

J.T. Waring.
Felted - Fabrics.

No 84325.

Patented Nov 24, 1868.

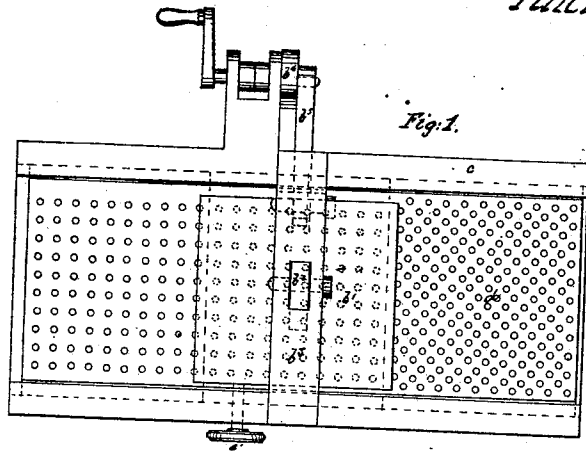


Fig. 1.



Fig. 3.

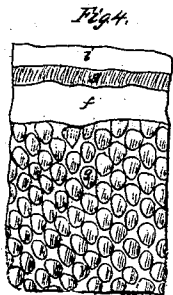


Fig. 4.

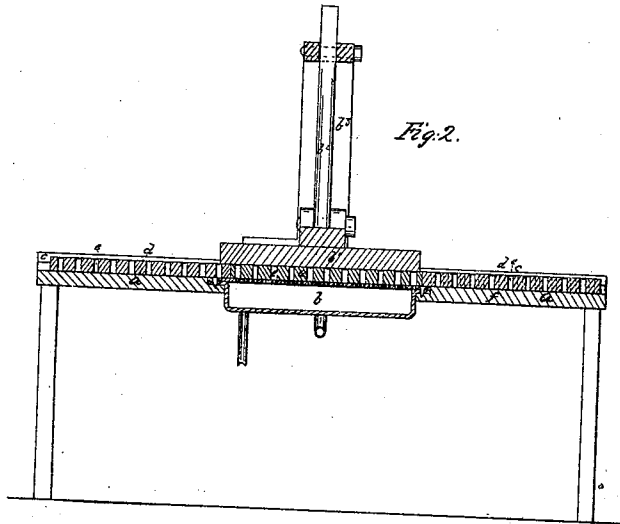


Fig. 2.

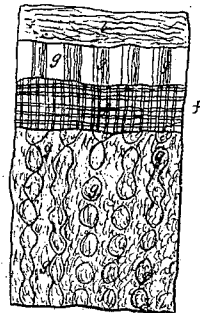


Fig. 5.

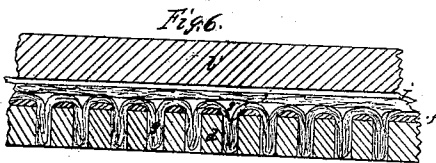


Fig. 6.

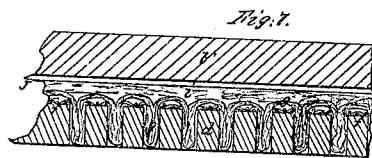


Fig. 7.

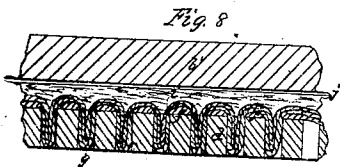


Fig. 8.

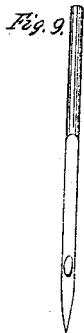


Fig. 9.

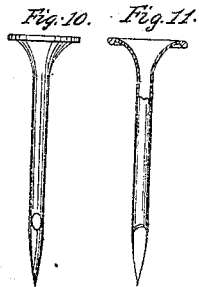


Fig. 10. Fig. 11.

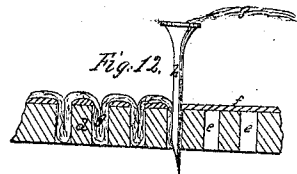


Fig. 12.

Witnesses
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JOHN T. WARING, OF YONKERS, NEW YORK.

Letters Patent No. 84,325, dated November 24, 1868.

IMPROVEMENT IN FELTED TUFTED FABRICS.

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, JOHN T. WARING, of Yonkers, in the county of Westchester, and State of New York, have invented a certain new and improved Manufacture of Tufted Fabrics by Felting, and Machinery used therein; and I do hereby declare that the following is a full and correct description thereof, reference being had to the accompanying drawings, and to the letters of reference thereon.

The nature of my said invention in tufted fabrics consists in a new and improved tufted fabric, wherein the tufts of yarn or rovings are introduced into a back of previously-manufactured woven or felt cloth, through perforations in the cloth, and secured therein by felting, substantially as hereinafter described.

The materials of which the back and tufts are composed depend upon the uses for which the fabric is designed. For ladies' cloakings, trimmings, and similar uses, the back may be of a light felt cloth, flannel, or other warm cloth, wholly or partly composed of wool, or other felting-materials, or any warm fabric of cotton or other material, and the tufts should be of wool, or worsted, or mixtures thereof, with cotton, silk, or other fibres, either in yarns or rovings.

For carpets, rugs, and similar uses, the back may be of heavy, coarsely-woven cloth of hemp, flax, jute, manilla, or of wool woven or felted, when cheapness of production is not an object, and the tufts may be of heavy yarns or rovings of wool or worsted, or mixtures thereof with other fibrous materials.

When the tufts are sufficiently close together in the fabric, they may be secured therein by felting the parts together that project through the back of the fabric; but I prefer in all cases to place upon the back of the fabric, after the tufts have been introduced therein, a sliver or thin bat of wool, and felt it to the tufts, and also to the back of the fabric, when the latter is composed of felting-materials.

The object of the felting is to prevent the tufts from being pulled out of the fabric, and therefore it will be obvious that either the back of the fabric, or the tufts, or both, must have sufficient felting-properties to unite with the thin bat or sliver, or with each other, by the process of felting, in order to keep the tufts in place in the fabric.

In carrying on my new manufacture, I use a jiggering-machine, such as is used by hatters in hardening and felting wool-hat bodies, with the addition of a series of perforated boards or plates, which I have called "tuft-holders" in a contemporaneous specification of Letters Patent for improvements in the manufacture of felted fabrics, and machinery used therein, said "tuft-holders," in connection with the jiggering-machine, forming a part of the subject-matter of said patent.

I also use tufting-needles in combination with the "tuft-holders," some of which are of my own invention.

But, more particularly to describe my invention, I will refer to the accompanying drawings, which illustrate the fabric, process of manufacture, and machinery used therein.

Figure 1 is a plan view of the jiggering-machine, with the "tuft-holders."

Figure 2 is a longitudinal section of the same.

Figure 3 is a plan view of the fabric, with tufts of yarns, looped, suitable for ladies' cloakings, trimmings, &c.

Figure 4 is a plan view of the fabric, with tufts of rovings, cut, for ladies' cloakings, trimmings, &c. A portion of this figure is broken to show in layers the construction of the fabric.

Figure 5 is a plan view of the fabric, made with heavy tufts of rovings, cut, and a heavy coarse back of woven cloth, intended for carpets, rugs, &c. A portion of this figure is also broken to show the construction of the fabric.

Figure 6 is a broken section, showing the mode of preparing the fabric with a light cloth back and tufts of rovings, suitable for cloakings.

Figure 7 is a broken section, showing the mode of preparing the fabric with the coarse-woven hemp back, and heavy tufts of rovings, cut, suitable for carpets, rugs, &c.

Figure 8 is a broken section, showing the mode of preparing the fabric with tufts of yarn, suitable for cloakings.

Figure 9 is a view of a flat eye-pointed tufting-needle, used in introducing the tufts into the fabric and tuft-holders.

Figure 10 is a view of a tubular eye-pointed tufting-needle, also used in introducing the tufts into the fabric and tuft-holders.

Figure 11 is a view of a tubular punch or cutting-instrument, used as a tufting-needle, for perforating the fabric and introducing the tufts.

Figure 12 is a broken section, showing the use of the tubular tufting-needle in preparing the fabric.

The jiggering-machine consists of a flat table, *a*, in the middle of which is a steam-box, *b*, having a perforated top plate about level with the top surface of the table, as usual, and is also provided with the ordinary jiggering-board *b'*, held down by the vibrating standard *b''*, pivoted in the cross-frame *b'''*, and a crank-shaft, *b''''*, and connecting-rod, *b'''''*, by means of which a very short and exceedingly rapid motion is given to the jigger-board. Upon the face of the table are placed two rebated slides, *c c'*, opposite to and parallel with each other, and fitted thereto is a series of perforated boards or plates, *d d d'*, which I call "tuft-holders," their office being to sustain the fabric, and hold and protect the tufts from being felted, during the operating of felting upon the back of the fabric. The tuft-holders are of the width required for the desired fabric, and the perforations *e* must be of the required size to hold the tufts, and in number and order

of arrangement correspond with the required number and order of arrangement of the tufts upon the fabric, and the tuft-holders being made to match each other in figure, a continuous fabric may be made by preparing the fabric at one side of the jigger-board on the series of tuft-holders, and pushing them forward, step by step, under the jigger-board, as the felting-operation is completed in that part of the fabric subject to the action of the steam-box and jigger-board.

The pinching-screw *e* may be used to hold the tuft-holders in place while under the jigger-board. The perforations in the tuft-holders permit the steam to pass by the tufts held in them, upwards to the fabric, but the steam-box may, if desired, be placed in the jigger-board itself, having its perforated side downwards, exposed to the back of the fabric.

I prepare the fabric for the felting-process by laying the cloth, which is to form the back of the fabric, upon the tufting-boards or "tuft-holders" in such manner that it can be fed continuously through the machine; then, with a tufting-needle, perforate the cloth and introduce the tufts into and through the cloth, in loops, which are received and held by the holes in the tuft-holders.

This operation, which is like introducing loops of thread in cloth by a sewing-machine, is shown in fig. 12, which represents a portion of a tuft-holder, *d*, with its holes, *e*, supporting the back of the fabric, *f*, while the tufts of rovings, *g*, are placed therein by means of the tubular needle *h*. It will be observed that a portion of the roving or yarn, used in forming the tufts, lies on the back of the fabric, on the reverse side from the tufts, in form like sewing-machine stitches, and if close enough together to furnish sufficient material,

may be felted together on that side of the fabric, while the tufts themselves are protected from being felted by the tuft-holders. But I prefer to cover the reverse side of the fabric with a sliver or thin bat of wool after the tufts are put in, and to lay upon the whole a linen cloth, called a "hardening-cloth" in felting-operations, before bringing the prepared fabric under the jigger-board. The linen hardening-cloth may be continuous, the same as the fabric, of the length required.

The broken sections, figs. 6, 7, and 8, show the tuft-holder *d*, the back of the fabric *f*, the tufts of yarns or rovings *g*, the sliver or thin bat of wool or other suitable felting-material *i*, the hardening-cloth *j*, and the jigger-board *b*'.

The tubular tufting-needle may have a solid point, like that shown in fig. 10, or a sharp gouge-point, like that shown in figs. 11 and 12. The solid point is best for forcing through coarsely-woven heavy fabrics, and the concave or gouge-point is better for cutting through closely-woven fabrics. The flat eye-pointed tufting-needle takes up less room in the holes of the tuft-holders, but is more suitable for yarns than rovings.

I claim as of my invention—

The new and improved manufacture of tufted fabrics, consisting of tufts secured in a previously-manufactured back of felt or woven cloth by the process of felting, substantially as hereinbefore described.

Also, the tufting-needles, or either of them, in combination with the tuft-holders.

JOHN T. WARING.

Witnesses:

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WILLIAM McINTYRE.