

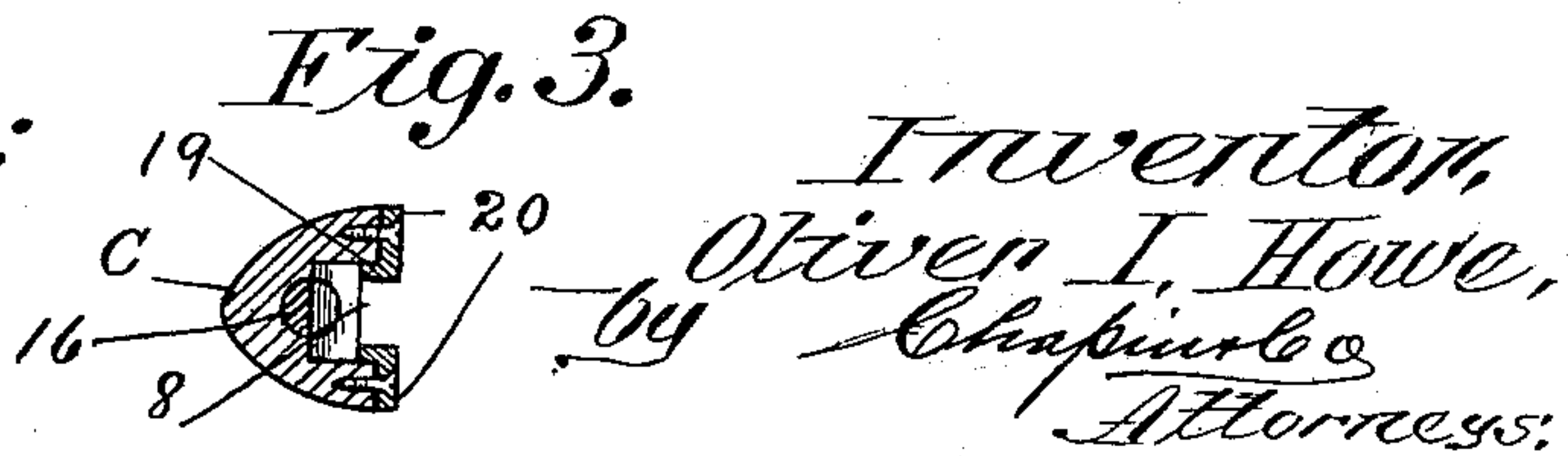
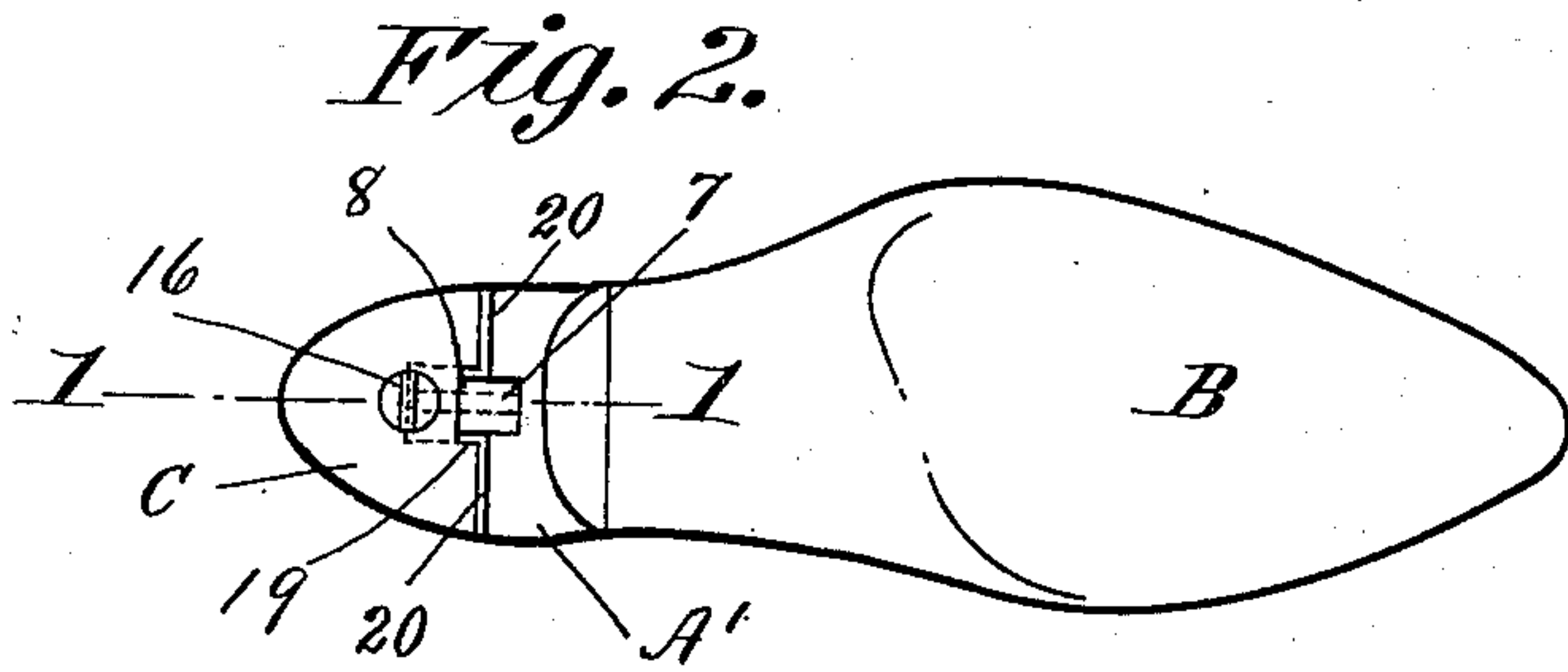
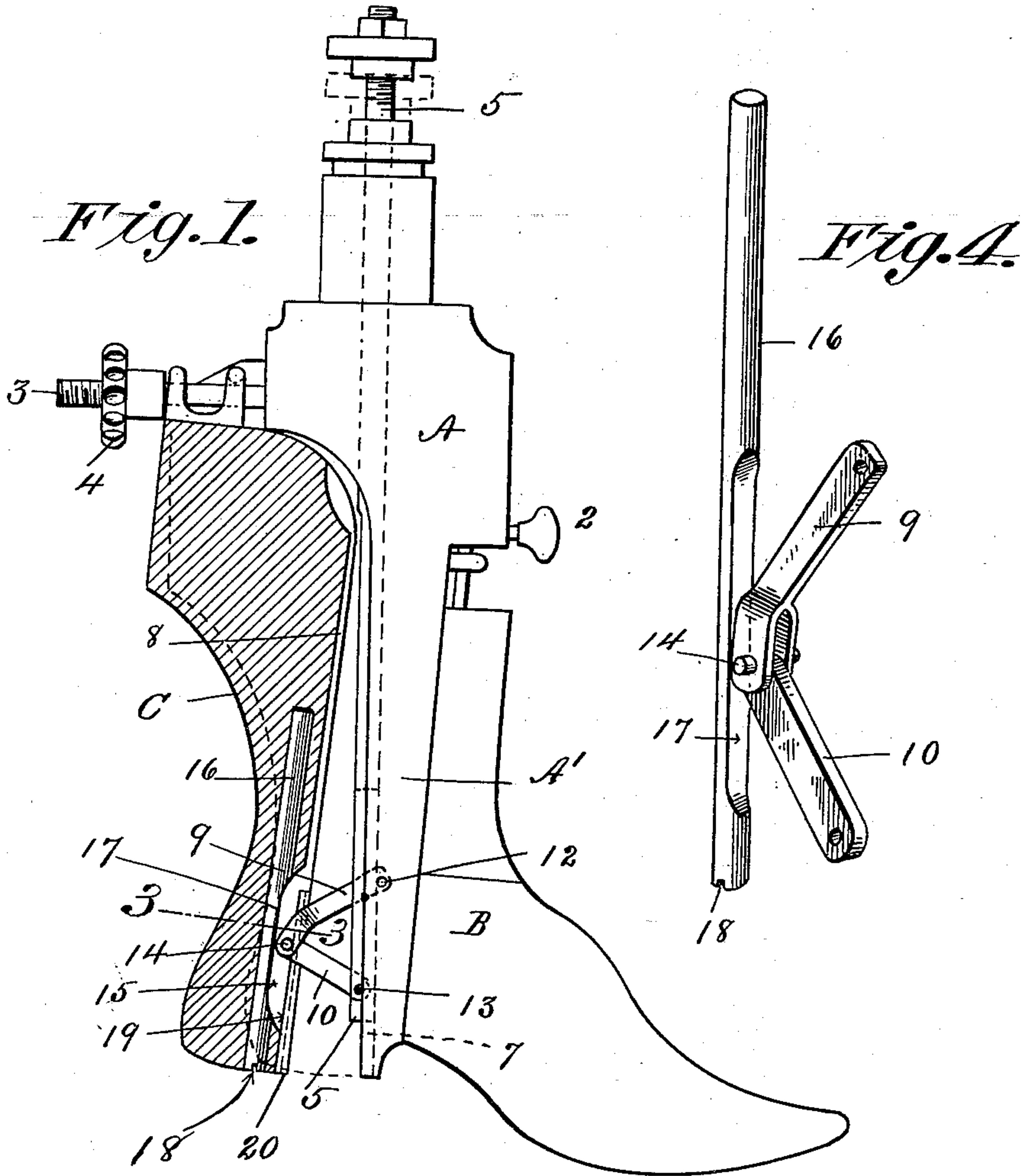
No. 623,085.

Patented Apr. 11, 1899.

O. I. HOWE.  
BOOT OR SHOE TREE.

(Application filed July 23, 1898.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## BOOT OR SHOE TREE.

SPECIFICATION forming part of Letters Patent No. 623,085, dated April 11, 1899.

Application filed July 23, 1898. Serial No. 686,715. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER ISHAM HOWE, a citizen of the United States of America, residing at Beverly, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Boot or Shoe Trees, of which the following is a specification.

This invention relates to boot and shoe treeing machines; and the object thereof is to improve the construction of the back portion of the tree, whereby said portion is much strengthened and its durability greatly increased; and the invention consists in the construction as fully set forth in the following specification and clearly pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation, partly in section, of a boot and shoe tree embodying this invention. Fig. 2 is a plan view of the bottom of said boot and shoe tree. Fig. 3 is a cross-section of the back portion thereof on line 1 1, Fig. 1; and Fig. 4 is a perspective view of some of the parts removed from said tree.

Referring to the drawings, Fig. 1 represents a boot and shoe tree embodying a well-known construction and consisting of a body part A, a foot portion B, and a back portion C. Said foot portion is movable lengthwise on said body portion, and means are provided for securing it thereto in any desired position, a thumb-screw 2 for this purpose being shown. The back portion C is movable laterally relative to said body part on a rod 3, located in the upper part of said body, the outer end of the rod being threaded and provided with a nut 4, whereby its said lateral movement is limited. Said back portion C is supported on said rod 3 by a clip 3<sup>a</sup> in the usual way for a swinging movement thereon toward and from the said body part, and this swinging movement is imparted to said back as follows: The body part A is cut away to receive the back portion C to such a degree that that part thereof lying between the back portion C and the foot portion B of the tree is reduced to the narrow part A', the edge of which next to the back portion lies substantially on the center line of the upper end of said body portion. The latter is centrally perforated to receive a rod 5, whose upper end is threaded and receives the flanged nut 6 thereon. By

suitable mechanism provided in a boot and shoe tree (not shown) said rod has imparted to it a sliding movement in said body part A. The perforation in said body part A for the reception of the rod 5 is made before the latter has been cut away to receive the back portion C, as stated, and when said body part is afterward fashioned to receive said back portion a part of said perforation remains in the edge of the body part next to the back portion in the shape of a groove 7, which serves as a guide for the movements of said rod 5, and a groove 8 in the contiguous edge of the back portion C receives that part of said rod 5 lying outside of said groove 7, whereby when the back portion is brought up into contact with the body portion said rod 5 will be completely inclosed in said two grooves. Said back portion is moved away from and toward the parts A A' of the body by means of the knuckle-joint formed by the toggle-levers 9 and 10 in the usual manner. The rod 5 is slotted for a distance from its lower end, and one end of the lever 9 is pivotally supported in the body part A' at 12, and one end of the lever 10 is pivotally supported at 13 in the slot in the rod 5, the opposite ends of said levers being pivotally united by the pin 14, the end of one of the levers being forked, as shown in Fig. 4, for that purpose. The end of the lever 9 pivoted in the body part passes through the slot in said rod.

The pin 14, which unites the ends of the levers 9 and 10, projects beyond each side thereof, as shown in Fig. 4, for engagement with the back portion C, as will be described farther on.

At a point opposite the knuckle-joint of the levers 9 and 10 the groove 8 is deepened, as shown at 15, sufficiently to accommodate the united ends of the levers 9 and 10 when the rod 5 is drawn upward far enough to bring the back portion C close up against the body portion of the tree, and it is against the bottom of this deepened part of the groove 8 that the knuckle-joint of said levers 9 and 10 bears when said back portion is to be forced away from the body A to stretch a boot or shoe upper over the tree. Heretofore a sheet-metal shoe has been fitted into the bottom of said groove for the said knuckle-joint to bear against, but from the nature of its construction was neither desirable nor satisfactory,



and, furthermore, the forming of the deepened part 15 of said groove 8 weakened the back portion C to such an extent that it was subject to frequent breakage at its narrowest point—viz., at or near the upper end of the deepened part of said groove 8. To overcome the above defects in the construction forming the subject of this application, a hole is bored in said back portion C from the heel upward parallel with the straight inner edge thereof and at such a distance from said edge that about half the diameter of the hole will lie in the bottom of said deepened part 15 of the groove 8. Said hole extends up into said back portion to a point beyond the narrowest part of said back portion, and a steel rod 16 of a length equal to the depth of said hole is driven into the latter. Said rod fits closely in said hole and has a part of one side thereof milled off, as at 17, to conform to the form of the bottom of said part 15 of the groove 8. A slot 18 is cut in the outer end of said rod, whereby by means of a screw-driver it may be turned more or less to bring the milled side 17 thereof into proper registration with the bottom of the deepened groove 8. The introduction of this rod 16 into said back portion of the tree, as described, precludes the possibility of said back C being broken by any pressure that it may be subjected to in use. The knuckle-joint formed by the united ends of the levers 9 and 10 bears on the milled part 17 of said rod, which being suitably hardened before being driven into its seat in the back C is practically indestructible, and by reason of the hardness thereof the knuckle-joint slides more easily thereon than it otherwise would. The rod 5 as it is forced down causes the joint of the levers 9 and 10 bearing on said rod 16 to force said back C away from the body of the tree and to retract said back, the projecting ends of the pin 14 engaging the downturned edges 19 of the plates 20, which overhang the borders of the groove 8, as shown in section in Fig. 3, in end view in Fig. 2, and one of said plates showing in side elevation in Fig. 1. Said plates 20 are let into the surface of the back piece flush therewith and extending from the heel end of said back nearly to the upper end of said deepened part of the groove 8 and from the outer edges of said back to a point, as stated, slightly overhanging the opposite edges of said groove 8. These plates besides serving as abutments for the pin 14 also serve to protect the edges of the back piece at that point and render unnecessary the protective metal plates, such as are usually applied to the back piece, at the side thereof, at about the points *x x*, Figs. 2 and 3, and extending upward along the straight edge of said back piece for about the same distance as the plates 20 extend.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a boot and shoe tree, a body part, a back portion thereon having a narrowed shank and movable toward and from said body part, a shank-stiffening rod extending from the bottom of said back portion upward to a point beyond the narrowed part of said shank, toggle-levers located between said body part and back portion, means of connection between the pivotally-united ends of said toggle-levers and said back portion, and a vertically-movable rod in said body portion for moving said toggle-levers, substantially as described. 70

2. In a boot and shoe tree, a body part, a back portion thereon having a narrowed shank and movable toward and from said body part, a shank-stiffening rod extending from the bottom of, and within the body of said back portion upward to a point beyond the narrowed part of said shank, a longitudinal groove in said back portion, whereby a part of said rod is exposed, toggle-levers bearing on said exposed part of said rod and located between said body part and back portion, means of connection between the pivotally-united ends of said toggle-levers and said back portion, and a vertically-movable rod in said body portion for moving said toggle-levers, substantially as described. 75 80 85 90

3. In a boot and shoe tree, a body part, a back portion thereon having a narrowed shank and movable toward and from said body part, a shank-stiffening rod extending from the bottom of said back portion upward to a point beyond the narrowed part of said shank, a vertically-movable rod in said body portion, toggle-levers 9 and 10, one end of one of which is pivotally hung on said body portion and one end of the other on said vertically-moving rod; a pin uniting pivotally the free ends of said levers, thereby constituting a knuckle-joint for bearing against said stiffening-rod for moving said back portion in one direction, and suitable plates 20 secured to said back portion whereby the latter is moved by the engagement of said pin with said plates in the opposite direction, substantially as described. 95 100 105 110

4. In a boot and shoe tree, a body part, a back portion thereon having a narrowed shank and movable toward and from said body part, a shank-stiffening rod extending from the bottom of said back portion upward to a point beyond the narrowed part of said shank, toggle-levers located between said body part and back portion, the pivotally-united ends of which levers bear against said stiffening-rod for moving said back portion in one direction, means of engagement between said levers and back portion consisting of the toggle-lever pin 14, and the plates 20 fixed to said back portion, and whose edges overhang the ends of said pin, and a rod for actuating said levers, substantially as described. 115 120 125

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