J. D. WINCHESTER.

LAST.

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908,184.

Patented Dec. 29, 1908.

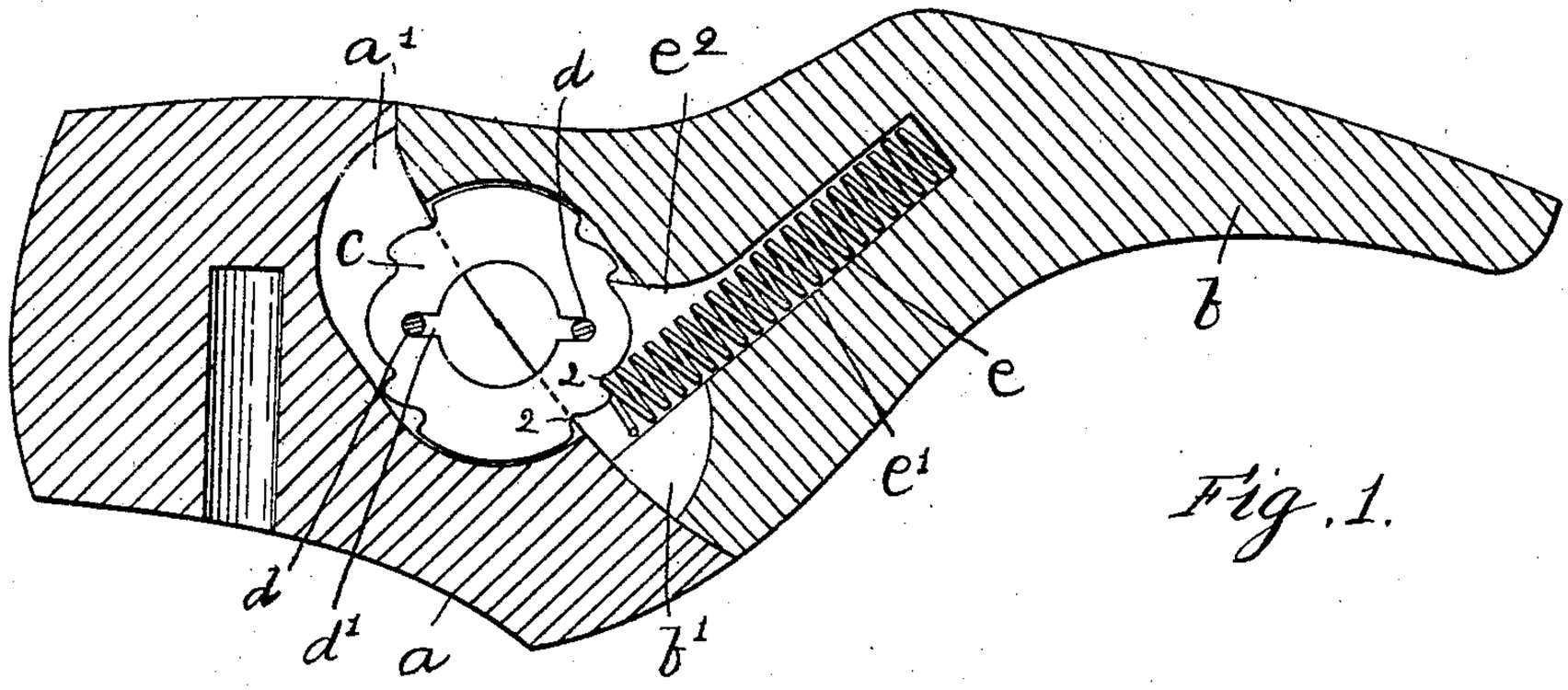

Fig. 1.

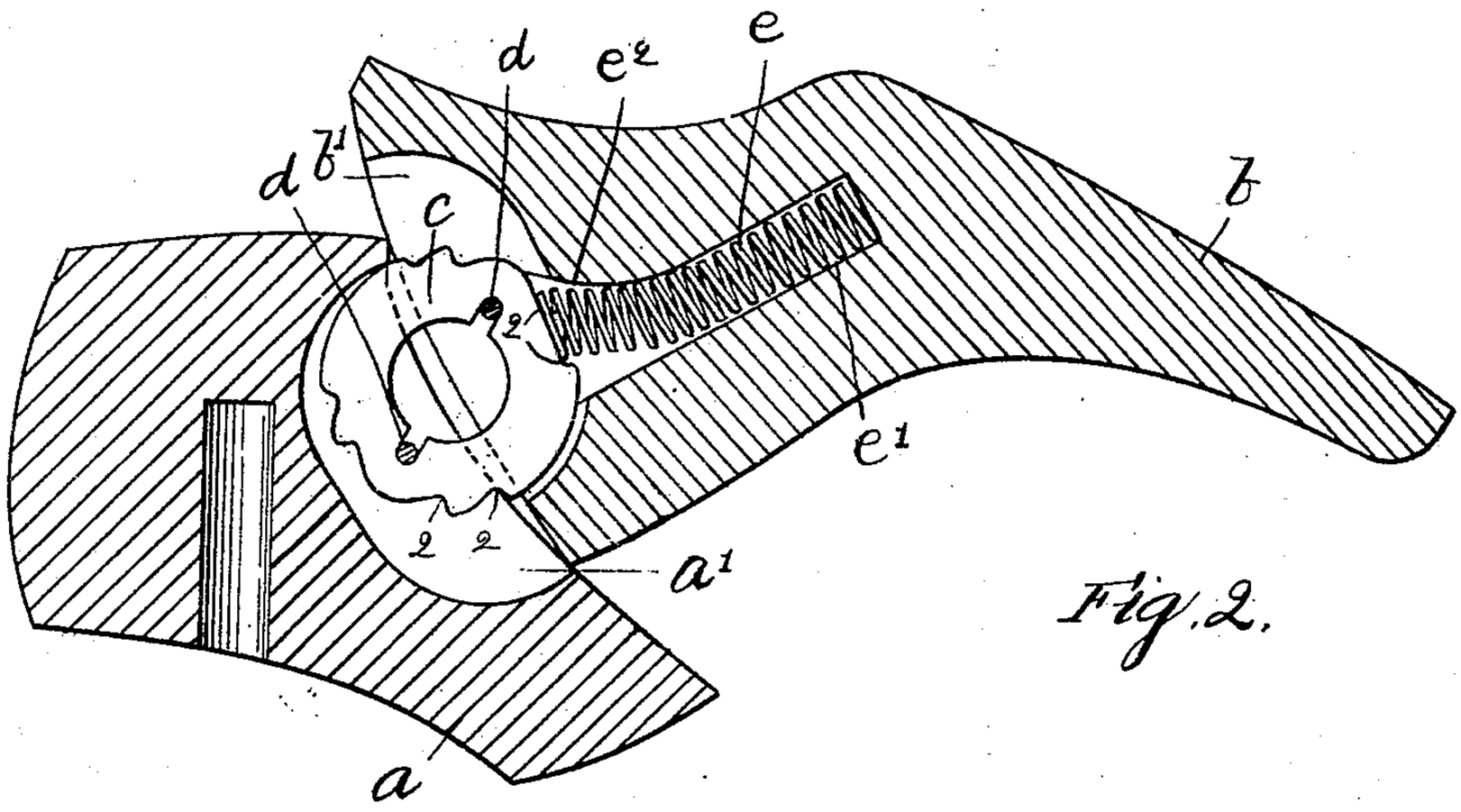

Fig. 2.

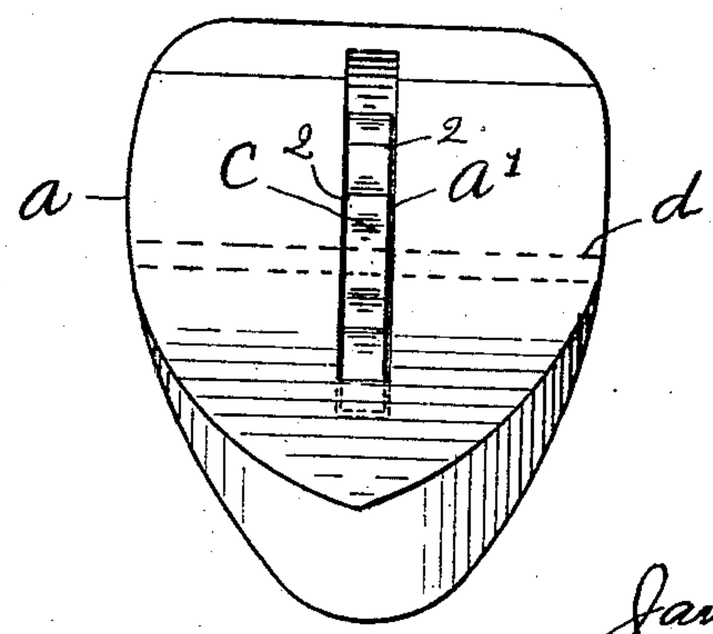

Fig. 3.

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UNITED STATES PATENT OFFICE.

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LAST.

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To all whom it may concern:

Be it known that I, JAMES D. WINCHESTER, of Beverly, county of Essex, State of Massachusetts, have invented an Improvement in Lasts, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to transversely divided lasts, and has for its object to provide improved means for connecting the parts thereof which permit the forepart to be easily moved bodily or slid with respect to the heel part when applying or removing the shoe, and which serves as a strut or support of substantial form between the parts to enable them to resist a severe downward pressure upon them without movement with respect to each other, and which limits the movement of the parts with respect to each other, and which is adapted to be operated to return the abnormally disposed parts to their normal positions.

The invention is particularly applicable to lasts divided transversely in such manner that one part extends over the other.

My improved connecting means consists essentially of a strut which is interposed between the two parts of the last and which enters vertical elongated recesses formed in the adjacent faces of said parts, and normally engages one end wall of one of said recesses and the other end wall of the other recess, and which is connected respectively with the two parts of the last in such manner as to permit said parts to be moved bodily or slid with respect to each other and the strut be turned and thereby moved along in the recesses toward the other end walls thereof by a movement of either part with respect to the other, to engage at least one of said end walls and thereby limit the abnormal dispositions of the parts. Means are provided for holding the strut in engagement with the end walls of the recesses when the parts are normally disposed and for controlling the movement of said strut as the parts are moved into their abnormal positions.

Figure 1 is a side elevation of a divided last embodying this invention. Fig. 2 is a similar view of the parts in the positions they will occupy when the shoe is being removed. Fig. 3 is an end view of the heel part of the last.

a represents the heel part and *b* the forepart of the last, said parts being divided transversely, the line of severance extending from the instep to the forward part of the heel and curving inward toward the heel, for substantially its entire length. As shown, the curved part of the line of severance extends from the instep to a point near the heel. From said point to the heel it is made approximately straight and extends in a vertical direction. The last thus divided has its forepart extended over its heel part. My invention, however, is not limited to the particular manner in which the two parts of the last are divided, although the curvature given to the line of severance herein shown is purposely made to provide for moving the forepart both upward and rearward with respect to the heel part when drawing on and off the shoe, and to enable said forepart to be easily slid into its abnormal position, and also to be easily restored. The adjacent faces of both parts *a* and *b* are formed with vertical recesses *a'* and *b'*, which are disposed opposite each other to form a space between them to receive a strut or other substantial form of support. Said recesses are made of a width corresponding to the thickness of the strut and of a length to provide for considerable movement of said strut. Said oppositely disposed elongated recesses are made of the same length, but are offset with respect to each other.

Referring to Fig. 1, wherein the parts of the last are represented in their normal positions, it will be observed that the recess *a'* occupies a position above the recess *b'*, but when said parts are moved into their abnormal positions, see Fig. 2, the recess *b'* occupies a position above the recess *a'*. Furthermore, in the preferred form of my invention both of said recesses are formed with end walls adapted to be engaged by the strut to limit the movement of the parts with respect to each other and said end walls are curved to correspond to the contour of the strut. *c* represents the strut which is herein shown as a flat circular plate or ring of suitable thickness to enter the recesses and of a diameter equal to the combined depth of the two recesses. The circularly formed strut is loosely connected with both parts of the last, and as a means for thus connecting it therewith a pin *d* is driven transversely through each part of the last, which crosses the recess therein, and the strut is formed with two slots *d'* which respectively receive said pins. The slots extend radially in opposite ways from the center of the strut and are made

long enough to provide for ample movement of the strut as the parts of the last are slid with respect to each other.

The strut normally engages the upper end wall of one of the recesses and the lower end wall of the other recess, but as the parts are moved with respect to each other said strut is moved along the recesses, and in case the recesses each have two end walls, such movement of the strut may continue until it engages at least the opposite end wall of one of the recesses. A coiled spring *e* contained in a socket *e'* formed in the forepart engages the periphery of the circularly formed strut and exerts a pressure thereon in a tangential direction. Said spring acts to yieldingly hold the strut in engagement with the end walls of the recess when the parts are normally disposed, and by controlling the movement of the strut also acts to draw the two parts of the last into their normal positions when abnormally disposed. One side of the socket *e'* is cut away as at e^2, to provide for bending the spring as it is compressed by the strut when the latter is moved along in the recesses by a movement of the parts one with relation to the other, as shown in Fig. 2. Assuming the heel part to be held in fixed position on a jack, the forepart is slid on and with respect to the heel part by pressure upon it when applying or removing the shoe into the position shown in Fig. 2, and such movement of the forepart causes the strut to move along in the recesses until it strikes against the end wall of one, or it may be both recesses, which limits its movement, and during such movement the spring is compressed and bent. Then as the pressure upon said forepart is relieved, said spring acts to return the strut and the parts connected therewith, to their normal positions, and during such movement the strut moves along in the recesses until it strikes against the opposite end walls of both recesses, and such movement of the forepart is greatly facilitated by curving the line of severance, as herein shown.

With the last herein shown, wherein one of the parts extends over the other and with the parts in the positions shown in Fig. 1, the lower end wall of one of the recesses and the upper end wall of the other recess, which are engaged by the strut are disposed one above the other, and being thus vertically alined the strut serves as a support of substantial form, between the parts, which enables said parts to resist a severe downward pressure upon them without movement with respect to each other.

The periphery of the strut is provided with a pair of notches to receive the end of the spring, as shown at 2—2, yet in practice I prefer to provide it with several like pairs of notches, so that in case its periphery becomes worn its position may be reversed or turned about, so that another pair of notches may be brought into position to engage the spring. As herein shown four pairs of notches are provided.

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

1. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a strut interposed between said parts which enters said recesses and normally engages one end wall of one recess, and the opposite end wall of the other recess, and means for connecting said strut respectively with said parts whereby it is moved to approach the other end walls of said recesses by a movement of either part with respect to the other, substantially as described.

2. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a strut interposed between said parts which enters said recesses and normally engages oppositely disposed end walls thereof, means for holding said strut in engagement with said end walls, and means for connecting said strut respectively with said parts whereby it is moved along the recesses by a movement of either part with respect to the other, substantially as described.

3. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a strut interposed between said parts which enters said recesses and normally engages one end wall of one recess and the opposite end wall of the other recess, and means for connecting said strut respectively with said parts whereby it is moved to approach the other end walls of said recesses and to engage at least one of said end walls to limit the abnormal dispositions of the parts, substantially as described

4. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a strut interposed between said parts which enters said recesses and normally engages oppositely disposed end walls thereof, yielding means for holding said strut in engagement with said end walls, and means for connecting said strut respectively with said parts whereby it is moved along the recesses against the action of said holding means by a movement of either part with respect to the other, substantially as described.

5. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a strut interposed between said parts which enters said recesses and normally engages oppositely disposed end walls thereof, a coiled spring for holding said strut in engagement with said end walls, and means for connecting said strut respectively with said parts

whereby it is moved along the recesses against the action of said spring by a movement of either part with respect to the other, substantially as described.

6. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a strut interposed between said parts which enters said recesses and normally engages one end wall of one recess and the opposite end wall of the other recess, said strut having radial slots, and pins extended transversely through the parts which cross said recesses and enter the slots in said strut whereby said strut is moved to respectively approach the other end walls of said recesses by a movement of either part with respect to the other, substantially as described.

7. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, said recesses being offset with respect to each other, a strut interposed between said parts which enters said recesses and normally engages one end wall of one recess and the opposite end wall of the other recess, and means for connecting said strut respectively with said parts whereby it is moved to approach the other end walls of said recesses by a movement of either part with respect to the other, substantially as described.

8. A transversely divided last having one of its parts extended over the other and having vertical elongated recesses in the adjacent faces of said parts provided with end walls, a strut interposed between said parts which enters said recesses and normally engages the upper end wall of one recess and the lower end wall of the other recess, and means for connecting said strut with said parts whereby it is moved to approach the other end walls of said recesses by a movement of either part with respect to the other, substantially as described.

9. A transversely divided last having recesses in the adjacent faces of its parts each provided with an end wall, said end walls, when the parts are normally disposed, being vertically alined, a strut interposed between said parts which enters said recesses and normally engages said vertically alined end walls, and means for connecting said strut with said parts whereby it is moved along said recesses by a movement of either part with respect to the other, substantially as described.

10. A transversely divided last having recesses in the adjacent faces of its parts provided with end walls, one end wall of one recess and the opposite end wall of the other recess being vertically alined, a strut interposed between said parts which enters said recesses and normally engages said vertically alined end walls, and means for connecting said strut with said parts whereby it is moved to approach the other end walls of said recesses by a movement of either part with respect to the other, substantially as described.

11. A transversely divided last having recesses in the adjacent faces of its parts each provided with an end wall, said end walls, when the parts are normally disposed being vertically alined, a strut interposed between said parts which enters said recesses and normally engages said vertically alined end walls, said strut having radial slots and pins extended transversely through the parts which cross said recesses and enter the slots in said strut whereby said strut is moved along the recesses by a movement of either part with respect to the other, substantially as described.

12. A transversely divided last having one of its parts extended over the other and having vertical elongated recesses in the adjacent faces of said parts provided with end walls, said recesses being so arranged with respect to each other that the upper end wall of one recess normally occupies a position directly over the lower end wall of the other recess, a strut interposed between said parts which enters said recesses and normally engages said upper and lower end walls, and means for connecting said strut with said parts whereby it is moved to approach the other end walls of said recesses by a movement of either part with respect to the other, substantially as described.

13. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a circularly formed strut interposed between said parts which enters said recesses and normally engages one end wall of one recess and the opposite end wall of the other recess, and means for connecting said strut respectively with said parts whereby it is turned in the recesses and moved along toward the other end walls thereof by a movement of either part with respect to the other, substantially as described.

14. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a circularly formed strut interposed between said parts which enters said recesses and normally engages one end wall of one recess and the opposite end wall of the other recess, and means for connecting said strut respectively with said parts whereby it is turned in the recesses and moved along into engagement with at least one of said end walls by a movement of either part with respect to the other to thereby limit the abnormal disposition of the parts, substantially as described.

15. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a circularly formed strut interposed between said parts

which enters said recesses and normally engages one end wall of one recess and the opposite end wall of the other recess, said strut having radial slots and pins extended transversely to the parts which cross said recesses and enter said slots whereby said strut is turned in the recesses and moved along toward the other end walls thereof by a movement of either part with respect to the other, substantially as described.

16. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a reversible circularly formed strut interposed between said parts which enters said recesses and normally engages one end wall of one recess and the opposite end wall of the other recess, means for connecting said strut respectively with said parts whereby it is turned in the recesses and moved along toward the other end walls thereof by a movement of either part with respect to the other, said strut having on its periphery two or more spring-engaging portions either one of which may be brought into engaging position and a spring contained in a socket in one of the parts which engages either spring-acting portion that has been brought into engaging position, substantially as described.

17. A transversely divided last having vertical elongated recesses in the adjacent faces of its parts provided with end walls, a circularly formed strut interposed between said parts which enters said recesses and normally engages one end wall of one recess and the opposite end wall of the other recess, means for connecting said strut respectively with said parts whereby it is turned in the recesses and moved along toward the other end walls thereof by a movement of either part with respect to the other, and a spiral spring contained in a socket in one of said parts which engages the periphery of said strut and which is compressed and bent by said strut as the latter is moved along in the recesses by a movement of either part with respect to the other, substantially as described.

18. A transversely divided last composed of a toe part and a heel part having abutting faces formed by the line of severance, each face forming a seat on which the part abutting thereon is free to slide, means for slidably connecting the parts together and a spring for sliding the abnormally disposed part on the seat on the other part when pressure on said abnormally disposed part is relieved, to thereby return the parts to their normal positions, substantially as described.

19. A transversely divided last composed of a toe part and a heel part having abutting faces formed by the line of severance, each face having a seat on which the part abutting thereon is free to slide, means for slidably connecting them together and for guiding and limiting their sliding movements, and a spring engaging said connecting means for operating it to slide the abnormally disposed part on the seat on the other part when pressure on said abnormally disposed part is relieved, to thereby return the parts to their normal positions, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JAMES D. WINCHESTER.

Witnesses:

SAMUEL H. STONE,

GEORGIANIA M. STONE.