N° 18,043 A.D. 1911

Date of Application, 9th Aug., 1911—Accepted, 8th Aug., 1912

COMPLETE SPECIFICATION.

Improvements in or relating to Fashioned Woven Fabrics.

We, The Honourable ARTHUR JEX DAVEY, Gentleman, and THE MILLS EQUIPMENT COMPANY, LIMITED, Manufacturers, all of 72, Victoria Street, Westminster, London, S.W., do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to fashioned woven fabrics and has for its object to produce a strip of varying width. Such strips having wide and narrow parts have previously been produced in various ways but in some cases the wide and narrow parts were not of uniform thickness owing to the fact that certain warp threads which were necessary in the production of the wider parts were, when weaving the narrow parts, introduced therein thus causing the narrow part to be of greater thickness than the wide part. In other cases certain of the lateral warp threads were floated where the narrow parts were to be formed these floated threads being subsequently cut off but in such cases either a single ply strip was produced or where a thicker strip was formed it comprised two plies which were separate throughout the length of the strip except at the edges so that the strip as a whole was woven as a tube.

According to this invention the strip is woven as a two-ply fabric the plies being united by binding threads throughout except where the change in width takes place when the two plies are formed separate for a short distance certain of the lateral warp threads at this point being floated and subsequently cut off. A solid fabric of the required thickness is thus produced but at the place where the change in width occurs a space is provided by separating the plies into which space the ragged side portions forming the end of the wider part of the strip may be tucked the two separated plies being then sewn together so as to retain the tucked in ends. A strip woven and finished off by this process will have a uniform double thickness throughout its length while both the wide and narrow portions have selvedge edges and the change in width is effected in a neat and durable manner.

In some cases two or more strips each comprising, for example, first a narrow part and then a wider part and then another narrow part may be woven simultaneously side by side on a loom adapted to use two or more shuttles. In this case the respective widths of the wide and narrow parts are so proportioned that these wide and narrow parts will alternate and economy will be effected in that, in place of cutting to waste all the lateral warp threads when the narrow parts are being produced, these lateral warp threads or some of them will be utilised to form the narrow parts of another strip. In this case the complete strip as it issues from the loom will comprise two or more rows of units each composed of a wide part with a length of narrow fabric at each end.

In this modified process of weaving the strips the warp threads will intermittently be floated on the outside of the complete strip and these warp threads will be cut to waste unless it is desired to utilise them in the production of separate short narrow strips, but in any case a certain economy in the warp threads can be effected.

The change from the wide to the narrow part in the strip may be effected suddenly by dropping simultaneously all those lateral warp threads which are

[*Price 8d.*]

to be floated or these lateral warp threads may be dropped and floated successively so that the change in width of the strip will take place gradually.

In the accompanying drawings,

Figure 1 shows a portion of a strip of fabric woven in accordance with the present invention, the drawing illustrating the place where the change in the width of the strip occurs, the fabric being shown with floating warp threads as it comes from the loom.

Figure 2 is a longitudinal section on the line 2—2 of Figure 1.

Figure 3 is a view similar to Figure 1 showing the warp threads cut off in the preliminary stage in the finishing off of the strip.

Figure 4 is a similar view showing a piece of the strip fabric in its finished state.

Figure 5 is a similar view showing a modification in the weaving of the strip and the manner in which the warp threads may be floated, and

Figure 6 shows a strip of fabric composed of a series of separable units each composed of a wide and two narrow parts woven simultaneously with a view to economy in the warp threads.

Like letters indicate like parts throughout the drawings.

The improved fabric strip comprises a wide part A and a narrow part B. Where the change in width occurs certain of the lateral warp threads C are dropped and floated as shown at the sides of the narrow part B. The number of these warp threads which are so floated depends on the relative width which it is desired to give to the wide and narrow parts. In the illustration the wide part is approximately $2\frac{1}{4}$ times as wide as the narrow part.

The whole strip is formed as a two-ply fabric the plies being united by binding threads in a well known manner except for a short length of the wide part just before or at the place where the narrowing is to occur. The formation of the main parts of the strip with the two plies united is shown in Figure 2 but at D the binding threads are omitted and the two sides formed separate as at E. The edges of these two plies however are united so that the fabric at this place is of flattened tubular form. On the line F where the warp threads C are dropped and begin to float, the binding threads are again introduced so that the narrow part B is formed as a solid two-ply fabric.

As an example of the type of strip which may be produced in this way, such a strip when finished and ready for use, may comprise a wide central part A and two narrow end pieces B, at either end of the wide part A, the relative lengths of the wide and narrow parts being in accordance with requirements.

The process of finishing is shown in Figures 3 and 4. The floating warp threads C are first cut off on the line F as shown in the upper part of Figure 3 and each corner of the wider part is now tucked into the tubular part E as shown at the lower part of Figure 2. A line of stitching G is now run round as indicated in Figure 4 so as to maintain the tucked in corners and keep the inclined edges together.

In the modification shown in Figure 5, in place of the warp threads C being all dropped and floated simultaneously on a single line F as indicated in Figure 1, these warp threads are successively dropped out so that these threads emerge from the edge of the tubular part E, this part narrowing down and being woven with inclined sides as shown in Figure 5. In this case the warp threads may be cut off as shown in the lower part of Figure 5 and the ragged ends left or these ends may be finished off by stitching through, sewing over or otherwise as found convenient, so as to prevent the cut off warp threads from dropping or drawing back into the main portion of the fabric. The warp threads may be cut and finished off in other ways.

The simplest way of weaving the improved strip of varying width is to form a continuous length of fabric which has alternate wide and narrow portions with warp threads floating on either side of each narrow part, the strip then being cut as required so as to form the units each composed of a wide part A and two

narrow end pieces B. If it is desired to effect some economy in the warp threads a strip such as is illustrated in Figure 6 may be woven on a two-shuttle loom. Here it will be seen that there are in effect produced two separate strips each composed of alternate wide and narrow parts, each wide portion of one strip however partly lying between the ends of the narrow parts in the other strip. In this case it is preferable to form the relative widths of the wide and narrow parts so that the wide part is three times the width of the narrow part. A wide part a will thus have one narrow part b formed side by side with one narrow part b^1 of the next unit. The end of the narrow part b will be continuous with one side of the wide part a^1 of the next unit while conversely the end of the narrow part b^1 will be formed continuously with one side of the wide part a of the first unit. Similarly continuing along the strip the other narrow part b^1 of the second unit is formed side by side with the narrow part b^2 of the next unit, one side of whose wide part a^2 is continuous with the narrow part b^1 and lower narrow part b^3 of yet another unit. This narrow part b^3 is again formed side by side with the second narrow part b^2 and so on. The warp threads at the sides of the whole strip will be floated as shown on one side between the corners of the wide part a and the wide part a^2 and at the side between the wide part a^1 and the wide part a^3. These lateral warp threads will be cut off when the strips are being finished.

It will be understood that in weaving, one shuttle will be utilised to form the wide part a and its narrow part b, the second shuttle being utilised to form the narrow part b^1 simultaneously with the formation of the narrow part b. Where the formation of the wide part a^1 is to commence, the first shuttle will cease to be used and the wide part a^1 will be formed by the second shuttle. When the necessary length of wide part a^1 has been formed the first shuttle will again come into use to form the narrow part b^2 while the other narrow part b^1 is being simultaneously formed by the second shuttle. In cutting up the completed strip to form the several units a cut may be taken on the line X—X so as to sever the end of the narrow part b^1 from one side of the wide part a. Another cut will then be taken on the line Y—Y, this cut being made from the opposite side of the strip so as to sever the end of the narrow part b from one side of the wide part a^1. The next cut will be made on the line Z—Z on the same side of the strip as the cut Y—Y so as to sever the end of the narrow part b^2 from the side of the wide part a^1. Similar cuts are made throughout the strip the floating warp threads being cut off at the corners of the wide parts as shown in Figure 3 and the strips finished off in the way previously described.

It will be appreciated that in thus weaving two or more strips of units simultaneously, the weaving of the ends of the wide parts, that is to say, the narrowing of each unit may be carried out and formed as described with reference to Figure 5. In that case, however, the cuts necessary to sever the units will be taken accordingly these cuts either being made at an angle and the ends of the narrow parts subsequently cut square or the cuts may be made squarely and the inclined edges trimmed off afterwards.

In some cases where it is desired to economise warp threads and it is useful to produce narrow strips of woven fabric, the lateral warp threads in place of being floated between the sides of the wide parts of the strip may be woven as separate narrow strips of uniform width which will subsequently be cut off and utilised as desired. In such a case the weaving of the compound strip would naturally have to be produced on a loom with shuttles, the number of which would depend upon the number of separate strips which are to be simultaneously formed.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A woven fabric strip having wide and narrow parts and of uniform thickness throughout its length the edges being selvedged both in the wide and narrow

parts and the lateral warp threads of the wide part being floated outside the narrow part the whole strip being woven as a two-ply fabric with the plies united by binding threads except for a short distance at or about the place where the change in width occurs the binding threads here being omitted and the strip formed tubular as set forth.

2. A process for forming a woven fabric strip such as claimed in Claim 1 whereby a series of units each comprising a wide part with a narrow part at either end are woven in two or more rows on a loom provided with two or more shuttles the narrow parts in each row lying side by side and a wide part in one row alternating with a wide part in another row as set forth.

3. A woven fabric strip of uniform thickness throughout its length having wide and narrow parts formed as described and illustrated in Figures 1, 2, 3 and 4 or in Figure 5 of the accompanying drawings.

4. A compound woven fabric strip of uniform thickness throughout its length having wide and narrow parts, the whole formed as described and illustrated in reference to Figure 6 of the accompanying drawings.

Dated this 9th day of August, 1911.

B. E. DUNBAR KILBURN,
Agent for the Applicants.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1912.

A.D. 1911 Aug. 9. Nº 18,043.
DAVEY & *others'* Complete Specification.

(3 SHEETS)

SHEET 1.

FIG. 1.

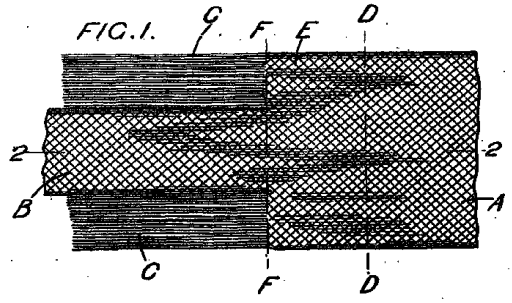


FIG. 2.

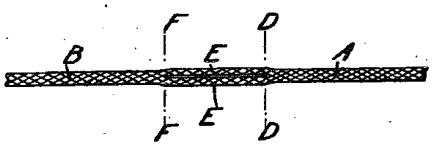
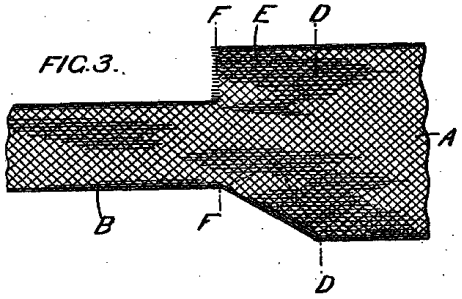


FIG. 3.



SHEET 2.

FIG. 4.

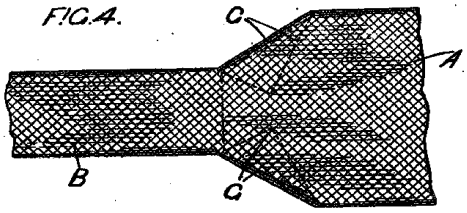


FIG. 5.

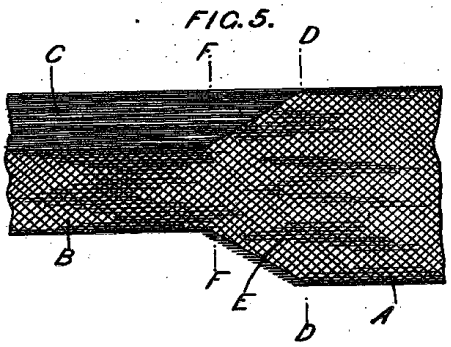


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FIG. 1.

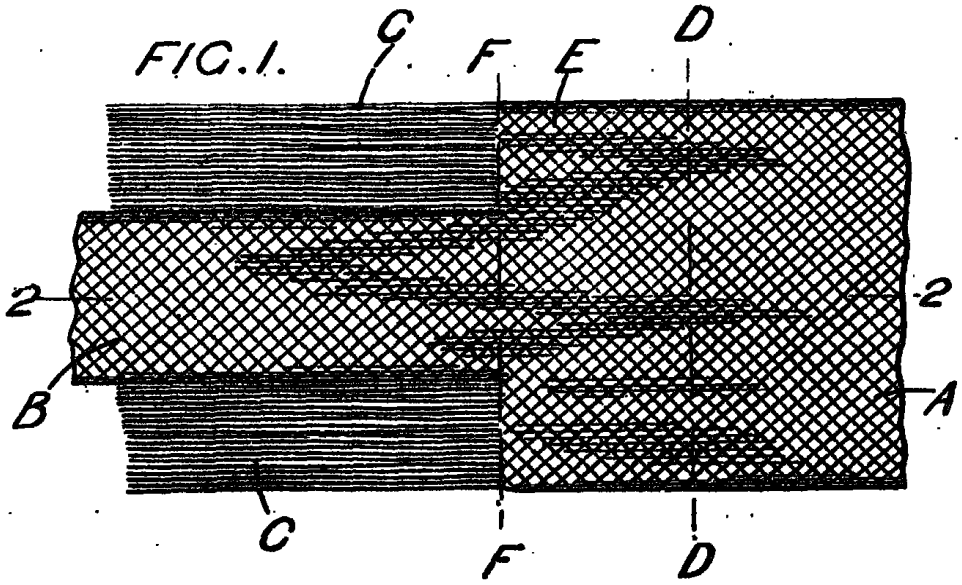

FIG. 2.

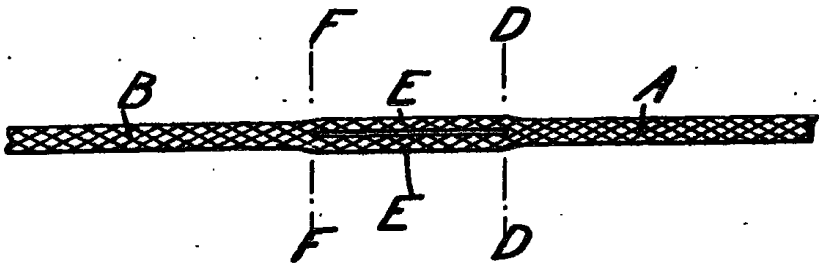

FIG. 3.

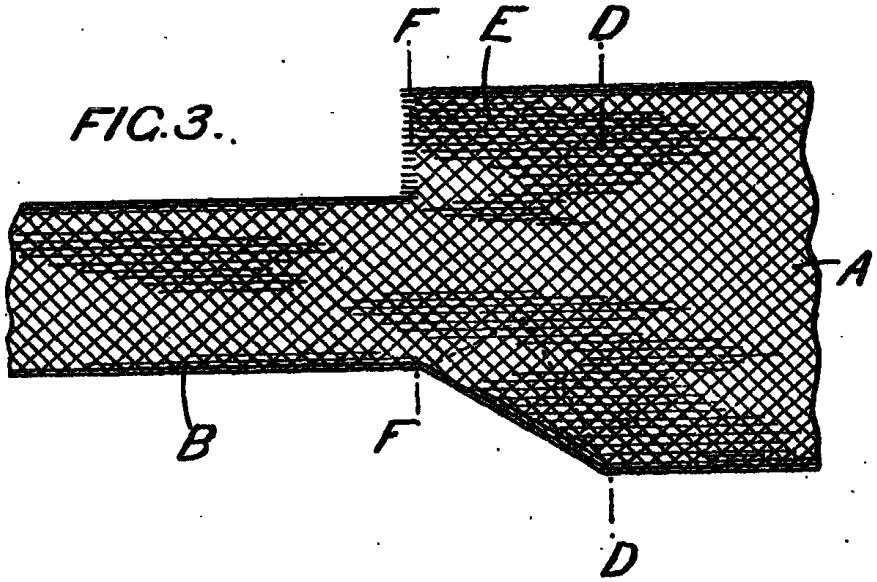

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FIG. 4.

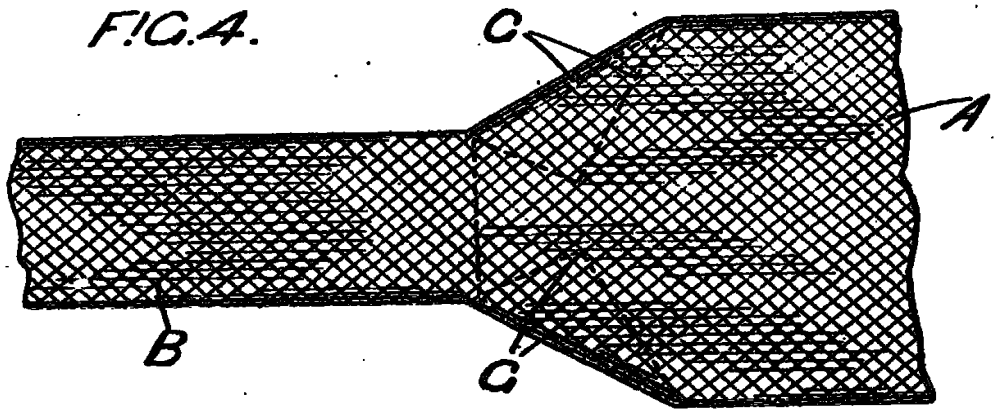


FIG. 5.

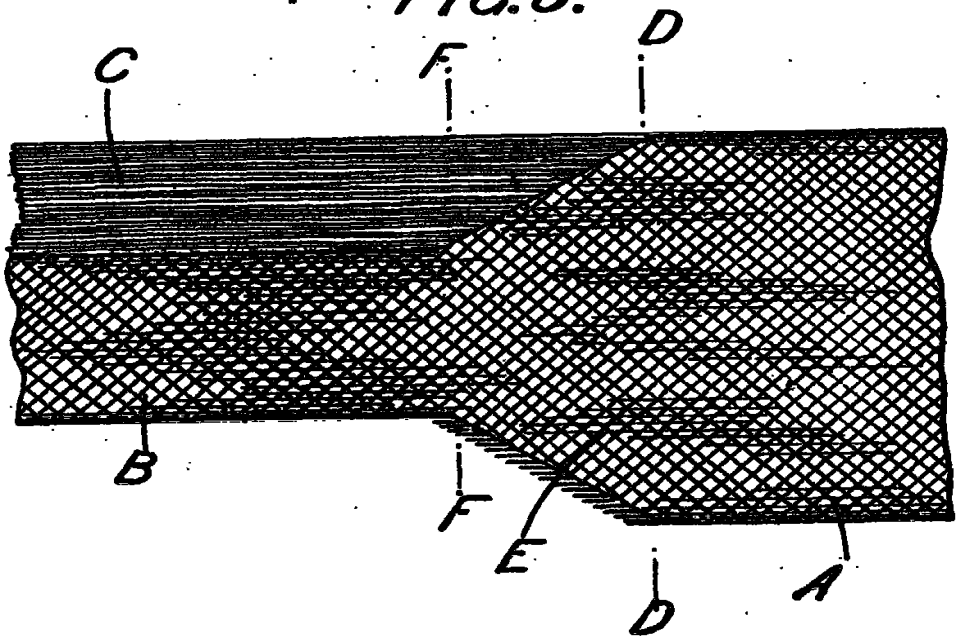
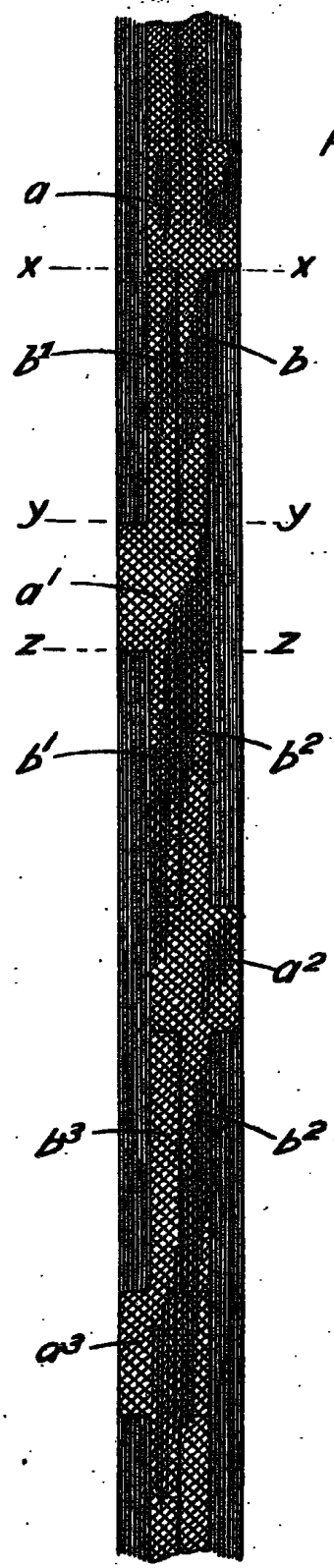


FIG. 6.



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