(No Model.)

W. P. HYATT.

FELT ARTICLES SUCH AS BOOTS, SHOES, AND SLIPPERS WITH FELT SOLES.

No. 345,432. Patented July 13, 1886.

Fig. 1

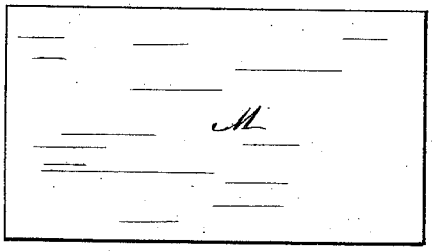


Fig. 3

Fig. 2

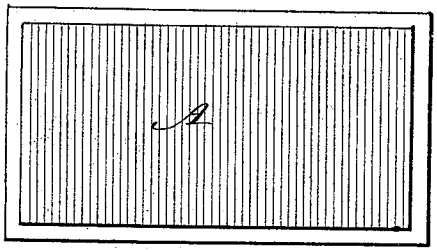


Fig. 4

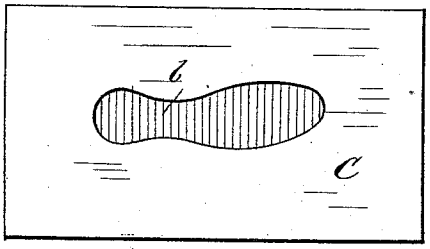


Fig. 5

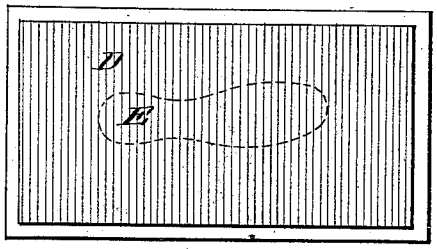


Fig. 6

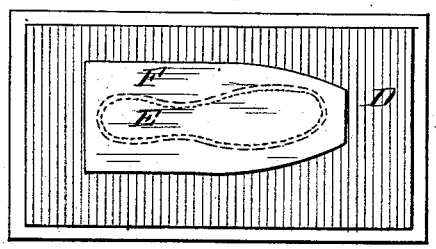


Fig. 7

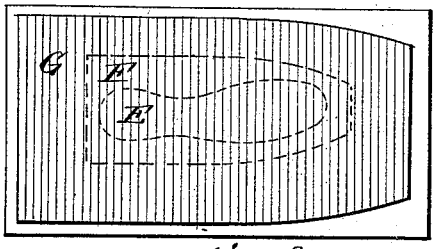
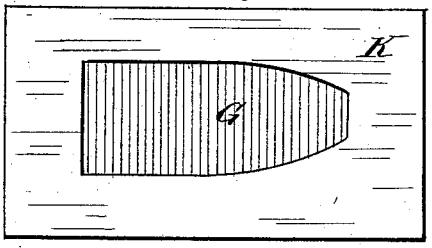


Fig. 8



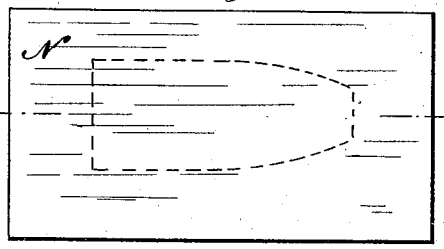


Fig. 9

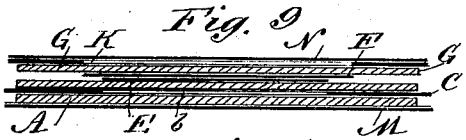
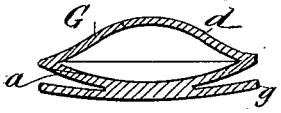


Fig. 10



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UNITED STATES PATENT OFFICE.

WALTER P. HYATT, OF MATTEAWAN, NEW YORK, ASSIGNOR TO THE NEW YORK FELTING COMPANY.

FELT ARTICLES, SUCH AS BOOTS, SHOES, AND SLIPPERS WITH FELT SOLES.

SPECIFICATION forming part of Letters Patent No. 345,432, dated July 13, 1886.

Application filed March 6, 1885. Serial No. 157,929. (No model.)

To all whom it may concern:

Be it known that I, WALTER P. HYATT, of Matteawan, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Felt Articles, Such as Boots, Shoes, and Slippers With Felt Soles, of which the following is a full, clear, and exact description.

My invention consists in a new and valuable method available in the manufacture of felted articles. Among many others, I would name slippers, shoes, boots, gloves, mittens, traveling-bags, satchels, and reticules.

By my method slippers, boots, and shoes can readily be made and provided with soles, or soles and heels, of any desirable thickness, and be wholly free from seams.

I am well aware that slippers, shoes, and boots are now manufactured by the felting process; but I have yet to discover a felted article, of the class last referred to, that has a sole projecting beyond the upper, as in the ordinary leather shoe or boot, provided with a heel, in which the sole and heel are as much a part of their respective upper and counter as they are of themselves. Felt soles are usually stitched or gummed to the upper, and the heel is nailed, sewed, or gummed to the sole, and the counter stitched or gummed to its sole. By my method the sole is fitted to the upper, and the same is true of all the parts, as regards their union with the parts to which they should be united. The felting quality of wool and other hair and fur has been known for years, and is of universal application. The "hardening" and "fulling," to produce perfect felting, is employed in the manufacture of countless articles, and is, I believe, public property. Sheets or bats of material to be felted are, in the hardening or preliminary process, placed upon a table perforated to allow the introduction of steam. Upon the bat so placed is forced a board, covered with proper material, and in shape depending upon the articles to be hardened. This board is caused to vibrate rapidly under pressure upon the bat. This vibration causes the fibers of the bat to unite and knit closely together, and partially felts the bat into a sheet of so-called "felt," thus preparing it for the subsequent process in the fulling-mills, from which it finally emerges as a sheet of true felt. Bats or sheets while being subjected to the hardening, if separated by some material to which they will not attach—such as canvas—cannot felt together, though in the bats themselves hardening may be fully completed. Upon the shapes, thickness, and positions of the several bats, and upon the shapes and positions of the several sheets of non-fitting or separating materials, each with relation to the other, will depend the shape and availability of the resultant article, and upon this principle, in their mode of application and relation to the form to be produced, hinges my claim for novelty.

To explain more in detail what I mean, I will describe the shapes of the bats, the non-felting materials, and in general the means I employ to produce a wholly felted shoe or slipper without heel; but provided with a sole fitted to its upper and counter and extending beyond the upper, so as to, in all respects, save only the quality of material, resemble an ordinary heelless shoe or slipper.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figures 1 to 8 inclusive are plan views of the several bats or layers of felting material and the intermediate layers of non-felting material. Fig. 9 is a longitudinal sectional elevation on the line *x x*, Fig. 8, of the several layers shown in Figs. 1 to 8, inclusive, placed one upon the other. Fig. 10 is a cross-sectional elevation of the hardened shoe before being fulled.

Thus, for a man's size, take a heavy bat—say two inches thick, fifteen inches long, and six inches wide, (bat A, which forms the sole)—and upon it squarely place a sheet of non-felting material—say of canvas or any other suitable material—of the same size of bat A, from the center of which has been cut a piece resembling an enlarged sole, extending to within, say, two inches of either end. This sheet I shall term "outlayer C." The out-

line of this cut forms the line of junction between the sole and its upper in the completed article, which is out of sight, thus giving the sole the appearance of a true sole, as in the case of a leather shoe.

Squarely upon outlayer C, I place a bat similar to the bat A, but thinner. This I term "bat D," which, in the perfected article, forms that part *a* of the upper which is attached to the sole. The bat A can touch bat D only in the space *b*, left vacant by the removal of the large sole in the outlayer C—or, in other words, they can only harden or felt together within the limits of the space *b*, so prescribed. For the purpose of forcing bat D down upon bat A, squarely over the space left vacant in outlayer C, I place the enlarged sole—which will be known as the "inlayer E," and the edges of which have been somewhat trimmed after the removal, so that it cannot cut the bat around its edges in the hardening process—upon the bat D. Over inlayer E, and upon bat D, I place longitudinally another sheet of non-felting material, cut from a sheet of the same size as the others, a little longer than inlayer E and somewhat wider, rounded at the toe end and squared at the counter end, and trim the edges after removal. This I term "inlayer F." Squarely over inlayer F, I place another bat similar to bat D. This I term "bat G." My object in having inlayer F wider than the sole-piece inlayer E is to make the upper in the completed article wider than the sole, so as to allow for the introduction of the foot. If it were of the same width as the sole the upper would be tight against the sole, and the foot could not enter. Over bat G I squarely place the sheet K, of non felting material from which inlayer F was cut. This is for the purpose of forcing bat G down upon bat D and causing the free surfaces to unite to the limit allowed by inlayer F. These several bats and sheets while in position, as described, are subjected to the action of the hardener, care being taken that the action of the hardener at the counter end is limited, so as not to harden bat G beyond inlayer E. The usual time and pressure will suffice.

In order to explain the action of the hardener in uniting the several bats, I would again say that no joining of the bats is possible, save only where their several surfaces unite. Bat A can only touch and therefore unite with bat D through the vacancy *b*, formed in the outlayer C. Bat G can only touch and therefore unite with bat D round their inside surfaces not separated by inlayer F. The resultant article resembles a shoe cut down through the heel, the various parts of which have been, while standing upon its sole, subjected to a vertical pressure. The upper is fastened against the sole. The sole is square and needs trimming. The shoe is shown in Fig. 10. The upper part of the upper *d* has been formed by the top bat, G. The part *a* is formed by those parts of the bat D from the edges of the aperture *b* to the edges of the bat, and the sole G is formed by the bat A. The counters are as yet unhardened, and are flattened out endwise on the same level as the sole. To heel the counters, a cut in the center of the upper from the counter end is made toward the toe. This is to admit of the introduction of the foot, and to allow the counters, when brought up together and overlapped, to be subjected, while the slipper is held in a vertical position, counter downward, to the action of a hardening-board sufficiently small to allow of its introduction through the opening left for the foot. In case it is desired to attach to the sole, by felting, a felt heel, the same may readily be done by increasing the thickness of the sole at the heel end. Thus a heel of any desired thickness may be obtained. The sole and heel are trimmed, and the top of the upper cut low for a slipper and higher for a shoe, and the hardened articles subjected to the usual fulling or felting process in the fulling-mills. To the subsequent washing, stiffening, and lasting I make no claim.

M is a layer of non-felting material placed under the bat A, and N is a layer of non-felting material placed upon the sheet K.

It will be understood that I reserve the right to claim in a subsequent application the matter herein described and shown, and not claimed.

I do not limit myself to the specific method herein described, since it is apparent that the object of my invention is to attach, by felting, a sole to an upper, so that in the resultant article the sole so attached shall show a welt and resemble an ordinary leather shoe. It is apparent if an ordinary upper made of felt in any of the well-known ways be supported from within by a core which is equivalent of inlayer E, Fig. 5, and the edges of the upper turned over, that if the sole-bat to be hardened and attached to such edges shall be prevented from uniting too far up on the upper by the equivalent of C, Fig. 3, the same result can be obtained. The heel, if desired, may be attached as in the method previously described.

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

1. The method of providing felt boots, shoes, or slippers with felt soles, consisting in felting a separate sole to a felt boot, shoe, or slipper, substantially as herein set forth.

2. The method of providing felt boots, shoes, or slippers having independent felt soles with felt heels made integral with said sole, substantially as herein set forth.

WALTER P. HYATT.

Witnesses:
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HENRY G. WOLCOTT.