

UNITED STATES PATENT OFFICE.

GUSTAV GOLDMAN, OF BALTIMORE, MARYLAND.

PROCESS OF MAKING FABRIC CONTAINING HAIRCLOTH.

No. 840,841.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed December 4, 1903. Serial No. 183,824.

To all whom it may concern:

Be it known that I, GUSTAV GOLDMAN, of Baltimore, Maryland, have invented a new and useful Process of Making Fabric Contain-
5 ing Haircloth, which process is fully set forth in the following specification.

This invention relates to a fabric consist-
ing of a matted or felted mass of fibers with
a sheet of haircloth incorporated therein. In
10 an application, Serial No. 183,823, of even
date herewith I have described and claimed
a fabric of this kind; and the object of the
present invention is to provide a process by
which such fabric may be rapidly and cheaply
15 made.

With this object in view the invention con-
sists in laying down a layer of animal, vege-
table, or mineral fibers, or mixtures of these,
in a loose fluffy condition, superimposing a
20 layer of haircloth thereon, and then laying
another layer of the fibers upon the haircloth,
after which the whole is treated in such way
as to unite the two fiber layers and the hair-
cloth layer into a coherent mass. This treat-
25 ment for uniting the layers may vary consid-
erably in character without departing from
the invention. Preferably the treatment con-
sists in uniting the fibrous mass together
and to the haircloth by means of a binding
30 material which is introduced in a dry finely-
divided form between the fibers of the mass
and then converting the dry material into an
active binding agent by the application of
heat or of moisture, or of both heat and mois-
35 ture, preferably in the presence of pressure,
after the manner set forth in my application,
Serial No. 171,288, filed August 29, 1903.
In some cases, however, when the fibers or
mixture of fibers employed is of a character
40 which will permit of the uniting of the fibers
into a coherent mass by rubbing, as in the
process of making felt, the treatment for
uniting the fibers with the haircloth between
them consists in rubbing the fibers in the
45 presence of a suitable binder, as a soluble
soap, then passing through a fixing solution,
(as an alum solution,) and then rubbing
again in the presence of heat and pressure.
This results in a mass of fibers closely bound
50 and knit together with the haircloth incorpo-
rated therein.

While it is generally preferred to place the
haircloth between two films or layers of fibers,
as indicated above, this is not essential, as
55 haircloth with large open meshes may be laid
upon a film or layer of the fibers, some of

which will project through the meshes of the
haircloth, and the subsequent treatment will
serve to bind the whole together.

In the actual practice of the invention the 60
following specific method is preferred and
has been found to give the best results—viz.,
a film or layer of the desired fibers is laid
down in a light fluffy condition, preferably
as it comes from the doffer of a carding-ma- 65
chine. Zinc resinate in a dry finely-divided
condition is then dusted upon the layer of
fibers, and because of their light fluffy condi-
tion much of this finely-divided zinc resinate
sifts in among the fibers, while part of it re- 70
mains upon the fibers composing the upper
part of the film or layer. A layer of hair-
cloth is then superimposed upon the fibrous
layer and finely-divided zinc resinate dusted
or otherwise distributed thereon, though this 75
distribution of the zinc resinate upon the
haircloth may be omitted in some cases. A
film or layer of the fibers in light fluffy condi-
tion is then laid upon the haircloth and finely-
divided zinc resinate dusted thereon. The 80
two layers of fibers with the haircloth be-
tween them are then subjected to heat and
pressure, preferably in the presence of steam.
For mechanical convenience, continuity of
operation, and economy of production this is 85
accomplished by including the fibers and
haircloth between two belts, one or both of
which carry moisture, and passing said belts
between heated rollers, thus fusing the zinc
resinate and converting it into an active wa- 90
terproof binding agent, serving to unite the
whole into one coherent mass. With certain
kinds of fibers, as wool or mixtures contain-
ing wool, the moisture is an advantage, as
the resulting fabric is more resilient; but 95
with other fibers—as cotton, for example—
the heated rollers are used in the absence of
moisture unless a very hard stiff product is
desired.

It will be understood that the haircloth 100
layer may be of the kind in which both the
weft and the warp are of hair or in which one
of these is of hair and the other of any differ-
ent fiber.

While the binding material is herein de- 105
scribed as being introduced among the fibers
in a "dry" form, it is not meant to thereby
state that the material is wholly free from
all trace of moisture, but only that it is so
far dried that it can be finely divided and 110
readily introduced between the fibers.

Manifestly the two films or layers of fibers

might be first treated with the binding material after the manner set forth in my application Serial No. 171,288 above referred to, and the haircloth then interposed between them with suitable means, as zinc resinate, for binding the fibrous layers to the haircloth and then treated with heat and pressure; but the method hereinbefore described is preferred as being more economical and producing a superior product.

While I have described herein the specific process of incorporating the haircloth in the fibrous mass by rubbing in the presence of a binder, such as soap, and then passing through a fixing solution, as an alum solution, and again rubbing, because said specific process is within the broad invention herein set forth and is meant to be included in the broad claims hereof, nevertheless the said specific process is not specifically claimed herein, as it forms the subject-matter of another application of even date herewith. Furthermore, the fabric resulting from the practice of the invention of the present application is also described and claimed in still another application of even date with this application.

Having thus described the invention, what is claimed is—

1. The process of forming a fibrous fabric with a layer of haircloth incorporated therein which consists in placing a layer of haircloth upon the fibers so that some of them project through the meshes of the cloth, dusting a dry finely-divided binding material upon the haircloth and fibers, and then converting the said material into an active binding agent for the haircloth and fibers.

2. The process of forming a fibrous material with a layer of haircloth incorporated therein, which consists in interposing a layer of haircloth between two layers of fibers with a dry finely-divided binding material distributed among the fibers, and then converting said material into an active binding agent for the fibers.

3. The process of forming a fibrous material with a layer of haircloth incorporated therein, which consists in laying down a layer of fibers, dusting a dry finely-divided binding material among the fibers, superimposing a layer of haircloth thereon, then placing a layer of fibers upon the haircloth, dusting a dry finely-divided binding material among the fibers of said layer, and then converting said binding material into an active binding agent, whereby the fibers and haircloth are united in a coherent mass.

4. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in placing a layer of haircloth within a mass of loose fibers having a dry finely-divided binding material distributed therethrough, and then converting said binding material into an active binding agent,

whereby the fibers are united together and to the haircloth.

5. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in superimposing a layer of haircloth on a mass of fibers, and uniting the whole mass of the fibers to each other and to the haircloth by a resinate.

6. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in interposing a layer of haircloth in a mass of loose fluffy fibers, and then uniting the whole mass of the fibers to each other and to the haircloth by a resinate.

7. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in superimposing a layer of haircloth on a mass of fibers, and uniting the fibers and the haircloth by a zinc resinate.

8. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in interposing a layer of haircloth in a mass of loose fluffy fibers, and then uniting the haircloth and fibers by a zinc resinate.

9. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in interposing a layer of haircloth in a mass of fibers having a dry finely-divided resinate distributed there-through, and then converting said resinate into an active binding agent.

10. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in interposing a layer of haircloth in a mass of fibers having a dry finely-divided resinate distributed there-through, and then converting said resinate into an active binding agent by the application of heat.

11. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in interposing a layer of haircloth in a mass of fibers having a dry finely-divided zinc resinate distributed there-through, and then converting said resinate into an active binding agent.

12. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in interposing a layer of haircloth in a mass of fibers having a dry finely-divided zinc resinate distributed there-through, and then converting said resinate into an active binding agent by the application of heat.

13. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in interposing a layer of haircloth in a mass of fibers having a dry finely-divided resinate distributed there-through, and then converting said resinate into an active binding agent by the application of heat in the presence of moisture.

14. The process of forming a fibrous material with a layer of haircloth incorporated therein which consists in interposing a layer of haircloth in a mass of fibers having a dry
5 finely-divided zinc resinate distributed there-
through, and then converting said resinate
into an active binding agent by the applica-
tion of heat in the presence of moisture.

15. The process of forming a fibrous mate-
rial with a layer of haircloth incorporated
therein which consists in interposing a layer
of haircloth in a mass of fibers having a dry
finely-divided resinate distributed there-
through, and then converting said resinate
5 into an active binding agent by the applica-
tion of heat and pressure in the presence of
moisture.

16. The process of forming a fibrous mate-
rial with a layer of haircloth incorporated
therein which consists in interposing a layer
of haircloth in a mass of fibers having a dry

finely-divided zinc resinate distributed there-
through, and then converting said resinate
into an active binding agent by the applica-
tion of heat and pressure in the presence of 25
moisture.

17. The process of coating haircloth with
fibrous material which consists in treating
haircloth and a fibrous mass with a dry finely-
divided binding material applying the hair- 30
cloth to the fibrous mass, and then convert-
ing the binding material into an active bind-
ing agent, whereby the fibers are bound to-
gether and to the haircloth.

In testimony whereof I have signed this 35
specification in the presence of two subscrib-
ing witnesses.

GUSTAV GOLDMAN.

Witnesses:

ARTHUR LEE BROWNE,
FRANCIS T. HORNER.