No. 478,055.

Patented June 28, 1892.



Witnesses:
Louis H. Gouwell
Edward F. Allen.

Inventor:
Louis Goddu
by Crosby & Gregory
Atty's.

UNITED STATES PATENT OFFICE.

LOUIS GODDU, OF WINCHESTER, ASSIGNOR TO JAMES W. BROOKS, OF CAMBRIDGE, AND FRANK F. STANLEY, OF SWAMPSCOTT, MASSACHUSETTS, TRUSTEES.

MACHINE FOR INSERTING SCREW-THREADED WIRE INTO THE SOLES OF BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 478,055, dated June 28, 1892.

Application filed September 14, 1891. Serial No. 405,663. (No model.)

To all whom it may concern:

Be it known that I, LOUIS GODDU, of Winchester, county of Middlesex, State of Massachusetts, have invented an Improvement in Machines for Inserting Screw-Threaded Wire into Soles of Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve that class of machine represented in United States Patent No. 171,610, dated December 28, 1875. The machine described in said patent has a spindle which receives a single-threaded wire, which is fed out through the nose at the end of the said spindle by gripping and feeding rolls, and the wire is inserted into the stock resting on a suitable horn or support, the wire while being inserted being rotated, so that the threads thereon are screwed into the stock. The wire, having been inserted into the sole, is cut off flush with the sole, leaving a fastening therein. In the machine referred to the spindle is rotated continuously, and the gripping and feeding rolls carried by the spindle at the lower end thereof have imparted to them an intermitting movement in the direction to feed the wire from the nose at the end of the spindle, they being moved once during each rotation of the cam-shaft. The gripping and feeding rolls referred to derive their intermitting movements from a cam on a cam-shaft driven from the worm on the spindle referred to. In the machine described the spindle is mounted in bearings in a head, and the weight of the wire added to the weight of the head and its parts results in very considerable strain being put upon the machine when the head has given to it its rising and falling and also its lateral vibrating movements, as when the shoe is being fed, and because of its weight it has been found impracticable to rotate the spindle above a certain speed and do good work. Owing, however, to the great competition in the manufacture of shoes, it became a great desideratum to increase the effective speed of operation of the machine referred to, as such increase of effectiveness lessens the cost

of production of boots and shoes thereon. In my attempts to solve this problem and increase the effectiveness of the particular machine under consideration I have found that the speed of the spindle could not safely be increased, but rather ought to be reduced; but after considerable experiment I discovered that the cam-shaft, actuated by the spindle, might be made to actuate not only the gripping and feeding rolls, but the wire-cutting and the head-lifting and head-vibrating or feeding devices twice during each complete rotation thereof instead of once, as in the patent referred to, and this made it possible to reduce the speed of rotation of the spindle, and yet do nearly double the amount of work. In the embodiment of my invention as herein contained I have provided the cam-shaft referred to with cams and devices, which, as stated, actuate the wire gripping and feeding rolls, and the wire-cutting devices, and the devices for lifting the head and vibrating it laterally to effect the shoe-feeding movement twice where the machine as heretofore made has moved them but once. To further aid in making the said machine more efficient as to the amount of work produced thereon, I have been able in its changed conditions, to be described, for the first, to utilize my two-threaded wire, (represented in United States Patent No. 370,136,) the said wire having a steeper pitch than the single-threaded wire, which has always been used in said patented machine.

Figure 1 in side elevation represents a sufficient portion of a machine embodying my invention to enable the same to be understood. Fig. 2 is a front elevation of the parts shown in Fig. 1. Fig. 3 is a left-hand side elevation of the parts shown in Fig. 1, but with the spindle rotated about ninety per cent. from its position shown in Fig. 1. Figs. 4, 5, 6, and 7 are details of the cams, to be referred to; and Fig. 8 is a sectional detail of the spindle, its slide, and attached parts.

The patent referred to was reissued as No. 7,033 April 4, 1876.

The standard C; the spindle D, through which the threaded wire to be used is fed, it being taken from a suitable spool F; the pul-

ley F², fast on the said spindle and rotated
 by a suitable belt driven by a suitable pul-
 ley, (not shown;) the worm G on the said
 spindle; the enlargement I at the lower end
 5 of the spindle; the feed-rolls H; the toothed
 slide J, (see Fig. 8;) the threaded sleeve c,
 connected to the upper end of it and pro-
 vided with a loose collar c²; the gear f, hav-
 ing a groove equal to one-half the diameter
 10 of the wire, the said groove being opposite
 a groove in the slide J; the sleeve g, upon
 which the gear f is mounted; the pawl i, car-
 ried by the said sleeve; the ratchet-wheel h,
 actuated by the said pawl, the said ratchet-
 15 wheel being mounted upon a shaft h^x, pro-
 vided at its opposite end with a pinion j²,
 which engages an intermediate gear j³, which
 in turn engages a pinion j⁴, fast on one end of
 one of the gripping and feeding rolls H, having
 20 worm-like teeth to engage the threads of the
 wire; the bearing-plate H², containing the bear-
 ings for that one of the grip and feed rolls
 which is not rotated positively by the gearing
 described; the bar m, connected to the loose
 25 collar c²; three-armed lever K, having at one
 end a roller or other stud; the rod n, resting on
 the stop o; the spring p and sleeve-nut q; the
 wire-severing cutters s, there being in practice
 two such cutters; set-screw r; the head E, in
 30 which the spindle D has its bearings and which
 also has bearings for the cam-shaft S; the
 arms t, one for each member of the cutter; the
 nose D²; the lever M, instrumental in actuat-
 ing the arms t, carrying the cutters, to cut the
 35 wire off close to the surface of the sole; the
 vertical rod or pin N, (shown in Fig. 3;) the
 hollow post N²; the arm N³, projecting from
 the post N² and provided with a roller or other
 stud, the hollow sleeve B, the vertical rod U,
 40 the lever V, to which the upper end of the
 said rod is adjustably connected, said lever
 at its inner end having a roller or other stud,
 and the worm-gear G², fast on the cam-shaft
 S and rotated by the worm G, are and may be
 45 all as represented in the said Reissued Pat-
 ent No. 7,033, where, with the exceptions of
 the letter S used for the cam-shaft, the same
 letters are used to designate the same parts.

In the machine referred to the cam-shaft at
 50 each rotation actuates the gripping and feed-
 ing wheels but once to effect one feeding
 movement of the threaded wire; but herein I
 have provided the cam-shaft S with a cam A,
 (see Figs. 1 and 6, the latter figure showing
 55 the said cam developed,) which has two cam
 projections 2 3, adapted to act upon and move

the lever K and effect the intermittent move-
 ment of the rotating gripping and feeding
 wheels H twice during each rotation of the
 said cam-shaft S, thus feeding through the 60
 spindle enough wire for two fastenings in-
 stead of one, as heretofore. I have also
 shaped the cam-groove 4 in the cam P, that it,
 acting upon the roller or other stud carried
 by the arm N³ of the rocking sleeve N², will 65
 effect the lateral vibration of the head E, twice
 during each rotation of the cam-shaft S.

Fig. 7 shows the cam R in face view, the
 said cam having a cam-groove 5, into which
 enters a roller or other stud on the lever V, 70
 so that that cam moves the lever V twice dur-
 ing each rotation of the cam-shaft S and lifts
 the head E twice, so as to remove the press-
 ure of the nose and parts above the stock to
 permit the same to be fed on the horn or other 75
 usual work-support, (not shown,) but which
 in practice will be as common to said Reissued
 Patent No. 7,033. The cam-shaft S also has
 its cam A, provided at its periphery with two
 toes 7, each of which during one rotation of 80
 the said cam-shaft acts upon a projection 8 at
 the upper end of the lever M, common to the
 said reissued patent, and moves the said le-
 ver twice during each rotation of the said
 cam-shaft to cut off at two distinct different 85
 times the wire and sever the same close to
 the stock, thus making two complete fasten-
 ings during each rotation of the said cam-
 shaft.

Having described my invention, what I de- 90
 sire to claim and secure by Letters Patent is—

In a machine for inserting screw-threaded
 wire into soles of boots and shoes, the follow-
 ing instrumentalities, viz: a rotating wire-
 containing spindle, gripping and feeding rolls 95
 carried by said spindle and adapted to grip
 and feed the threaded wire longitudinally, a
 cam-shaft, the lever V, a double cam to actu-
 ate it twice during each rotation of the cam-
 shaft, the rocking sleeve N², a double cam to 100
 rock it twice during each rotation of the cam-
 shaft, a lever M, and projections 7 7 to acuate
 it twice during each rotation of the said cam-
 shaft, substantially as described.

In testimony whereof I have signed my 105
 name to this specification in the presence of
 two subscribing witnesses.

LOUIS GODDU.

Witnesses:

G. W. GREGORY,
 EMMA J. BENNETT.