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METHOD OF LASTING SHOES

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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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Method of Lasting Shoes.

To all whom it may concern:

Be it known that I, Fred N. La Chapelle, of Beverly, Massachusetts, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain improvements in Methods of Lasting Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to methods of lasting boots and shoes and particularly to methods in which successive portions of the uppers are progressively lasted.

It has been proposed to last shoes by means of a string laced back and forth from side to side of the upper and passing freely through the margin of the upper, the upper being drawn in by pulling on the string which placed all lasted portions of the upper under substantially the same lasting tension. This method takes no account of the fact that different parts of a shoe upper lengthwise of the shoe may and usually do require to be differently tensioned, and an object of this invention is to provide a method by which portions of a shoe upper on opposite sides of the shoe may not only be held under substantially equal tension but by which successive portions of the upper lengthwise of the shoe may be put under any desired tension and fixedly fastened.

A further object of the invention is to provide a method of lasting which will enable a cheaper and weaker innersole to be successfully employed.

In one aspect the invention provides a method by which portions of an upper on opposite sides of a shoe may be lasted in turn and each secured to an innersole, the lasting of opposed portions of upper in this manner being repeated progressively lengthwise of the shoe.

As herein exemplified, the present method consists in lasting a portion of upper at one side of the shoe, passing the thread under tension to that portion of the shoe, the thread being secured at the margin of the upper; and then continuing the thread along the length of the upper and forming in the margin of the upper a second lasting position on the other side of the shoe, and then passing the thread under tension from the second lasting position to the first lasting position and forming in the margin of the upper a third lasting position, and then continuing the thread along the length of the upper, repeating this process until the entire upper is lasted and fixed to the innersole by similar threads fastening the operations of lasting and securing the upper being carried on alternately on the opposite sides of the shoe and progressively lengthwise of the shoe.

In another aspect the method consists in updrowing and overdrawing a portion of upper at one side of the shoe, forming a thread fastening or locked stitch through the innersole and upper to hold the lasted portion of the upper lasted in fixed position, then updrawing and overdrawing a portion of the upper at the opposite side of the shoe, and fastening the lasted portion fixedly to the innersole by a similar thread fastening the operations of lasting and securing the upper being carried on alternately on the opposite sides of the shoe and progressively lengthwise of the shoe. Preferably a single thread is employed and between the thread fastening operations a portion of thread is carried under tension across the shoe bottom, each portion being fixedly fastened to the innersole and upper at each end. The transverse runs of the thread then, therefore, to strengthen the innersole and to assist in holding the upper in lasting position.

In the drawing—

Fig. 1 represents the bottom of a welt shoe lasted in accordance with the method of the present invention;

Fig. 2 is a perspective view of a McKay shoe lasted in accordance with the present invention;

Fig. 3 is a perspective detail, partly in section, illustrating the form of thread fastening employed;

Fig. 4 represents a step in the method which consists in lasting and securing fixedly by a stitch the upper at one side of the shoe; and

Fig. 5 is a view similar to Fig. 3 representing a similar step in the method performed on the opposite side of the shoe.

In carrying out the present method an innersole and upper are assembled on a last as usual and, if desired, the toe and heel of the shoe may be lasted in any usual manner. As shown the heel-seat of the shoe has been lasted by turning inwardly the upper about the heel-seat and securing it permanently in place by tacks a. The toe may be lasted, for example, on a bed machine and secured by tacks if it is a McKay shoe (Fig. 110).
2) and by binding wire d if it is a welt shoe (Fig. 1). It is to be understood, however, that it is not necessary first to last the ends of the shoe but that the present method of lasting may precede the end lasting if desired, also the extent to which the side lasting is carried toward the shoe ends may vary in different classes of work.

Assuming, for the sake of illustration, that the ends of the shoe have been lasted as shown in Fig. 2, the side lasting is begun, for example, at the point c. The upper adjacent to this point is seized by a pincer 4 and drawn upwardly and then preferably carried over the last bottom as shown in Fig. 4. A needle 6 carrying a thread through an eye in its point is then passed through the upper and withdrawn, forming a loop 8, the loop being held from withdrawing from the needle by a hook finger 9. The needle and shoe are then moved relatively lengthwise of the shoe and the second movement of the needle forms a loop 10 through which the first loop 8 is passed by the finger 9 and interlocked therewith, as shown in Fig. 3, to form a fixed thread loop fastening or loop locked stitch for the end of the thread. The shoe and needle are then moved relatively to carry the thread under tension to the opposite side of the shoe as at d (Fig. 2) where a similar loop locked stitch is formed. The operation is then repeated at the points e and f and so on for the required distance toward the toe.

Since each run of thread extending across the shoe is fixedly held in the shoe upper at each end, this method constitutes a very effective way of fastening an upper in lasted position and since each individual portion of the upper is separately tensioned and fixedly secured to a corresponding portion on the opposite side of the shoe each of these portions will naturally be under substantially the same lasting tension. Various opposed lasted portions lengthwise of the shoe, however, are independently held with no possibility of slackening and may be under the desired different lasting tensions such as are appropriate for different portions of the upper lengthwise of the shoe. This method, therefore, is essentially distinct from prior methods in which the opposite sides of an upper are laced together by a cord which passes through the upper first on one side of the shoe and then on the other side of the shoe without being fixedly secured to the upper at the points of passage. The method described, therefore, constitutes a very effective way of fastening in lasted position the upper of shoes of various kinds and is particularly applicable to the manufacture of tacked McKay shoes or, as shown in McKay shoes which are tacked less as to the sides where tacks are objectionable. If desired, however, the upper may be secured to the innersole at a few points by tacks k to hold the insole better in place during the McKay sewing operation.

As shown in Fig. 1, however, and as usually practiced, the present method is applied to welt shoes the innersoles of which are provided with sewing ribs. When thus applied the fastening of the thread is made, after tensioning a portion of the upper as described, through the upper and innersole rib h, the upper being thus fixedly attached to the rib at that point, for example, as at c in Fig. 1. A portion of the upper at the opposite side of the shoe is then tensioned and the shoe and needle moved relatively to place the thread under tension and to enable a stitch to be formed at the point d fixedly to secure the upper and innersole rib at that side, the operations being of course repeated alternately on opposite sides of the shoe until the toe portion already lasted is reached. The traverse runs of thread extending under tension across the innersole tend very materially to strengthen the shoe and hence in this method of lasting a weaker and cheaper innersole may be used. The stitch herein shown is made in accordance with the method disclosed and claimed in United States Letters Patent No. 1,185,107 granted March 3, 1916, of my application and need not be further described herein. This form of stitch has been found effective for the purpose particularly when a waxed thread is used. It is to be understood, however, that other forms of stitch may be employed particularly stitches that are "self locked" to the material, that is, are locked by formations produced in a single thread.

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

1. That improvement in methods of lasting shoes which consists in tensioning a portion of upper on one side of a shoe, securing a thread to said portion of the upper by a locked stitch at that side of the shoe, then tensioning a portion of upper on the opposite side of the shoe and securing that portion of the upper by a locked stitch, and then repeating the operations step by step lengthwise of the shoe.

2. That improvement in methods of lasting shoes which consists in alternately lasting portions of the upper on opposite sides of the shoe and separately fastening each lasted portion of the upper under tension by knotting it in non-slipping relation to a thread.

3. That improvement in methods of lasting shoes which consists in alternately lasting portions of the upper on opposite sides of the shoe and separately fastening each lasted portion of the upper under tension to the rib of an innersole.
4. That improvement in methods of lasting shoes which consists in lasting and securing a thread to a portion of the upper by a non-slipping stitch at one side of the shoe, and then lasting and securing by a non-slipping stitch in the same thread a portion of upper at the opposite side of the shoe.

5. That improvement in methods of lasting shoes which consists in lasting and securing a thread to a portion of the upper by a loop-locked stitch at one side of the shoe, passing the thread under tension to the other side of the shoe, and then lasting and securing by a loop-locked stitch in the thread a portion of upper at the opposite side of the shoe.

6. That improvement in methods of lasting shoes which consists in lasting and securing an upper progressively lengthwise of the shoe, and forming with the thread loop locked stitches to hold the upper alternately at the two sides of the shoe as the lasting progresses.

9. That improvement in methods of lasting shoes which consists in tensioning a portion of a shoe upper at one side of the shoe, passing a loop of thread through the upper, holding the loop from retracting, passing another loop through the innersole rib and upper adjacent to the first loop, interlocking one loop with the other loop, then lasting a portion of the upper at the other side of the shoe and securing it to the thread in the same manner that the first portion was secured.

10. That improvement in methods of lasting shoes which consists in lasting and securing the upper by thread loops entering the upper from the inner side and interlocked on the outer side, and then lasting and securing the upper by similar loops at the opposite side of the shoe.

11. That improvement in methods of lasting shoes which consists in lasting and securing a portion of the upper by a loop-locked stitch at one side of the shoe, passing the thread under tension to the other side of the shoe, and then lasting and securing by a loop-locked stitch in the thread a portion of upper at the opposite side of the shoe.

12. That improvement in methods of lasting shoes which consists in lasting and securing a portion of an upper alternately on opposite sides of the shoe progressively lengthwise of the shoe, and securing the upper by a self-locked stitch first at one side of the shoe to secure a lasted portion, then carrying the thread to the other side of the shoe and securing another lasted portion by another self-locked stitch in the thread.

13. That improvement in methods of lasting shoes which consists in lasting and securing a portion of the upper by a stitch to the innersole at one side of the shoe, and then lasting and securing to the innersole by a stitch a portion of the upper at the other side of the shoe.

14. That improvement in methods of lasting shoes which consists in passing a continuous thread from side to side of the shoe, lasting portions of the upper progressively of the length of the shoe first on one side of the shoe and then on the other side of the shoe, and fastening the lasted portions to the innersole by stitches formed in the thread first at one side of the shoe and then at the other side of the shoe.

15. That improvement in methods of lasting shoes which consists in lasting and securing an upper progressively lengthwise of the shoe by first lasting and securing to the rib of an innersole a portion of the upper on one side of the shoe, and then lasting and securing a portion of the upper at the opposite side of the shoe to the rib.

16. That improvement in methods of lasting shoes which consists in lasting and securing an upper progressively lengthwise of the shoe by first lasting and securing to the rib of an innersole a portion of the upper on one side of the shoe, and then lasting and securing a portion of the upper at the opposite side of the shoe to the rib of the innersole.

17. That improvement in methods of lasting shoes which consists in tensioning a portion of a shoe upper at one side of the shoe, passing a loop of thread through the rib of the innersole and the upper, holding the loop from retracting, passing another loop
through the innersole rib and upper adjacent to the first loop, interlocking one loop with the other loop to secure the upper, then lasting a portion of the upper at the other side of the shoe and securing it to the innersole rib in the same manner that the first portion was secured while maintaining the thread between the secured portions under tension.

18. That improvement in methods of lasting shoes which consists in passing a continuous thread from side to side of the shoe, lasting portions of the upper at the two sides of the shoe alternately progressively lengthwise of the shoe, and progressively and alternately fastening the lasted portions fixedly to the innersole by stitches formed in the thread.

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

FRED N. LA CHAPELLE.