E. Morris.

Hats & Caps.

No. 48828 Patented Jul. 18, 1865.

Fig. 1

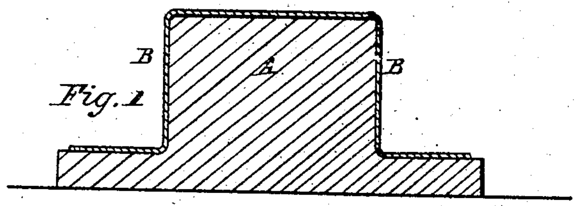


Fig. 2

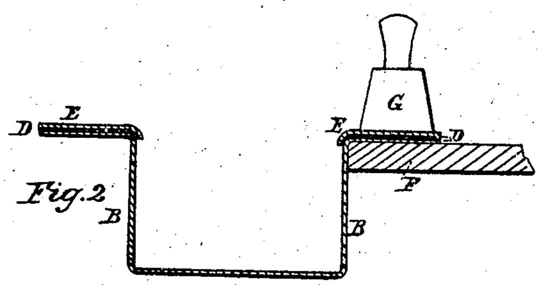
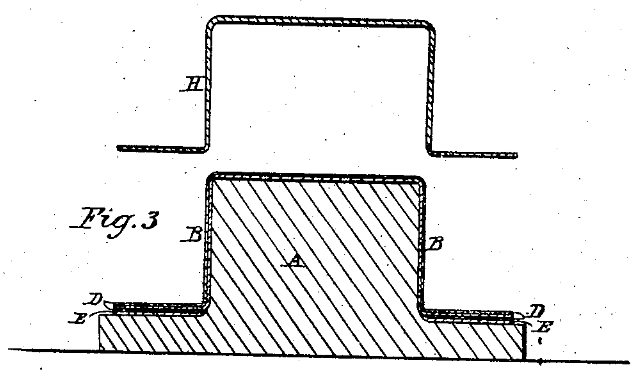


Fig. 3



Witnesses

Wm. Albert Steel.

W. J. R. Delany.

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E. Morris

by his Attorney.

Henry Howson

UNITED STATES PATENT OFFICE.

EVAN MORRIS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN HATS.

Specification forming part of Letters Patent No. **48,828**, dated July 18, 1865.

To all whom it may concern:

Be it known that I, EVAN MORRIS, of Philadelphia, Pennsylvania, have invented an Improvement in the Manufacture of Hats; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Before I proceed to describe my invention and the manner in which the same is carried into effect it may be well to remark that it is the result of many careful experiments, made with the view of producing cheap, soft, and durable water-proof hats. In prosecuting some of these experiments I used the thin filmy sheets of gutta-percha, and interposing them between ordinary woven fabrics attempted to form a union of the whole by the application of heat under pressure. I found, however, that a perfect junction could not be effected, the fabric not adhering to the gutta-percha with the desired tenacity. I was aware that a varnish of shellac and other cements interposed between the gutta-percha and the fabric would effect a union; but this would destroy the pliability and elasticity of the gutta-percha and render the hat or cap brittle. I then interposed the filmy sheets of gutta-percha between portions of felted fabrics of which hat-bodies are usually made, and found that after slightly moistening the fabric and applying a heated iron so perfect a junction of the felt and gutta-percha was effected that it was impossible to separate one from the other, the gutta-percha appearing to have been almost absorbed by the felt. As felted fabric, although forming a most appropriate material for the body or foundation of the hat, did not afford the desired covering for the same, I interposed the gutta-percha between felted fabric and ordinary woven cloth, and after slightly moistening the fabric applied a heated iron. From this experiment I discovered that not only the felt, but the woven fabric also, adhered tenaciously to the gutta-percha. As prior experiments had proved that a junction of two pieces of woven fabric could not be properly effected by the interposition of gutta-percha, and by the application of heat and pressure, it became evident that the felt, while itself adhering to and partly absorbing the gutta-percha, caused the latter to adhere to the woven cloth. My invention is based on this discovery, and is carried out as follows:

I take an ordinary hat-block, A, of the form desired, and place over the same a common felt body, B, stretching and adjusting the latter until it fits snugly to the block, as seen in Figure 1 of the accompanying drawings. I then remove the body from the block and proceed to attach the desired woven fabric to the under side of the brim. This I do by first cutting a piece from a sheet of gutta-percha of the shape of the brim, but somewhat larger than the same, and, inverting the hat, attach the gutta-percha D, Fig. 2, at one or two points to the felt, subsequently placing the desired fabric E upon the gutta-percha, and placing the brim on the edge of a suitable table, F, apply a heated iron, G, to the surface of the fabric, which has been slightly moistened. After the iron has been moved and pressed over the surface of the brim for a short time a most perfect junction of the felt fabric and gutta-percha will be effected. After this I replace the hat-body on the block A and cut from a sheet of gutta-percha an annular piece adapted to the rim, another piece or pieces to surround the body, and an appropriate piece for the crown. These pieces I attach to the felt by means of paste, glue, or other suitable cement, applied at one or two points only, for the sole purpose of maintaining the pieces temporarily in their proper positions. Care should be taken that the gutta-percha pieces slightly overlap each other, so that no portion of the felt remains exposed. I then take a cover, H, composed of pieces of any desired woven fabric so stitched together as to be adapted to the form of the block, but a little larger than the latter. This I place over the gutta-percha-covered felt and fit it snugly to the same. I then apply a heated iron, at the same time slightly moistening the exterior of the fabric, if required. After the application of the iron for a few minutes the gutta-percha will adhere tenaciously to both fabrics. After this the hat is removed from the block and is ready for the trimmers, who attach the usual bindings and linings.

Hats and caps thus made are not only water-proof, but they are also so soft, and at the same time so elastic, that however much they may be crushed or folded they will recover their shape, and no exposure to excessive heat or to

rain will cause them to materially change their form.

When a hat with a soft body and stiff brim is required all that is necessary is to apply to the brim only the usual stiffening material, the gutta-percha being still used as a water-proof medium; or the entire hat may, if desired, be made stiff, in the usual manner, while the gutta-percha is retained. Stiff hats thus made, owing to the presence of gutta-percha, are much less liable to break and crush than the stiff hats of the ordinary construction.

Disclaiming a hat made of two sheets of felt united by intermediate substance, and a hat made of two sheets of textile fabric so united,

I claim as my invention and desire to secure by Letters Patent—

A hat having a body or foundation of felt and cover of woven fabric, with gutta-percha interposed between the two, the whole being united by the application of heat and pressure, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EVAN MORRIS.

Witnesses:
HENRY HOWSON,
JOHN WHITE.