June 3, 1924. 1,496,091

J. W. MAY

LAST

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Fig. 1.

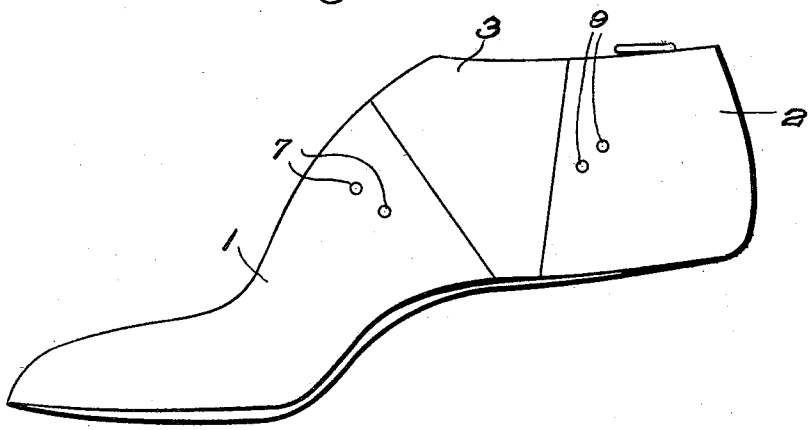


Fig. 2.

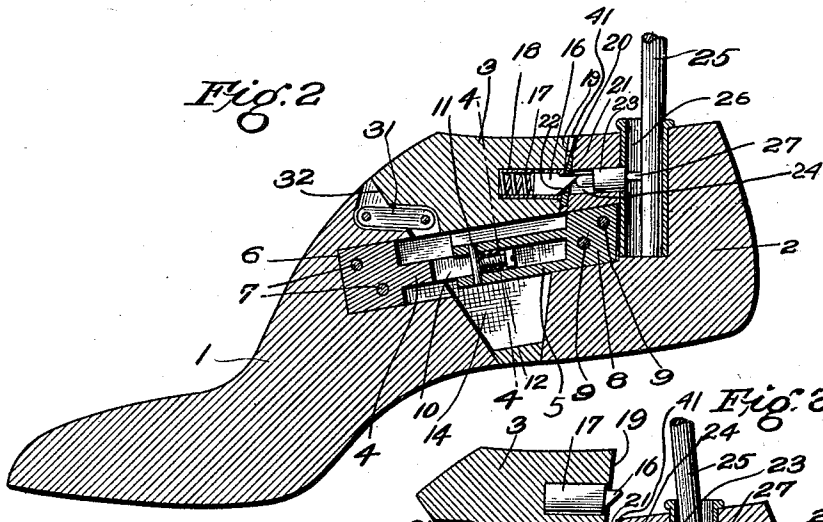


Fig. 3.

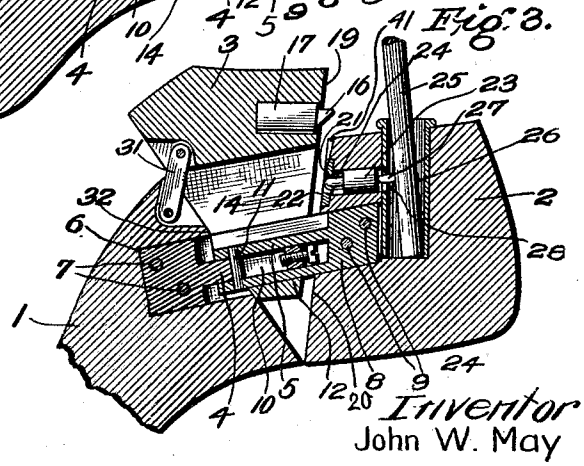
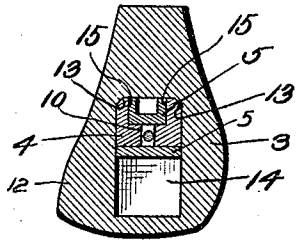


Fig. 4.



Inventor
John W. May
By Heard Smith & Tennant
Atty's.

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Fig. 6.

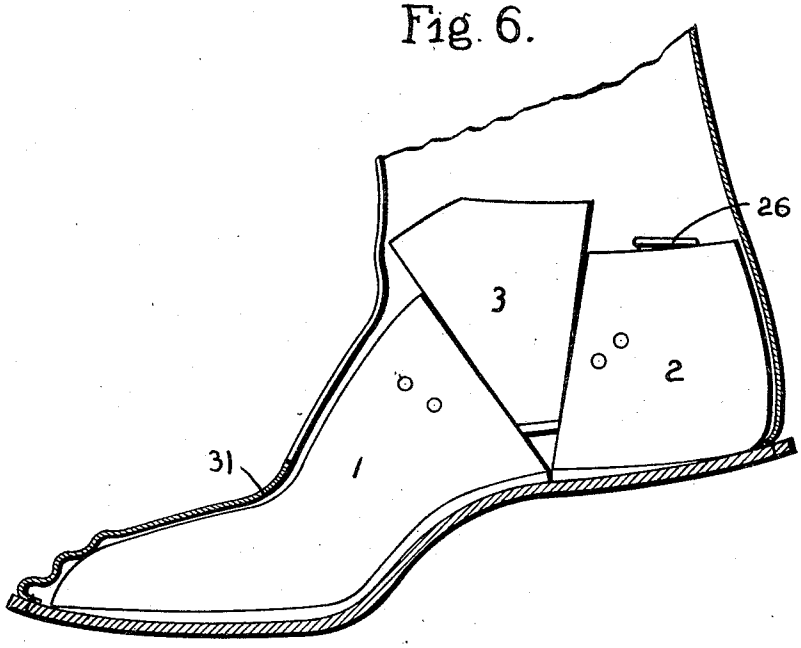
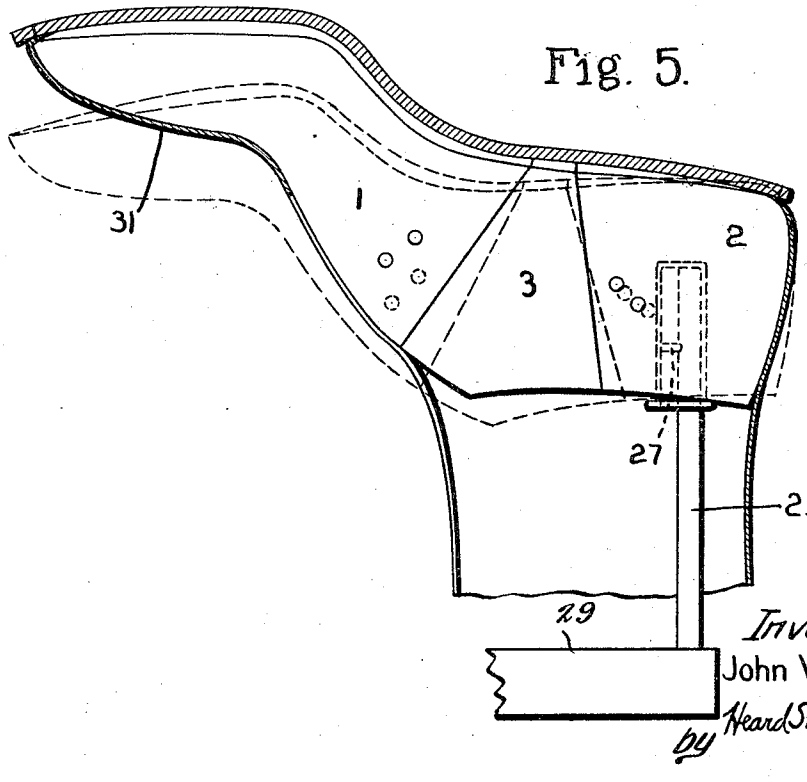


Fig. 5.



Inventor:
John W. May
Heard Smith & Tennant
by
Atty's.

Patented June 3, 1924. 1,496,091

UNITED STATES PATENT OFFICE.

JOHN W. MAY, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR OF ONE-EIGHTH TO J. DUDLEY CLARK, OF BOSTON, MASSACHUSETTS.

LAST.

Application filed April 5, 1919. Serial No. 287,681.

To all whom it may concern:

Be it known that I, JOHN W. MAY, a citizen of the United States, residing at Cambridge, county of Middlesex, State of Massachusetts, have invented an Improvement in Lasts, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to lasts of that type which comprise a fore part and a heel part connected together for movement toward and from each other and a wedge-shaped intermediate part which when in operative position co-operates with the fore and heel parts to hold the last in extended condition, but which is movable vertically thereby to allow the heel and fore parts to move toward each other for the purpose of contracting the last longitudinally.

The objects of the invention are to provide an improved means for locking the intermediate member in its operative position and for releasing the lock when the last is to be broken or contracted; to provide an improved connection between the fore part and heel part which is capable of adjustment, and otherwise to improve lasts of this character all as will be more fully hereinafter set forth.

In order to give an understanding of my invention, I have illustrated in the drawings a selected embodiment thereof which will now be described, after which the novel features will be pointed out in the appended claims.

In the drawings Fig. 1 is a side view of a last embodying my invention;

Fig. 2 is a longitudinal sectional view showing the last extended;

Fig. 3 is a similar view showing the last contracted;

Fig. 4 is a section on the line 4—4, Fig. 2;

Fig. 5 shows the way in which the last is unlocked when it is to be collapsed or contracted.

Fig. 6 shows how the last may be used in relasting turned shoes.

The last comprises the fore part 1, the heel part 2 and the intermediate part 3. The intermediate part is wedge-shaped, it being narrower at the bottom than at the top. The heel part 2 and the fore part 1 are connected by a novel telescopic connection which permits said parts to move relatively toward and from each other and the intermediate part 3 is constructed so that it can be moved transversely of the length of the last from the position shown in Fig. 2 to that shown in Fig. 3. When the intermediate part is in its normal position shown in Fig. 2, it acts to expand the last and co-operates with the connecting means to hold the last in its extended condition. When the intermediate part 3 is moved into the position shown in Fig. 3 then the fore part and heel part can be moved relatively toward each other thereby contracting the last.

The intermediate part 3 is provided with a slot 14 through which said connection extends. The connection between the heel part and fore part is a telescopic one and comprises two members 4 and 5 having a telescopic relation, the member 4 being anchored in the fore part 1 and the member 5 being anchored in the heel part 2. While these two telescopic members 4 and 5 may have various shapes or forms without departing from my invention, I have illustrated herein a construction which operates in a satisfactory manner. The member 5 is in the form of a forked member and is provided with a head portion 8 which occupies a recess in the heel part 2 and is rigidly connected thereto by means of suitable pins 9. The member 4 is provided with the tongue portion which is received between the two arms of the forked member 5, and is also provided with the head portion 6 which is received in a recess formed in the fore part 2 and is rigidly connected to the recess by pins 7. The two arms of the forked member 5 are connected by a pin 11 which operates in a slot 10 extending through the member 4, said pin operating to limit the extending movement of the connection.

The member 4 is shown as having a

groove 15 in which the upper arm of the forked member 5 slides, said groove operating to hold the two members in proper alinement during their expanding or contracting movement.

I may if desired employ an adjustable stop screw 12 which co-operates with the pin 11 to limit the extending movement of the connection, said stop screw being screw-threaded in the end of the member 4. This stop screw makes the connection adjustable as to its maximum length, and it provides means whereby the true or correct measurement of the last may be maintained at all times.

In order to produce a last which is solid and unyielding when it is expanded it is, of course, important that the telescopic connection should be at the limit of its expanding movement when the wedge member is in operative position and firmly seated against the faces of the fore part and heel part. By using the adjustable connection herein shown, this condition may always be maintained.

I may if desired make the member 4 with the inclined or bevel faces 13 at its edges in which case the upper portion of the slot 14 will have a similar shape.

My last also comprises a novel means for locking the intermediate member in its operative position, as shown in Fig. 2, and a novel device by which the lock may be easily released. The lock comprises a spring-pressed latch member 16 which is mounted in a housing 17 carried by the intermediate part 3, said latch being acted upon by a spring 18 which tends to move it outwardly into its operative position in which it projects beyond the rear face 19 of said intermediate part. The latch is provided with a shoulder 20 which limits its spring-impelled movement. This latch is adapted to engage a keeper 21 which is carried by the front face of the heel part 2, said keeper having a slot 22 into which the latch is adapted to enter.

The heel part is provided with the inclined face 41 which leads to the slot 22 in the keeper.

The operation of locking the intermediate part in its operative position involves simply that of pressing or forcing said part into place, for as it comes into its operative position, the inclined face of the latch will engage the inclined face 41 of the heel portion, thus crowding the latch backwardly against the action of the spring 18, and as soon as the intermediate part has reached the position shown in Fig. 2, the latch will move forwardly under the influence of the spring 18 into the slot 22, thus locking the last in its extended position.

For releasing the latch, I have provided a latch-releasing member 23 which is slidable in an opening 24 formed in the heel part and which when pushed forwardly will force the latch from its engagement with the keeper. This latch-releasing member 23 may conveniently be operated to release the latch by means of an implement 25 which is adapted to be inserted into the usual thimble 26 that is carried by the heel part. This implement is provided with a projection 27 which is adapted to enter an opening 28 formed in the thimble opposite the latch-releasing member 23. When the implement is inserted into the thimble and is moved in a direction to cause the projection 27 to press against the latch-releasing member 23 through the opening 28, said member will be moved forwardly, thereby releasing the latch.

During the forward or latch-releasing movement of the member 23 it engages the inclined face of the latch, thus tending to force the intermediate member 3 upwardly as soon as the latch has been pressed back so as to be released from the keeper. Then the expanding action of the spring 18 together with the action of the latch-releasing member 23 against the inclined face of the latch forces the intermediate part 3 upwardly into the position shown in Fig. 3. With my improvement, therefore, the intermediate part 3 is not only firmly locked in its operative position, but when it is released it will automatically assume its inoperative position shown in Fig. 3.

The implement 25 can conveniently be mounted in a support 29 in a manner similar to that in which the jack pin of the jack of a lasting machine is supported, as seen in Fig. 5. Whenever it is desired to remove a shoe 31 from a last embodying my invention, the lasted shoe may be turned bottom side up, and the thimble of the last inserted over the implement 25, as shown in Fig. 5. If the operator then bears downwardly on the toe of the shoe, and lifts on the heel of the shoe, as he would naturally do to pull the shoe from the last, this operation will rock the last into the dotted line position thereby causing the projection 27 to release the lock. As soon as the lock is released the last will automatically collapse, thus becoming loosened from the shoe so that the shoe can be removed therefrom.

This operation of lifting on the heel of the shoe and depressing the toe is the way in which a shoe would be naturally manipulated in order to pull it from the last, and with my invention this natural movement operates to unlock the latch and also to collapse the last. Hence the same movement of the operator by which the shoe is withdrawn from the last operates to unlock the last and collapse the latter.

My improved lock and releasing means therefor are so constructed that they do not

interfere at all with the ordinary use of the thimble 26 so that my improved last can be placed on the jack of any lasting machine or heeling and beating out machine or any other shoe machinery that employs a last pin without any danger that the lock will be released by such operation.

I have shown in the drawings a construction wherein the intermediate part 3 is connected to the fore part 1 by a connection which compels the intermediate part to separate slightly from the face 32 of the fore part when said intermediate part begins its upward movement from the position shown in Fig. 2 to that shown in Fig. 3 so that during such upward movement the intermediate part will not have frictional sliding engagement with the face 32. This is provided for by means of a link 31 which is pivoted to both the fore part and intermediate part in such a way that when the intermediate part moves upwardly the link will separate it from the face 32.

My improved last is also very useful in the relasting of turned shoes. As is well known, turned shoes are made by sewing the upper to the sole with the upper wrong side out and afterwards turning the shoe right side out. After the shoe has been turned right side out the lining and upper are in a more or less wrinkled condition due to the turning operation as shown in Fig. 6. In relasting a turned shoe it is desirable that the insertion of the last into the wrinkled shoe should be accomplished in such a way as not to strain the leather or lining unduly. My improved last is especially adapted for this purpose, because a shoe which has been turned right side out can be readily drawn over the last when it is in its collapsed condition as shown in Fig. 6, and thereafter the intermediate part 3 can be forced home, thereby expanding the last to its full size, thus filling out the shoe but without putting any such strain on the shoe as frequently results where a last is driven into a turned shoe. Moreover, when the collapsed last is placed into the shoe the operator has an opportunity to draw on the lining at the top of the shoe and thereby straighten the lining before the last is expanded, so that when the last is expanded the shoe will be filled out without causing any wrinkles in the lining. This expanding of the last in the shoe can easily be accomplished by removing the shoe from the jack pin and then resting the intermediate part 3 of the last against a support and pushing the last towards said support. This will force the intermediate part into its operative position where it will become automatically locked.

Another advantage which is inherent in my improved last is that the connection between the heel part and the fore part is such that the heel part will always maintain its proper angular relation to the fore part, and thus the bottom of the heel will always have the correct angular position relative to the bottom of the fore part when the last is extended.

I claim—

1. A last comprising a fore part, a heel part, a wedge-shaped intermediate part, and a connection between the heel part and fore part which permits them to move toward and from each other, said connection comprising one member rigidly secured to the heel part and projecting forwardly therefrom and another member rigidly secured to the fore part and projecting rearwardly therefrom, said members having a telescopic relation.

2. A last comprising a fore part, a heel part, a wedge-shaped intermediate part, and a telescopic connection between the fore part and heel part which is longitudinally adjustable to vary the extent to which it may be expanded.

3. A last comprising a fore part, a heel part, a wedge-shaped intermediate part movable vertically, a connection between the heel part and fore part which permits them to move relatively toward and from each other, said connection comprising two members having a telescopic relation, and adjustable means to limit the extending movement of said connection.

4. A last comprising a fore part, a heel part, an intermediate part capable of vertical movement, and a connection between the fore part and heel part which permits them to move relatively toward and from each other, said connection comprising two members, one of which is anchored to one part and is provided with a groove, and the other of which is anchored to the other part and is slidable in said groove, and means to limit the expanding movement of said connection.

5. A last comprising a fore part, a heel part, an intermediate part capable of vertical movement, and a connection between the fore part and heel part which permits them to move relatively toward and from each other, said connection comprising two members, one of which is anchored to one part and is provided with a groove, and the other of which is anchored to the other part and is slidable in said groove, and adjustable means to limit the expanding movement of said connection.

6. A last comprising a fore part, a heel part, an intermediate part capable of vertical movement, and a connection between the fore part and heel part which permits them to move relatively toward and from each other, said connection comprising two members, one of which is anchored to one part and is provided with a groove, and the other of which is anchored to the other part

and is slidable in said groove, and a stop screw to limit the expanding movement of said connection.

7. A last comprising a fore part and a heel part connected to be moved relatively toward and from each other, a wedge-shaped intermediate part situated between the fore part and heel part and capable of vertical movement, and a lock movably carried by the intermediate part and co-operating with the heel part to lock the intermediate part in operative position.

8. A last comprising a fore part, a heel part having a thimble, an intermediate part capable of vertical movement, a connection between said fore part and heel part which permits them to move relatively toward and from each other, a lock movably carried by the intermediate part and adapted to engage the heel part, and means operable from the interior of said thimble for giving a releasing movement to the lock in the intermediate part.

9. A last comprising a fore part, a heel part having a thimble, a wedge-shaped intermediate part, a connection between the fore part and heel part which permits said parts to move relatively toward and from each other, a lock movably carried by the intermediate part, a keeper carried by the heel part with which the lock co-operates to hold the last extended, and means accessible from the interior of the thimble for moving the lock to release the same.

10. A last comprising a fore part, a heel part having a thimble, and an intermediate part capable of vertical movement, a connection between said heel part and fore part which permits them to move relatively toward and from each other, means to lock the intermediate part to the heel part when said intermediate part is in operative position, and means operable from the interior of the thimble to release said lock.

11. A last comprising a fore part, a heel part having a thimble, and an intermediate part capable of vertical movement, a connection between said heel part and fore part which permits them to move relatively toward and from each other, means to lock the intermediate part to the heel part when said intermediate part is in operative position, and means situated exterior to the thimble but operable from within the thimble to release the lock.

12. A last comprising a fore part, a heel part having a thimble, an intermediate part capable of vertical movement, a connection between said fore part and heel part which permits them to move relatively toward and from each other, a lock carried by the intermediate part and adapted to engage the heel part, and means situated exterior to the thimble but operable from within said thimble to release the lock.

13. A last comprising a fore part, a heel part having a thimble, an intermediate part capable of vertical movement, a connection between said fore part and heel part which permits them to move relatively toward and from each other, a lock carried by the intermediate part and adapted to engage the heel part, and a lock-releasing member situated exterior to the thimble but operable from within the thimble.

14. A last comprising a fore part, a heel part, and a wedge-shaped intermediate part movable vertically, a connection between the heel part and fore part which permits them to move relatively toward and from each other, and means connecting the intermediate part to the fore part which compels the intermediate part to be separated slightly from the fore part when said intermediate part is moved upwardly.

15. A last comprising a fore part and a heel part movable relative to each other in the direction of the length of the last thereby to expand or contract the last, and a wedge-shaped intermediate part situated between the fore part and heel part and movable transversely of the last, said heel part having a thimble provided with an aperture in its side, means for locking the intermediate part in its operative position, and means operable through the aperture in the thimble to release the lock.

16. A last comprising a fore part, a heel part, a wedge-shaped intermediate part situated between the fore part and heel part and capable of moving transversely of the last, and a connection between the fore part and heel part which permits them to move relatively toward and from each other, said connection comprising a forked member anchored in one part and another member anchored in the other part and provided with a tongue portion operating between the arms of the forked member.

17. A last comprising a fore part, a heel part, a wedge-shaped intermediate part situated between the fore part and heel part and capable of moving transversely of the last, and a connection between the fore part and heel part which permits them to move relatively toward and from each other, said connection comprising a forked member anchored in one part and another member anchored in the other part and provided with a slotted tongue portion operating between the arms of the forked member, and a pin connecting the arms of the fork and extending through said slot.

18. A last comprising a fore part, a heel part and a wedge-shaped intermediate part movable transversely of the last, a connection between the heel part and fore part which permits them to move relatively toward and from each other, means for locking the intermediate part in its operative

position thereby to hold the last extended, and means operative automatically upon release of the lock to move the intermediate part transversely thereby to allow the last to be contracted.

19. A last comprising a fore part, a heel part, a wedge-shaped intermediate part movable transversely of the last, a connection between the fore part and heel part which permits them to move relatively toward and from each other, a latch to hold the intermediate part in its operative position, latch-releasing means, a spring co-operating with said latch and latch-releasing means to move the wedge-shaped part automatically in a transverse direction when the latch is released.

In testimony whereof, I have signed my name to this specification.

JOHN W. MAY.