

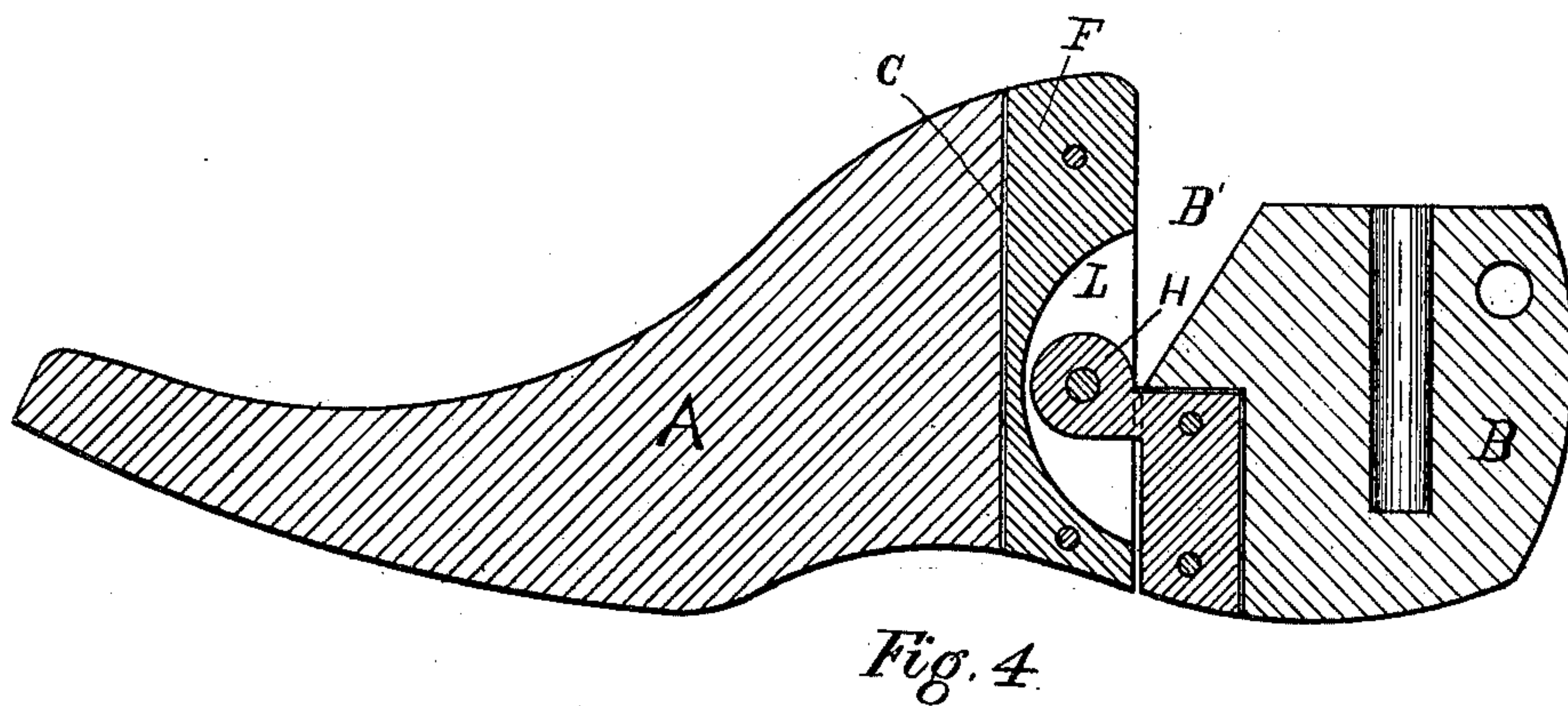
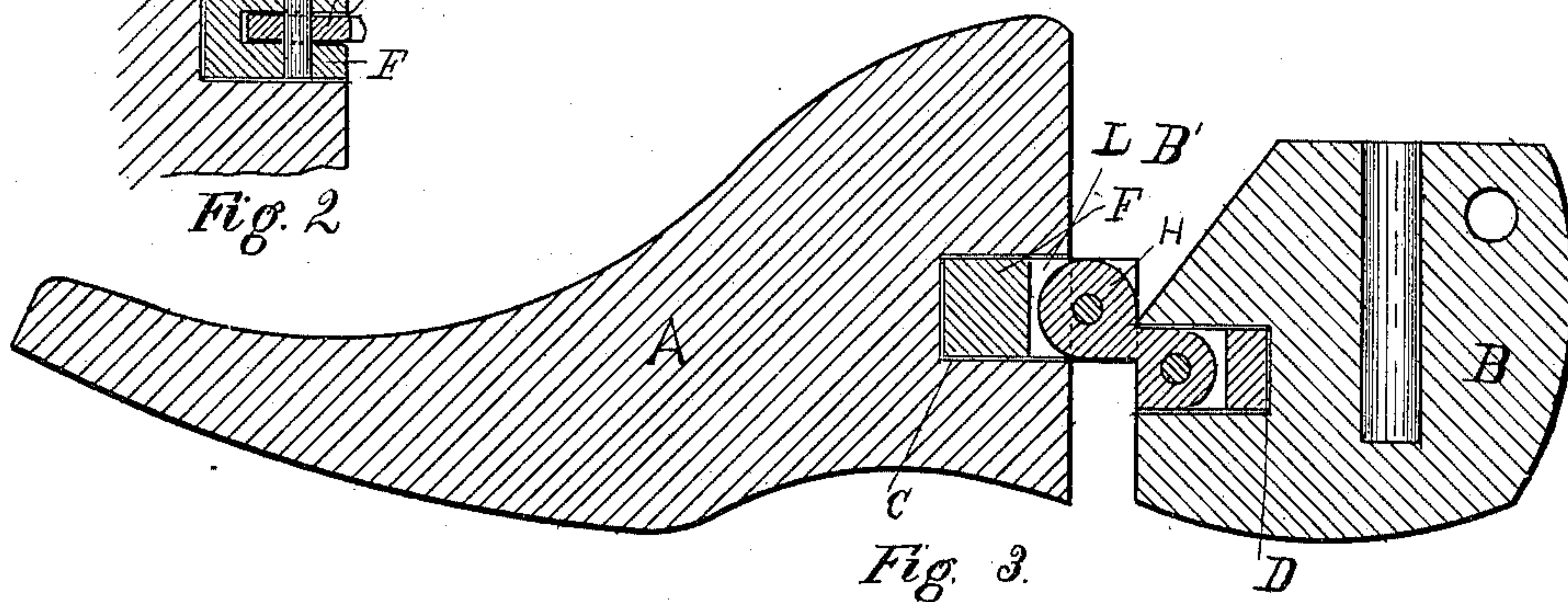
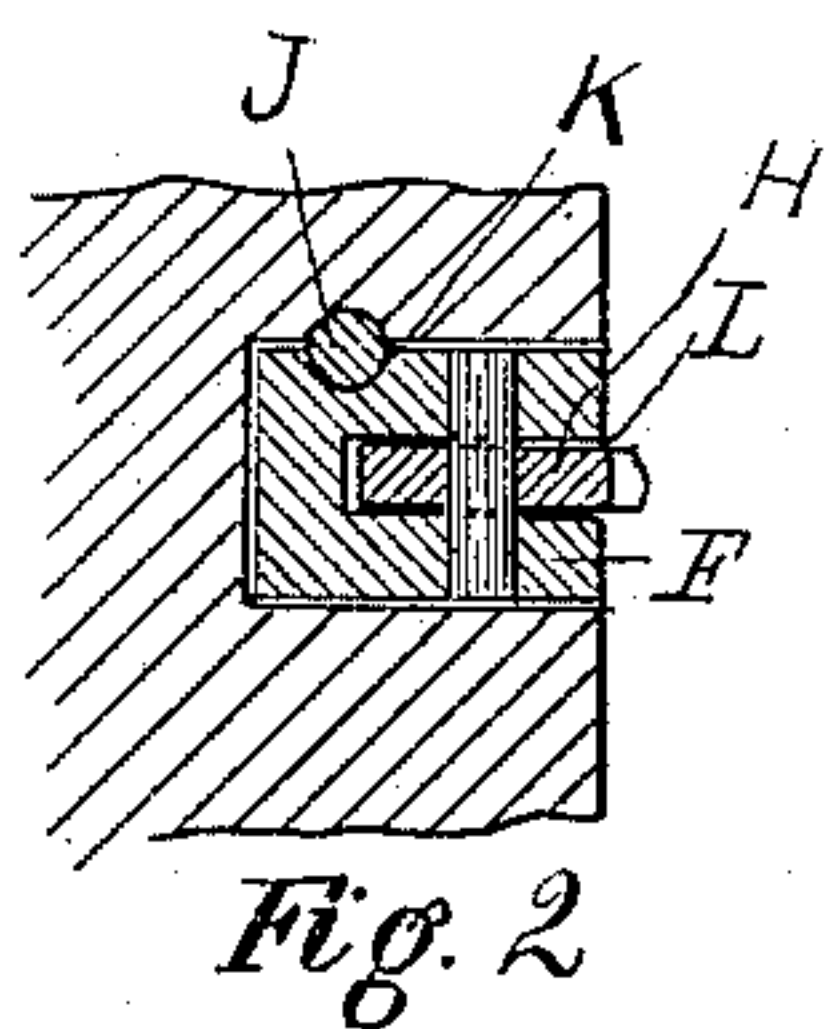
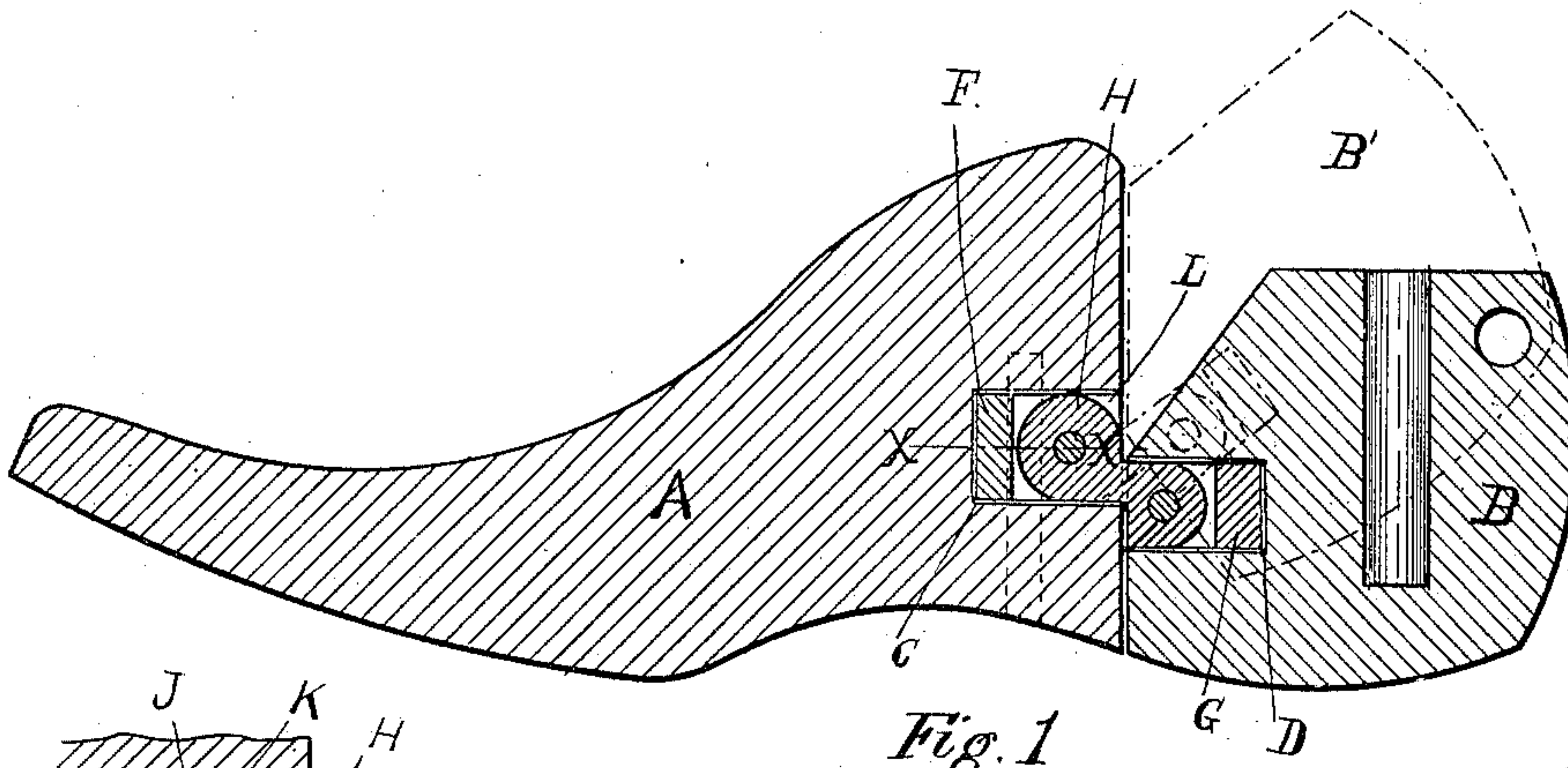
No. 674.085.

Patented May 14, 1901.

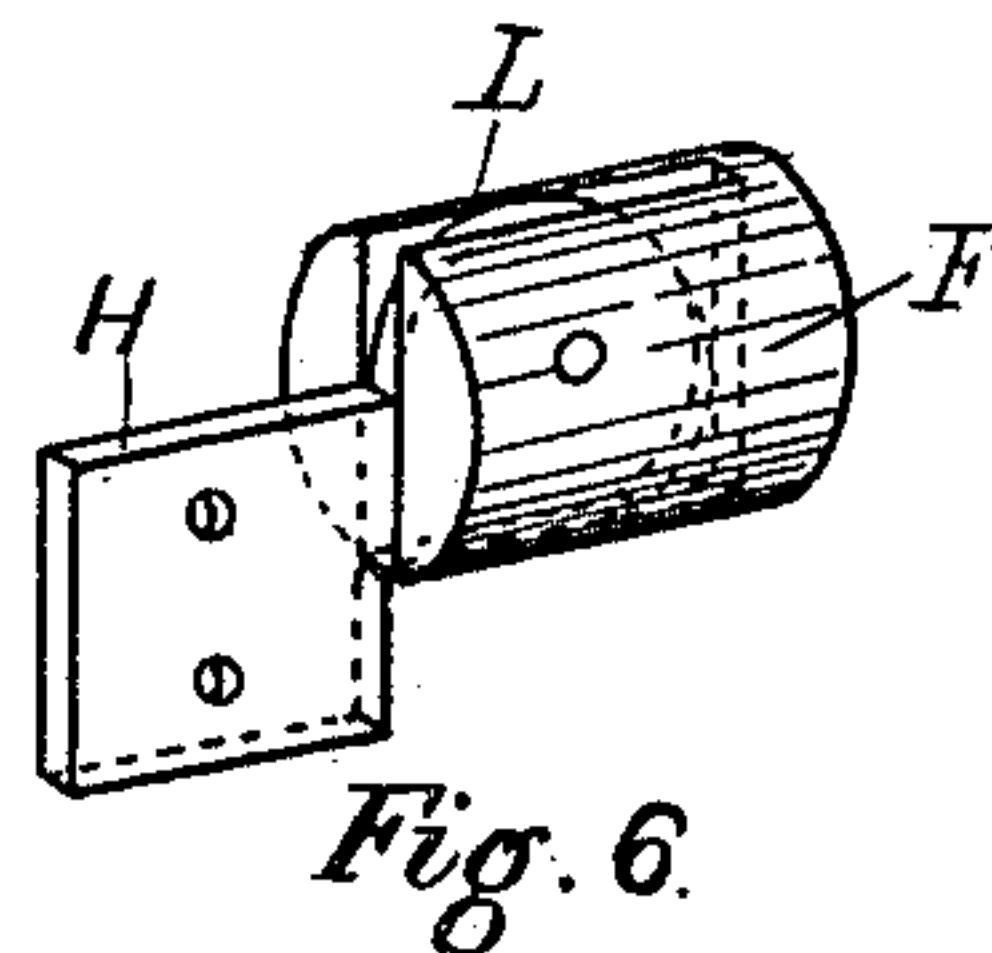
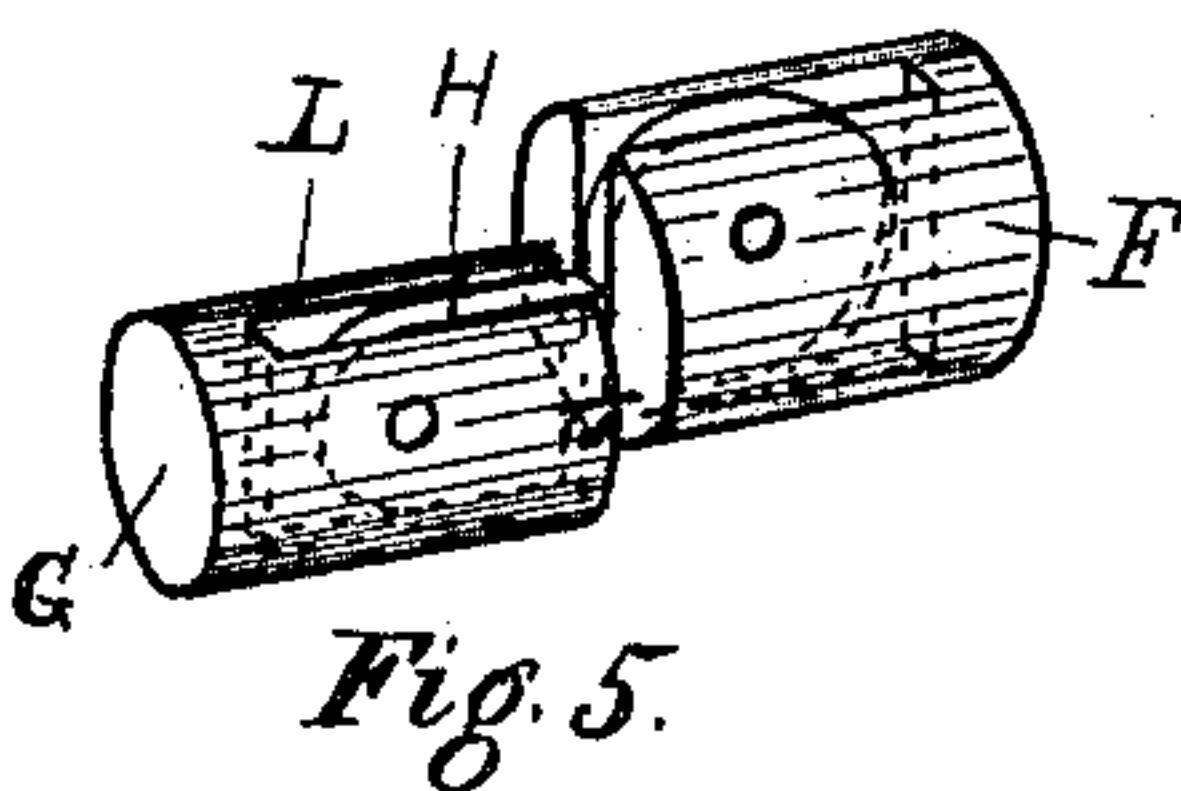
E. L. GODING.  
LAST.

(Application filed Oct. 24, 1896. Renewed July 17, 1899.)

(No Model.)



Witnesses:  
Walter T. Camp.  
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# UNITED STATES PATENT OFFICE.

EDWIN L. GODING, OF PORTLAND, MAINE, ASSIGNOR TO WILLIAM B. ARNOLD, OF NORTH ABINGTON, MASSACHUSETTS.

## LAST.

SPECIFICATION forming part of Letters Patent No. 674,085, dated May 14, 1901.

Application filed October 24, 1896. Renewed July 17, 1899. Serial No. 724,136. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN L. GODING, of Portland, county of Cumberland, and State of Maine, have invented an Improvement in  
5 Lasts, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is an improvement in lasts,  
10 being adapted for the general purposes in which lasts are employed in the regular manufacture of boots and shoes.

In recent years there has been considerable activity in inventions tending to simplify and  
15 strengthen lasts; and my present invention relates to that class of lasts which are known as "hinged" or "divided" lasts.

Hinged lasts have usually been constructed by embedding within the last a leaf-hinge—  
20 that is to say, a hinge having two broad flat leaves connected together by a long pintle. Said hinge of the kind commonly known as a "butt" hinge has been inserted in or secured to the last at the point of flexure of the  
25 heel part on the fore part; but lasts constructed in this manner are quite expensive, because of the labor and difficulty required in getting the hinge in place accurately and expeditiously. My invention is an improve-  
30 ment over this old style of last and preferably employs dowel-like or plug hinges, each hinge or union comprising two opposite plugs pivotally connected and inserted endwise, respectively, in the opposite parts of the last,  
35 and preferably, also, these plugs are offset from each other for a purpose presently to be explained, and also I prefer to connect these plugs by a link and have shown in my drawings various modifications.

Referring to the drawings, Figure 1 is a vertical longitudinal section of a last constructed according to my invention. Fig. 2 is a horizontal sectional view thereof on the line  $x x$ , showing one means of securing the plug end  
45 of the union in place. Figs. 3 and 4 are views similar to Fig. 1, showing modified constructions. Figs. 5 and 6 are perspective views of different forms of the union shown outside of the last.

50 It will be understood that the last itself

may be of any desired shape and style and may be of any of the kinds in use.

Referring to the drawings, it will be seen that I have provided a body part A and a heel part B, in which the fore part terminates  
55 in a vertical wall, and the heel is cut away at B', so as to permit it to turn up into dotted-line position, Fig. 1, relatively to the fore part. The union which I employ in connecting these two parts together comprises opposite plugs  
60 or dowels F G, which fit into correspondingly-shaped holes C D, bored lengthwise of the last, the dowels being secured in place either by a pin J fitting into a groove K in the dowel or else passed directly through the plug, or  
65 by glue or any suitable means, the pin being used when the lasts are intended for general lasting purposes and the other constructions mentioned being used for followers, and especially lasts not requiring great strength.  
70

Hinged lasts have heretofore been made by sawing kerfs into the fore part and heel part transversely to their opposed cut faces and then inserting the hinge, and there has been much difficulty in properly aligning and directing these saw-cuts. My invention obviates this  
75 difficulty, the boring of the holes for the ends of my hinge being much simpler, more accurate, convenient, and expeditious. Also the offset feature of my invention I regard as a  
80 feature of importance, whether taken alone or in connection with the other features of my invention, inasmuch as it enables me to insert the dowels or end members of the hinge to the exact depth in the parts of the last to  
85 which they should enter, so that if the holes should be bored or made deeper than required the offset ends or abutting shoulders of the plugs or end members of the hinge will seat themselves against the opposite portions  
90 of the last and prevent the hinge from being improperly positioned, and accordingly it will be understood that this feature of my invention requires merely offset shoulders at the flexing point of the hinge, so as to insure  
95 that the plugs shall be inserted in the last to the exact depth required.

In order to be more explicit, referring to Fig. 1 it will be seen that as soon as the  
100 dowel F is inserted in the fore part A to the



proper depth it will be stopped by the abutting of the offset end of the dowel G against the vertical face of the fore part. On the other hand, if the dowel G should be inserted or forced into the heel part it will be stopped in a similar manner by the offset shoulder or portion of the plug F coming into contact with the face of the heel part. This simplifies the proper insertion of the hinge, and this is true irrespective of the form or location of the pintle connection.

I am aware of United States Patent No. 210,686, which is for a door-hinge and which is not only unadapted to my purpose, but could not possibly be used in a last, and I disclaim all such construction, although I do not intend to limit the shoulder or abutting surface of my dowels or plugs to the precise form and arrangement shown, inasmuch as this shoulder or lateral offset portion which serves to limit the entrance of the plugs beyond the desired point may be otherwise formed than as shown.

Referring to the figures, it will be seen that I preferably employ a link H for connecting the two members of the hinge, this link having a figure-8 form and being secured to the respective dowel or plug ends of the hinge in slits L therein by pins, one in each end of the link, this construction being a simple and convenient means for connecting the dowels out of longitudinal alinement with each other, as shown in Figs. 1 and 3, and also being of advantage in permitting the heel part to turn into its dotted position, Fig. 1, when the pivot or forward pin there shown is not on the line of cut, but is forward thereof or within the fore part A, as shown in Fig. 1, the construction shown in Fig. 3 being that in which the pivot is on the line of cut, and it will be understood that it is unnecessary to make said link in said form (provided a link be used) or to thus offset the union for this purpose when the hinge-pivot is located on the line of cut. The link when used may be secured at one end by a single pin, as shown in Figs. 1 and 3, or it may be secured by two pins, as indicated in Fig. 6.

While I prefer to employ dowels and also prefer that these should be cylindrical, as being the most quickly inserted into holes bored out cheaply and accurately simply by a bit or drill, yet I do not in all cases limit my invention thereto, inasmuch as the end members F may be secured vertically in vertical recesses provided in the parts A B of the last, as shown in Fig. 4, where the forward member extends from the top to the bottom of the last and the rear member of the hinge is pivoted in a semicircular slit in said forward member. In other words, the link as such may be omitted and the end members or holding parts of the hinge simply fastened together on one pivot-pin.

So far as the link feature of the invention is concerned, the end members or inserts may

be varied indefinitely; but aside from or irrespective of the links I prefer that the ends of the union shall be in the form of cylindrical plugs, as this is the most advantageous form for simplicity of construction, cheapness, and durability. It is especially advantageous in that the union may be made independently of the last and that it is comparatively easy to calculate the position of the holes or recesses.

I have illustrated my invention by showing a pivoted plug-hinge with the pivot located in different places; but I intend my invention to cover a last connected by a union having transverse flexure, as expressed broadly in the claims.

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

1. A divided last having its fore part and heel part provided with longitudinally-extending holes at the line of flexure of the last, combined with a union comprising plugs pivotally connected and inserted endwise, one in each of said holes, the material of the last extending integrally entirely about or peripherally of each plug, substantially as described.

2. A divided last having its fore part and heel part connected by a flexible union secured at its ends in said fore part and heel part respectively, the portions of said union contained in said respective parts of the last being out of horizontal alinement with each other, substantially as described.

3. A divided last having its fore part and heel part connected by a flexible hinge or union, comprising plugs pivotally connected and having at the line of cut separating the parts of the last an offset portion for limiting the depth of insertion of the plugs in the last.

4. A divided last, having longitudinal recesses in the fore part and heel part, and a hinge comprising plug or dowel-like ends fitting said recesses, one of said plugs having a portion of itself abutting the face of the opposing part of the last out of longitudinal alinement with the opposite plug when the last is in extended position, substantially as described.

5. A divided last having longitudinal recesses in the fore part and heel part, and a hinge comprising plug or dowel-like ends fitting said recesses, one of said plugs presenting a shoulder bearing against the opposite part of the last when the latter is in extended position, and means for retaining said hinge in the last, substantially as described.

6. A divided last having recesses formed in the adjacent walls of the opposite parts thereof, a union comprising end portions adapted to be inserted in said recesses, and a connecting-link pivotally connecting said end portions, a part of the last above the union being removed to enable it to turn on said union, substantially as described.



7. A divided last, recesses in the adjacent walls of the opposite parts thereof, end members of a union mounted in said recesses and projecting beyond the said walls, and a pivoted connecting-link mounted in said end members, a portion of the last above the union being removed to permit the last to turn on said union, substantially as described.

8. A divided last, having its fore part and heel part provided with holes extending lengthwise at the line of flexure of the last, said holes having substantially the same vertical and horizontal width in cross-section, combined with a transversely-bending union or hinge whose shanks are in the form of plugs, inserted endwise into and fitting said

holes, the material of the last extending integrally entirely about or circumferentially of each plug.

9. A divided last, having its fore part and heel part bored or provided with longitudinally-extending cylindrical holes at the line of flexure of the last, combined with a union comprising plugs pivotally connected and inserted endwise, one in each of said holes.

In testimony whereof I affix my signature, in presence of two witnesses, this 22d day of October, 1896.

EDWIN L. GODING.

Witnesses:

ELGIN C. VERRILL,  
E. B. GARDNER.