

UNITED STATES PATENT OFFICE.

JULES FLORIN, OF ROUBAIX, FRANCE.

METHOD FOR THE MANUFACTURE OF WOVEN FABRICS, &c.

No. 835,510.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JULES FLORIN, a citizen of the French Republic, residing at Roubaix, France, have invented a certain new and useful Improved Method for the Manufacture of Woven Fabrics Adapted for Use with Machinery, of which the following is a specification.

This invention relates to the manufacture of woven fabrics for use with machinery said fabrics being made from woolen yarns or other animal fibers, (mixed with vegetable fibers or not,) and the essential features of said fabrics are that they are unshrinkable and of a maximum and normal resistance in the direction of revolution of the machine parts to which they are applied, being unstretchable and of great tensile strength.

Fuller woolen fabrics used for the purposes stated have the following disadvantages when subjected to pressure-tension or moisture: For instance, when used as a sleeve or covering for a roller or other machine part they become thick or felted and hard, and then adhesion to said roller or part is unsatisfactory. Hitherto for the purpose of obtaining proper adhesion the sleeve or covering is made of a smaller diameter than that of the roller, and by expanding it by hand and taking advantage of the elasticity of the fabric the said covering may be applied to a roller of considerably larger diameter. It will therefore be seen that the adhesion on the roller is stronger in the proportion as the diameter of the covering is smaller; but the pressure exercised by a fuller fabric depends on the degree of fulling and frequently permits said sleeve or covering to slide or revolve on the roller, so that its texture becomes distorted.

When a fuller fabric is used as a feed-band or conveyer, which must bear certain strains or traction, the said fabric is liable to stretch and ends by breaking after having worked badly, and, again, for instance, when used as the blanket in paper-making machines it becomes increased in length, reduced in width, and loses its filtering properties.

It is known that elements of the halogen group—viz., chlorin, bromin, and iodine—render wool unshrinkable; but it is impossible to treat the fabrics with these substances after their manufacture for the following reasons: first, because said fabrics being usually of great thickness the substances mentioned would not penetrate through them and would only act inefficiently on their surfaces, and,

secondly, because when operating on the completely-fuller fabrics the maximum and normal resistance could not be obtained, which is necessary for pressing the coverings on the rollers or giving the fabric the necessary tensile strength when used as a band or apron.

The invention consists in producing the new fabric by rendering unshrinkable the animal yarns or fibers used, for instance, as weft-yarns in the manufacture of such fabric by treating them with chlorin, bromin, or iodine, the warp being formed by similar but untreated yarns, or vice versa, and after weaving the fulling is carried out, as usual. By this means a fabric is obtained which is only fuller in one direction, but which is compact, of considerable thickness and solidity, supple, and very suitable for use in connection with machinery.

The advantages obtained by this improved method of manufacture are as follows: The fabric has the necessary qualities for rotary work, and especially with moist substances or in moist surroundings, since it is solid and at the same time supple, and its elasticity will remain because the fabric is unshrinkable and unstretchable in the direction of its rotation. The fabric offers great resistance to tension and pressure, since the strains are taken up by the elasticity of the treated yarns, the latter being present in an unfuller condition in the fuller fabric. When used for packing or filtering purposes, the fabric is rendered hygroscopic by the method employed, and its dimensions can be calculated in a mathematical manner, since the yarns do not become thick or felted, and in copying any given piece of the fabric it is sufficient to use the same number of yarns in order to exactly reproduce the original dimensions, which is a great advantage, considering that otherwise said reproduction depends on the degree of fulling. Owing to its qualities of tension and contraction, which can be exercised in a normal and maximum manner, due to the elasticity of the yarn itself and also owing to its mathematical reproduction, this non-stretchable fabric can also be employed in a dry state or in dry surroundings.

If it should be necessary in certain cases when the fabric is finished and fuller, the warp could be superficially treated with chlorin, bromin, or iodine on the surface of the fabric where the yarn is exposed.

The improved fabric may be used as a muff or sleeve covering for the rollers in the dressing

of fabrics or sizing of paper, also in the manufacture of paper as a covering for the pres-
the dressing or ironing of linen as a sleeve for
sure-rollers and as a conveyer or blanket, in
5 covering the rollers of the machines therefor,
in rotary printing-machines, especially those
for printing in colors, as sleeves or cylinder-
covers, blankets, and the like, and generally
in all industries and every application where
10 one or more qualities of the improved fabric
is or are necessary.

What I claim as my invention, and desire
to secure by Letters Patent, is—

1. Process for the manufacture of woven
15 fabrics, consisting in treating some of the
yarns with an element of the halogen group,
weaving, and subsequently shrinking the un-
treated yarns by fulling substantially as de-
scribed.

20 2. Process for the manufacture of woven
fabrics consisting in treating one series of
yarns with an element of the halogen group,
weaving, and subsequently shrinking the un-
treated series of yarns by fulling substan-
25 tially as described.

3. Process for the manufacture of woven
fabrics consisting in treating certain yarns of
one series with an element of the halogen

group, weaving, and subsequently shrinking
the untreated yarns by fulling substantially 30
as described.

4. Process for the manufacture of woven
fabrics consisting in treating the weft-yarns
with an element of the halogen group, weav-
ing, and subsequently shrinking the warp- 35
yarns by fulling substantially as described.

5. Process for the manufacture of woven
fabrics, consisting in treating some of the
yarns with an element of the halogen group,
weaving, shrinking the untreated yarns by 40
fulling and subsequently superficially treat-
ing said untreated yarns with the aforesaid
halogen element substantially as described.

6. Process for the manufacture of woven
fabrics consisting in treating the weft-yarns 45
with an element of the halogen group, weav-
ing, shrinking the warp-yarns by fulling, and
subsequently treating said warp-yarns with
the aforesaid halogen element substantially
as described. 50

In witness whereof I have signed this speci-
fication in the presence of two witnesses.

JULES FLORIN.

Witnesses:

ALFRED C. HARRISON,
H. O. WEGMANN.