

R. & J. DANTZER.
VELVET WEAVING.
APPLICATION FILED SEPT. 27, 1911.

1,104,635.

Patented July 21, 1914.

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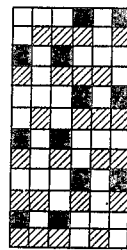
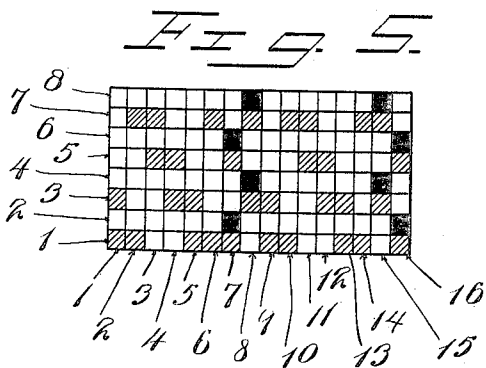
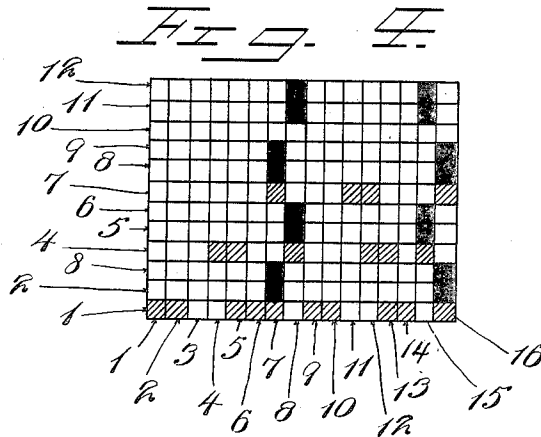
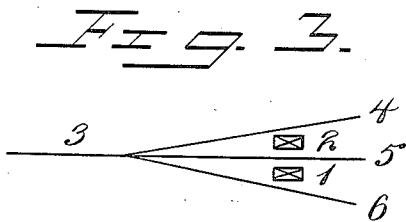
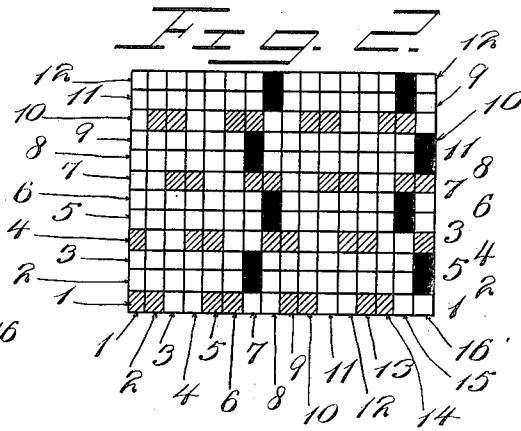
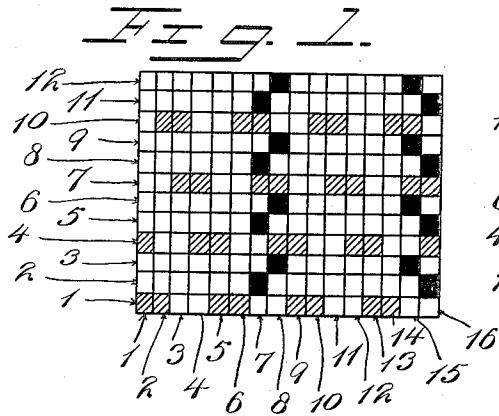


Fig. 6.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 1.

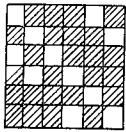


Fig. 2.

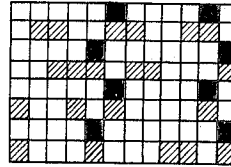


Fig. 3.

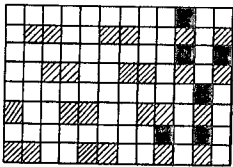


Fig. 10.



Fig. 11.

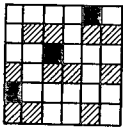


Fig. 12.

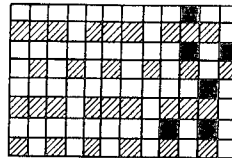
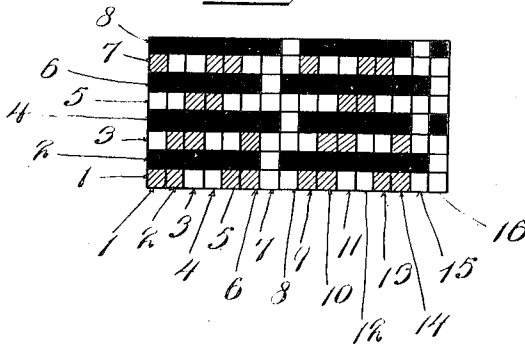


Fig. 13.



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ROBERT DANTZER AND JAMES DANTZER, OF LILLE, FRANCE.

VELVET-WEAVING.

1,104,635.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ROBERT DANTZER and JAMES DANTZER, citizens of the French Republic, both residing at 85 Rue Brûle Maison, Lille, in the Department of Nord, France, have invented a new and useful Improvement in Velvet-Weaving, of which the following is a specification.

The present invention relates to improvements in processes for weaving cotton weft velvet.

Cotton weft velvet has two species of weft thread: 1st. Ground weft threads. 2nd. Pile weft threads. The first mentioned threads also called base or foundation weft threads, form with the warp threads a strong firm cloth on which float the velvet or pile weft threads which form the raised pile or velvet after the threads have been cut.

While the appearance of cotton velvet corduroy, velveteens, fancy or figured velvet is various, in manufacture their textures are all based on the same principles which may be summarized as follows:

1st. In the weft there may be one ground weft thread to one or more pile threads, but generally there is one ground weft thread to every two pile weft threads.

2nd. In order to allow for the cutting operation all the pile weft threads are secured along the same threads which for this reason are called binding threads. As the points of connection of the pile weft threads are along lines following the same threads, a longitudinal path or passage is left for the knife which makes the cut.

3rd. A very compact weft threading varying from 80 to 140 weft threads to the centimeter assures the strength of the ground or foundation fabric, as two thirds of the weft threads are severed at the middle of their loops to make the velvet tufts.

The present invention relates to various modifications regarding the method of working the binding threads of weft velvet and the process of forming the fabric itself, regarding at the same time the above mentioned rules of construction.

The accompanying drawings, Figures 1 to 13, illustrate these modifications.

Fig. 1 illustrates according to the stated conditions the design for a corduroy known in commerce as semi-ribbed. On this design the foundation or ground weft threads Nos. 1, 4, 7 and 10, indicated by cross hatching, are bound in batteries of four. The pile

weft threads 2, 3, 5, 6, 8, 9, 11, 12 are uniformly bound in the fabric along the warp threads 7 and 8 and then along the threads 15 and 16 of the pattern repeat.

Given the degree of compactness of the velvet required, the design of Fig. 2 may be substituted for that of Fig. 1 as it will give a fabric resembling exactly that obtained in working Fig. 1, in fact, as may be easily seen Fig. 2 is derived from Fig. 1 in which the weft pile threads have been transposed, and the numbers indicated on the right of Fig. 2 compared with the weft thread numbers on Fig. 1 show the change effected. In Fig. 2, all the pile threads are similar in pairs and therefore this design may be woven by a loom having rising and rotating shuttle boxes and having two shuttles which work alternatively pick after pick; one of these shuttles containing a simple weft thread for the ground weft thread and the other a double weft thread, or several assembled ends or even a weft thread of large number. This method of weaving, however, is not of especial interest as the speed of such a loom is much lower than that of an ordinary loom making a similar article, and further this shuttle box movement is subject to frequent disarrangements.

According to the process of the present invention two shuttles are also used, but instead of causing them to work one after the other and pick after pick as has been stated, they are thrown simultaneously and in the same direction. The mechanical loom used for this purpose is arranged similarly to those used for weaving double piece plush or double piece moquette. But in the present case instead of simultaneously throwing the two shuttles as in those looms in order to make them work separately through two independent warps, they are thrown simultaneously through two sheds of a single warp in such a manner that the lower shuttle forms the foundation of the velvet and the second shuttle forms the pile. By using this system of loom weaving with two shuttles, the shuttle boxes have no motion imparted to them as they are fixed and the speed of these looms remains the same as that of the ordinary loom weaving by means of simple boxes. The single warp in question is divided into two superposed sheds, giving a passage to the shuttles as shown in Fig. 3. The shuttles 1 and 2, one carrying the foundation weft thread and the other carrying the pile weft thread, then pass between the

threads 4, 5 and 6, the fabric being formed as at 3. According to the design required the binding threads may occupy any of the spaces between the warp threads 4, 5 and 6, while the other foundation weft threads can only occupy the space between the warp threads 5 and 6. To render this method of weaving possible, the following constructional rule must be observed; in all cases in which weft velvet is made in which the shuttles are thrown simultaneously, the binding thread which rises to secure a pile weft thread must also rise to secure the foundation weft thread thrown at the same moment. This rule, which may be very simply applied, shows that Fig. 2 as illustrated cannot be worked by means of two shuttles; it may be seen in fact that the foundation weft thread 1 required the depression of threads 7 and 16 and that the pile weft threads 2 and 3 which will be thrown at the same time require on the contrary these threads to be raised. On the other hand in this same figure, the weaving of the foundation weft thread 7 and the pile weft threads 8 and 9 is possible. Owing to these conditions, the arrangement of Fig. 2 must be altered somewhat in order to bring it into conformity with the principles stated. It is in fact possible to alter the arrangement by means of varying the arrangement of foundation weft threads conserving at the same time the same working of the sewing threads securing the pile weft threads. Fig. 4 shows one of the many arrangements for obtaining this effect. This design (Fig. 4) is reduced to eight weft threads as shown in Fig. 5, and these eight weft threads are woven at four picks.

Fig. 6 illustrates on the other hand the design for a fluted cloth the foundation of which instead of being bound as three end twill is bound as six end twill (Fig. 7) that is to say according to a twill having a plurality of ribs, the appearance of which differs very little from the usual type of twill.

Fig. 8 shows the application of this principle to the Kinscord arrangement or four thread design, then in Fig. 9 one side will be corded. The ground cloth allows of this method of binding the pile weft threads as may be seen from the smooth corduroy of Fig. 10.

It is possible to make velveteen or velvet having a united surface as may be seen in Fig. 11. In certain cases, a part of the ground weft thread may be used to form a lining on the wrong side, that is to say, the weft thread of the lower shuttle may form a doubled or double-sided cloth.

Fig. 12 which shows a corded velveteen serves to explain this. By adopting the same rules it is possible to multiply the

number of these new fabrics. It may be seen that it is possible to produce, within the scope of this new process, velvet having a good side underneath. As in this case the pile weft thread shuttle will be underneath, it will be necessary to modify the draft as shown in Fig. 13; this lathe is in fact merely the repetition of the example of Fig. 5 drafted in the customary manner. It follows that the rule to be regarded in this case is:—In order to make weft velvet simultaneously with two shuttles, each binding thread lowered to bind a pile weft thread passes below the ground weft thread inserted at the same time. In certain particular cases this method of working has advantages over fabric woven with the right side upward.

In conclusion, in all the examples stated above the same method of binding the weft pile threads is used as that used hitherto in weft velvet and the ground cloth is modified somewhat so as to bring it in accordance with the principles which have just been stated. In this manner cloths are obtained analogous to materials now produced, but owing to the method of weft working the production is tripled.

It is to be understood that the use of two superimposed shuttles allows for all possible combinations of weft, and thus the two weft threads may be of the same kind or of different kinds, of the same color or of different colors, etc., and a wide variety of material may thereby be made.

What we claim is:—

1. A process for weaving weft pile velvet consisting in dividing a single warp into an upper and a lower shed, shooting a weft thread through the upper shed to form the pile, and shooting simultaneously therewith and in the same direction a weft thread through the lower shed to form the ground.

2. A process for weaving weft pile velvet consisting in dividing a single warp into two groups, the threads of one group forming the shed for the ground, and the threads of the other group forming the binding shed; shooting a weft thread between the threads of the raised ground warps and the raised threads of the binding warps; and shooting simultaneously therewith and in the same direction a weft thread through the shed formed by the ground warps.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ROBERT DANTZER.
JAMES DANTZER.

Witnesses:

CHARLES MERCHEZ,
GUSTAVE ALBRECHT.