(No Model.)

G. & M. S. GRAY.

NAILING AND PEGGING MACHINE.

No. 250,804. Patented Dec. 13, 1881.

Fig. 1.

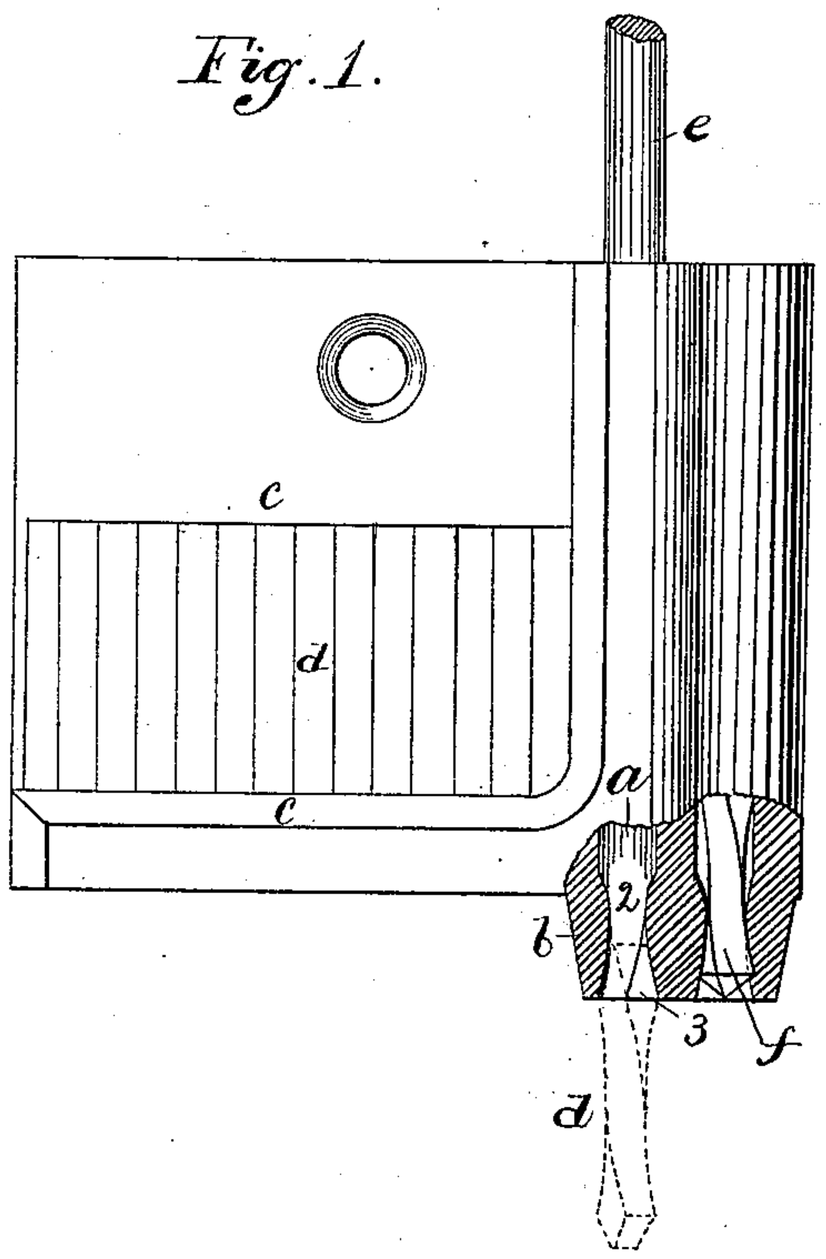


Fig. 3.

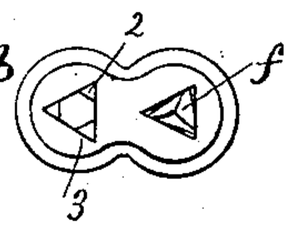
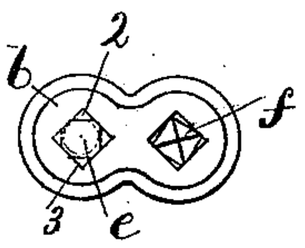


Fig. 2.



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UNITED STATES PATENT OFFICE.

GORHAM GRAY AND M. STURGIS GRAY, OF BOSTON, MASSACHUSETTS.

NAILING AND PEGGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 250,804, dated December 13, 1881.

Application filed July 11, 1881. (No model.)

To all whom it may concern:

Be it known that we, GORHAM GRAY and M. STURGIS GRAY, of Boston, Suffolk county, State of Massachusetts, have invented an Improvement in Nailing and Pegging Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to nailing or pegging machines, and has for its object to produce and insert a fastening-peg that shall have greater holding power than those now in use.

In practicing this invention a fastening peg or nail having a polygonal cross-section is employed, it being originally made substantially prismatic in shape, and previous to inserting it in the material to be fastened—such, for example as the sole of a boot or shoe—the said nail or peg is twisted upon its axis, so that the edges of the nail are everywhere inclined to its axis or helical, and the fastening, when in a socket fitted to it, such as formed when driven into a yielding material, cannot be removed without a rotary motion on its axis, thus greatly increasing its resistance to a direct movement in the line of its axis. When a series of such fastenings are employed, as around the edges of the sole of a boot or shoe, the layers of material are firmly held together with a strength depending rather upon the actual tensile strength of the fastening and cohesive strength of the material in which it is driven than upon the friction and adhesion of the sides of the fastening and the material in which it is inserted, as is the case with fastenings now commonly in use.

In order to produce a twisted or spiral fastening of this nature, a guideway may be employed in connection with a driving-bar, the said driveway being made as a die provided with a passage having the same cross-section as that of the fastening, and spiral in form, so that as the fastening is forced longitudinally therethrough it becomes twisted, as before described, and takes the spiral form of the passage.

The invention may be readily applied to the ordinary forms of nailing and pegging machines now in use for boot and shoe work, the nose or guideway of the said machines, through which the fastenings are driven into the material held against the end of the said nose, being provided with a spiral passage, as above described. When wooden pegs are employed the passage may be a trifle contracted toward its end, it thus somewhat compressing the fibers of the peg as they pass through, and at the same time twisting the peg, so that its edges are inclined to its axis. A peg thus driven into moist leather will swell and make itself an accurately-fitting socket in the leather, the layers of which it will hold together very firmly.

Figure 1 shows, in side elevation and partly in section, a nose and driving-passage of a pegging-machine constructed to operate in accordance with this invention, the form impressed upon the fastening being shown in dotted lines; Fig. 2, an under side view of the nose; and Fig. 3 a modification wherein the fastening is made of triangular cross-section instead of rectangular, as shown in Fig. 1.

The drive-passage *a*, of any suitable or usual form, it being shown as that of a pegging-machine of usual construction, terminates in a nose, *b*, of polygonal cross-section, as shown in Fig. 2, and spiral in form, as indicated in Figs. 1 and 2, the passage being gradually turned from the point 2, where its sides are parallel with the plane of the feeding-passage *c* of the machine, to its mouth 3, where the said sides are inclined at forty-five degrees to the plane of the said feed-passage, one-eighth of a turn being thus made between the points 2 3.

The pegs *d*, having a cross-section substantially the same as that of the passage through the nose portion *b* of the apparatus, as shown in Fig. 2, are placed, one at a time, in the drive-passage *a*, and then forced downward through the nose *b* by a driver-bar, *e*, of any usual form, the said pegs *d* being in this movement twisted, as shown in dotted lines, below the end of the nose *b*, and entering the material and forming a socket for themselves therein.

When wooden pegs are employed the awl *f*, by which the holes to receive the pegs are punched in the material just before the portion thus punched is fed beneath the nose *b*, is preferably also made as a prism twisted to produce spiral edges, and is guided in a spiral passage as it enters the material, so that it enters the material at the same angle as the peg, as indi-

cated in Fig. 2, and forms a spiral passage exactly corresponding to the form of the peg issuing from the nose, and prevents any tendency of the peg to untwist as it is forced into the material.

It will be readily understood that a fastening of rectangular or other polygonal cross-section, when twisted in this manner, will afford a very much greater resistance to a direct pulling strain on the portions of the material fastened thereby than a fastening of similar cross-section, but not twisted.

In the form shown in Fig. 3 the nose-passage is triangular, instead of quadrangular, in cross-section, this form affording a somewhat greater holding-power between the fastening and the material in which it is inserted, as the sharper angles will afford greater resistance to a twisting movement in such material.

This invention is applicable to fastenings of any material, the said fastenings being preferably provided with a chisel or other suitable point to enable them to the more readily enter the material to be fastened, and if desired the spiral form may be impressed upon the fastening in a different operation from the one by which it is inserted into the material, although it is preferable to twist and insert the fastening at a single operation.

The portion of the driver-bar *e* that follows and presses the fastening through the nose may be cylindrical, and small enough to pass through the passage in the nose, as shown in dotted lines, Figs. 2 and 3, so that the drive-bar will not have to rotate in its longitudinal movement.

We claim—

1. In a pegging or nailing machine, a nose or driveway provided with a passage of polygonal cross-section, and having its sides arranged spirally about its axis, as described, whereby, when a nail or peg is forced longitudinally therethrough it is caused to assume a spiral form, substantially as and for the purpose set forth.

2. In a pegging or nailing machine, the combination, with the nose provided with a spiral passage having a polygonal cross-section, of a driver-bar adapted to pass longitudinally through the said passage, whereby a prismatic peg or nail having the same cross-section may be forced through the said passage and into the material to be fastened thereby, and at the same time be caused to assume a spiral form, substantially as described.

3. In a pegging or nailing machine, an awl having a polygonal cross-section, and its longitudinal edges spiral or helical, combined with a nose provided with a similar spiral passage, whereby a spiral hole may be made in the material to be fastened to receive a peg or nail made spiral in passing through the said nose-passage, substantially as described.

4. The herein-described peg or fastening, it having a uniform polygonal cross-section throughout its length, and having its longitudinal edges everywhere inclined to its axis or helical, substantially as and for the purpose described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GORHAM GRAY.
M. STURGIS GRAY.

Witnesses:
JOS. P. LIVERMORE,
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