

UNITED STATES PATENT OFFICE.

GEORGE W. DAY, OF CHARLESTOWN, MASSACHUSETTS.

IMPROVEMENT IN THE MANUFACTURE OF PEGS FOR SHOES.

Specification forming part of Letters Patent No. 53,124, dated March 13, 1866.

To all whom it may concern:

Be it known that I, GEORGE W. DAY, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented an Improved Device for Uniting Shoe-Vamps and Soles, &c.; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates, principally, to the means employed for uniting boot and shoe soles to their uppers or vamps, though in a general manner the invention is applicable to other manufactures than boots and shoes.

The common and well-known method of attachment of soles as effected by sewing mechanism is objectionable because the thread employed necessarily fails to fill the holes made for its passage through the leather, the consequence of which is that when the continuity of the stitches is broken by abrasion upon the wearing-surface of the sole the thread is left in loose sections, or is held in place only by wax and by the strain between the vamp and sole. These pieces of thread are soon drawn through the sole, resulting in the partial or entire separation of the sole from the vamp, and generally effecting the ruin of the shoe; and the employment of wooden pegs; whether driven by hand or machine, is objectionable from inherent defects in the pegs, one of these defects consisting in the condition of the wood at the time the pegs are driven, the more especially in machine-driven pegs, the pegs being always liable to such shrinkage as to cause the vamp to draw away from the sole, especially in the shank of the shoe. Another defect in wooden pegs, and this also applies to nails, is the permanent rigidity of the material, causing the shoe to be injuriously stiff and unyielding to the foot of the wearer.

The object of this invention is to remedy these defects by the production of a material sufficiently rigid to be driven by percussion, of such relation in size to the holes made for its insertion that it shall tightly fill such holes, in such condition when driven that any change in its diameter from wear and exposure shall be an enlargement thereof, and of such nature that, though rigid when driven, it will subse-

quently become yielding and flexible. To attain these objects I artificially rigidify a material which is in itself yielding and flexible, and which will regain to a greater or less degree its original flexibility by exposure to wear and moisture.

My invention may therefore be said to consist in an artificially-rigidified material which may be driven by percussion into vamps and soles of boots and shoes or other articles to fasten them together. Preferably I use for this article a thread made up of a series of fibers or yarns passed separately or in contact through liquid glue, with which it is permeated or coated to such extent that when stripped and dried it shall have the required degree of rigidity for driving.

In use in a machine the thread may be coiled on a reel and automatically cut into sections of the required length for driving by mechanism connected with the driving mechanism.

The action of the glue upon the thread contracts the fibers, or causes them to so adhere together that the thread so prepared is, when dry, in its smallest possible condition as to diameter.

The thread may have a twist imparted to it, or the yarns may be laid parallelly together to form the thread.

When pieces of leather are united by sections of thread so prepared and driven into suitable holes punctured in the leather, as is practiced in driving pegs, the proper relation being observed between the diameter of the thread and that of the holes into which it is driven, they will be found to be very firmly united, resisting all ordinary means which may be applied to force them asunder. When boots or shoes have their vamps or soles so united the moisture of the stock at the time of effecting the insertion of thread and the exposure to moisture which the leather undergoes by wear soon dissolve or partially dissolve the glue and remove the rigidity from the thread, rendering the shoe flexible and yielding to wear. This removal or dissolving of the glue frees the thread from the adhesiveness of the glue, causing it to expand to whatever extent the holes in which it is inserted will permit, and effectually preventing any separation of the parts united by it from shrinkage of the fastening material.

Though for practical purposes I prefer the ma-

terial prepared from thread, as described, it will be obvious that other substance or substances may be used for the manufacture of an artificial rigidified stitch-forming device—as, for instance, rubber and gutta-percha, or the compounds thereof, animal sinew, skin, hide, or leather—the condition of my invention being the manufacture or employment of an artificial rigidified material possessing in its normal condition a greater or less degree of flexibility, which, after being driven, it will regain

to a greater or less degree by exposure to wear or moisture.

I claim as a new article of manufacture—

An artificial rigidified stitch-forming material, substantially as described.

In witness whereof I have hereunto set my hand this 21st day of August, A. D. 1865.

GEO. W. DAY.

Witnesses:

J. B. CROSBY,

FRANCIS GOULD.