

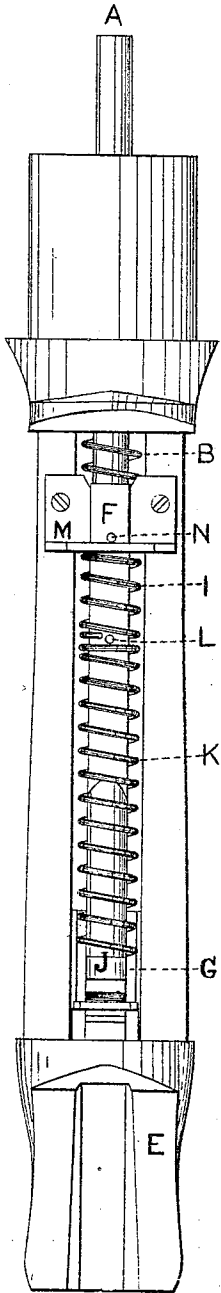
J. HOWE.

Locks for Locking the Foot of Boot-Trees.

No. 151,700.

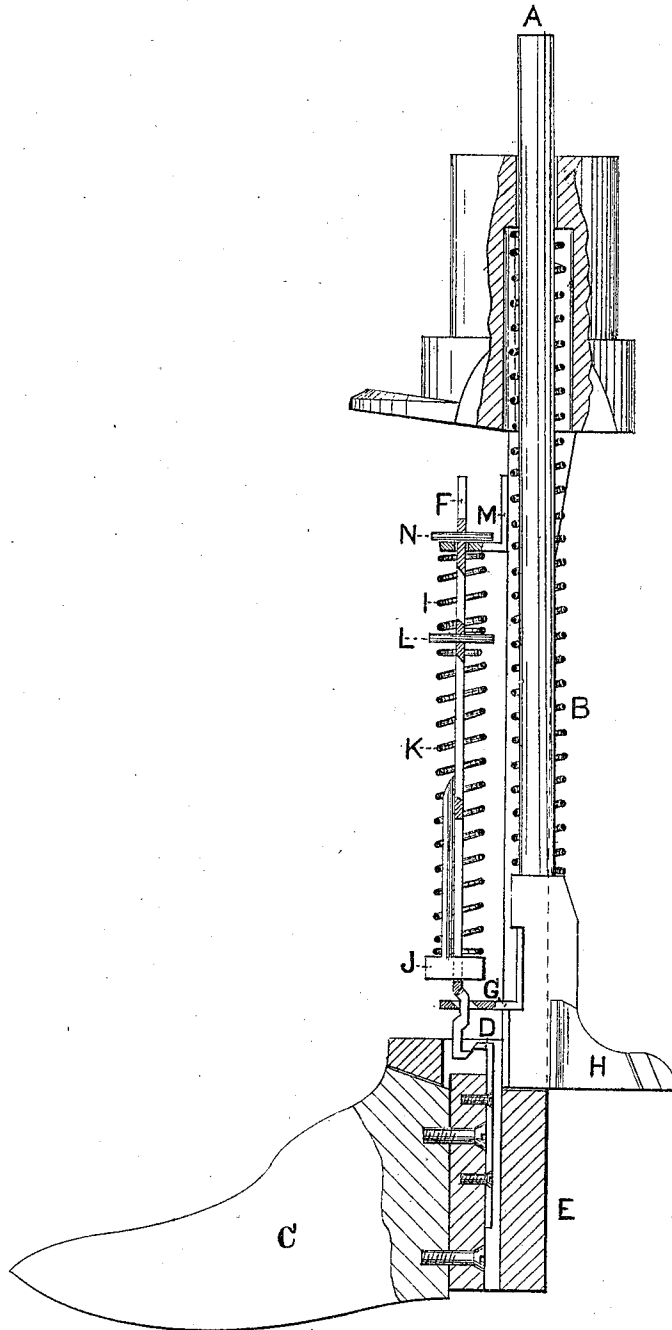
Patented June 9, 1874.

Fig. 1.



J. E. Knox
Henry W. Holland

Fig. 2.



James Howe
J. E. Maynard

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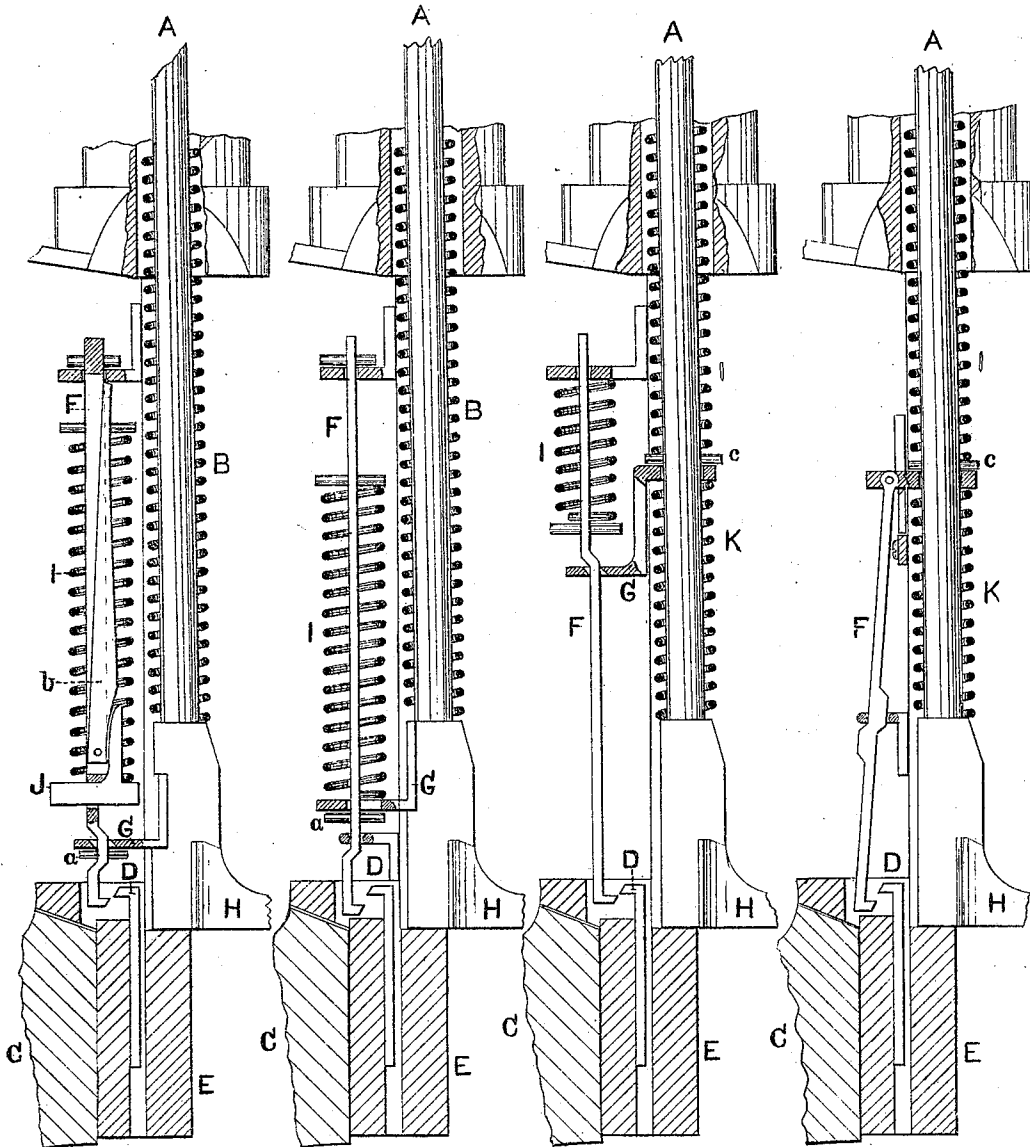
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Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.



J. E. Knox
Henry W. Holland

Jarvis Howe
by J. E. Maynard

UNITED STATES PATENT OFFICE.

JARVIS HOWE, OF MILFORD, MASSACHUSETTS.

IMPROVEMENT IN LOCKS FOR LOCKING THE FOOT OF BOOT-TREES.

Specification forming part of Letters Patent No. **151,700**, dated June 9, 1874; application filed November 29, 1873.

To all whom it may concern:

Be it known that I, JARVIS HOWE, of Milford, in the State of Massachusetts, have invented a Lock for Locking the Foot of Trees for Treeing Boots and Shoes, of which the following is a specification:

In most machine-trees the foot is detachable, and consequently, when in use, requires to be locked in place. All the locks heretofore used in this process, known to me, are objectionable; and the object of my invention is to furnish a lock which will not only hold the foot in place, but will force it upward into its proper place.

My invention consists in the combination of a hooked rod, which catches upon a hook on the foot with the distending mechanism of the tree by means of a spring, so that the power applied to move the distending mechanism will act, through the spring, upon the hooked rod, and thereby force the upper part of the foot into close contact with the lower part of the front of the tree.

In the drawings, I have shown my lock applied to the cast-iron center-piece of a well-known form of boot-tree, the wooden front and back of which are not shown. In this form of tree the distending mechanism is moved upward by power applied to the stretching-rod A, and downward (back again to its first position) by the spiral spring B. The foot C is attached to a foot-iron, D, which fits and slides in a dovetailed groove in the center-piece E, and this foot-iron has a hook upon its upper part. All these parts are well known and in common use. My lock consists of the hooked rod F, which is so mounted that it can be properly moved to cause its hook to engage with the hook attached to the foot, and in order that the foot may be forced upward, and thus the upper part of the foot be forced into close contact with the lower part of the front. In order to unlock the foot, and to bring the hooked rod back to its first position, these movements are reversed.

Figure 1 shows one form of my lock, in which the hooked rod F is moved laterally, to cause its hook to engage with the hook on the foot, and endwise to force the foot upward and into close contact with the upper part of the front. These motions are produced by the motion of the piece G, which is attached to and moves

with the cross-head H. As the rod F passes through a slot in this piece G, and has an inclined surface, the upward motion of this piece G will depress the rod F, the friction of the piece G upon the inclined surface of the rod F being insufficient to produce an endwise motion of the rod F against the spring I. The continued motion of the piece G carries forward the slide J, and thus compresses the spring K, which produces an endwise movement of the rod F by bearing upon the pin L in the rod F, and thereby forces the foot upward. When the cross-head returns to its first position, the piece G returning with it allows the spring K to force the slide J back again to the end of the slot in the rod F, in which that slide moves, and also allows the spring I to move the rod F endwise back to its first position; and at the end of its return movement this piece G moves the rod F laterally, so as to disengage its hook from the hook of the foot. The necessary motion of the cross-head H is much greater than the necessary motion of the rod F, and it is for this reason that I cause the motion of the cross-head to be imparted to the rod through the spring K. The rod F, in its endwise movements, slides through a slot in the saddle M, and is prevented from moving too far backward by the pin N. The spring I is confined between the pin L and saddle M. This spring I serves two purposes: First, it insures the return of the rod F to its first position; and, secondly, it prevents the friction of the piece G upon the incline on the rod from moving the rod endwise instead of laterally; but it is obvious that a pin, *a*, inserted in the rod, as shown in Fig. 3, will perform the first of these functions, while a latch, such as that marked *b* in that figure, which is lifted by the forward movement of the slide J, will perform the second. It is also obvious that the hooked rod need not be moved laterally before it begins its endwise movement, as this endwise movement causes its lateral movement in Figs. 4 and 6. It is also obvious that the spring through which the motion of the cross-head is imparted to the hooked rod need not be on the hooked rod, as is shown in Figs. 5 and 6, where a portion of the stretching-rod spring B is utilized for this purpose.

In Figs. 3 and 4, the stretching-rod spring

B, acting through the piece G and pin *a*, causes the return of the rod F to its first position, while in Figs. 5 and 6 this is accomplished by that part of the spring B which lies above the pin *c*, and which is marked I, because it performs the most important function of the spring I in Figs. 1 and 2. In like manner, the lower part of the spring B is marked K in Figs. 5 and 6, because it performs the function of spring K in Figs. 1 and 2.

It is not absolutely necessary that the spring through which the rod F is connected to the cross-head should cause the rod to move laterally and endwise, as it may be so mounted as to move only on its axis if the hook upon it be made in the form of a screw-thread extending partly around the rod, the foot in this case being forced upward by the motion on its axis of the spiral flange which forms the hook; but I deem it unnecessary to furnish drawings

showing this mode of applying the principle of my invention, for the reason that the mode described—namely, causing the spring to move the rod both laterally and endwise—is the best mode in which I have contemplated applying that principle.

What I claim as my invention is—

1. The combination of the hooked rod F with the foot and the distending mechanism of the tree, and the spring K, substantially as and for the purpose specified.

2. The combination of the spring I with the hooked rod F, the foot, the distending mechanism of the tree, and the spring K, substantially as and for the purpose specified.

Signed this 5th day of March, 1873.

JARVIS HOWE.

Witnesses:

J. E. MAYNADIER,

HENRY W. HOLLAND.