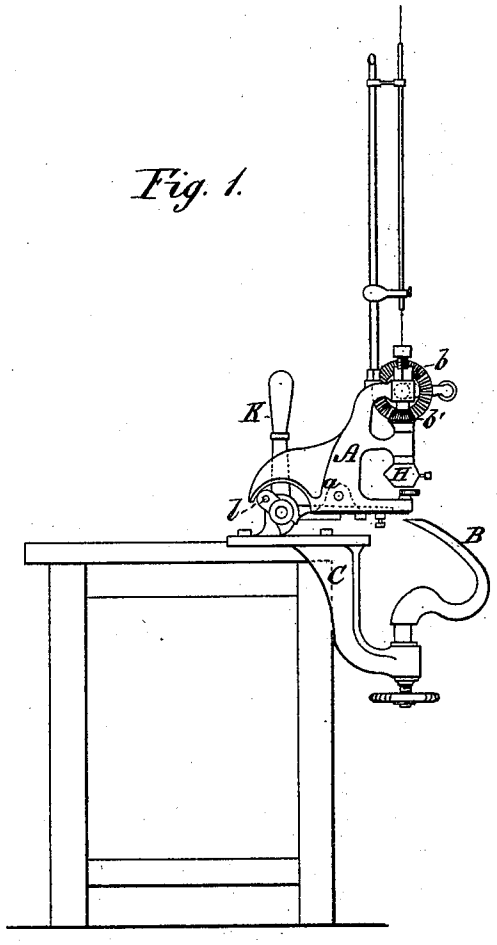
2 Sheets—Sheet 1.

E. FROMENTIN.

MACHINERY FOR SCREW-THREADING WIRE FOR UNITING THE SOLES TO UPPERS OF BOOTS AND SHOES.

No. 172,990. Patented Feb. 1, 1876.

Fig. 1.



WITNESSES:

W. W. Hollingsworth

Solon C. Kemon

INVENTOR:

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ATTORNEYS.

2 Sheets—Sheet 2

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Fig. 2.

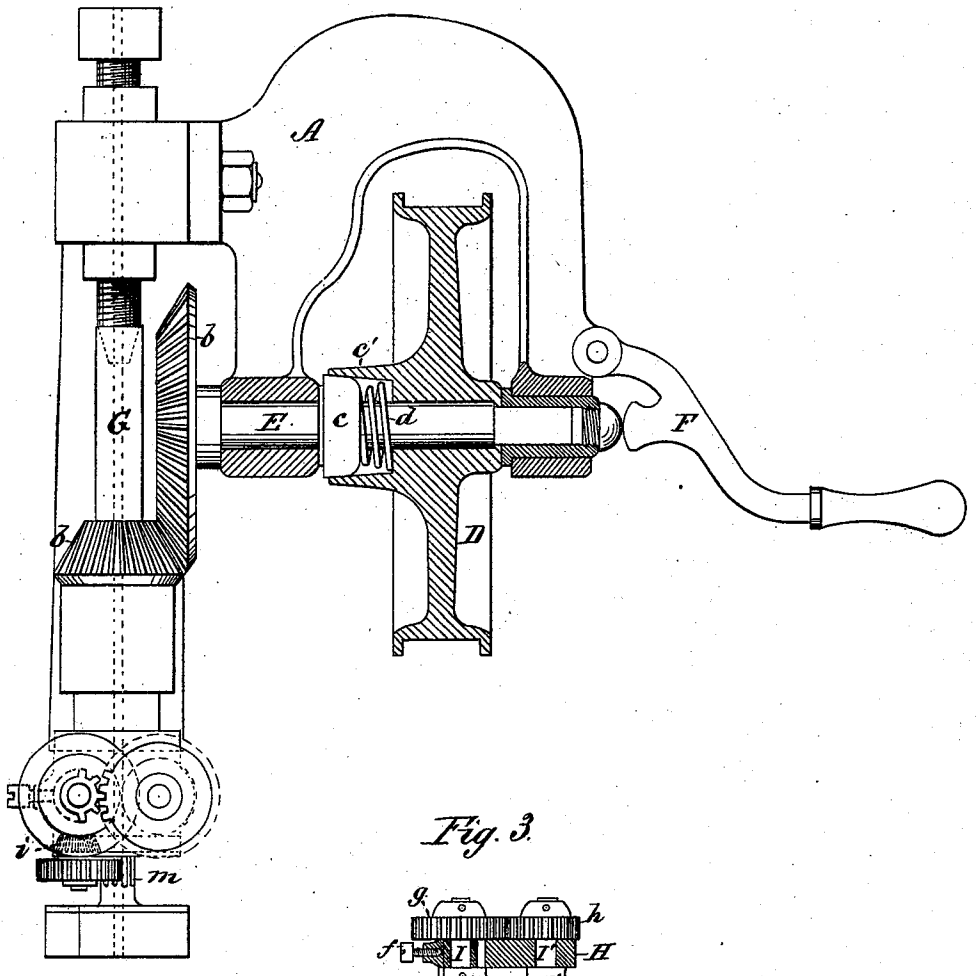
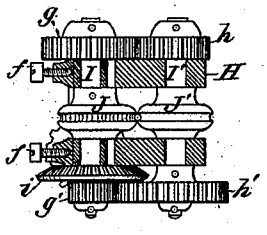


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDOUARD FROMENTIN, OF PARIS, FRANCE, ASSIGNOR TO JOSEPH M. V. DURAND AND JOSEPH DUBORGET, OF SAME PLACE.

IMPROVEMENT IN MACHINERY FOR SCREW-THREADING WIRE FOR UNITING THE SOLES AND UPPERS OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **172,990**, dated February 1, 1876; application filed May 22, 1874.

To all whom it may concern:

Be it known that I, EDOUARD FROMENTIN, of Paris, France, have invented a new and Improved Screw-Wire Machine for Fastening the Soles of Boots and Shoes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a side elevation. Figs. 2 and 3 are enlarged views of the feeding devices, and the devices for regulating the starting and stoppage of the machine.

This invention relates to certain improvements in that class of machines which cut a thread upon a continuous length of wire, insert the screw into the sole of the shoe, and cut it off, so as to form a secure fastening in one and the same operation. It consists in the means employed for tilting the upper pivoted portion of the machine, so as to bring the devices down upon the sole, in the means for applying the power to effect and definitely control the intermittent rotatory movement, and in the construction of the feed for the wire, all as hereinafter more fully described.

In the drawing, A represents the upper frame of the machine, which is pivoted at *a*, so as to have a rocking motion thereupon. B is the beak or horn contained in the lower frame C, which is to be attached to the table. D is a driving-pulley loosely mounted upon the shaft E, which latter turns in journals in the upper portion of the frame-work, and carries the bevel-wheel *b*, which engages with a second bevel-wheel, *b'*, of the hollow vertical revolving shaft carrying the feed devices. Upon the shaft E is placed a friction-cone, *c*, with which engages the inner periphery of the conical hollow hub *c'* to make connection between the driving mechanism and the feeding devices. Contained within the hollow hub and pressing against the cone *c* is a spiral spring, *d*, which habitually repels the pulley from contact with the cone, and thus keeps the pulley upon a portion of the shaft, where it revolves loosely. F is a lever pivoted to the main frame, and having an arm that bears against the pulley, or a sleeve adjacent thereto, which lever serves the purpose of making the connection between the pulley and the shaft. By means of this arrangement the operator can, at will, either in a standing or sitting posture, control accurately the starting and stoppage of the feed devices at the intermissions required for cutting off the sections of the wire. This device is far superior to the treadle mechanism employed for this purpose, as it enables the operator to be seated and effect the engagement or disengagement by the very slight and convenient movement of depressing the lever F. G is the hollow vertical shaft, through which the wire passes, and which is rotated through the bevel-gear *b b'*, in the place of which friction-disks may be used. Said shaft is contained in bearings in the main frame, and carries the feeding devices, which consist of the following parts: A frame, H, is attached to the lower end of the hollow shaft, and carries the short horizontal shafts I I', each of which is provided with feeding-rolls J, with serrated grooves, which clamp the wire, the said shafts being laterally adjustable through binding-screws *f* for different sizes of wire. Each of these shafts carries gear-wheels *g g'* and *h h'*, which mesh with each other, and they are actuated through the loose bevel-wheels *i* and *i'*, which latter is provided with a second set of cogs.

The operation of this device is as follows: As the hollow shaft revolves, carrying the frame H, the wheel *i'* engages with a stationary pinion, *m*, on the table, through which the wire passes to the cutting-tool. As the frame revolves, therefore, the wheel *i'* revolves from contact with the stationary pinion, and sets in motion the feeding-rolls through the intervening gear-wheels, thus feeding and twisting the wire at the same time. In order to bring the devices readily to their place upon the sole for inserting the screw-threaded wire, a lever, K, is pivoted to the lower frame and provided with the cam *l*, whereby the upper frame A, carrying the working devices,

may be rocked upon its pivot *a*, and the devices either applied or removed from the sole. The said lever K may have also a second cam working alternately with *l* to operate the knife for cutting off the wire.

Having thus described my invention, what I claim as new is—

1. The combination, with the pivoted frame A, of the lever K, having cam *l*, as and for the purpose described.

2. The combination, with the hollow vertical shaft and the shaft E, having friction-cone *c*, of the spiral spring *d*, the pulley having conical hollow hub *c'*, and the lever F, substantially as and for the purpose described.

3. The combination, with the hollow revolving shaft G, of the shafts I I', carrying feed-rolls, and the wheel *i'*, adapted to rotate the rolls through gear-wheels by revolution around a fixed stationary pinion, as and for the purpose described.

EDOUARD FROMENTIN.

Witnesses:
CHARLES DESNOS,
EMILE DUHAN.