

J. COLEY.  
DOUBLE FACED WOVEN PILE FABRIC.

No. 483,977.

Patented Oct. 4, 1892.

Fig. 1.

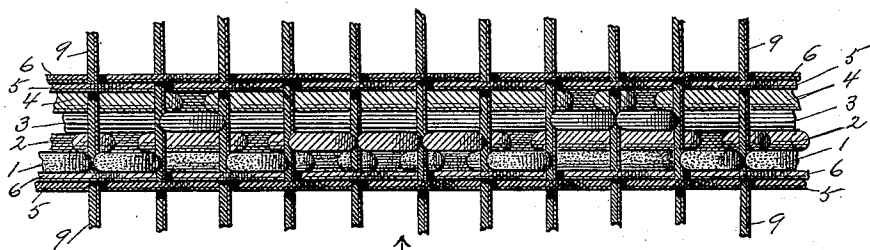


Fig. 2.

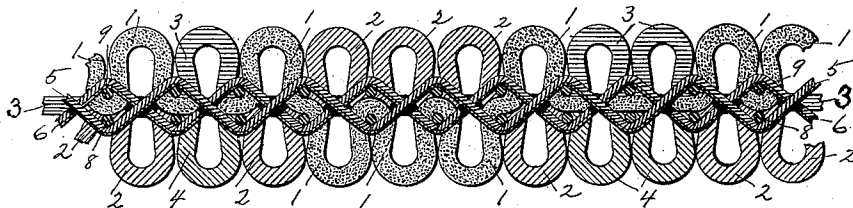


Fig. 3.

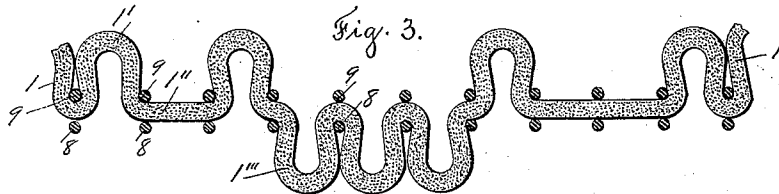


Fig. 4.

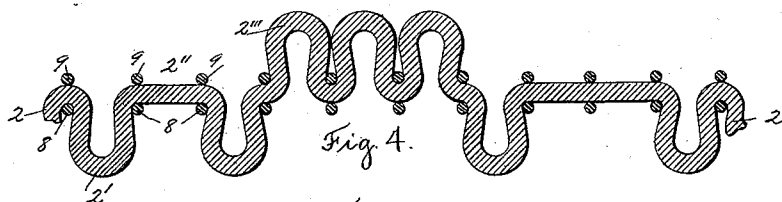
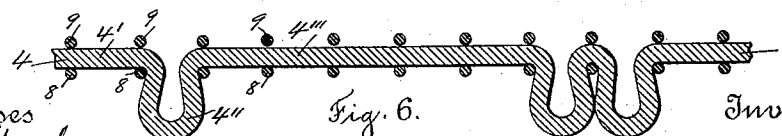


Fig. 5.



Fig. 6.



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(Specimens.)

2 Sheets—Sheet 2.

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Fig. 7.

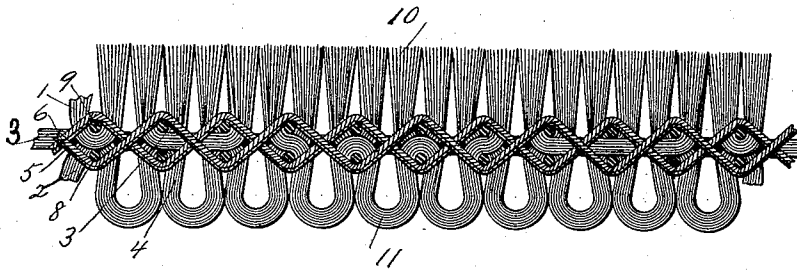
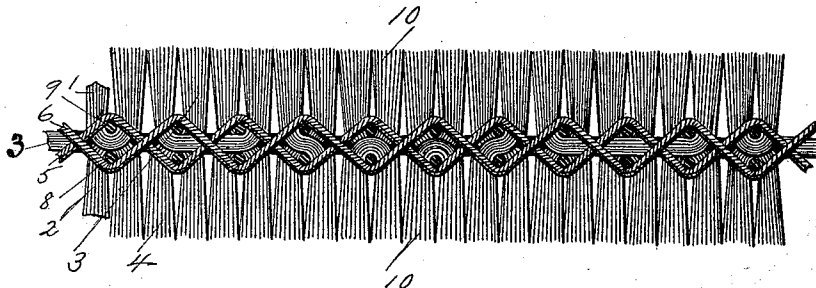


Fig. 8.



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# UNITED STATES PATENT OFFICE.

JOSEPH COLEY, OF WORCESTER, MASSACHUSETTS.

## DOUBLE-FACED WOVEN PILE FABRIC.

SPECIFICATION forming part of Letters Patent No. 483,977, dated October 4, 1892.

Application filed February 15, 1892. Serial No. 421,601. (Specimens.)

*To all whom it may concern:*

Be it known that I, JOSEPH COLEY, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Double-Faced Woven Pile Fabrics; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to woven pile fabrics, and more particularly to a body Brussels carpet or other pile fabric; and the object of my invention is to produce a reversible or double-faced body Brussels carpet or other pile fabric having the same pattern on both sides, but a different coloring on each side.

My invention consists in certain novel features of construction of my improved double-faced or reversible body Brussels carpet or other pile fabric, as will be hereinafter fully described, and the nature thereof indicated by the claims.

In manufacturing my double-faced body Brussels carpet or other pile fabric the ordinary loom for weaving body Brussels carpets may be used by altering slightly the construction thereof.

In the manufacture of my improved double-faced body Brussels carpet or other pile fabric which is woven with wires I must employ an even number of worsted-warp frames—two, four, or six frames—as when one worsted warp is raised the corresponding worsted warp must be lowered, for the worsted pile warps which form the pattern or pile surface in the carpet appear not only on one side of the fabric to form the pattern or pile surface thereon, but also appear on the other side of the fabric to form the same pattern or pile surface thereon, thus producing a double-faced body Brussels carpet or other pile fabric having the same pattern on both sides, but a different coloring on each side.

In manufacturing my improved double-faced woven pile fabric, instead of employing a single wire, as is customary, over which the worsted pile warp is looped on the upper

surface of the fabric, two wires are used, one of which passes above the binder or cotton warps to form loops on the upper surface of the fabric and the other of which passes below the binder-warps to form the loops on the under surface of the fabric. Two shuttles are also employed for the filling-shots, one of which travels on the lay and the other on the warps, and the shuttles are shot simultaneously from opposite sides of the loom, so as to pass each other in the shed. By using two shuttles I can have two different-colored wefts or filling-threads, so that in case it is desired to have a light face on one side of the fabric a light weft may be used and a dark weft may be used for the dark face on the other side of the fabric.

Referring to the drawings, Figure 1 illustrates a face or plan view, on an enlarged scale, of a detached portion of my reversible body Brussels carpet. Fig. 2 is an edge view looking in the direction of arrow *a*, Fig. 1, and representing, also, a sectional view in the direction of the length of the warp. Figs. 3, 4, 5, and 6 are detail views illustrating the position of each of the four worsted pile warps, forming the pattern shown in Figs. 1 and 2. Fig. 7 is a modified construction of the fabric shown in Fig. 2, the loops in the upper surface being cut to form a cut pile surface; and Fig. 8 is another modification of the fabric shown in Fig. 2, the loops on both sides of the fabric being cut to form a cut pile surface on both sides of the fabric.

In the accompanying drawings, 1, 2, 3, and 4 are the worsted warps, which form the pattern or pile surface on each side of the fabric. 5 and 6 are the cotton or binding warps, and 8 and 9 the two filling-wefts. It will be seen that the binding-warps 5 and 6 interchange, passing entirely through the floating worsted warps and binding the floating worsted warps between the filling-wefts. (See Fig. 2.) The two filling-wefts 8 and 9 are put into the fabric for each alternate beat of the lay, the upper one 9 of the filling-wefts extending over the upper surface of the body of the fabric and the other filling-weft 8 extending on the under surface of the body of the fabric, as shown in Fig. 2. The worsted warps 1, 2, 3, and 4 are arranged in pairs and so connected and operated by the

jacquard mechanism that when one worsted warp of a pair is selected or called by the jacquard and raised and lowered to form the loop or pile surface in the upper side of the fabric the other worsted warp of the pair of worsted warps is simultaneously lowered and raised to form the loop or pile surface in the under side of the fabric. When neither one of a pair of worsted warps is selected or called by the jacquard, both of the worsted warps of the pair are carried straight in the body of the fabric between the filling-wefts.

I have represented in the drawings a detached portion of a four-frame carpet in which four colored worsted warps are used to form the pattern or pile surface on each side of the fabric. No stuffer-warp is used in this instance.

Referring to detail views Figs. 3 and 4, 5 and 6, the course of each worsted warp in the fabric shown in Figs. 1 and 2 is illustrated.

Referring to Figs. 3 and 4, it will be observed that when the worsted warp 1 is called by the jacquard and raised to form the loop 1' over the wire in the upper surface of the fabric and bring that color in the upper surface of the fabric the worsted warp 2 is simultaneously lowered and appears on a coincident portion of the lower surface of the fabric to form the loop 2' therein and bring that color into the lower surface of the fabric. It will thus be seen that the worsted warps when selected appear on coincident portions of both sides of the fabric to form the loops or pile surface therein. The operation of the comb-board now brings all the worsted warps together in the body of the fabric and the shuttles are thrown simultaneously one above and one below the body of the fabric. The heddles are now shifted and the operation repeated.

When the worsted warp 1 is not called by the jacquard, but is carried straight in the fabric, as shown at 1'', between the filling-wefts, the worsted warp 2 will also be carried straight in the fabric between the filling-wefts, as shown at 2''.

When the worsted warp 2 is called by the jacquard and is raised to form a loop 2''' over the wire in the upper surface of the fabric, the worsted warp 1 is simultaneously lowered to form a corresponding loop 1''' under the wire in the lower surface of the fabric, and the operation above given is repeated, so that whenever one of a pair of worsted warps is called by the jacquard to appear in the pattern to form the loop or pile surface in the upper surface of the fabric the other of the pair of worsted warps simultaneously forms the loop or pile surface in the lower surface of the fabric and appears in the pattern on that surface.

Referring to Figs. 5 and 6, the worsted warp 3 is first carried straight in the fabric between

the filling-wefts, as shown at 3', and the worsted warp 4 is also carried straight in the fabric between the filling-wefts, as shown at 4'; but when the worsted warps 1 and 2 are carried straight in the fabric, as shown in Figs. 3 and 4 at 1'' and 2'', the worsted warp 3 is called by the jacquard mechanism to form the loop 3'' in the upper surface of the fabric, and simultaneously the worsted warp 4 forms the loop 4'' in the lower surface of the fabric. The worsted warps 3 and 4 are carried straight in the fabric between the filling-wefts, as shown at 3''' and 4''', when the worsted warps 1 and 2 are called by the jacquard, as shown in Figs. 3 and 4.

It will thus be seen that in my double-faced body Brussels carpet or other pile fabric the same pattern is woven on each side of the fabric and the same colors appear in the pattern on each side of the fabric, but in a different position in the pattern, so that the coloring is different on each side of the fabric.

If one set of wires used in weaving the carpet is provided with knives on their ends, then the cut pile surface 10 will be formed on one side of the finished carpet, as shown in Fig. 7, instead of the looped surface 11. If both sets of wires are provided with knives on their ends, then the cut pile surface 10 will be formed on each side of the carpet, as shown in Fig. 8.

I have only described and shown in this application the construction or weave of my double-faced or reversible body Brussels carpet or other pile fabric, and I have not described the construction of the loom for making the fabric, as the same forms the subject-matter of another application for a patent, Serial No. 441,116, filed July 25, 1892.

I have described my new double-faced woven pile fabric as a carpet; but it may also be used as a rug or for covering furniture, &c.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A double-faced pile fabric woven from an even number of frames of worsted warps and having the same pattern on both sides, but each side having a different coloring, and consisting of two binding-warps passing entirely through the floating worsted warps from top to bottom and from bottom to top, and two sets of filling-wefts and worsted warps when selected appearing on coincident portions of both sides of the fabric to form the loops or pile surface on each side of the fabric and when unselected carried in the body of the fabric between the filling-wefts, substantially as set forth.

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Witnesses:

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