J. C. DUCKWORTH.

Carpet.

No. 204,546. Patented June 4, 1878.

Fig. 1.

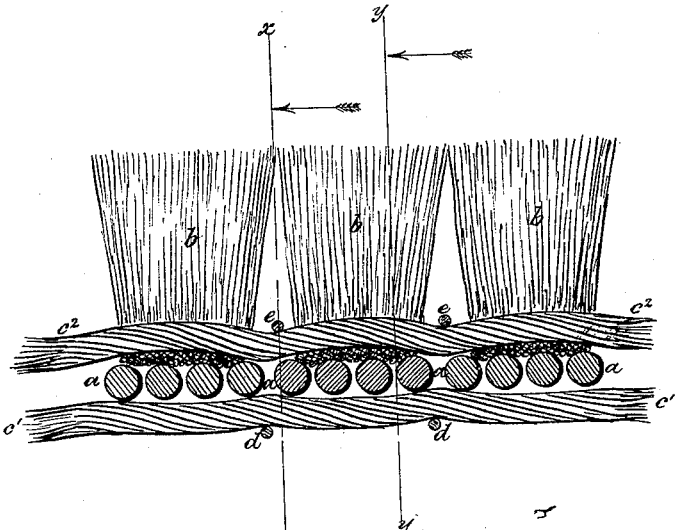


Fig. 2.

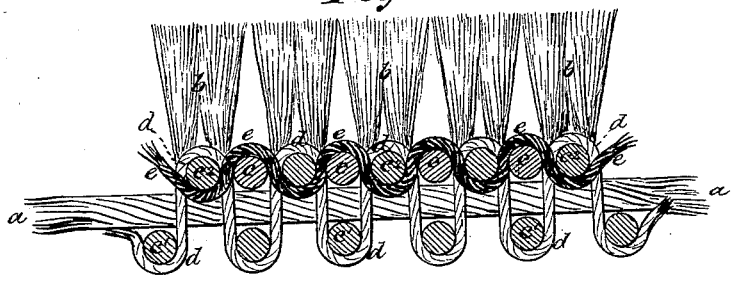
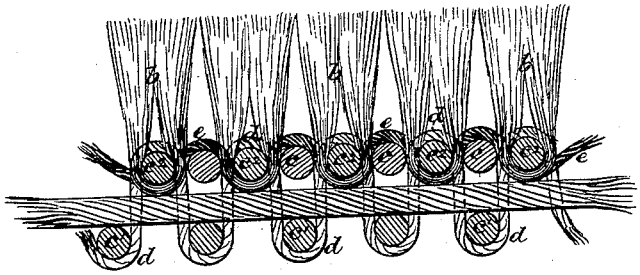


Fig. 3.



Witnesses

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IMPROVEMENT IN CARPETS.

Specification forming part of Letters Patent No. **204,546**, dated June 4, 1878; application filed February 15, 1878.

To all whom it may concern:

Be it known that I, JOHN C. DUCKWORTH, of the city, county, and State of New York, have invented a new and useful Improvement in Carpets; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

This invention is applicable more especially to the manufacture of that class of carpets known as "Axminster" or "Moquette," though it is also applicable to the manufacture of carpets with an uncut pile. It consists in a novel method of weaving and securing the tufts or pile and forming the foundation of the fabric, whereby I am enabled to use a coarser or commoner grade of yarn for the pile-warp, and to make a cheaper carpet having a very strong and firm foundation, in which the pile is very firmly secured.

This carpet is composed of a stuffing-chain, a binding-chain, a surface-binding chain, the pile-warp or tufts, and a filling or weft thread combined in the manner described as follows, with reference to the drawings, in which—

Figure 1 exhibits upon an enlarged scale a transverse section of a cut-pile carpet made according to my invention. Fig. 2 exhibits on a similar scale a longitudinal section in the line *x x* of Fig. 1; and Fig. 3 exhibits a longitudinal section in the line *y y* of Fig. 1.

a a indicate the stuffing-chain; *b b* the pile-tufts; *c* c^1 c^2, the weft; *d d*, the binding-chain proper; *e e*, the surface-binding chain, the latter being shaded in Figs. 2 and 3 darker than the binding-chain proper to enable one to be distinguished from the other.

The pile-tufts are held down to the foundation by weft-threads c^2, which pass through them above the stuffing-chain. These weft-threads c^2 are held down to the stuffing-chain *a* by means of the binding-chain proper, *d*, which passes, as shown in Figs. 2 and 3, above and down through the stuffing-chain, and which is secured by weft-threads c^1 below the stuffing-chain. The surface-binding chain *e* does not pass below the stuffing-chain, but passes, as shown in Figs. 2 and 3, under the threads c^2 of filling, which secure the pile-tufts, and over the alternating weft-threads *c c*, which pass between the pile-tufts above the stuffing-chain. The surface-binding chain *e*, thus arranged, is held down by the shots of weft c^2 c^2, which pass through the tufts and hold down the shots *c c*, which pass between the tufts, and so not only give greater firmness to the foundation, but assist in holding the tufts by giving them a lateral support. The tufts, being held down by the binding-chain proper and by the weft-threads c^1 c^1 below the stuffing-chain, have the pull or hold upon them by which they are secured in place more nearly perpendicular to the face of the web than if they were secured by a surface-binding chain entirely above the stuffing-chain. They (the tufts) are thus more securely confined in the web; and as the weft-threads *c c*, which hold up the surface-binding chain, are thus enabled to be brought directly over those c^1 c^1 which hold down the binding-chain proper and the tufts below the stuffing-chain, the latter is enabled to be kept straighter, and the fabric has a firmer body than if the tufts were held down by the surface-binding chain.

In carrying out my invention a pile warp or chain may be used along with the stuffing-chain, binding-chain, and surface-binding chain, in which case the several chains are operated in the following manner to receive the successive shots of weft:

To commence with, the first shot of weft, the pile-warp, the stuffing-chain, and the surface-binding chain are all raised, and the binding-chain proper is down. In this shed a shot of weft, either single or double, is thrown, and the pile-wire is also inserted, the pile-warp being raised above the other chains to permit the insertion of the wire.

For the second shot, the pile-warp, the stuffing-chain, and the surface-binding chain are all down, the surface-chain is down, and the binding-chain proper is raised, and the shot of weft thrown in.

For the third shot, the pile-warp is raised, the stuffing-chain is down, the surface-binding chain is raised, and the binding-chain proper is down, and the shot of weft is thrown in.

These operations are repeated, and the weaving thus proceeds.

By this operation there is one shot of weft, c^1,

on the back for two, c c^2, on the face of the fabric, as shown in Figs. 2 and 3, one, c^2, of the face-shots binding the tuft down, and the alternating one c being between the tufts to give support to them.

As the binding-chain proper takes up much faster than the surface-binding chain, they must be placed on separate warp-beams, there being thus one beam for the pile-warp, one for the stuffing-chain, one for the binding-warp proper, and another for the surface-binding warp.

By using coarse weft in combination with a stuffing-chain a firm back or foundation for the fabric is obtained.

The pile-warp may be dyed or may have the pattern printed thereon before it is woven, as in "tapestry Brussels" carpets.

The pile may be cut or left uncut. When it is cut the pile-wire is provided with a knife, and the pile is cut as the pile-wire is withdrawn by any of the well-known devices for that purpose.

In some cases pile may be inserted in the form of tufts, as is now sometimes practiced in the manufacture of Moquette or Axminster carpets, in which case the tuft will be inserted when the shed is open to receive the first shot of weft, as hereinbefore described.

I do not claim a fabric in which the tufts are held down by a surface-binding chain and weft-threads above the stuffing-chain.

I claim—

In a carpet, the combination, with the tufts b and stuffing-chain a, of the binding-chain d, wefts or fillings c c^1 c^2, and the surface-binding chain e, arranged as shown, whereby the tufts are firmly supported laterally and held down by the binding-chain engaging with the wefts passing through said tufts and around the wefts on the back of the stuffing-chain, as set forth.

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