

(No Model.)

L. GODDU.

MACHINE FOR INSERTING METALLIC FASTENINGS INTO LEATHER.

No. 565,073.

Patented Aug. 4, 1896.

Fig. 1.

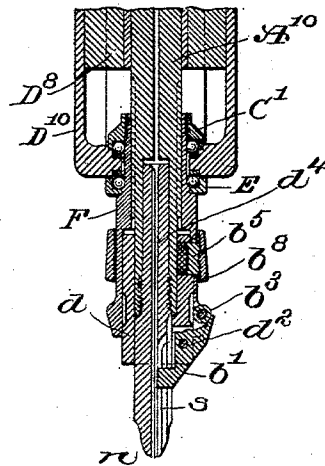


Fig. 4.

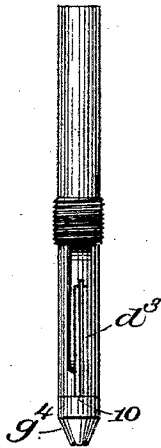


Fig. 2.

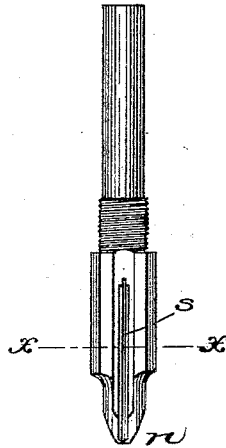
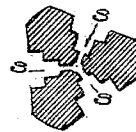


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR INSERTING METALLIC FASTENINGS INTO LEATHER.

SPECIFICATION forming part of Letters Patent No. 565,073, dated August 4, 1896.

Application filed January 11, 1894. Serial No. 496,493. (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 Metallic Fastenings into Leather, &c., of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 Machines employing grippers operated intermittently to grasp and release the wire, threaded or otherwise, to insert it in the material, have contained a wire-carrying spindle provided with slots terminating at a short distance from the end or throat of the spindle, said end being made solid and provided with a central passage for the wire. This slotted part of the spindle having the solid end has been connected with the main spindle by suitable devices, as a screw or otherwise.

In the use of machines having a spindle extension of the kind described it frequently happens that in inserting the wire into the material some unusual obstruction or some imperfection in the wire causes the wire to be upset or wedged into or between the slots in the spindle extension, in which event the grippers cannot force the wire through the solid end or throat, and, the movement of the grippers being positive, failure of the wire to pass through the solid throat causes the grippers to be broken, as well as other parts connected therewith, resulting in serious damage to the machine.

35 The liability of the wire to be forced solidly into the longitudinal feed-slots of the spindle is so great as to render that form of spindle practically worthless.

40 I have aimed to overcome the difficulties referred to and have succeeded in doing so by the employment of a spindle extension in which the slots are continued unobstructedly entirely to and through the end of the spindle, the wall portions left by slitting the spindle to and through its end being made rigid enough to form longitudinal bearings for and about the wire and yet permit expansion at any

point between the slotted extremity of the extension and the contact of the wire and feeding mechanism when subjected to abnormal internal strain by the wire. This method of constructing a spindle extension makes it possible to provide said extension with a normally uniform bore throughout its extent, with approximately unyielding walls, in order to form a proper longitudinal surrounding bearing-support or retaining-wall for the wire during its rotation, while the slotted portion may yield or spring slightly outward when subjected to any unusual pressure, as by reason of a bend in the wire, thus letting the wire pass through and out beyond the end of the nose, and thereafter the wall portions bounding the slotted part of the wire-passage will immediately resume their normal position, and the wire-passage will resume its normal cross-section. Such construction also makes it possible for the feeding mechanism to approach as closely to the work as desired, so that the said mechanism may, as it were, follow the wire right up to the very surface of the material into which the wire is to be inserted. This form of a spindle extension effectually prevents any clogging of the wire in the spindle.

Figure 1, in section, shows a sufficient portion of a machine for uniting soles to uppers, but with my improvement added to enable my invention to be understood. Fig. 2, on a larger scale, shows the spindle detached; Fig. 3, an enlarged section in the line *x*, Fig. 2; and Fig. 4 shows the spindle end now commonly in use.

My invention is applicable to all forms of machines containing spindles for inserting wire, threaded or otherwise, into material, but I have herein chosen to illustrate my invention in connection with a machine of the class shown in United States Patent No. 490,621, granted to me January 24, 1893, in which the spindle is rotated to insert a continuous screw-threaded wire.

Referring to the drawings, Fig. 4 shows a slotted spindle extension, such as commonly used in this class of machines, it having slots

d^3 for the reception of the ends of the feeding devices or grippers b' , so that they may grasp and feed the wire, the said extension having at its lower end and beyond the slots a solid one-piece throat.

The wire-carrying spindle A^{10} , fluted externally to be engaged by the fluted interior of a feeding-sleeve F , having gripper-closing devices b^3 , and having openings for the reception of friction devices b^8 , held in place by a threaded ring b^8 , the gripper d , provided with pivots d^3 for the feeding devices or grippers b' , the annulus C' , screwed upon the upper end of the feeding-sleeve F and the annulus E , and the stationary bearings or ways D^8 for the vertically-sliding yoke D^{10} are and may be all as in my said Patent No. 490,621.

When the throat is a solid block, as shown in Fig. 4, it is obvious that the wire when bent or enlarged cannot be pushed out through the hole in the unyielding throat, and the enlarged wire gets into and obstructs the gripper-slots and the movement of the grippers.

To insure absolutely the delivery of the wire and obviate any possibility of the wire clogging in the spindle, I have divided the usual throat into several pieces, so that the spindle has a split or radially-divided delivery end or throat, the arms or sections of the spindle constituted by the slitting or division of the spindles and rendering the throat free to yield somewhat and permit the free passage of the bends or unusual enlargements.

Figs. 1, 2, and 3 show the spindle as improved by me, said spindle in this embodiment of my invention having three wall portions or bearings separated by slots, in which work the feeding devices or grippers, said arms being free to yield or be sprung outwardly under abnormal conditions by the wire being fed between them, the extremity of said arms being terminated by a point such as would be made by separating the usual throat into three pieces and affixing one piece to each arm.

The spindle by virtue of its being split or divided at its delivery end is adapted to spring or yield to the abnormal requirements of the wire, and the feeding devices always act to feed the wire freely through the spindle and its throat and into the material.

The slots for the feeding mechanism are, of course, of less width than the diameter of the wire, so that the latter will not push through them during the operation of inserting it into the material.

The operation of the feeding mechanism and spindle in thrusting the end of a wire into the material preparatory to cutting it off to form a fastening is too well known to need description herein.

This invention is not limited to the exact form shown for the feeding mechanism, or grippers, or their actuating devices, and instead I may employ any other usual or suitable wire-feeding mechanism, or grippers, and

actuating devices therefor, the gist of this invention lying in the provision of a split or divided spindle without a solid or unyielding nose or throat, as the same parts are indifferently termed.

In this invention it will be noticed that the spindle is made with a rigid tubular body for the passage of the wire through it, and that below said rigid tubular portion the spindle is slotted clear to and through its end from circumference to center to constitute a multi-ended nose, composed of a series of fingers integral with the tubular part above and connected therewith at a considerable distance from the lower end of the spindle, so that these fingers, although extremely stiff, have a chance to yield to unusual strain.

I am aware that prior to my invention a nailing-machine has had a nose adapted to receive a headed nail, and that said nose has been made in two parts, each part being permitted to oscillate somewhat about a fixed point, chiefly and solely, however, for the purpose of centering the point of the nail and preventing glancing during driving.

I am also aware that a spindle made as a tube has had metal pieces inserted in said tube, the ends of the metal pieces being slightly exposed below the tube, said pieces acting simply as guides, but in no event ever yielding to any inequality in thickness of the wire being fed through the spindle.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for inserting wire fastenings into leather or other material, a wire-carrying spindle having slots therein for the feeding mechanism continued unobstructedly to the delivery end of the extension, substantially as described.

2. A wire-carrying-spindle extension having a normally uniform bore throughout with approximately unyielding walls to form continuous parallel longitudinal bearings for and about the wire, and having slots therein for the feeding mechanism, continued to the delivery end of the extension, to permit expansion of the wall portion at any point between the slotted extremity of the extension and the contact of the wire and feeding mechanism when subjected to abnormal internal strain by the wire, substantially as described.

3. In a machine for inserting wire fastenings into leather or other material, a wire-carrying-spindle extension having slots therein for the feeding mechanism continued unobstructedly to the delivery end of the extension, combined with feeding mechanism to enter the slots and engage the wire, substantially as described.

4. A wire-carrying-spindle extension bored throughout and slotted through its delivery end, to leave a series of rigid arms having their inner faces arranged in arcs of the same circle, to act on the wire between them and

constitute guiding-surfaces therefor to direct
it in a straight line under normal conditions
of feeding through the said extension by feed-
ing devices, the said rigid arms being free to
5 yield to a limited extent under abnormal con-
ditions of the wire due to external obstruc-
tion thereof, substantially as described.

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

LOUIS GODDU.

Witnesses:

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