

UNITED STATES PATENT OFFICE.

DAVID B. KERR, OF NEW YORK, N. Y.

IMPROVEMENT IN MANUFACTURING INGRAIN CARPETING.

Specification forming part of Letters Patent No. **15,767**, dated September 23, 1856.

To all whom it may concern:

Be it known that I, DAVID B. KERR, of the city, county, and State of New York, have invented a new and useful Improvement in Carpet Manufacture—viz., an improved party-colored carpet; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to that class of goods which are commonly termed in the trade "Kidderminster," or "two or three ply ingrain carpets"—that is to say, those carpets in which both the warp and the woof show upon the face of the carpet and combine to form the figures or design. Carpets of this description have been manufactured in various ways, which may be divided into two general methods. According to older method the whole of the threads, both warp and woof, are dyed of uniform colors throughout their whole length, and the pattern is produced in the process of weaving by varying the positions occupied by the different-colored threads in the fabric, the change in the position of the warp-threads being generally effected by a Jacquard apparatus, while the shuttles which contain the woof or filling are changed when necessary, either by hand or by machinery, or partly by each. This mode of manufacture is defective in some respects, as it not only requires much labor, but also requires a large amount of stock to produce a handsome carpet, as there should be more than two plies in the carpet in order to prevent the striped appearance which this mode of manufacturing otherwise produces. The difficulty of manufacturing a cheap and handsome carpet by this mode led to the second method, which was devised by Graham, and which consists in dyeing a portion of the yarns party-colored according to the predetermined design, so that the same yarns will form different-colored figures at different portions of the carpet. This latter mode of manufacture has been very successful in practice, and has been followed by various parties, some of whom have improved upon the mode originally pursued by Graham and have procured patents for their improvements.

The invention made by me has for its object the manufacture of a party-colored carpet which can be produced at a lower rate than those hitherto made; and its nature will ap-

pear more clearly on a consideration of the mode of manufacture originally devised by Graham and followed by his imitators. In Graham's carpet the warp-threads are solid-colored, or are dyed of uniform color throughout their whole length, and are arranged in the loom in the ordinary manner, so that warp-threads of different color may be brought up to the surface of the cloth, as the nature of the pattern requires. The weft-threads or filling are party-colored or dyed of different colors throughout their length according to a predetermined design, and are then interwoven with the solid-colored warp, so that the figure appearing at the surface of the carpet is formed in part of solid-colored warp-threads and in part of party-colored weft-threads. Although this system of manufacture is successful as regards the diminished quantity of stock required when compared with the older method, it is attended with the defect that thus far it has not been found possible to weave these carpets by power-looms, so that the saving gained by the use of the power-loom for carpet-weaving is not effected. This defect arises from the well-known fact that it has been found impossible by any loom that has thus far been constructed to weave carpets of absolutely uniform and invariable breadth. Hence, if the breadth in weaving be even a very little less than that for which the weft-thread has been calculated and dyed the weft-thread gradually gains upon the figure and runs past its proper place, consequently the different colors speedily appear in improper positions in the carpet. The same result is obtained if the breadth in weaving be greater than that calculated in party-coloring the yarn. Hence, in weaving party-colored ingrain carpet, it has been found necessary to throw the shuttle by hand, and that the weaver shall adjust the weft-threads as may be required to make the party-colored portions occupy their proper positions in the cloth.

My invention consists of a party-colored ingrain carpet, in which the warp-threads of one or more plies are party-colored in whole or in part, while the weft-threads are solid-colored, in the manner usually employed in weaving ordinary solid-colored ingrain carpets. In manufacturing carpets of this description those warp-threads which are to be party-colored may

be dyed or printed by any of the methods employed for party-coloring yarn in the carpet manufacture, the position of the various colors upon the yarn being regulated according to the design which it is intended to produce upon the carpet. The weft-threads are solid-colored or dyed of one uniform color throughout their whole length. The warp-threads are arranged in a power-loom, such as is used for weaving ordinary ingrain carpets, and the shuttles containing the solid-colored weft-threads are thrown by the mechanism of the loom in the usual manner. As the power-loom for carpet-weaving has attained such a state of perfection that the length of the figure produced by it in a certain number of picks or crossings of the shuttle is practically uniform and invariable, the exact position which each portion of the warp will occupy in the carpet can be calculated beforehand, and by party-coloring the warp in accordance with this calculation the colors will be made to show themselves in their proper positions in the carpets. Hence a party-colored carpet of this description—that is to say, an ingrain carpet in which a party-colored warp is combined with a solid-colored woof to form the figure or design, in contradistinction to an ingrain carpet in which a solid-colored warp is combined with a party-colored woof—can be woven in a power-loom, thus effecting a saving in the cost amounting, according to my own experience, to ten cents per yard.

My invention thus combines the advantages of the old and new systems of manufacture, for while it effects the saving in stock incident to the manufacture of the Graham party-colored carpet it can be woven by power in the method in use for manufacturing solid-colored carpeting, and at a correspondingly-low price. In the manufacture of carpet upon this system it will not generally be found necessary to party-color all the warp-threads of one or more plies, as a great variety of designs may be formed

by party-coloring only a portion of the warp-threads, and by combining these and the remaining portion with solid-colored filling.

In manufacturing ingrain carpet it is customary to make the filling or weft threads of heavier yarn than the warp-threads. Hence the carpet is liable to wear out sooner in the warp than in the weft. This mode of manufacture is disadvantageous, as it is always advisable that the wear of cloth should be uniform in both directions. In manufacturing my improved carpet, when two-ply, I form the solid-colored ply of light warp-threads combined with heavy weft-threads or fillings, while the party-colored ply is composed of heavy warp-threads, party-colored where necessary, combined with lighter solid-colored filling, by which arrangement the wear of the fabric is equalized.

Having thus described my invention, I wish it to be understood that I do not claim broadly the invention of a party-colored carpet, nor the manufacture of a carpet composed in part of solid-colored yarn and in part of party-colored yarn when the two are combined in a manner different from that described as my invention; nor do I claim any particular method of party-coloring yarn for carpet, nor the weaving of carpets in a power-loom; nor do I limit myself to a carpet in which all the warp-threads are party-colored; but

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

A party-colored ingrain carpet, in which the warp-threads of one or more plies are party-colored in whole or in part, and are combined with solid-colored weft-threads to form the design, substantially as herein set forth.

In testimony whereof I have hereunto subscribed my name.

DAVID B. KERR.

Witnesses:

JOHN C. ROSE,
E. A. MILLS.