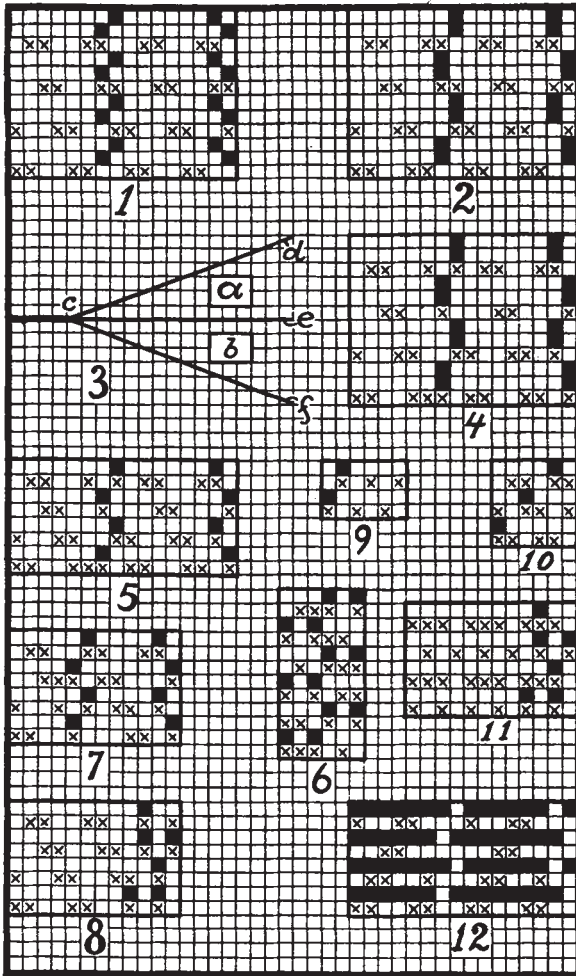


**TO INCREASE THE PRODUCTION OF VELVET WEAVING.**

By Robert and James Dantzer, of Lille, France.

The same refers to improvements in the process of weaving filling pile cotton velveteens or corduroys, the gist of the invention resting in using, *i. e.*, picking two (2) shuttles simultaneously, similar to the weaving of double plushes or double moquettes. The difference between the latter two fabric structures and that of the new filling pile cotton velveteens or corduroys consists that in the present case, instead of simultaneously throwing the two shuttles through two independent



warps, they are now thrown simultaneously through two sheds of a single warp in such a manner that the lower shuttle forms the foundation or body of the velvet and the second shuttle forms the filling float, *i. e.*, the pile. By using this system of weaving, *i. e.*, picking two shuttles at one time, the shuttle boxes requiring no motion imparted to them; they are fixed, hence the speed of these looms remains the same as that of a single box loom.

The same arrangements (weaves) for binding the floating picks, *i. e.*, filling pile picks as now used with single-pick weaving is adhered to in the new method of two-pick weaving, but the ground, body or foundation cloth (whichever way we may call it) has to be somewhat rearranged, *i. e.*, modified, so as to adopt the single-pick weave for a double-pick weave. The inventors claim for their patent "triple production" compared to the present style of single shuttle work.

The two superimposed shuttles allow for all possible combinations of filling, and thus the two kinds of filling used may be either of the same counts and twist of yarns or they may differ; again, one or two colors of filling may be used.

To illustrate the new way of constructing two pick filling pile cotton velvet weaves, the accompanying plate of eleven weaves and one diagram (showing shedding) are given.

All filling pile cotton velveteens or corduroys are made with one system of warp and two systems of filling. The latter are

- (a) ground, body or foundation picks
- (b) floating, *i. e.*, pile picks.

The ground picks form with the warp-threads the body or foundation of the fabric, on which float the pile picks which afterwards in the finishing form the raised pile or velvet, after the threads have been cut.

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

(a) In the filling there may be one ground pick to one or more pile picks, but generally there is one ground pick to every two pile picks.

(b) To allow for the cutting operation, all the pile picks are secured along the same warp-threads which for this reason are called binder warp-threads. As the points of connection of the pile picks are along lines following the same warp-threads, a longitudinal path or passage is left for the knife which cuts the floats of the filling.

(c) A very compact filling texture, varying from 200 to 350 picks per inch assures the strength of the ground or foundation fabric, since two-thirds of the picks are severed at the centre of their floats, to produce the characteristic velvet tufts.

Fig. 1 illustrates a frequently used weave, technically known as a semi-ribbed corduroy. The ground picks are shown by *cross* type, interlacing with the 4-harness even-sided twill. The floating or pile picks are shown by *full* type and are uniformly bound by warp-threads 7, 8 and 15, 16. Each pile pick floats alternately over six and over eight warp-threads, in order to impart the characteristic roundness to the cord.

The claim of Messrs. Dantzer is that provided the proper texture to warp and filling is retained to the fabric structure, weave Fig. 2 may be substituted for weave Fig. 1 without a marked change in the appearance of the fabric. The ground weave is the same, but the pile picks are introduced in pairs (warp rib weave). Fig. 2 may be woven with a rise and drop box loom using two shuttles which work alternately, one of the shuttles containing a single yarn for all the ground picks, the other shuttle containing a two or more fold thread to take the place of the two picks in the weave interlacing alike.

This method of weaving, however, is not of especial interest, as the speed of a rise and drop box loom is much lower than that of a single box loom weaving a similar fabric.

According to the process of the present invention two shuttles are also used, but instead of causing them to work one after the other, pick after pick, as referred to before, both shuttles are thrown simultaneously and this in the same direction.

To accomplish this the warp (one system only being used) is divided into two sheds, one above the other, the top of the lower shed forming the bottom of the top shed. Diagram Fig. 3 is given to explain subject and where

- a* and *b* illustrates the section of the two shuttles,
- c* the fell of the cloth,
- d, c, e* the upper shed,
- e, c, f* the lower shed.

According to whether the fabric is woven "face up" or "face down" on the loom, one of the shuttles carries the ground filling, the other the pile filling.

Guided by the weave, and weaving the fabric face up, the binder warp-threads may occupy any position in either one of the two sheds, while the foundation, *i. e.*, ground warp-threads can only operate up or down in the lower shed.

To render this method of weaving possible, the following rule of constructing the weave must be observed: In all cases in which filling velvet is made in which the shuttles are thrown simultaneously, the binder thread which rises to secure a pile pick must also rise to secure the ground pick 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 will be seen that the foundation pick 1 requires the depression of warp-threads 7 and 16 and that the pile picks 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 plan, the weaving of the foundation pick 7 and the pile picks 8 and 9 is possible.

Owing to these conditions, the arrangement shown in Fig. 2 must be altered so as to bring it into conformity with the principles of weave formation previously referred to. It is in fact possible to alter the arrangement by means of varying the arrangement of foundation picks retaining at the same time the method of interlacing of the binder warp-threads with its pile picks.

Fig. 4 shows one of the many arrangements possible for obtaining this effect. Repeat of weave 16 by 12. This weave for practical work calls for eight picks (using a two fold yarn for each pile pick) as shown in Fig. 5.

Fig. 6 illustrates a fine cord weave effect, having the 3 up 1 down 1 up 1 down 6-harness twill for its ground or foundation structure. Repeat of weave 6 by 12.

Fig. 7 shows the application of the new method of weaving velveteens to a Kingscord with a four and six end float, using the 4-harness evensided twill for the foundation structure. Repeat 12 by 8.

Fig. 8 shows a pronounced cord weave, repeat 12 by 8.

Fig. 9 shows a smooth corduroy repeating on 6 by 4.

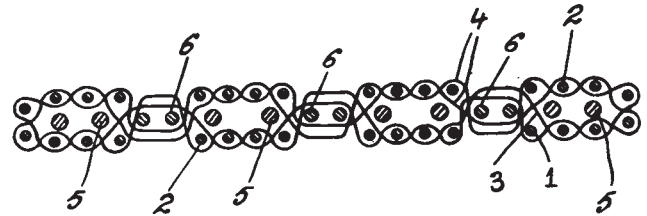
Fig. 10 is the weave for a smooth velveteen, repeating on 6 by 6.

Fig. 11 shows a corduroy weave in which the ground filling forms a line effect on the back of the fabric structure; repeat 12 by 8.

Fig. 12 shows a corduroy woven face down, and when the position of the shuttles in the boxes must then be reversed. Repeat of weave 16 by 8. In some instances, weaving corduroys thus face down in the loom may be found advisable.

### Improved Woven Fabric for Shoe Strings, Corset Laces, Etc.

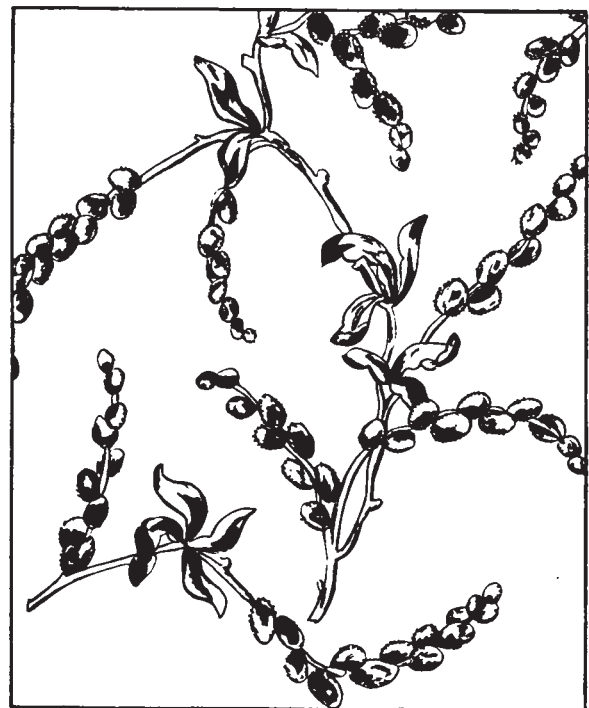
The object is to provide a narrow woven fabric of non-elastic thread, which shall be so woven as to be able to withstand wear and still be fine enough to form a shoe string and laces of various kinds.



As seen from the accompanying diagram, showing a cross section of the new fabric, the same consists of the face warp-threads 1, the back warp-threads 2, face picks 3, back picks 4, stuffer warp-threads 5, and binder warp-threads 6.

The face and back warp-threads are preferably arranged in opposed sets with four threads in each set. The stuffer warp-threads are interposed between corresponding sets of face and back warp-threads, as clearly shown in the illustration; the binder-threads separating each two sets of face and back warp-threads. The picks are interwoven first with the face warp-threads and then with the back warp-threads, or vice versa. The face picks pass behind the binder-threads and the back picks pass in front of the binder-threads and thus the two plies of the fabric are stitched together.

### Design for Textile Fabric.



The above illustration shows a plan view of a portion of a new, original and ornamental design for a textile fabric, just patented by H. R. Mallinson.