Patent Cancelled by Court.

E. A. EASTMAN.

SHOE LAST.

APPLICATION FILED SEPT. 13, 1920.

1,418,546. Patented June 6, 1922.

2 SHEETS—SHEET 1.

Fig. 1

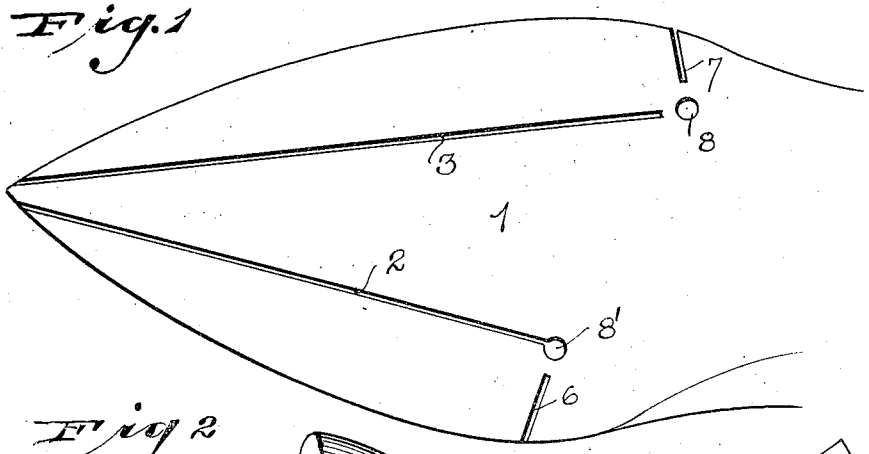


Fig. 2

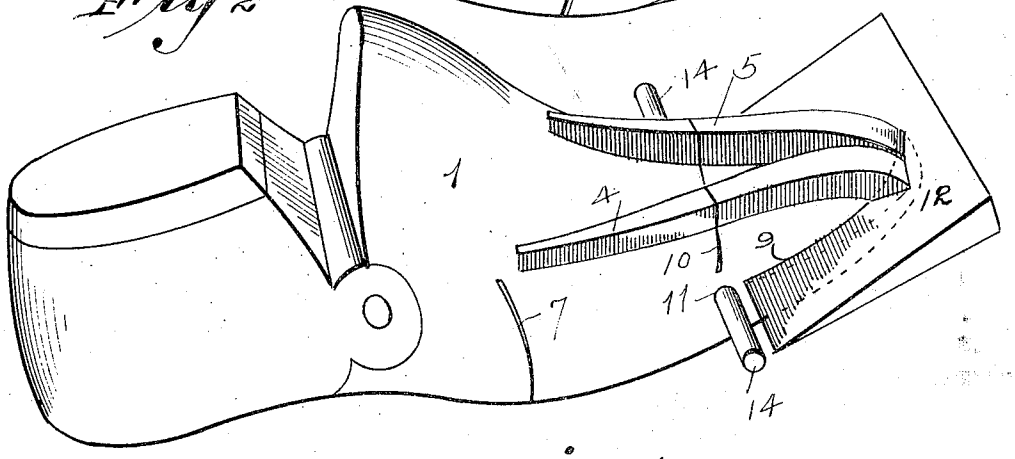
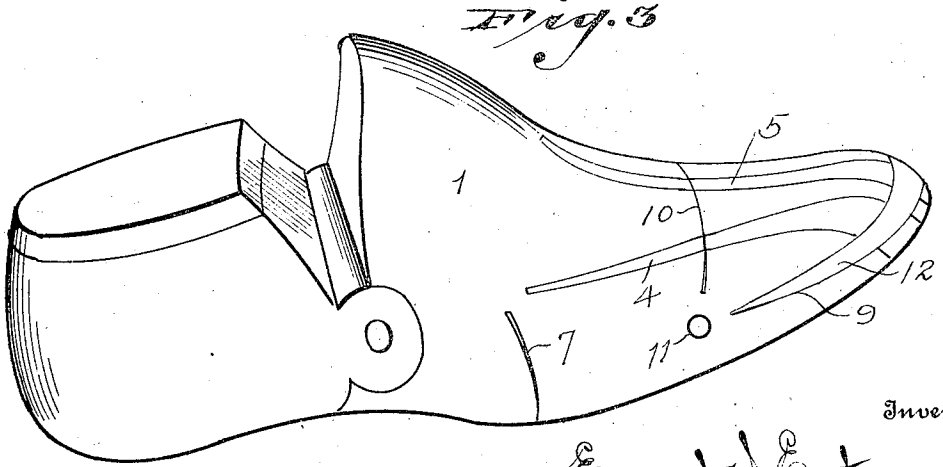


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 4

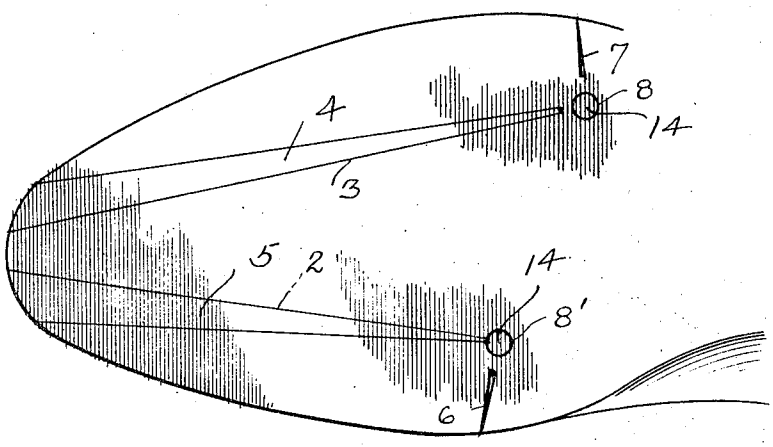
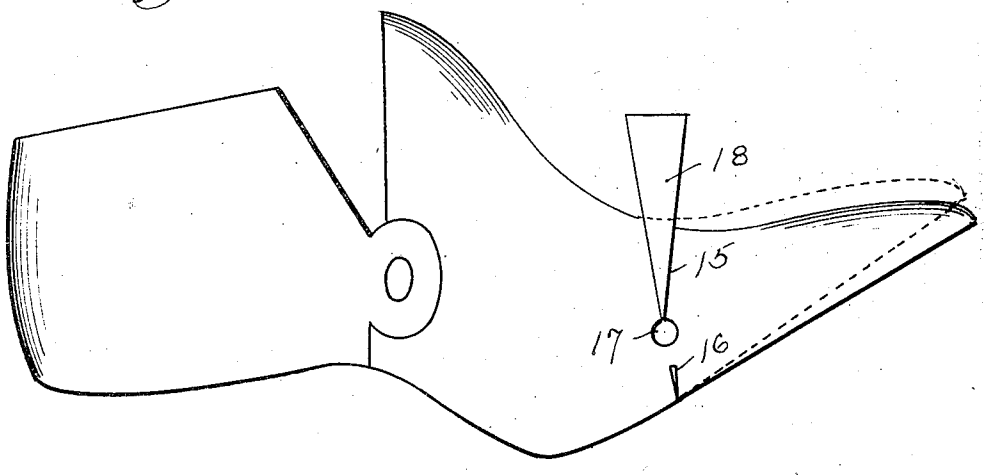


Fig. 5.



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UNITED STATES PATENT OFFICE.

ERNEST A. EASTMAN, OF PORTSMOUTH, OHIO.

SHOE LAST.

1,418,546. Specification of Letters Patent. Patented June 6, 1922.

Application filed September 13, 1920. Serial No. 409,877.

To all whom it may concern:

Be it known that I, ERNEST A. EASTMAN, a citizen of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented certain new and useful Improvements in Shoe Lasts, of which the following is a specification.

My invention relates to shoe lasts, and particularly to a method of re-forming old style lasts into new shapes.

The styles of shoes change rapidly. These changes are frequently very marked, as from a flat pointed toe to a higher and broader toe, and from one having a high heel necessitating a marked "spring" to the toe, to one having a lower heel and having less angularity or spring of the sole, and vice versa.

It is a comparatively simple matter to return a last having a large toe into one of less height and narrower or more pointed outline, but when the change involves an extension or enlargement of the last, considerable difficulty has been experienced. The present scarcity and high price of materials suitable for last making is an incentive to the conservation of such material by rebuilding, and shaping those lasts which may not be worn out, but which have become obsolete through change in style of shoes.

The expansion of lasts and other bodies by the insertion of shims or wedges, driven into saw kerfs, cut in the last has been attempted, but the difficulties of successfully carrying out the operation and the losses incident to the splitting of the last has been such as to discourage the re-use of obsolete lasts.

The object of the present invention is to improve the process and mode of preparing shoe lasts for reshaping, whereby a maximum degree of expansion may be effected with minimum losses, through splitting or other damage to the last, and which will afford a completed rebuilt product, substantially equally as strong, as the original last, and capable of an extended period of usefulness.

A further object of the invention is to provide reenforcement for the renewed last, and to further provide means for checking or intercepting the splitting tendency and for increasing the flexibility of the last segment to facilitate the insertion of the expanding shims.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention consists of the features of construction, and the mode of operation or their equivalents as hereinafter described and set forth in the claims.

Referring to the drawings, Fig. 1 is a bottom plan view of a narrow or pointed toe shoe last prepared according to the herein described method to receive the expanding shims, Fig. 2 is a perspective view of the shoe last, showing inserted therein the expansion shims for broadening the toe and also raising the same and a transverse reenforcing dowel, prior to the reshaping of the last. Fig. 3 is a like view of the same last upon the completion of the reshaping operation. Fig. 4 is a bottom plan view of the last shown in Fig. 1 after the insertion of the expanding shims. Fig. 5 is a side elevation of a last illustrating the insertion of a shim for decreasing the "spring" of the toe, to accommodate the last to a shoe having a lower heel.

Like parts are indicated by similar characters of reference throughout the several views.

In the accompanying drawings, 1 is a shoe last of the ordinary pointed toe type, now obsolete, which it is proposed to expand, and reshape into a usable last of current style.

In order to expand or broaden the toe of the last, two divergent saw kerfs 2 and 3 have been provided extending inwardly from the toe of the last, one of them well up the instep or comb of the last while the other extends divergently outward toward the outer side. These are the insert receiving kerfs, into which the expanding shims 4 and 5 will be later driven. Angularly arranged clearance kerfs 6 and 7 are provided in the sides of the last extending inwardly into proximity to the extremity of the insert receiving kerfs 2 and 3 but not intersecting such kerfs. These corresponding insert receiving and clearance kerfs are terminated in such relation one with another as to leave an unsevered portion of the material, which serves to integrally retain the last segment, and which is yieldingly flexed by the insertion of the shims 4 and 5. One of the difficulties heretofore experienced is the tendency of the last to split in con-

tinuation of the kerfs 2 and 3 through the unyielding character of the remaining unsevered material between the terminations of the kerfs. The destruction of such a large proportion of lasts, due to this cause has rendered the renewing of lasts a rather precarious undertaking.

In the present instance this difficulty has been overcome by providing a hole 8, approximately at the projected intersection of the kerf, that is to say, at a point at which the kerfs would intersect if projected, or substantially in the lineal direction of the grain of the last block, from the termination of the insert receiving kerfs 2 or 3. While this hole 8 is preferably located in spaced relation with both the insert receiving and clearance kerf, it may be located at the extremity of the insert receiving kerf and intersected by such kerf as shown at 8', in Fig. 1. This hole in any event intersects a split, which may be developed in the last and by the severance of the separating fiber, it arrests the splitting tendency, and sufficiently weakens the connecting portion of the last to enable the flexing of the lateral segments. It will be obvious that the fibers of the last remaining intact upon the opposite side of the hole 8 from any split developed by the insertion of the stem will not readily yield or permit the continuation of such splitting action beyond the hole.

The shims 4 and 5 are tapered or wedge shaped pieces of wood or other material, driven lengthwise into the saw kerfs 2 and 3, thereby forcing the lateral segments outwardly and expanding or broadening the toe of the last. This outward deflection of the lateral segments of the last is compensated for by the closing of the transverse or angularly disposed clearance kerfs 6 and 7.

In order to raise the heights of the toe an additional kerf 9 is cut horizontally from the toe of the last rearwardly substantially parallel with the bottom or sole. This toe elevating kerf is preferably cut subsequent to the insertion of the expanding or broadening shims 4 and 5, and extends through such shims. A co-acting clearance kerf 10 is cut across the top of the toe, at a substantially mid-point between the tip and the comb of the last. To check any splitting of the last, and to increase the flexibility of the top segment, a hole is bored transversely through the toe of the last at 11 in proximity to the termination of the toe elevating kerf 9. This transverse hole may be intersected by the kerf 9 or the hole may be in spaced relation with the end of the kerf in the lineal direction of the grain of the last, therefrom. A wedge shaped shim 12 is then driven into the saw kerf 9, which elevates the top segment of the comb of the last substantially closing the transverse kerf 10. It will be understood that prior to their insertion within the saw kerfs, the several shims or wedges are coated with glue or other cement, whereby the separated portions of the last and the inserts or shims are firmly and securely united one to the other. To further strengthen the last, reenforcing it against separation of its parts, and strengthening it to compensate for the various saw cuts made therein, dowel pins 14 are inserted and securely glued or cemented in the holes 8, 8' and 11. These dowels not only close the holes, which after the insertion of the shims have served their usefulness, but restore the original strength and durability of the last. The inserted shims and expanded segments of the lasts are then reduced and shaped to the desired contour, producing in the renewed last, an enlarged sole, having a contour agreeing with the modern style and materially different from the flat narrow toe of the obsolete last operated upon. While the operation heretofore described and as illustrated in the drawing, pertains to the enlargement of the toe portions of the last only, it will be obvious that other portions of the last may be modified by the same method, whereby the shape and contour of the heel may be changed, the comb of the last heightened or the extreme thin comb last of recent years materially thickened. The process to be employed is the same as before described, the difference being merely in the location of the saw kerfs. In each instance the use of the hole, which checks the splitting tendency and increases the flexibility of the connecting portion of the last will be found of material advantage and perform its function as before described.

A common modification is to reduce the "spring" of the last to accommodate a lowered heel. Such a renewal is shown in Fig. 5, wherein the insert receiving kerf 15 is provided across the top or instep of the last and the clearance kerf 16 is substantially in line therewith, but in the bottom or sole of the last. The terminations of these kerfs are separated by an intermediate uncut portion of the last, in which is located a transverse hole 17. This hole may be in spaced relation with both of the kerfs or may be intersected by the insert receiving kerf 15, which latter location is preferred in this particular instance. While in this disclosure the transverse hole 17 can not be said to be in the lineal direction of the grain from the kerfs in the sense that it is shown in Fig. 1, it does nevertheless intersect and cut the grain of the last at the point where a split would be the most likely to develop. By presenting an unchecked or unbroken surface at this point through the provision of the hole, splitting of the last is obviated.

The driving of a shim 18 into the kerf 15 deflects the toe of the last downward thereby changing the angle of the bottom or sole of the last after which the last and insert are dressed to uniform contour and reshaped into the renewed form.

While the process herein described is primarily intended for the renewal of shoe lasts, in which at the present time, it finds its widest range of usefulness, the process is not limited to shoe lasts alone, but may be employed quite generally in the reformation, renewal and expansion of various articles of wood or other materials. For this reason, while shoe lasts have been shown or referred to for illustrative purposes, it is to be understood that the inventions and process herein disclosed are not limited to shoe lasts alone.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprise but one of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications with the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:

1. The herein described method of altering wooden objects, wherein a shim is driven into one of two kerfs, the inner ends of which approach into approximate relation one to the other, characterized by providing a hole in the body in juxtaposition to the approaching ends of the kerfs by which the resistance to flexing action of the attached portion of the section defined by the kerfs is decreased and incidental splitting of the body minimized.

2. A wooden object having therein two kerfs, the inner ends of which extend into approximate relation one with the other, and a shim inserted in one of the kerfs to expand the body by deflecting a section thereof defined by said kerfs, characterized by having a hole formed in said body in juxtaposition to the adjacent ends of the kerfs and extending substantially parallel with the planes of the kerfs.

3. A wooden body having therein two kerfs co-acting to define a flexible section of the body, and a wedge shaped shim inserted in one of said kerfs, characterized by a dowel inserted in said body in juxtaposition to the end of the shim receiving kerf and extending substantially parallel with the plane thereof.

4. The herein described method of reinforcing an altered wooden body wherein a spreading wedge has been inserted in a kerf to expand the body, characterized by inserting in said body a dowel arranged in substantially parallel relation with the plane of the inserted spreading wedge and in approximate relation to the apex thereof.

5. A shoe last, the toe porton of which is provided with two rearwardly extending divergent slots and wedge shaped shims inserted in said slots deflecting the lateral portions of the last in opposite directions in relation with the medial body portion thereof.

6. A shoe last having in the toe portion thereof rearwardly extending horizontally and vertically disposed intersecting slots, and wedge shaped shims inserted within the intersecting horizontal and vertical slots to expand the last toe vertically and laterally.

7. The herein described method of altering shoe lasts consisting in providing rearwardly extending divergent kerfs in the toe portion of the last to form lateral yielding tongues and deflecting said tongues outwardly by inserting in said kerfs wedge shaped shims whereby the greatest degree of expansion will be effected at the forward extremity of the last.

8. The herein described method of altering shoe lasts consisting in providing in the toe portion of the last, a rearward extending kerf, inserting in said kerf a spreading wedge forming in said toe portion a second kerf intersecting the plan of the first mentioned kerf and inserting a second spreading wedge in said second kerf.

9. A shoe last having slots formed therein extending in intersecting directions, but terminating in spaced relation one with the other, said last having a round hole located in the intervening portion of the last body in proximity to the terminals of the slots, whereby the flexibility of such uncut portion of the body is increased, and a wedge shaped insert driven in one of the slots thereby displacing the portion of the body intermediate the slots by flexing the body in the vicinity of the hole, and a dowel subsequently secured in said hole.

10. A wooden body having therein a saw kerf substantially parallel with the grain of the body to receive an expanding wedge, and a dowel pin inserted in said body in the plane of the kerf, and in proximate relation to the end thereof.

11. The process of preparing wooden bodies for reshaping including providing

therein a saw kerf, substantially alined with the grain of the body to receive a spreading wedge, providing in approximation to the termination of the kerf, a hole in the plane of the kerf and inserting a dowel pin in said hole.

In testimony whereof, I have hereunto set my hand this 24th day of August, A. D. 1920.

ERNEST A. EASTMAN.

Witnesses:
EDMUND J. KRICKER,
M. LOUISE BALMERT.

DISCLAIMER.

1,418,546.—*Ernest A. Eastman*, Portsmouth, Ohio. SHOE LAST. Patent dated June 6, 1922. Disclamer filed January 20, 1926, by the patentee.

Hereby enters this disclaimer to that part of the claims in said specification which are in the following words, to wit:

"5. A shoe last, the toe portion of which is provided with two rearwardly extending divergent slots and wedge shaped shims inserted in said slots deflecting the lateral portions of the last in opposite directions in relation with the medial body portion thereof.

"6. A shoe last having in the toe portion thereof rearwardly extending horizontally and vertically disposed intersecting slots, and wedge shaped shims inserted within the intersecting horizontal and vertical slots to expand the last toe vertically and laterally.

"7. The herein described method of altering shoe lasts consisting in providing rearwardly extending divergent kerfs in the toe portion of the last to form lateral yielding tongues and deflecting said tongues outwardly by inserting in said kerfs wedge shaped shims whereby the greatest degree of expansion will be effected at the forward extremity of the last.

"8. The herein described method of altering shoe lasts consisting in providing in the toe portion of the last, a rearward extending kerf, inserting in said kerf a spreading wedge forming in said toe portion a second kerf intersecting the plan of the first mentioned kerf and inserting a second spreading wedge in said second kerf."

[*Official Gazette February 9, 1926.*]