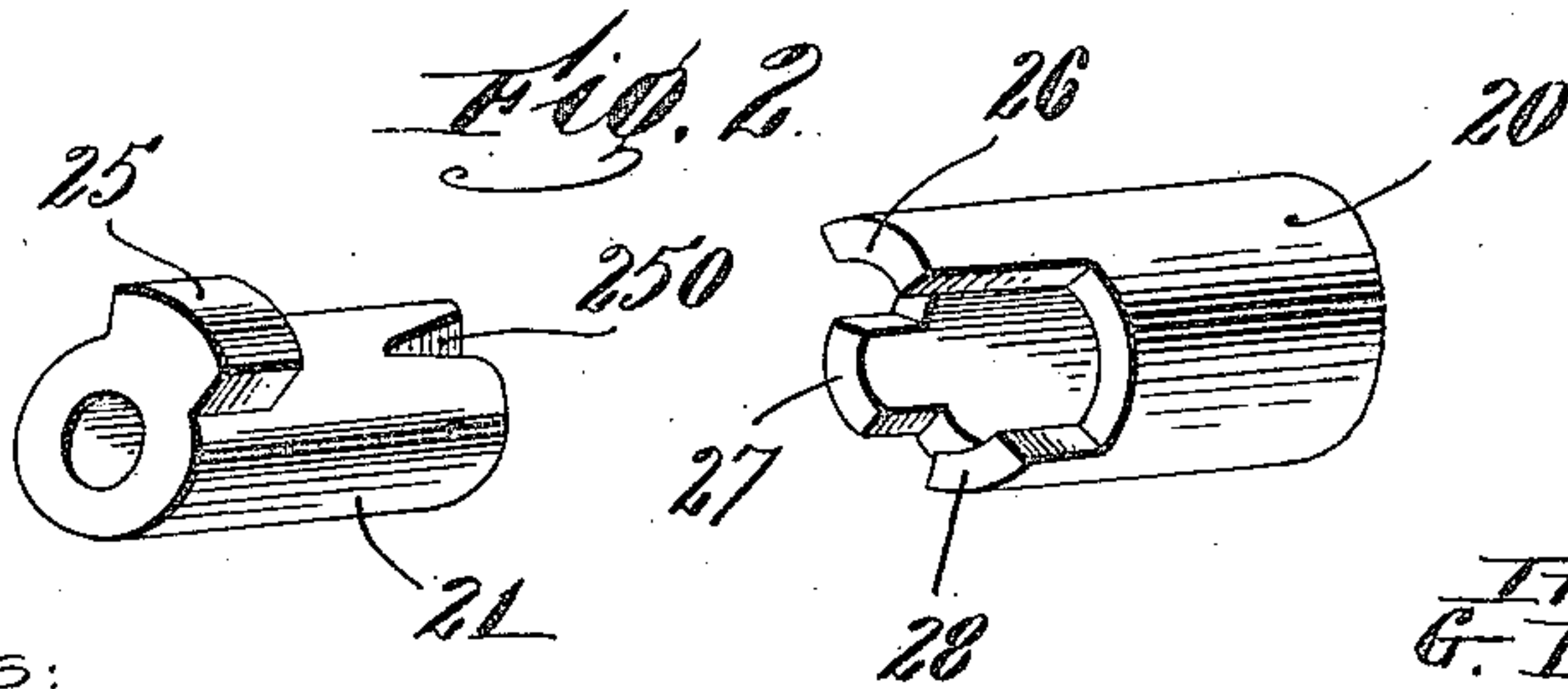
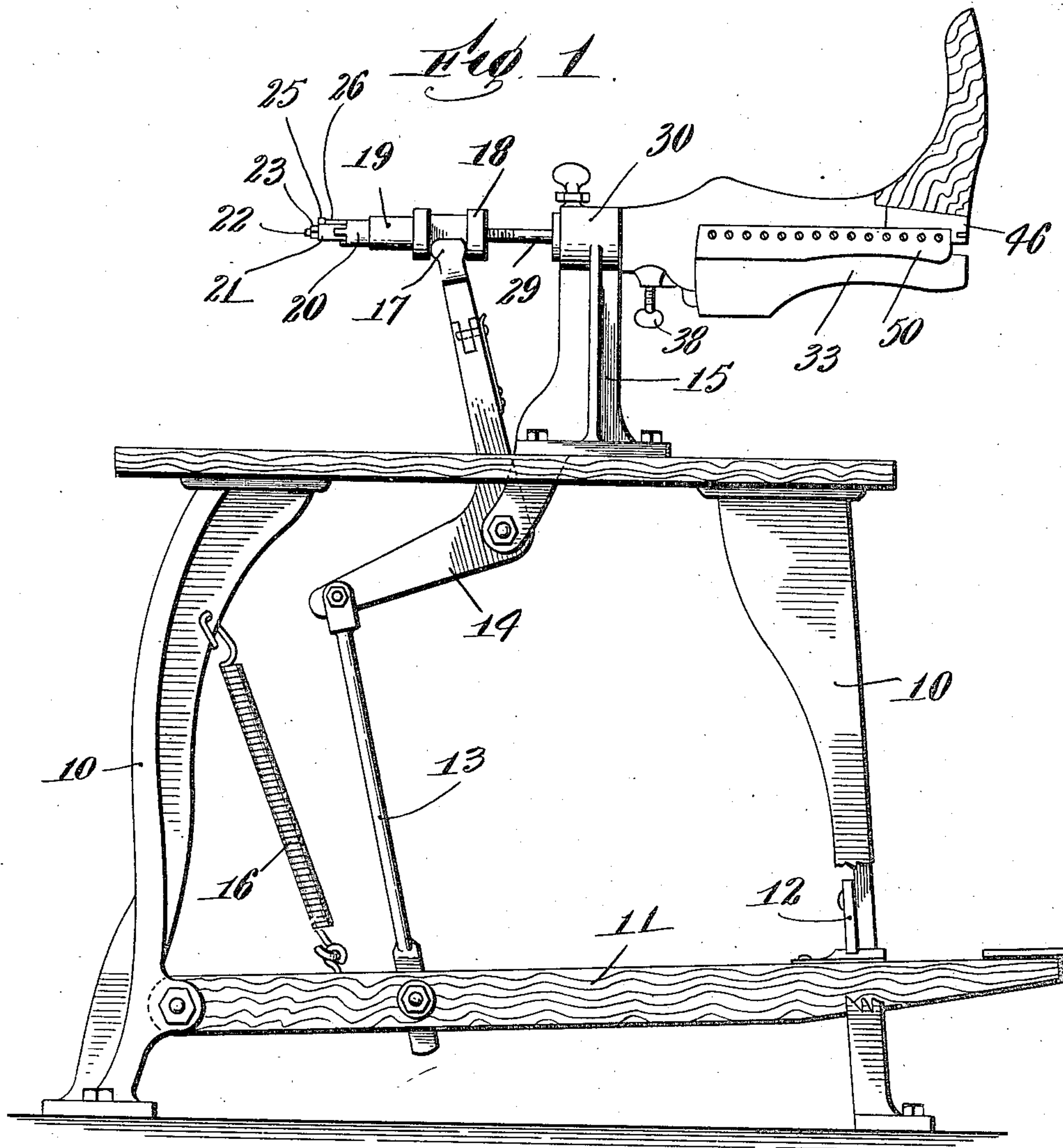


No. 843,673.

PATENTED FEB. 12, 1907.

G. E. FINQUIST.
BOOT AND SHOE TREE LEG.
APPLICATION FILED MAY 23, 1906.

3 SHEETS—SHEET 1.



Witnesses:
C. F. Messon.
M. E. Regan.

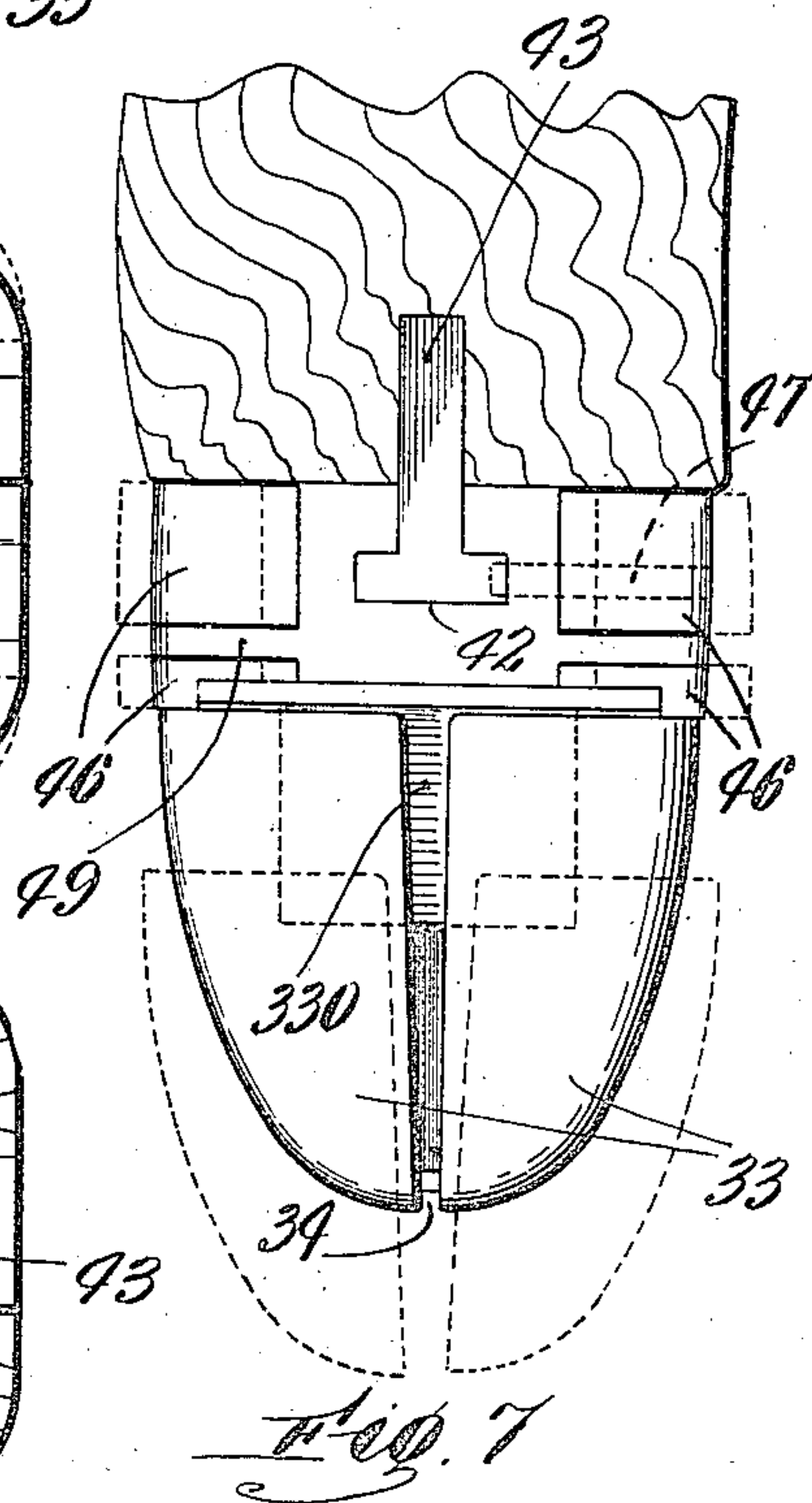
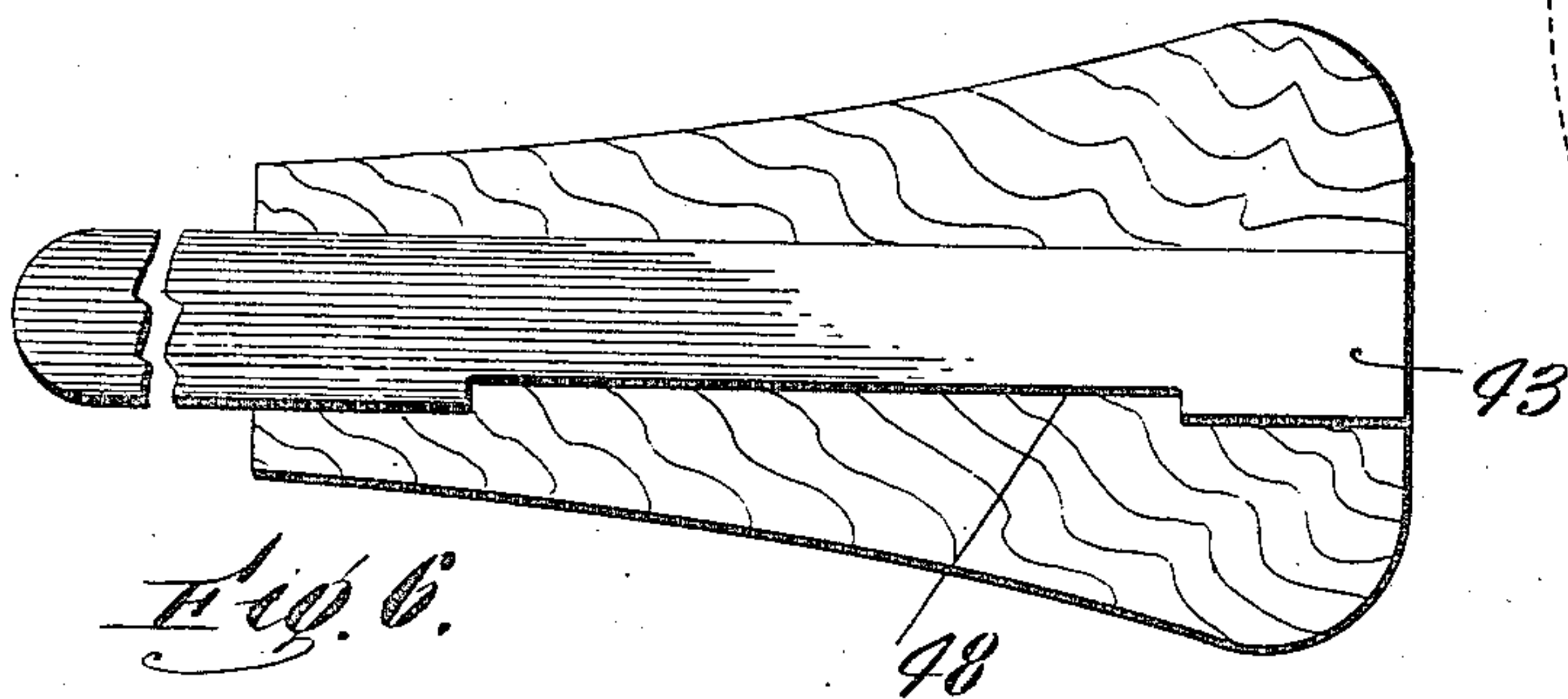
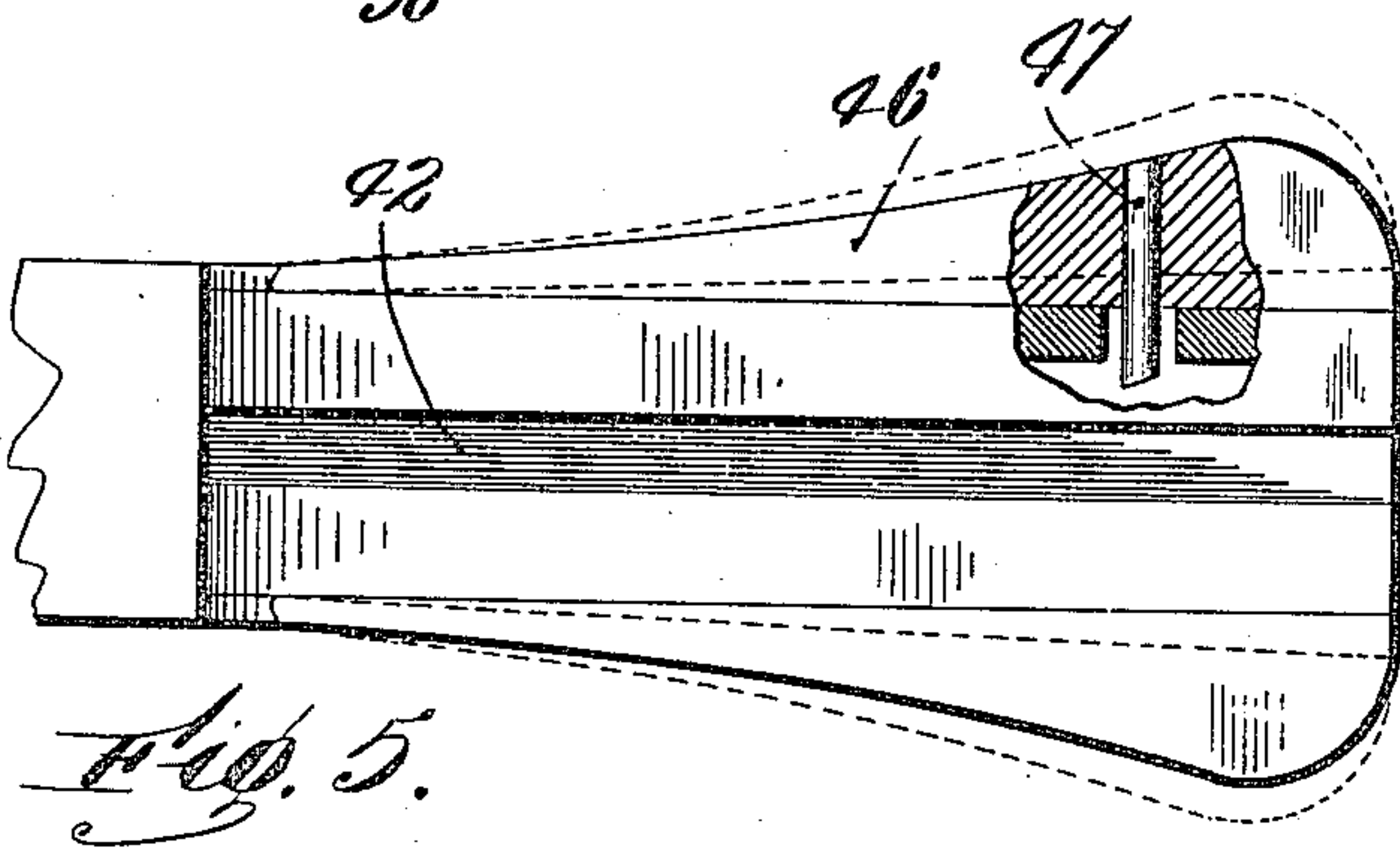
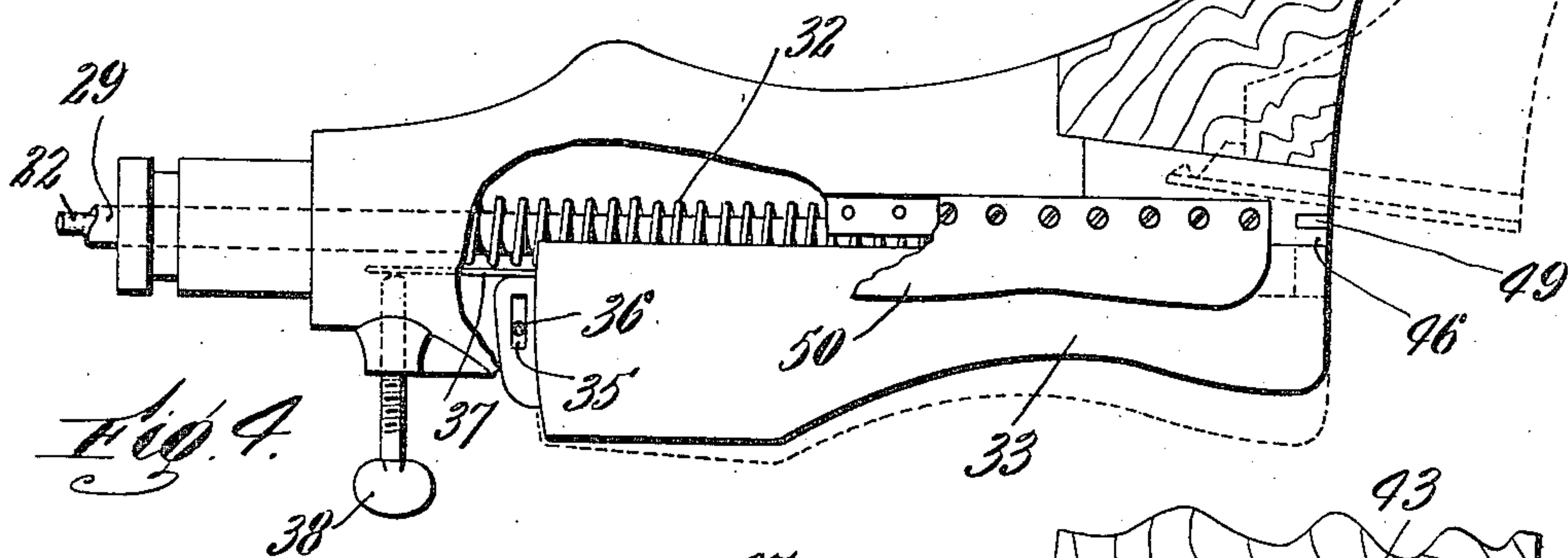
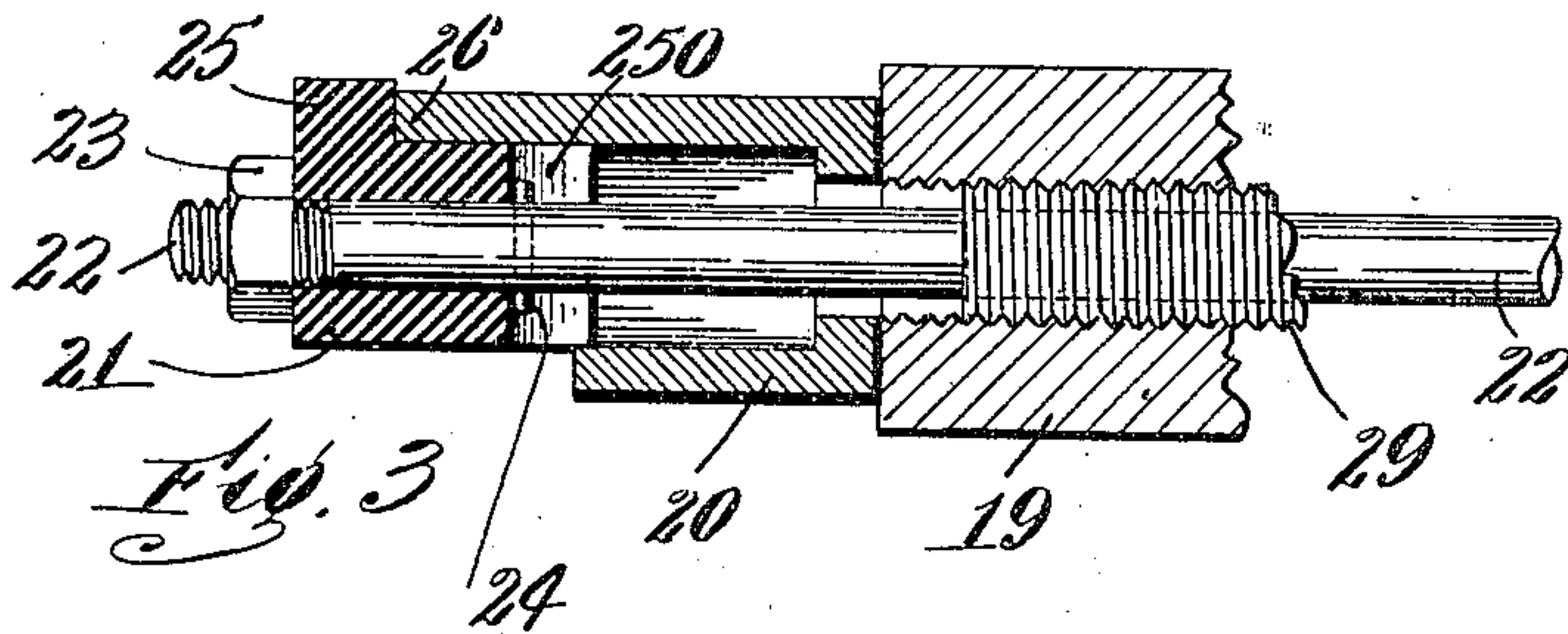
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3 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

GUSTAF E. FINQUIST, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE
GOLBERT LAST COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPO-
RATION OF MASSACHUSETTS.

BOOT AND SHOE TREE LEG.

No. 843,673.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed May 23, 1906. Serial No. 318,352.

To all whom it may concern:

Be it known that I, GUSTAF E. FINQUIST, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Boot and Shoe Tree Leg, of which the following is a specification.

My invention relates to certain improvements in boot and shoe tree legs, the principal objects being to provide means whereby a single back or heel may be employed for all the sizes and half-sizes of any particular kind of boots or shoes—as, for example, men's shoes; also, the provision of means whereby a metallic heel may be substituted for the wooden heel or back heretofore employed to provide for securing the toe part of the last to the tree-leg in an improved manner and to provide proper adjustments for the several parts.

Reference is to be had to the accompanying drawings, which illustrate a preferred embodiment of my invention, and in which—

Figure 1 is a side elevation of a frame carrying one of my improved tree-legs thereon. Fig. 2 is a perspective view showing two adjusting elements. Fig. 3 is a longitudinal sectional view taken at the left of Fig. 1. Fig. 4 is a side elevation of the tree-leg, partly broken away to show interior construction. Fig. 5 is a plan of a portion of the tree-leg with the wooden toe-last removed. Fig. 6 is an end view of the last. Fig. 7 is a front elevation of the tree-leg, showing expanded position by dotted lines. Fig. 8 is a longitudinal sectional view through a portion of the tree-leg on an enlarged scale. Fig. 9 is a bottom plan of the upper part of the tree-leg. Fig. 10 is a side elevation of the back or heel portion, parts appearing in longitudinal section; and Fig. 11 is a plan of the same.

It is ordinarily necessary to use several sized backs for the different sizes of lasts of any particular character—as, for example, lasts for men's shoes, which are numbered from "5" to "11" with half-sizes. The backs are also made of wood at the present time and are liable to get broken.

Among the objects of my invention is to provide means whereby a single metallic back can be substituted for the plurality of wooden backs now used for any ordinary series of shoes or boots—as, for example, those men-

tioned above. In order to do this, the metallic back is slit, so that it can be expanded, and at the same time is provided with means for forcing it away from the toe portion of the last. I have also provided an adjusting-collar adapted to provide for securing the necessary number of changes in size without making it necessary to replace the back or heel portion.

Further objects and advantages of the invention will appear below.

In the drawings I have shown the usual frame 10, provided with a treadle 11, adapted to engage under a tooth or latch 12 to hold it in its lowermost position. Connecting with the treadle is a link 13 for operating a bell-crank 14. This bell-crank is pivoted on a stand 15, which supports the main part of the tree-leg. A spring 16 normally holds the treadle and link up and the last in contracted position. The bell-crank is provided with a head 17, as usual, which engages between the two flanges of a collar 18. This collar is operated by the treadle in an obvious manner and has a projection 19, adapted to bear upon an adjusting-collar 20, which in turn bears on a head 21. This head is mounted on a rod 22 and is held thereon by a nut 23 and a pin 24, the pin passing through a flaring slot 25 in the end of the head 21. This head is provided with a shoulder adapted to engage one of three or more projections 26, 27, and 28 on the collar 20. This collar is rotatably mounted on the shaft 22, and therefore any one of the projections upon it can be placed in engagement with the shoulder 25, or, if desired, the notches between the projections can be placed in engagement with the shoulder.

Connected with the projection 19, which is screw-threaded, is a sleeve 29. The sleeve surrounds the rod 22, and it will be obvious that the relative position of the sleeve and rod will be regulated by the angular location of the collar 20. When the shortest projection 28 of this collar is in contact with the shoulder 25, the sleeve 29 can be moved back toward the end of the rod a greater distance before moving the rod than would be the case if the projection 26 were in engagement with the shoulder 25. Consequently it will be seen that by this adjustment the movements of the rod and sleeve will be regulated with

respect to each other. The sleeve passes through a bearing 30 on the frame 15 and engages a stretch-off member 31. In fact, this sleeve is rigidly connected to the stretch-off member, and a spring 32 is mounted between the latter and a shoulder in the bearing 30 to normally force the stretch-off member into inoperative position and pull the treadle upwardly, thus assisting the spring 16.

10 The rod 22, which passes through the sleeve, is connected with a plunger or cam 330, and these are the two elements which are controlled by the position of the collar 20. Both of these parts are arranged to slide along the lower surface of the main body of the tree and to operate a backpiece 33 thereon. This backpiece consists of a piece of metal of comparatively thin cross-section and having a slit 34 extending from its end inwardly. 15 This backpiece is provided with a slot 35 near one end thereof, through which passes a pin 36, mounted in stationary position on the tree.

A spring 37, adjusted by a screw 38, normally holds the back in closed position against the other part of the tree. The back, however, is provided with ways 39, slanting outwardly from a point within the back and in which a pair of projections 40 on the stretch-off are adapted to operate. These projections slide along the ways 39, and obviously when the sleeve 29 is pulled to the left the projections 40 bear on the ways in such a manner as to force the backpiece outwardly from the main body of the tree and expand the last in one direction. Usually at the same time or at another time regulated by the position of the collar 20 the wedge-shaped plunger 330 engages surfaces 41 of a shape similar to that of the wedge on the upper side of the back portion of the last. As this plunger is forced to the left by the rod 22 in a manner described above the two sides of the back are forced from each other and adjustment thus secured. The degree to which this operation will take place will of course be regulated by the position of the collar 20.

The parts that I have so far described relate chiefly to the back of the tree. I will now describe the manner in which the last proper or toe part is mounted upon the tree. The tree is provided with T-shaped ways 42. These ways slant upwardly, as is indicated in Fig. 8, to receive a guide shown as a T-shaped iron 43, which is secured to the toe part of the last. This iron is adapted to slide up the ways and is provided with a notch 44, adapted to be engaged by a pivoted hook 45, the rear end of which is in such a position as to be forced into locking condition by the rear wall of the stretch-off 31 when the latter is manipulated to expand the back. Movable lasts have heretofore been employed in connection with wooden heels;

but the manner in which they are fastened in position is clumsy and objectionable in certain ways. Therefore in addition to the hook which I have described I have provided one of the usual expansible side pieces 46 with a pin 47 extending inwardly into the ways 42. The T-iron 43 is provided with a notch 48, in which this pin is adapted to operate. When the parts are placed in proper position for operation, the pin enters the notch 48 and cannot be removed therefrom until the back is allowed to contract, while the sides still remain expanded sufficiently to keep the pin withdrawn, thus permitting the last to be removed. On account of the prior movement of the stretch-off 31 to contract the back, the parts are at this time in such a position that the weight of the rear end of the hook 45 will lift it out of engagement with the notch 44 and leave it in unlocked position. It will be noted that the tree is provided with a projection 49, extending between two lips of the expansible sides 46. This is a guide for retaining these parts in proper position. The expansible sides are operated by the plunger 330 in a manner exactly similar to that in which the back is expanded laterally. I have shown the usual metallic guard 50 along the side of the tree. It will be seen that with a construction of this character, including the features of the invention as expressed in the claims, a much more efficient tree-leg is provided than has heretofore been the case. Considering its use, for example, with men's shoes, all the sizes and half-sizes from "5" to "11" can be treed with the use of the three adjustments in the same back, the wooden toe-lasts being changed in accordance with the different sizes operated upon and this change being of such simplicity that it is a matter that requires a minimum of time. Furthermore, the backs being made of metal are not subject to the breakage at present encountered with wooden backs.

By the use of the simple adjusting device which I have indicated all necessary adjustments are procured with accuracy and without taking the machine to pieces in order to change the size.

While I have illustrated and described a particular form in which my invention may conveniently be embodied, I am aware that many modifications may be made in the same by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to the exact construction shown; but

What I do claim, and desire to secure by Letters Patent, is—

1. A boot and shoe tree leg having undercut ways and a movable side section, a last provided with a T-iron adapted to enter said ways, and a pin on said side section project-

ing into said ways, said T-iron having a cut-away portion to receive said pin.

2. A boot and shoe tree leg having ways, a last provided with a T-shaped projection for entering said ways, an expansible side, and a pin carried by said expansible side and adapted to project into said ways, the T-shaped projection being provided with a notch for receiving said pin.

3. The combination of a boot and shoe tree leg having ways, and a movable section with a last provided with a guide for said ways, the guide having a notch, means for securing the guide in stationary position on the ways, and a pin on the movable section for entering the notch and for preventing the removal of the last.

4. The combination of a boot and shoe tree leg having ways, with a last provided with a guide for said ways, the guide having a notch, a pin on the tree-leg for entering the notch and preventing the removal of the last, an expansible heel portion on the tree-leg, means for expanding the heel portion, and means operable by the expanding means for locking the guide on the ways.

5. The combination of a boot and shoe tree leg having ways, a last provided with a guide for said ways, said tree-leg having an expansible heel portion, means for expanding the heel portion, and means operable by the expanding means for locking the guide on the ways.

6. In a boot and shoe tree leg, the combination of a laterally-expansible back or heel portion, a replaceable toe or last, means for expanding the back or heel portion, and means operable by said expanding means for locking the toe or last on the back or heel portion.

7. In a boot and shoe tree leg the combination of an expansible, resilient, split metal back or heel portion, a replaceable last, means for expanding the back or heel portion, and means operable by the expanding means for locking the last on the back or heel portion.

8. A tree-back split to form two integral resilient side sections.

9. A boot and shoe tree leg having a laterally-expansible and rearwardly-movable back portion or heel.

10. In a boot and shoe tree leg, the combination with a movable split back of resilient material, means for expanding the back, and means for moving the back rearwardly.

11. In a boot and shoe tree leg, the combination with a movable split back of resilient material, means for expanding the back, and means for moving the back rearwardly, a lever for operating both of said means, and means connected with the lever for adjusting the back-expanding means and moving means.

12. In a boot and shoe tree leg, the combi-

nation of a back portion of resilient metal, the end of said back portion being slit, means for forcing the slit portions away from each other, means for forcing the said back portion away from the main part of the tree, a sleeve constituting a portion of one of said means, and a rod passing through the sleeve and constituting a portion of the other of said means.

13. In a boot and shoe tree leg, the combination of a back portion of resilient metal, the end of said back portion being slit, means for forcing the slit portions away from each other, means for forcing the said back portion away from the main part of the tree, a sleeve constituting a portion of one of said means, and a rod passing through the sleeve and constituting a portion of the other of said means, a lever directly connected with said sleeve, and an adjusting element adapted to engage said rod and to be engaged by an element connected with the lever.

14. In a boot and shoe tree leg, the combination of a back formed of resilient material and slit at the end, a sleeve, a rod passing through said sleeve, means connected with said sleeve for forcing said back toward and from the last, means connected with said rod for expanding the back, means for moving said sleeve, and means for transmitting motion from the sleeve to the rod, said last-named means being adjustable.

15. In a boot and shoe tree leg, the combination of a movable expansible element, a sleeve for moving said element, a rod for expanding said element, means for moving said sleeve, and a connection between the sleeve and rod comprising a head having a shoulder, and a rotatably-mounted collar having projections of different lengths adapted to engage said shoulder thereby holding the head at adjusted distances from the sleeve.

16. In a boot and shoe tree leg, the combination of a movable expansible back a pair of relatively movable elements, one of said elements having means for moving the back, and the other having means for expanding the back, means for moving one of said elements, a head connected with the other element and having a shoulder, and a collar having projections of different lengths for engaging said shoulder, said collar being located in contact with the other of said elements.

17. In a boot and shoe tree leg, the combination of a movable expansible back, a treadle, a bell-crank operable thereby, a collar connected with the bell-crank, a sleeve to which the collar is secured, a rod passing through said sleeve and having a shoulder projecting therefrom, said sleeve and rod having means for operating said back, and a second collar having projections of different lengths adapted to engage said shoulder, the opposite end of the second collar being located in position to be engaged by the first

collar whereby the distance traveled by the sleeve and collar upon the depression of the treadle may be adjusted.

18. In a boot and shoe tree leg, the combination of a pair of reciprocable elements, means for adjusting the location of said elements with respect to each other, means for moving one of said elements into engagement with the other, a split metal back, a pin connected with the tree upon which said back is pivoted, resilient means for holding said back in a certain position, and connections between one of said elements and the back for moving the back out of said position.

19. In a boot and shoe tree leg, the combination of a movable back having a slot, a stationary pin passing through said slot and supported by the frame of the tree, a spring projecting from said back, and an adjustable screw bearing on said spring for normally holding the back in contracted position.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GUSTAF E. FINQUIST.

Witnesses:

ALBERT E. FAY,

LOUIS W. SOUTHGATE.