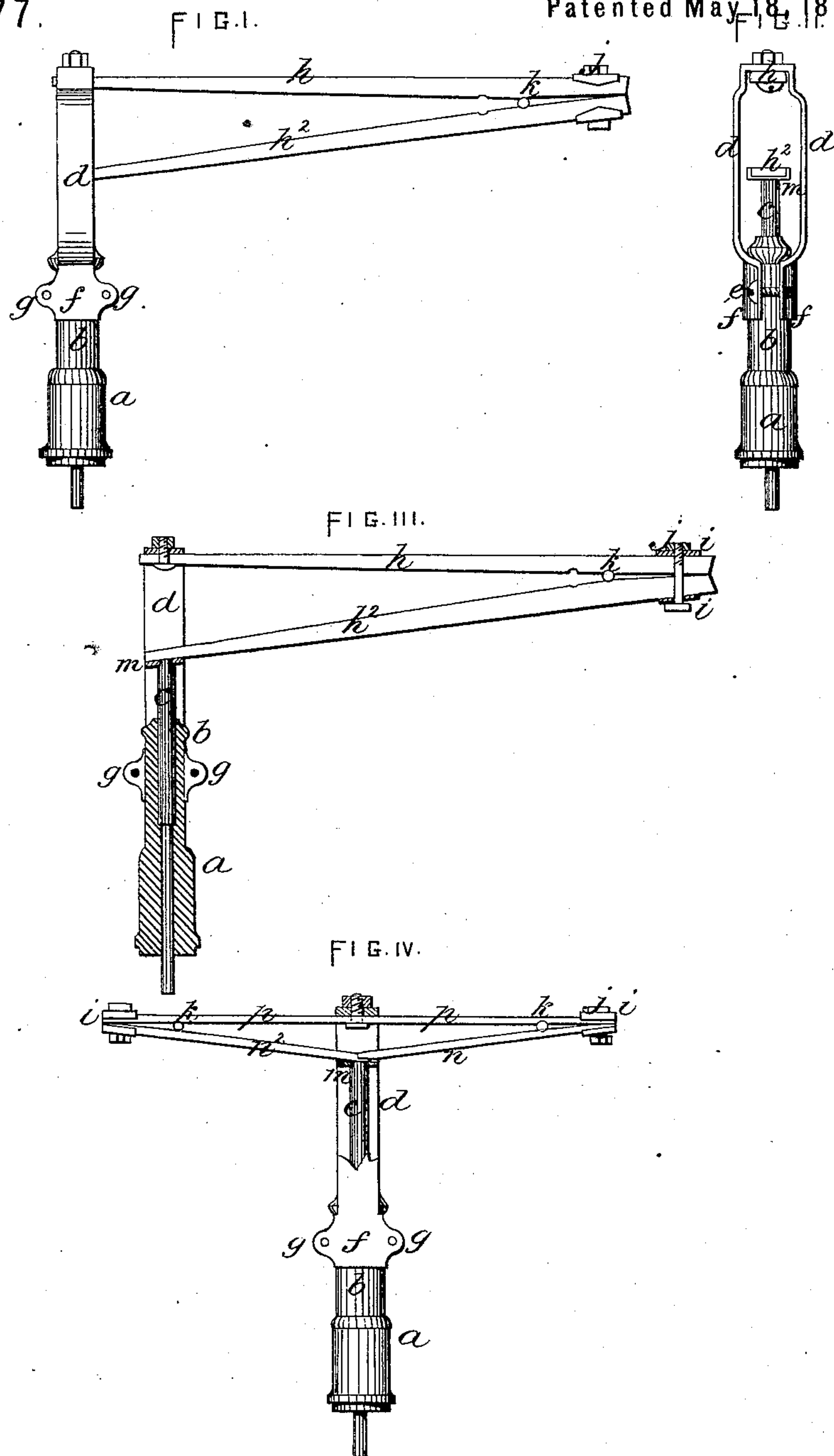


L. GODDU.  
Shoe-Nailing Machine.

No. 163,477.

Patented May 18, 1875.



WITNESSES.

F. B. Townsend.  
J. A. Rutherford.

INVENTOR.

Louis Goddu  
by Johnson & Johnson,  
his Attorneys



# UNITED STATES PATENT OFFICE.

LOUIS GODDU, OF WINCHESTER, ASSIGNOR TO AMERICAN CABLE-SCREW-WIRE COMPANY, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN SHOE-NAILING MACHINES.

Specification forming part of Letters Patent No. **163,477**, dated May 18, 1875; application filed April 23, 1875.

### CASE D.

*To all whom it may concern:*

Be it known that I, LOUIS GODDU, of Winchester, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Shoe-Nailing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

In nailing-machines in use the driver is forced down when released from its operating device by a spring usually coiled in a tube carried by the head to obtain the required driving force. In practice such springs are not only liable to break, but are uncertain in their action from unequal degrees of temper, and besides, when the spring is compressed to its maximum extent, it loses part of its expansive force, and as the limit of the ascent of the driver is always fixed and positive in its throw, it is very difficult to adjust a spiral spring to give the required blow sufficient to drive the nail. With a view to remedy this difficulty wooden springs have been employed in such machines having a fixed connection with the standard and the driver with means for varying the force of such spring. In such application of a well-known spring it is obvious that its acting-point must move in the arc of a circle, of which its fixed point is the center, and which must necessarily impart to the driver-bar an oscillating movement, which is highly injurious to the machine. Should the driver-bar be caused to travel in a perfectly vertical line, then it is obvious that there must be just as much friction upon the end of the spring in compensating for the arc which is described by the upward and downward movement of the end of the spring resting upon the end of the driver-bar.

I am aware that under the patent law there is no patentable invention in the substitution of a well-known form of wooden spring for a metallic spring. I do not, therefore, make any claim to a wooden spring as such.

The distinguishing feature of the invention embraced in this patent consists in the combination, with the driver-bar of a nailing-machine for boots and shoes, of a wooden spring of two or more branches, carried by and fixed directly upon the head of the machine, within which the driving mechanism is arranged for operation and without support at its outer end; also, in the combination, with the driver-bar of a shoe-nailing machine, of a wooden spring of two or more branches, united at their outer ends, and provided with a fulcrum-point and adjusting-screw, all carried by the head of the machine.

I have also combined with such double spring-bars a yoke-clamp which embraces by concave seats the turret-neck, and secured by a clamp-screw to make a firm and cheap carrier for the spring-bars, one of the branches whereof being bolted firmly to the yoke, and the sides thereof serving as a lateral guide for the acting end of the spring.

In the accompanying drawings I have represented so much of the head of a nailing-machine as illustrates the application of my invention, and such machine may be substantially such as that represented in my patent bearing date October 24, 1871, and need not, therefore, be more fully described herein than to state that *a* may designate that portion of the nailing-machine which forms a part of and rises above the head, within which the operating mechanism is combined for operation with proper work-supporting mechanism. Upon the upper end of this head a turret, *b*, rises, and through which the driver-bar *c* has its vertical movement. To the upper end of this turret a yoke-strap, *d*, is clamped by means of clamp-screws *e*, and for this purpose it is open, with concave sides *f*, to embrace the turret and form ears *g*, through which the screws *e* pass to effect a strong and durable clamp. This construction gives very great convenience for applying the yoke, which extends above the turret to form a support and point of attachment for a spring to operate the driver-bar. The spring consists of two wooden branches, *h h*<sup>2</sup>, which extend laterally from the yoke *d*, and with which the upper end of one of the spring-branches *h* has a firm



attachment, while the end of the lower branch  $h^2$  rests upon the driver-bar. The two ends of the spring-branches  $h$   $h^2$  are thus inclosed within the strap of the yoke, and are directly in line with the driver-bar, giving thereby a perfectly vertical movement to the latter by reason of having no fixed point of attachment for the free ends of the spring-branches, which are united only to each other at a suitable distance from the head. At their point of junction the springs are secured together by clamp-plates  $i$  and a screw-bolt,  $j$ , by which to regulate their tension, while a fulcrum-point,  $k$ , intervenes between the spring-branches and serves as the means, in connection with the screw, for making such adjustment. The springs taper from their fulcrum-point of union to their points of action, and is such as to produce the best results. The driver-bar  $c$  has a bearing-plate,  $m$ , upon the end of the spring, which prevents wear at that point.

While by this construction I obtain the full effect and force of the spring, yet it will be seen that only one branch has a movement with the driver-bar, and the spring by this means retains its elasticity and strength for a very great length of time. The marked character of this spring is its carriage by and directly upon the head of the machine, and entirely independent of the standard.

I have shown a double-branched spring applied to and extending to one side only of the turret; but it is obvious that such spring may be applied to produce the same results and advantages by being mounted upon the turret, so as to extend equally on both sides thereof, as shown in a modification in the drawings, in which the branches  $n$   $n^2$  of the

spring are united to a cord-bar,  $p$ , at their outer ends, while their free ends form a junction with and rest upon the driver-bar, the said joined ends being interlocked and having sufficient play to compensate for their compression toward the cord, which has a fixed connection at the middle of its length with the upper or closed end of the yoke-strap in the line of the driver-bar. In practice, however, I prefer the form of spring first described.

The following is claimed as new in nailing-machines for boots and shoes, namely:

1. The combination, with the driver-bar of a nailing-machine for boots and shoes, of a wooden spring of two or more branches, carried by and fixed directly upon the head of the machine, to operate the driver-bar without support for the outer ends of the spring-bars, substantially as herein set forth.

2. The combination, with the driver-bar of a shoe-nailing machine, of a wooden spring of two or more branches, united at their outer ends and provided with a fulcrum-point and adjusting-screw, all carried by the head of the machine, as herein set forth.

3. The combination, with the turret  $b$  and the spring-bars, of the yoke-clamp  $d$ , secured by the concave seats  $f$   $f$  and the clamp-screw  $e$ , to make a firm carrier for the spring-bars, one branch whereof being bolted to the yoke, as specified.

In testimony that I claim the foregoing as my own I have affixed my signature in presence of two witnesses.

LOUIS GODDU.

Witnesses:

A. E. H. JOHNSON,

J. W. HAMILTON JOHNSON.