

H. DAWSON.
 WARP PILE FABRIC.
 APPLICATION FILED OCT. 30, 1909.

1,006,917.

Patented Oct. 24, 1911.

2 SHEETS-SHEET 1.

FIG 1

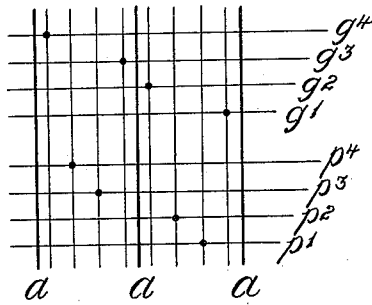


FIG 2

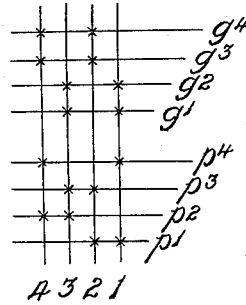
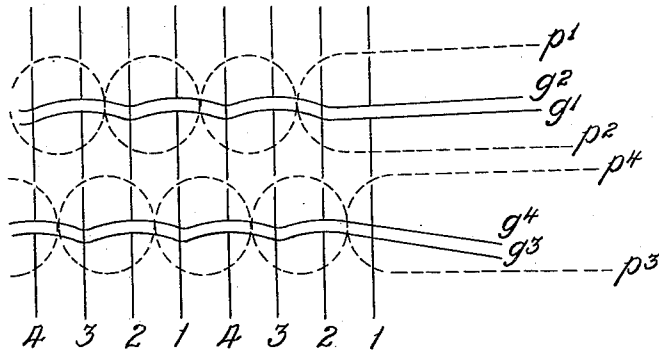


FIG 3.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4

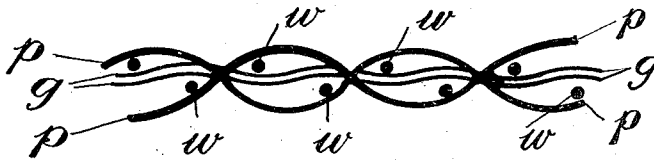


Fig. 5

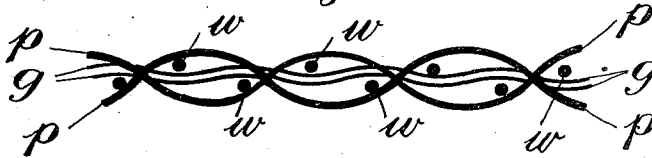


Fig. 6.

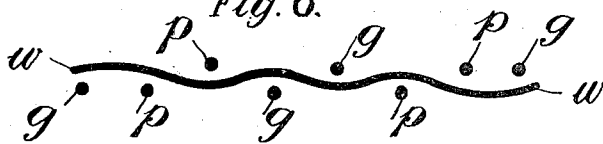


Fig. 7.

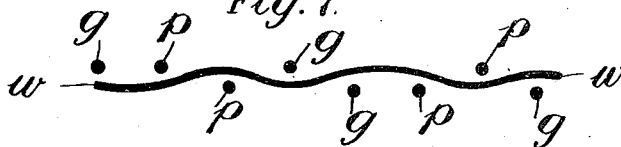


Fig. 8.

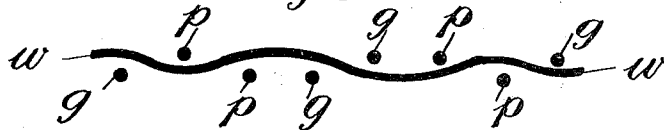
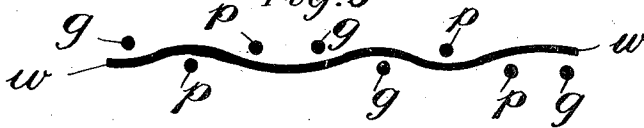


Fig. 9



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY DAWSON, OF BOLTON, ENGLAND, ASSIGNOR TO T. TAYLOR LIMITED, OF BOLTON, ENGLAND.

WARP PILE FABRIC.

1,006,917.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed October 30, 1909. Serial No. 525,557.

To all whom it may concern:

Be it known that I, HENRY DAWSON, a subject of the King of Great Britain, residing at Halliwell Road, Bolton, in the county of Lancaster, England, have invented new and useful Improvements in Warp Pile Fabric, of which the following is a specification.

My invention relates to improvements in the manufacture of warp pile fabric.

Hitherto it has been customary in weaving warp pile fabrics to employ a loose reed in the loom slay, or lathe, and to arrange for that loose reed to fall back for a given number of picks of weft, and then at a given pick to assume its normal position in the slay or lathe, and thus to beat up the picks that have been placed at a distance from the woven cloth through the loose reed having been in the backward position while those picks were being put in. At the pick at which the reed assumes its normal position in the slay it beats up the picks that have been set at a distance from the cloth; that is, it drives the picks up to the cloth and those picks being interwoven with the ends of the pile warp a length of pile warp equal to the distance that picks have been set back goes with the picks and curls up, thus forming the loop of warp pile or terry on the cloth. In addition to this method of weaving with a loose reed there is also the alternative method of causing the said picks of weft to be placed at a distance from the cloth, by holding back during those picks the whole slay or lathe with its fast reed by means of a variable connector to the crank shaft. The fast reed then assumes its normal position so as to touch the cloth and then beat up the picks and take the pile warp with it as in the case of the loose reed.

According to my invention I employ an ordinary fast reed loom and beat up the weft at every pick and form loops of warp pile at every pick and this beating up at every pick, which constitutes the chief novelty in my invention, enables me to produce warp pile or terry fabrics more quickly and economically than hitherto, and without either using a loose reed or alternatively holding the slay or lathe back by a variable connector to the crank shaft while two or more weft picks are put in as in the hitherto existing methods.

In carrying my invention into effect I em-

ploy two warps as usual, one for the warp pile or terry and one for the ground, and I let off sufficient yarn from the pile warp after every pick to form a loop of the desired size and beat up with the slay after every pick as in ordinary plain weaving with a fast reed loom.

In the accompanying sheet of drawings: Figure 1 is a diagram showing the draft of the ground and pile warps, Fig. 2 a diagram showing the shedding or order of the picks, and Fig. 3 a diagram of the terry or like fabric showing particularly how the ground and pile warps lie in the cloth. Fig. 4 is a section across the weft at the odd dent. Fig. 5 is a section across the weft at the even dent. Figs. 6 to 9 are sections across the warp taken at the first, second, third and fourth picks respectively.

Referring to these diagrams:—In Fig. 1, a designates the dents of the reed; in Figs. 1 and 2, g' g^2 g^3 g^4 denote respectively the four heald shafts for the ground warp and p' p^2 p^3 p^4 the four heald shafts for the pile warp.

The drawing-in is illustrated by Fig. 1 and is as follows:—two ground warp ends and two pile warp ends in each dent, the two pile ends being together between the two ground ends. Further, I employ four healds by preference for the ground warp, and four healds, at least, for the pile warp, as the shedding of the pile ends must be separate and distinct in alternate dents. Thus in each odd dent I take ground ends from healds g' g^2 , and pile ends from healds p' p^3 ; and in each even dent I take ground ends from healds g^3 g^4 and pile ends from p^2 p^4 . The shedding in the odd dents is different to the shedding in the even dents as will be seen from Figs. 1 and 2.

The shedding or order of the picks as illustrated in the diagram Fig. 2 is as follows, there being in this instance four picks to the round. 1st. pick g' p' g^2 p^4 are lifted. 2nd. pick p' g^3 p^3 g^4 are lifted. 3rd. pick g' p^2 g^2 p^3 are lifted. 4th. pick p^2 g^3 p^4 g^4 are lifted. The effect of this method of weaving is to produce (as shown in Fig. 3) a reversible pile at each pick, such pile being made alternately by the pile ends of the odd or even dents. The odd dents only pile on one pick and the even dents only pile on the next pick and so on alternately.

In Figs. 4 to 9 inclusive a section of views

of the fabric are shown w represents the weft, p represents the pile ends of the warp and g represents the ground ends of the warp.

5 When a pick has been shot across, the pile ends in the even dents which are about to produce the pile in the next following pick remain open, while the ends in the odd dents having crossed are now ready for piling. In
10 the beating up of the slay, the reed and weft nip the crossed parts of the pile ends against the ground ends and push the pile ends forward and thus create the pile. For one pick this is done in the odd dents and in the next
15 pick in the even dents and so on alternately. This formation of pile loops can be, and preferably is, assisted and controlled by a letting off motion comprising ratchet gear worked from the loom and connected to the
20 roller over which the pile ends run. This roller takes the place of the ordinary back rest which is common to every loom, and is used for the yarn to rest on in passing from the warp beam into the loom. I place a
25 second roller above the first and the piling ends run between these two rollers so that when the bottom roller is turned by the letting off motion it feeds as much pile warp as is required. When this is happening in
30 either the odd or even dents in the other dents the sheds formed by the pile ends change so that after the next following pick they may in turn be beaten up and form pile.

35 As before stated the reed is fast and there is no variation in the motion of the slay; but it is the same, and operates as in any ordinary fast reed loom.

40 As the pile ends from the odd dents are beaten up at one pick, and those of the even dents in the next following pick, and so on, it follows that I get a more even covering of pile, and weave the fabric more quickly, than is the case in existing methods.

45 Although I have described the yarn drawn into at least four healds for the pile ends and four healds for the ground ends, two healds only may be used for the ground warp. Also the number of ends in one dent

might be varied, or the proportion of the 50 pile and ground ends might vary.

I am aware that it has been previously proposed to weave terry fabrics by floating the terry threads, by means of a jacquard, two picks above and two below, but so far 55 as I am aware terry fabrics have not been hitherto woven in a fast reed loom in which terry or warp pile loops are formed and the slay beats up at every pick of the weft.

What I claim as my invention and desire 60 to secure by Letters Patent of the United States is:—

1. As a new product of manufacture, the herein-described warp pile fabric having ground warp threads and weft threads with 65 pile warp threads looped over every weft thread, one set of the pile warp threads being looped alternately above and below the first two weft threads and each succeeding pair of weft threads throughout the length 70 of the fabric, and the alternating set of pile warp threads being looped alternately above and below the second and third weft threads and each succeeding pair of weft threads throughout the length of the fabric. 75

2. The herein-described method of weaving in a fast reed loom the warp pile fabric having loops of warp piled over every weft thread, said method being characterized by drawing two ground warp ends, one upon 80 each side of two or more pile warp ends into each dent of the reed, and shedding four picks to the round in such manner that the pile warps in each dent cross after two picks, the pile warps in the odd dents cross- 85 ing after the even picks, those in the even dents after the odd picks, and the ground warps in each dent crossing after every pick, and beating up with the slay after each pick. 90

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY DAWSON.

Witnesses:

S. W. GILLETT,

HERBERT ROWLAND ABBEY.