Composite Fabric and Method of Producing Same

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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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COMPOSITE FABRIC AND METHOD OF
PRODUCING SAME

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My invention relates to the textile art and, more
particularly, to that branch of the art which has
to do with the production of a fabric consisting
of a base sheet combined with a knit fabric, such,
for instance, as that disclosed in my Letters Pat-
ent No. 2,136,368 of November 15, 1938.

Primarily the present invention has for an ob-
ject to provide a fabric of the character stated
5 which may readily be embossed and which will
retain its embossed appearance under all normal
conditions of use.

Further, it is an object to provide a composite
fabric and process of making the same, in which
the base sheet through which the knitting takes
10 place may not only be more or less vulcanized
but which will be entirely enclosed by the knitting.

Further, the invention has for an object to pro-
duce a textile fabric which can be given the ap-
pearance of grained or embossed leather and
which may be given an infinite number of surface
15 designs.

Further, it is an object to provide a waterproof
or water repelling fabric embodying the non-
stretching characteristics of woven fabric with
the ornamental appearances of knit fabric.

Other objects will in part be obvious and in
20 part be pointed out hereinafter.

To the attainment of the aforesaid objects and
ends the invention still further resides in the
novel details of construction, combination and
arrangement of parts, all of which will be first
25 fully described in the following detailed descrip-
tion, and then be particularly pointed out in the
 appended claims, reference being had to the ac-
companying drawing, in which:

Figs. 1 to 4 are diagrammatic sectional views
of different embodiments of the invention.

In carrying out my invention I may take a base
sheet preferably composed of a suitable vulcaniza-
ble material such, for instance, as a sheet of par-
tially vulcanized latex, or I may take a textile
30 fabric saturated with latex, or other suitable
material that can be vulcanized or stabilized by
any suitable method, and knit through such base
sheet according to the teachings disclosed in my

The knit fabric is then air or heat treated to
vulcanize or set the base sheet material.

If the fabric is to be embossed, the vulcaniza-
40 tion may take place at the same time as the
embossing, by using heated embossing rollers,
presses or molds.

As a further development of my process and
product, after the base sheet has been passed
through the knitting machine and before com-
50 plete vulcanization occurs, the knit fabric may
be fulled or felted and the fabric then placed in a
vulcanizing mold or press or passed between vul-
canizing rollers, thereby anchoring down the sur-
face threads so that the fullled or felted appear-
ance of the fabric will be maintained indefi-
55 nitely.

As a further development of my process, the
article after completion of the knitting act may
be passed through suitable dyeing apparatus be-
fore placing it in the final vulcanizing mold or
press or passing it through the final vulcanizing
60 rollers.

In carrying out my invention I may proceed as
follows:

A sheet of woven fabric is passed through a
bath of latex or may be sprayed with latex until
the fabric becomes saturated (more or less) with
65 the latex. The sheet is then passed over a vac-
uum or suction device to remove excess latex,
and open the pores between the threads of the
fabric; the latex-treated fabric is then passed
through clay dust or other suitable material to
dry the exposed latex on the threads; the base
70 fabric is thereafter passed through the knitting
machine (see my Letters Patent No. 2,136,368
aforesaid) and the two faces of the base fabric
are thereby covered with the knit material; the
latexed base sheet which the knit threads now
cover may be further vulcanized to the extent de-
sired by air or heat treatment, or in any other
suitable way. When the fabric is to be an em-
bossed fabric, this latter vulcanization step may
be made to occur simultaneously with the em-
bossing act by using heated embossing molds,
presses or rollers.

If the finish desired is a fulled or felted finish,
the surface of the knitting is fulled or felted be-
fore completing the vulcanization. When an
elastic fabric is desired, instead of employing a
base sheet composed of woven fabric saturated
with latex, I may use a sheet of semi-vulcanized
material such as latex, i.e., a material which has
been sufficiently set so that knitting needles will
puncture it, and pass this sheet through the
75 knitting machine. This knit latex-base sheet
may have its surface fulled, felted or matted be-
fore placing it in the vulcanizing press or mold,
or passing it between vulcanizing rollers.

Instead of using latex as a vulcanizable ma-
terial as herein referred to, other suitable sub-
stances may be employed.

The use of latex impregnated fabric, or a latex
80 sheet as a base fabric, or a layer of woven fabric
and a layer of latex together, as a base sheet,
produces a waterproof or water repellent fabric, (Figs. 1 to 3 inclusive).

Instead of latex, I may use, for the purpose of producing a waterproof or water repelling fabric, a base sheet of woven fabric waterproofed by any other suitable substance or composition or in any other suitable way, (Fig. 4).

This application is a continuation in part of my application Serial Number 291,266, filed August 21, 1939.

Having thus described the invention, it is thought that the complete process and product will be clear to those skilled in the art.

What I claim is:

1. The method of making composite fabric which comprises knitting through a base sheet containing vulcanizable material, and thereafter effecting the vulcanization of said material to the extent desired.

2. The method of making composite fabric which comprises knitting through a base sheet containing vulcanizable material, thereafter effecting the vulcanization of said material to the extent desired, and simultaneously embossing the composite fabric.

3. The method of making a composite fabric which consists in knitting through a base sheet containing vulcanizable substance; then matting, fulling or felting the surface of the fabric, and finally applying pressure to the surface to set the same and vulcanizing the vulcanizable material.

4. The method of making a composite fabric which consists in saturating a sheet of woven textile material with latex; removing excess latex from the sheet and opening the pores thereof; drying the exposed latex on the sheet; passing the sheet through a knitting machine to knit through the sheet and enclose the base sheet in the knitting.

5. The method of making a composite fabric which consists in saturating a sheet of woven textile material with latex; removing excess latex from the sheet and opening the pores thereof; drying the exposed latex on the sheet; passing the sheet through a knitting machine to knit through the sheet and enclose the base sheet in the knitting; and then feltling the surface of the fabric; and finally completing the vulcanization.

6. The process of producing a composite fabric which consists in passing a sheet of woven fabric through a bath of latex until it becomes saturated with the latex; removing excess latex from the sheet by suction and opening the pores between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

7. The process of producing a composite fabric which consists in passing a sheet of woven fabric through a bath of latex until it becomes saturated with the latex; removing excess latex from the sheet by suction and opening the pores between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

8. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

9. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

10. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

11. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

12. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

13. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

14. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

15. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.

16. A composite fabric, comprising a base sheet of vulcanizable latex, and a fabric knitted between the threads of the sheet; passing the latex-treated sheet through a suitable drying medium to dry the exposed latex on the threads; then passing the sheet through a knitting machine and covering both faces of the sheet with knitting material; and finally completing the vulcanization of the latex to the extent desired.
ing both faces thereof, the fabric being embossed and the latex on vulcanization serving to "fix" the embossings.


20. A composite fabric comprising a base sheet composed of a layer of woven fabric and at least one layer of vulcanizable latex, and a fabric knit through the same.

21. A composite fabric comprising a base sheet composed of a layer of woven fabric and at least one layer of vulcanizable material and a fabric knit through the same, the fabric being embossed and the vulcanizable material serving to fix the embossings.

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