



THOMAS CROSSLEY, OF BRIDGEPORT, CONNECTICUT.

*Letters Patent No. 86,510, dated February 2, 1869.*

**IMPROVEMENT IN FELTED FABRIC.**

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, THOMAS CROSSLEY, of Bridgeport, in the county of Fairfield, and State of Connecticut, have invented "Improvements in the Manufacture of Felted Fabrics, for carpets and other uses;" and I do hereby declare that the following is a full and exact description of my said invention.

In the manufacture of felted cloths heretofore, it has been considered impracticable to raise a nap or tufted surface of a length sufficient to give it the appearance of a velvet or plush face. The reason has been that, as in the construction of a felted cloth, the fibres of the material used are doubled up and intertwined by the felting process, and are afterwards hardened into a firm cloth by the process of fulling, the action of the teazles in gigging has been to break the fibres, in order to obtain a raised surface. This has prevented the raising of a long nap upon felted cloths, and the nap obtained has been coarse, and unmanageable in the process of finishing, by reason of the fibres being broken in the middle of their length, instead of being drawn out at one of the ends. This difficulty does not present itself to so great an extent in woven goods, as the fibres of the material used are twisted in a horizontal position, from which the ends of the fibres may be reached by the teazle, without being broken.

It is well known that much more brilliant and richer colorings can be produced upon a raised or velvet surface upon woollen, silk, or fur cloth, than upon such cloths where the surface is not napped or raised, and it has been long considered important that some plan should be discovered whereby a felted cloth might be teazled, and a velvet surface thereby raised, without breaking or otherwise injuring the fibre.

After much experimenting, I have discovered that this result may be obtained by submitting the felted cloth to the gigging-process before being fully hardened by the process of fulling. For instance, if fifty yards of felted cloth require to be submitted to the pro-

cess of fulling for the space of one hour, in order to give the fabric sufficient firmness or hardness, I remove it from the fulling-machine after, say, from twenty to thirty minutes, and pass it over the teazling-gig for a sufficient length of time, to raise a nap of the length required. Afterwards I again put it in the fulling-stock, say, for fifteen minutes, then teazle it in the fulling-stock fifteen minutes, or until the cloth is of the required firmness. It is then finished by teazling on the gig until the desired length of nap is obtained.

By this method the end of the fibre is drawn from the felt without being broken, while, at the same time, the required firmness of fabric is obtained.

Felted cloths may in this manner be produced of any desired weight or thickness, and with any length of nap required, and may be afterwards dyed and printed, or dyed or printed in any color or colors or pattern required, and having all the richness and brilliancy of effect which is to be found upon velvet or Wilton carpets, and at a very much reduced cost, while having as desirable a quality of fabric.

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

1. A felted fabric, with velvet, plush, or napped surface, produced in the manner substantially as set forth, as a new article of manufacture.

2. A napped felted fabric, substantially as described, dyed or printed, or dyed and printed.

3. Further, the method herein described for producing a napped surface on felted fabrics, by teazling the surface before the fulling-operation is completed, and then subsequently again fulling the fabric.

Signed, sealed, and delivered by the said THOMAS CROSSLEY, in the presence of—

THOMAS CROSSLEY. [L. S.]

Witnesses:

J. B. DODSON, } Clerks with Rowley &  
CYRUS AINSWORTH, } Page, Solrs, Manchester.