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HOUSEHOLD BLANKET

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Fig. 1

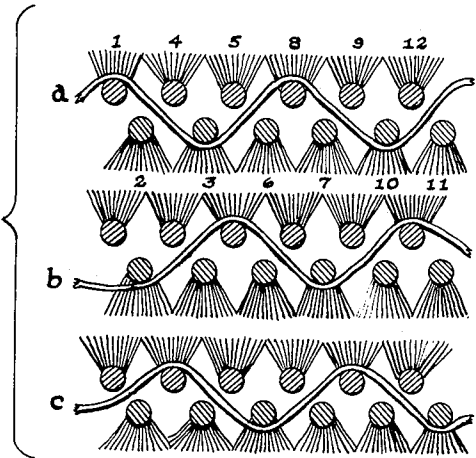
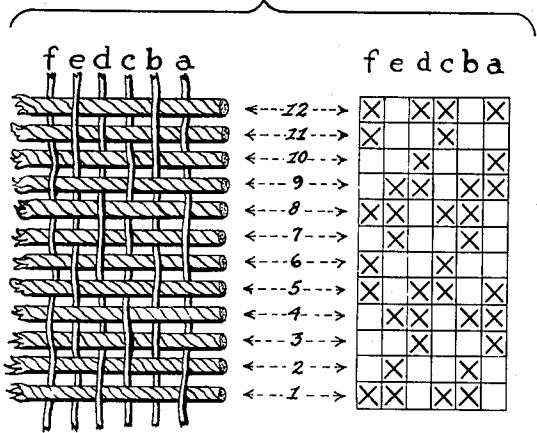


Fig. 2



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This invention relates to household blankets and more particularly to an improved double weave construction for such blankets that permits increased napping of the blanket and consequent increased warmth.

In the usual woven blanket it is customary to use core threads for strengthening the filling yarns so that they will withstand the subsequent napping operation, the core threads being relatively small, hard twisted threads wrapped around the more lofty, slack twisted filling yarns. The cost of the core thread material, as well as the operation of twisting the core thread with the filling yarns, adds to the expense of the blanket, but has heretofore been considered essential to provide the required strength in the blanket.

In accordance with the present invention, I have discovered that the core threads commonly used in the filling yarns may be eliminated entirely, with a substantial saving in cost, and the desired strength of the blanket still maintained. This is made possible in the blanket of my invention by employing a weave construction different from that commonly used in blankets. In the usual double woven blanket construction, the filling yarns are woven with warp yarns so that each warp yarn runs alternately under a group of three top face and one bottom face filling yarns, and then over and around a group of one top face and three bottom face filling yarns. This conventional weave construction is known as a 3-1-1-3 double weave.

According to the present invention the weave construction is changed to provide a 2-1-1-2 weave in which the warp yarns or ends run alternately under a group of two top face filling yarns with one bottom face filling yarn, and then over a group of one top face filling yarn with two bottom face filling yarns. It will be apparent that in this 2-1-1-2 weave the filling yarns are more fully tied in by the warp than the conventional weave construction used heretofore and, as a result of which, the filling yarns can be napped more intensively and thereby produce a greater nap or higher loft in the blanket cloth, and consequently, greater warmth in a blanket or the like formed therefrom.

Furthermore, the weave construction of the present invention results in an improved finish or appearance in the blanket, wherein the picks below the nap or loft cannot be seen nearly as easily as in the conventional blanket. This is verified by the fact that the amount of light transmitted through the blanket of the present invention using the 2-1-1-2 weave is approximately 10% less than that transmitted through a blanket of the conventional 3-1-1-3 weave construction.

Similarly, the increased nap or loft of the blanket of this invention provides a thicker blanket, that is, one which has about 20% more bulk, and which will maintain this thickness or volume increase after packaging or storing. This increase in loft results in a comparable increase in the number of air cells in the blanket, which, in turn, provides greater insulating properties and improved warmth.

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The filling and warp yarns used in the blanket cloth of the present invention may be made of any desired type of fiber, either natural, vegetable or animal fibers, or synthetic fibers. Typical but non-limiting combinations of filling yarn fibers for blanket cloth of this invention are as follows:

Example A.—90% rayon—10% nylon.

Example B.—50% rayon—25% wool—25% cotton.

Regarding the size of the filling yarns to be used in this blanket cloth, they may vary in count from about 1.75 to 3.50. Yarns less than 1.75 are generally too coarse and yarns greater than 3.50 will generally be too fine.

With respect to the warp yarns used in this blanket, they may be of conventional fiber content and twist (e. g., 20s cotton yarn), but the number or density of warp yarns used per unit width in the blanket is important and should fall within the range of approximately 27 to 30 warp ends per inch. I have found that if less than 27 warp ends are used, the filling yarns will not be tied in sufficiently, and if more than 30 warp ends per inch are used, the blanket becomes too "boardy" and will not nap efficiently. In usual commercial production of the blanket of this invention, I have found 28 warp ends per inch to give very satisfactory results.

For producing the conventional blanket having a warp width of 72 inches and using the conventional 3-1-1-3 weave construction, in which the top face warp pattern is 3-up and 1-down for any four adjacent warp ends, there is required approximately 3100 warp ends. In this construction, the number of "tie downs" of filling yarns, by the warp yarns, amounts to one fourth of the total number of warp ends, which in the case of 3100 warp ends would be equal to 775 "tie downs" of filling per 72 inches. On a comparable basis, a blanket having the improved 2-1-1-2 weave construction of the present invention, in which the top face warp pattern is 1-up and 2-down for any three adjacent warp ends, the total number of warp ends required for producing the 72 inch width blanket is only 2380 warp ends, or 720 less warp ends in the 72 inch width blanket. This is equivalent to approximately 23% reduction in the amount of warp yarns required for weaving this improved blanket and effects a substantial saving in cost.

Despite the reduction in the total amount of warp yarns used in the blanket of this invention, as above described, the 2-1-1-2 weave construction of this invention produces a greater number of "tie downs" of the filling yarns, by the warp yarns, in the 72 inch blanket. This is so because with the above noted warp pattern for the 2-1-1-2 weave construction, the number of "tie downs" of filling yarns in the 72 inch blanket containing the 2380 warp ends, as previously noted, is one third of the total number of warp yarns; that is, one third of 2380, or 793 "tie downs" of the filling yarns in the 72 inch blanket. As compared with the above mentioned 775 "tie downs" of filling yarns by the warp ends in the conventional 3-1-1-3 weave blanket, this 793 "tie downs" of the filling yarns in the improved 2-1-1-2 weave construction of the present invention is obtained even though the total number of warp ends in this blanket is about 23% less than in the conventional blanket, as shown above.

By virtue of this improvement in tying down of the filling yarns, by the warp yarns, in the blanket of this invention, it can be napped more extensively and effectively without damaging the filling or warp yarns and thereby produce a blanket of higher loft and improved warmth. Similarly, this more efficient tying down of the filling yarns into a tighter blanket construction permits weaving of the blanket cloth one inch narrower than is conventionally done and still obtain the desired 72 inch finished warp width of the blanket. More specifically, the conventional 3-1-1-3 weave blanket is normally woven

85 inches initial warp width to allow for contracting or shrinkage in subsequent processing of the blanket so as to give a finished warp width of 72 inches. In the blanket of the present invention, using the 2-1-1-2 weave, the blanket cloth may be initially woven to 84 inches warp width, and the finished width of 72 inches still obtained after processing of the blanket.

These and other features of the present invention are described in further detail below in connection with the accompanying drawings, in which:

Fig. 1 is a fragmentary diagram illustrating the relative interlacing of any three adjacent warp ends in a blanket cloth incorporating the weave construction of the present invention; and

Fig. 2 is a fragmentary schematic plan view of the blanket cloth weave construction of the present invention in relation to a pattern chart for the warp ends.

In Fig. 1, the adjacent warp ends shown are designated by the reference characters *a*, *b*, and *c*, while the filling yarns shown are indicated by the reference numerals 1 to 12, inclusive, the filling yarns 1, 4, 5, 8, 9 and 12 being top face filling yarns, and 2, 3, 6, 7, 10 and 11 being bottom face filling yarns. The relative disposition of the three warp ends *a*, *b*, and *c* shown in Fig. 1 is representative of any three adjacent warp ends at any point in the weave construction of the present invention, and it will be noted that, as previously mentioned, each warp end *a*, *b*, or *c* runs alternately under a group of two top face filling yarns with one bottom face filling yarn, and then over a group of one top face filling yarn with two bottom face filling yarns, to provide the 2-1-1-2 weave construction characterizing the present invention.

Fig. 2 shows in schematic plan the arrangement of the three adjacent warp ends *a*, *b*, and *c* represented in Fig. 1, together with three further adjacent warp ends *d*, *e*, and *f* in relation to a warp end pattern chart to illustrate the repeating warp end pattern. This pattern, which results in the 2-1-1-2 weave construction, is characterized by the fact that any three adjacent warp ends run 2-down and 1-up with respect to any top face filling yarn 1, 4, 5, 8, 9 or 12, and 1-down and 2-up with respect to any bottom face filling yarn 2, 3, 6, 7, 10 or 11. The pattern chart in Fig. 2 represents the warp ends that are down cross marks, while blank spaces are left for those that are up. Also, it should be noted that Fig. 2 shows the filling picks 1 through 12 schematically in the order in which they are shot so as to correlate them directly with the pattern chart, while Fig. 1 is an exaggerated illustration of the actual double weave construction in which the filling picks 1 through 12 are still numbered in order.

In this connection, it may be further noted that a double weave construction of this sort is commonly formed on a loom equipped with at least two shuttle boxes so that different colored filling may be used at the top and bottom faces if desired. If different colored top and bottom filling were used, then the filling pick 1 would be a return pick to the box for the top face filling color, and the bottom face filling would then be shot on filling pick 2 and return on filling pick 3, followed by shooting of the top face filling on filling pick 4 and return on filling pick 5, and so on to maintain the different colored fillings at the respective faces. On the other hand, if only one color of filling is used it is advantageous to

shoot alternately from different boxes on odd picks so that no two adjacent picks in either face are formed of yarn from the same shuttle and concentration of any variations in either of the filling yarns is thereby avoided and are much less likely to be noticeable in the finished cloth.

The present invention has been described in detail above for purposes of illustration only and is not intended to be limited by this description or otherwise except as defined in the appended claims.

I claim:

1. A woven blanket of double woven construction comprising coreless filling yarns of a count within the range from about 1.75 to 3.50 napped at both faces of the double weave, and warp yarns arranged in the order of about 27 to 30 warp ends per inch with any three adjacent warp ends running 2-down and 1-up with respect to any top face filling yarn, and 1-down and 2-up with respect to any bottom face filling yarn, and with each warp end running alternately under a group of two top face and one bottom face filling yarns and then over a group of one top face and two bottom face filling yarns.

2. A woven blanket characterized by a lofty nap, by resulting increased bulk, and by a substantially reduced warp density without any sacrifice in weave tightness, said woven blanket being formed of a double woven construction in which the warp ends have a count in the order of about 20 and are arranged with a density in the order of about 28 warp ends per inch, in which the filling is coreless and has a count within the range from about 1.75 to 3.50 and is napped at both faces of the double weave, and in which any three adjacent warp ends run 2-down and 1-up with respect to any top face filling yarn and 1-down and 2-up with respect to any bottom face filling yarn and each warp end runs alternately under a group of two top face and one bottom face filling yarns and then over a group of one top face and two bottom face filling yarns.

3. A woven blanket characterized by a double woven construction in which the filling is coreless and has a count within the range from about 1.75 to 3.50 and is napped at both faces of the double weave, in which any three adjacent warp ends run 2-down and 1-up with respect to any top face filling yarn and 1-down and 2-up with respect to any bottom face filling yarn and each warp end runs alternately under a group of two top face and one bottom face filling yarns and then over a group of one top face and two bottom face filling yarns, and in which the warp end density is sufficiently low to avoid boardiness in the weave construction and allow formation of a lofty nap while still affording a fully adequate weave tightness.

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