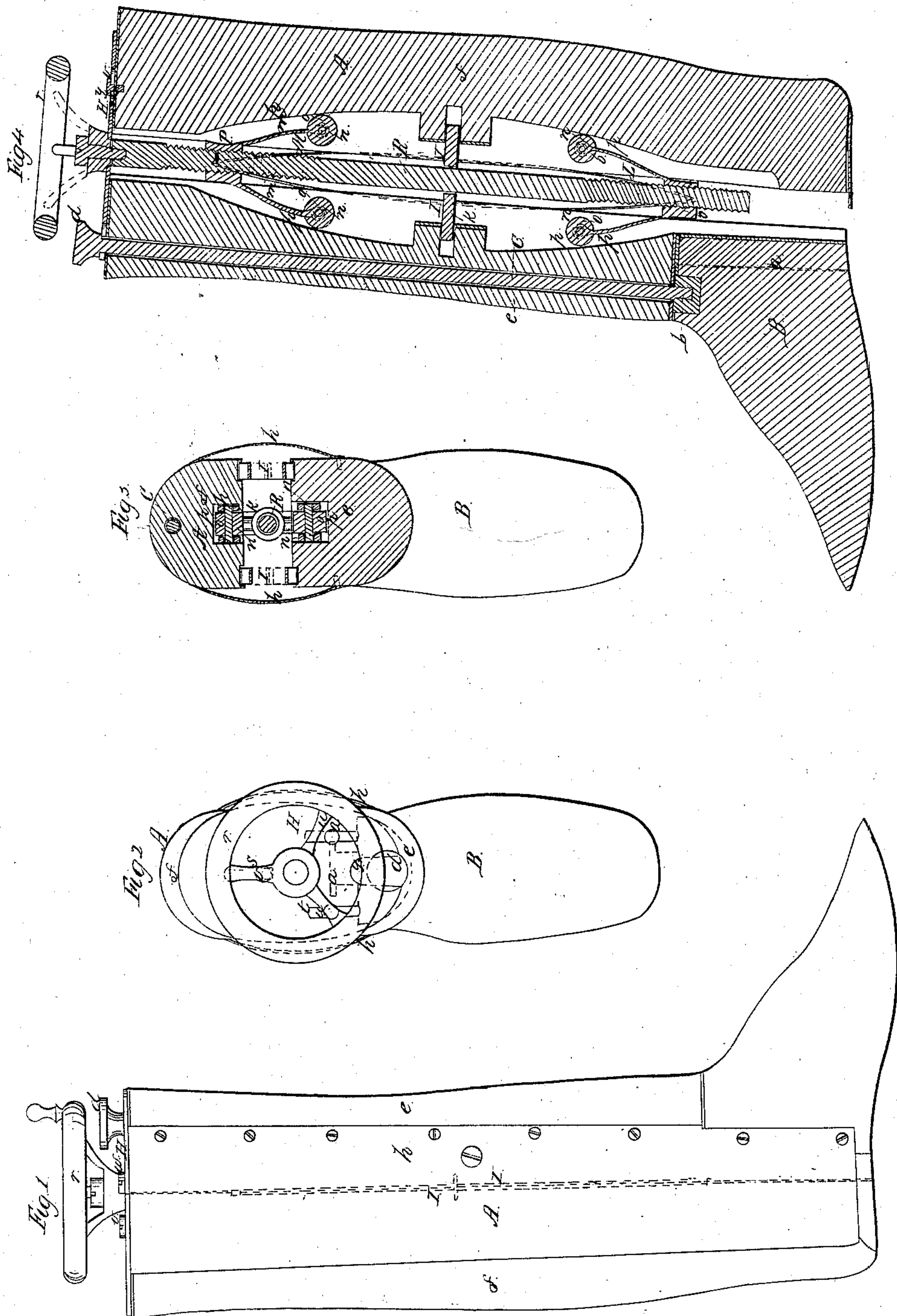


W. W. Willmott,

Boot Tree.

No 17,067

Patented Apr. 14. 1857.





# UNITED STATES PATENT OFFICE.

WILLIAM W. WILLMOTT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND  
HENRY F. GARDNER.

## BOOT-TREE.

Specification of Letters Patent No. 17,067, dated April 14, 1857.

*To all whom it may concern:*

Be it known that I, WILLIAM W. WILLMOTT, of Boston, in the county of Suffolk and State of Massachusetts, have invented  
5 a new and useful Boot-Treeing Machine, the construction and operation of which is fully set forth in the following specification and shown in the accompanying drawings, to which the specification and letters refer.

10 Of the drawings, Figure 1, represents a side view of my machine; Fig. 2, a top view; Fig. 3, a horizontal section and Fig. 4, a vertical, central section of it.

In said drawings, A denotes the leg of the  
15 treeing machine and B the foot thereof, the foot being connected to the leg by a dove tail joint at *a*, and firmly secured or fastened thereto at proper times by means of a screw *b*, on the lower end of it extending down  
20 through the front of the leg.

To fasten or unfasten the foot, when slid up on its dovetail joint, the rod *c* is rotated by means of a milled head *d*, or any other  
suitable device, so as to screw the end of  
25 the rod into or out from the top of the foot.

The leg is composed of two portions or main parts, *e*, *f*, made when shut together to fit closely against each other, and when separated or forced apart, to have the joint  
30 or space between them on each side covered by a thin metallic plate *h*, screwed or fastened firmly to the front portion *e*, and made to fit closely against and slide over the side of the other portion *f*. The two parts *e*, *f*,  
35 are fastened together by two pairs of elliptic springs, I, I, one pair being placed on each side of the tree, and adjacent to the plate *h*, and applied as seen in Fig. 4. These springs have a tendency to draw the two parts of the  
40 leg toward each other or to keep them in contact, according as any pressure which may be exerted to separate them is withdrawn.

Extending down through the center of  
45 the leg is a long rod or shaft R, turning at its top, in a plate H, and at its middle in a bearing *k*, said rod having cut upon it below the bearing a right or left handed screw thread L, and above the bearing another  
50 similar screw M, having its thread cut in the opposite direction. Two screw nuts O, P, having threads to correspond are placed and made to work upon these two screws. Extending out from the opposite sides of each  
55 of these nuts, are two curved springs, *m*,

each spring having at its outer extremity a bearing, *n*, and friction roller *o*, turning loosely therein. The two rollers on opposite sides of each nut bear against two vertical, inclined planes or grooves *p*, *p* made on the  
60 opposite inner sides of the leg parts *e*, *f*, the inclines extending from near the bearing *k*, about half way to the top and bottom of the leg. They operate in connection with the rollers, roller springs, nuts, shaft, and elliptic spring as follows:

When the leg has been inserted into the leg of the boot, (the parts, *e*, *f*, being together) a handle or wheel, *r*, on the top of the shaft, R, is rotated in such manner as  
70 to cause the nuts which at this time are nearest together to be forced in opposite directions, so as to cause the rollers which are at the deepest part of the inclined grooves, to slide or roll on the inclines. This  
75 causes the two parts *e*, *f*, to be forced asunder, as will be readily understood, they being equally forced apart at top and bottom, until the outer surfaces of the leg meet with some resistance from the leg of the  
80 boot. When they begin to fill out the leg of the boot, if one part of said leg be of smaller diameter or dimensions than another, more resistance will be met in such  
85 part to the spread of the portions of the leg of the tree, opposite thereto, and if the rollers instead of being attached to the curved springs, were attached to stiff plates or bearings, extending from the nuts, the  
90 smaller part of the leg of the boot, would continue to be stretched until the larger part could be properly filled by the tree. As soon  
95 however, with my apparatus, as this resistance is met in one part, (before the leather in the other part is filled out by the leg) the springs adjacent to the part filled or  
properly stretched will contract, and stop pressing the parts asunder with much force while the rollers opposite to the larger parts,  
100 will still continue to force them apart, until the whole foot leg is properly filled or stretched. Upon reducing the pressure, by rotating the shaft, the elliptic springs will immediately draw the parts together again.

To keep the parts *e*, *f*, from twisting or  
105 getting misplaced while being operated, a slotted bearing plate H, is placed on the top of the leg, so as to extend over said parts, as seen in Fig. 2, said plate having slots,  
110 *s*, *t*, *u*, made in it, through which set screws,



*v*, *w*, *x*, pass, and a slot *y*, through which the head *d*, of the rod, *C*, extends. This plate so arranged, allows the parts to separate, parallelly from each other, but prevents them from rising one above the other, and also from twisting transversely.

When the tree is to be placed in a boot, the foot is first taken off, and dropped in, and the leg then introduced in such manner as to bring the mortise and tenon of the foot and leg together. This joint in most trees, or some similar joint is all that holds the foot and leg together, and they being constantly liable to fall apart or be knocked apart, I have applied to the foot a female screw into which the screw on the rod *c*, is made to work, and thereby to confine the foot tightly and firmly to the leg, after both are introduced into the boot.

I am aware that a rod has been used in connection with jointed levers and nuts, for

forcing the parts of a boot tree asunder, and I am also aware that a right and left handed screw rod has been applied to a boot tree to work in combination with rollers inclined planes and wedges, to force the parts asunder. I do not therefore claim such as my invention, but

What I do claim is—

Applying the rollers, *n*, *n*, to curved transverse springs so that such springs may cause the parts *e*, *f*, to give or spring transversely to correspond with the dimensions of the boot leg, substantially as above set forth.

In testimony whereof I have hereto set my signature this thirteenth day of March, A. D. 1857.

WILLIAM W. WILLMOTT.

Witnesses:

HENRY F. GARDNER,  
FRANCIS GOULD.