

No. 670,954.

Patented Apr. 2, 1901.

A. G. FITZ.
LAST.

(Application filed Sept. 28, 1900.)

(No Model.)

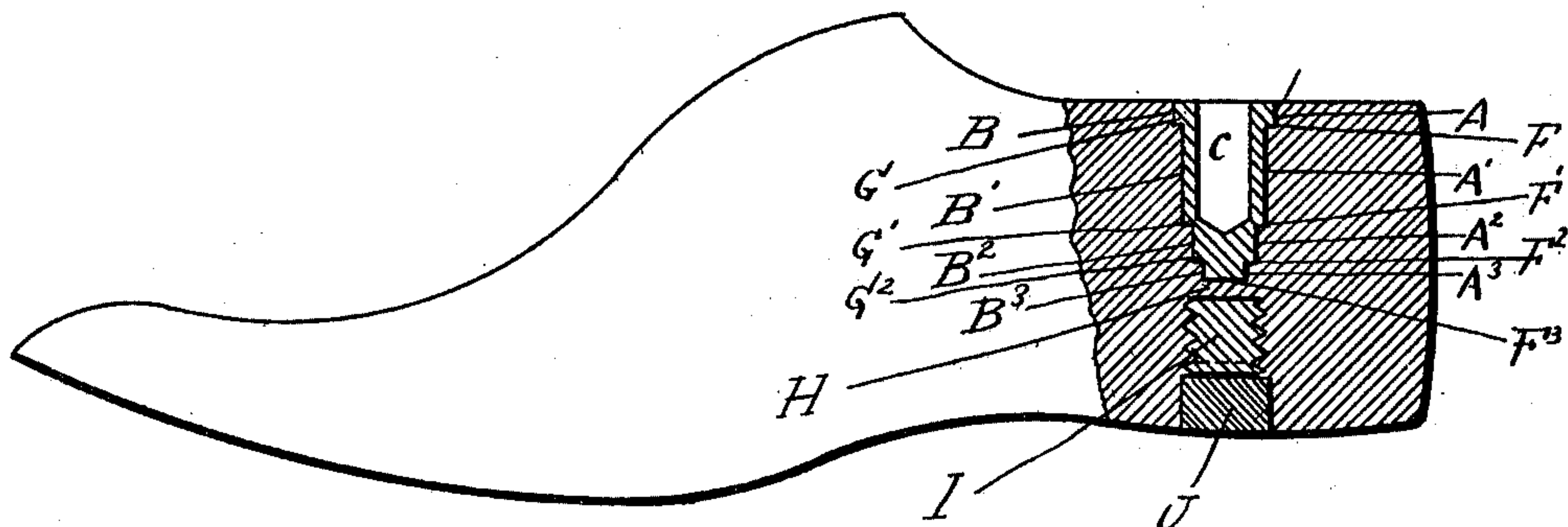


Fig. 1.

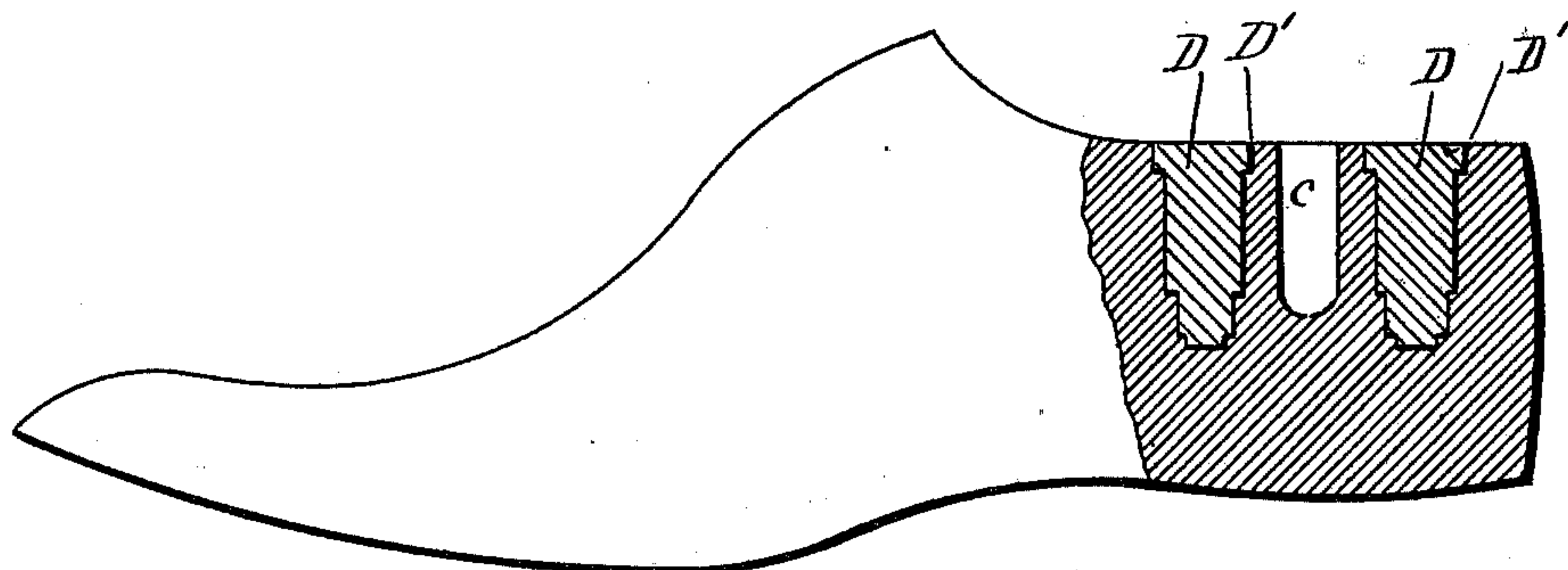


Fig. 2.

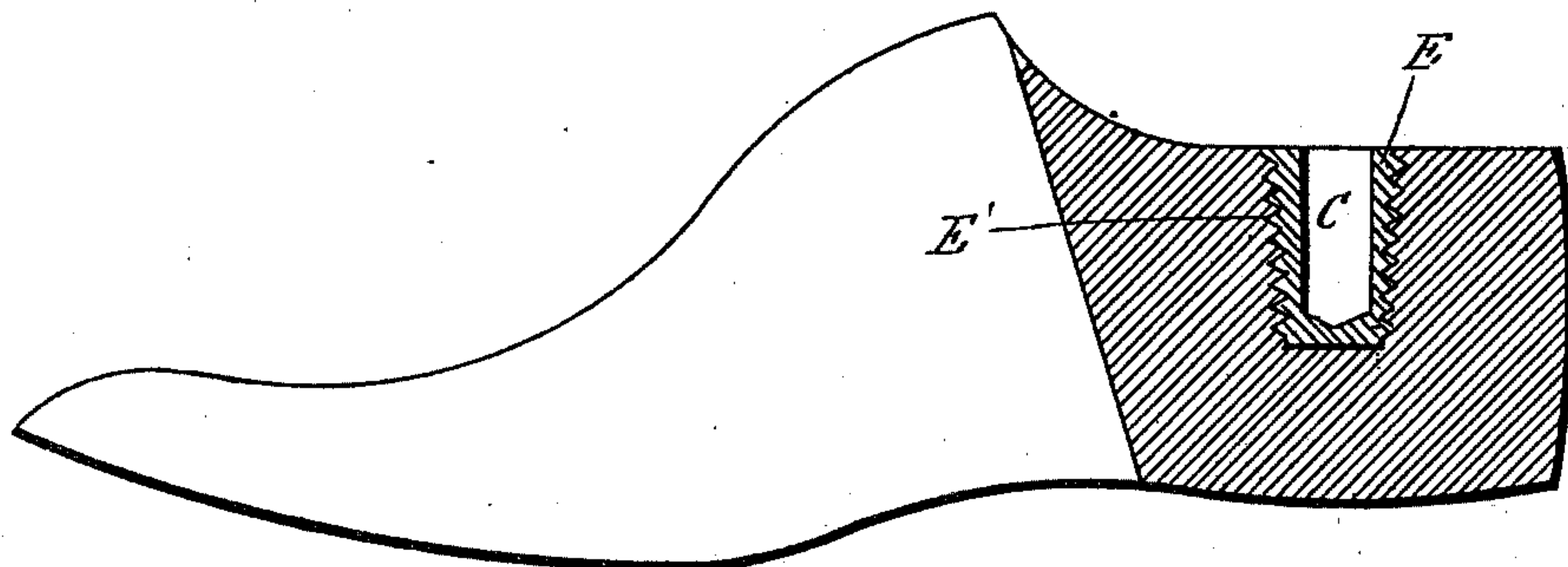


Fig. 3.

Witnesses
H. C. Shaw,
Marion Richards.

Inventor.
Amos G. Fitz.
by Verill & Clifford,
Attorneys

UNITED STATES PATENT OFFICE.

AMOS G. FITZ, OF AUBURN, MAINE.

LAST.

SPECIFICATION forming part of Letters Patent No. 670,954, dated April 2, 1901.

Application filed September 28, 1900. Serial No. 31,424. (No model.)

To all whom it may concern:

Be it known that I, AMOS G. FITZ, a citizen of the United States of America, residing at Auburn, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Lasts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertain to make and use the same.

In the manufacture of shoes, especially in the heeling process, the lasts on which the shoes are constructed are at times subjected to enormous pressure, so much so that the crown of the last is frequently crushed and the last destroyed. Various means have been adopted to fit the last to withstand such pressure; and the object of this invention is to provide a simple, cheap, and effective means
15 of accomplishing this object.

In the drawings herewith accompanying and making a part of this application, Figure 1 is a longitudinal sectional view, partly in elevation, of a last, showing my invention embodied in a thimble to be inserted in the spindle-hole. Fig. 2 is a similar view of a last,
25 showing my invention embodied in dowels located in holes outside of the spindle-hole; and Fig. 3 is a similar view showing my invention embodied in a screw-threaded thimble.

In lasts as hitherto constructed the thimble or dowels inserted in the last for the purpose of resisting the crushing force aforesaid have had a uniform diameter, the external surface being either smooth or with spiral pro-
30 jections or threads cut thereon. I have found by experience that the resistance is very largely increased if the thimble or dowel has a general tapering structure, from the fact that the resisting-surfaces of the wood are distributed at various points in a vertical di-
35 rection in the body of the last and each place of resistance has the support of a solid area of wood beneath it.

My invention therefore consists, broadly, in providing the external surface of the reinforcing thimble or dowel with a tapering structure and in making the spindle-receiv-
40 ing hole tapering, but not meaning or intending hereby to be limited to a surface tapering uniformly from top to bottom.

In Fig. 1 the thimble-receiving hole is made of varying diameters, growing smaller down-
wardly, as seen at A, A', A², and A³, and the thimble has the usual spindle-hole C and has
45 its external surface of varying diameters, as seen at B, B', B², and B³, adapted to fit the corresponding sections A, A', A², and A³, respectively, of the thimble-hole. The bottom of the thimble rests directly upon the bottom
50 of the thimble-receiving hole.

In Fig. 2 the external surface of the dowels D, which in this case may be solid, and the dowel-holes D' correspond with the external surface of the thimble and the thimble-re-
55 ceiving hole.

In Fig. 3 I have shown a tapering screw-threaded thimble E, adapted to fit into a tapering screw-threaded hole E'.

I have shown only a few of many modifica-
60 tions of the configuration of the external surface of the thimble or dowel, but it will be obvious that there are many others equally within the scope and spirit of my invention.

Referring further to the drawings, it will
65 be seen that in Fig. 1 the pressure is distributed, occurring at points F, F', and F² and on the bottom F³ of the hole. It will also be seen that under each flange G G' G² of the thimble is a solid area of wood, each suc-
70 cessive area of wood directly supporting those above, and thus tending to further increase the resistance which the thimble offers to the crushing force exerted by the machine. If the dowel or thimble had a uniform taper,
75 there would be many points of resistance. If the thimble or dowel is tapering and screw-threaded, there will be as many points of resistance as there are rings in the thread.

In all cases the pressure is distributed to
80 various points in the wood of the last, and each successive bearing-point of the thimble or dowel has a solid unbroken area of wood of the last below it, this being true of the extreme points of the threads when my inven-
85 tion is embodied in the tapering screw-threaded dowel or thimble.

The dowel or thimble must not extend en-
tirely through the wood of the last, and it is found sometimes advisable to insert a thread-
90 ed plug I in the path of the thimble or dowel, as the case may be, either with or without an

intervening section of the wood H between the thimble and plug. The plug I may or may not extend to the bottom of the last and need not necessarily be vertically positioned.

5 If it does not extend to the bottom, the space between the plug I and the bottom of the last should be filled with a dowel J.

The advantages of my improved device for increasing the resistance of the last are that
10 it is simple, cheap, and effective.

Having thus described my invention and its use, I claim—

1. A last having one or more holes in the crown thereof diminishing downwardly and
15 terminating in the body of the last above the bottom thereof and inserts having a corresponding configuration adapted to fit in said holes.

2. A last having in the crown thereof holes
20 having sections of varying diameters decreasing downwardly and reinforcing-inserts having corresponding configuration adapted to

fit closely in said holes, said holes and inserts terminating within the body of the last.

3. A last having a hole in the crown there- 25 of diminishing downwardly, an insert fitting closely in said hole and a threaded plug inserted in the bottom of the last in the path of said insert.

4. A last having a tapering hole in the 30 crown thereof and a tapering insert adapted to fit into said hole, in combination with a plug inserted from the bottom of the last in the path of said insert and an intervening section of wood of the last between said in- 35 sert and plug.

In testimony whereof I affix my signature, in presence of two witnesses, this 25th day of September, A. D. 1900.

AMOS G. FITZ.

Witnesses:

EDNA L. DREW,
GRACE E. FITZ.