

# UNITED STATES PATENT OFFICE.

M. L. BRETT, OF WARREN, OHIO.

## IMPROVEMENT IN THE MANUFACTURE OF SHOES, &c.

Specification forming part of Letters Patent No. 71,846, dated December 10, 1867.

*To all whom it may concern:*

Be it known that I, M. L. BRETT, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Making Shoes, Gloves, &c.; and I do hereby declare that the following is a full and complete description of the same.

That which distinguishes my invention is the mode of forming the seam of the article, by felting the edges together without lapping them, thereby making one entire or seamless article of any irregular form, such as shoes, gloves, mittens, &c., and in which, when made, the seam is of the same thickness as the rest of the article produced.

In the ordinary mode of making a hat the seam is lapped over, so that when the felting of the seam is perfected it is much thicker than the rest part of the body. This additional thickness is reduced by manipulating the seam both on the outer and inner side, the hat being sufficiently large to admit of this operation upon the inner surface, whereas in the production of smaller articles, such as gloves, mittens, &c., this could not be successfully performed; neither could the several parts of the glove or mitten be made to retain their relative proportion to each other. Hence the ordinary mode of making hat-bodies cannot be applied to the production of the above-named articles in producing a uniform thickness, as the fingers and hand of a glove are too small to admit of being manipulated like a hat-body, so as to obtain the proper proportion and evenness of character necessary.

As above observed, for uniting the edges of the bats, for making hats, they are lapped over each other, whereas, in my process for making irregular forms, the two parts of the bats are whipped over in such a way that there is no lapping, but the edges of which knit together or felt, giving thereby a uniformity and evenness to the whole article, and which is accomplished in the following manner:

I take wool bats from a carding-machine, or one made by a hand-bow. These are then hardened on a hatter's hardening-plate until a suitable density is obtained, so that they can be handled, cut into shape, and secured without tearing or undue stretching.

No. 1 of the several specimens of the article herewith presented for inspection shows the condition of the bat thus hardened.

No. 2 shows the bat so cut into shape, which may be of any desired article. Each bat is then examined, and all defects, as holes, &c., properly stopped and otherwise remedied. The two relative parts are then placed together, with an inlayer between them of the same shape, in order to prevent the bats from uniting while in the process of hardening. The two pieces being thus placed together—as, for instance, the palm and back of a glove, mitten, &c.—the edges of the two pieces are then whipped over, in order to hold the edges securely together, so that when the process of hardening is applied the edges will knit together firmly and solidify the article, so that when the inlayer is removed the article may be felted into shape.

Specimen No. 3 is a bat inlaid and whipped over ready for the process of felting or hardening, and which process is analogous to that in the manufacturing of hats. By this means the article is formed into shape without either lapping or seaming, and with a uniformity of thickness, thereby requiring no extra manipulation in order to reduce the seam, as in the case of uniting a hat-bat.

In completing the shoes it is opened, so as to admit of its being dampened on the inside. It is then drawn over a hot metallic last, but not so hot as to burn or scar the work. In consequence of wetting the work on the inside, the hot last generates steam, which softens the felt, and thereby allows it readily and easily to shape itself to the last, or any form over which it may have been drawn.

Specimens 4, 5, and 6 are the articles when finished.

What I claim as my improvement, and desire to secure by Letters Patent, is—

The construction of a seamless shoe, &c., by felting, in the manner set forth, as a new article of manufacture.

M. L. BRETT.

Witnesses:

W. H. BURRIDGE,  
J. HOLMES.