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MANUFACTURE OF FELT

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1 Claim. (Cl. 28—1)

Our present invention relates to the manufac-
ture of felt.

It is known to produce a felt in which part of
the animal fibers has been substituted by artificial
fibers of cellulose hydrate. However, it has been
found that an addition of artificial fibers of cellu-
lose hydrate such as are obtained according to
the copper oxide ammonia or the viscose process
is only possible in certain cases because these
fibers do not stand the carbonization usual in the
manufacture of wool felt.

It is therefore an object of the present inven-
tion to provide an improved felt consisting of a
mixture of wool and thermoplastic artificial fi-
bers, which will withstand carbonization.

A further object of the invention consists in
the provision of a felt which has improved me-
chanical properties in comparison with a felt
consisting of a mixture of wool and cellulose
hydrate fibers.

Further objects will become apparent from the
following detailed specification.

According to this invention a felt of good qual-
ity which is capable of carbonization may be pro-
duced from a mixture of animal fibers such as
wool or hairs, with artificial fibers from organic
polymerization products. Fibers made from poly-
merization products of an unsaturated organic
compound, such as polyvinyl esters, for example
polyvinyl chloride, polyvinyl acetate, after-chlo-
rinated polyvinyl chloride, polyacrylic acid esters,
mixed polymerizates of the above bodies, or lower
polyvinyl ethers such as polyvinylisobutylether,
polypropylvinylether, chlorocautchouc, mixtures
of these ethers or of the ethers with the esters,
or mixtures of the polyvinyl compounds with
diene compounds, such as butadiene, methylbuta-
diene, dimethylbutadiene, chloropropene are es-
pecially valuable for this purpose. For making
felt it is particularly advantageous that these
bodies have a comparatively low softening point,
so that they acquire a certain amount of sticki-
ness at the temperature usual in the manufacture
of felt, thus imparting an internal strength to the
fibrous felt, which could not be obtained with
fibers consisting of cellulose.

The proportion of artificial fiber in the mixture
may be selected as desired. Very useful mix-
tures are those containing from 15 to 25 per cent
of artificial fibers from an organic polymeriza-
tion product. However, the admixture of arti-
ficial fibers may be raised to 30 or even 50 per
cent. It is also possible to use a mixture of arti-
ficial fiber from an organic polymerization prod-
uct and rayon staple fibers. In this case the

admixture of artificial fibers should not surpass
50 per cent. In the mixture of artificial fibers
there are preferred equal parts of cellulose hy-
drate fibers and artificial fibers from an organic
polymerization product, but the amount of arti-
ficial fibers from an organic polymerization prod-
uct should not be less than 10 per cent. If fibers
of cellulose hydrate are present in the mixture,
the wool should be carbonized before manufac-
turing the felt, if carbonization of the wool is
necessary.

It could not be foreseen that artificial fibers
made from organic polymers of high molecular
weight would withstand the usual steps in the
process of felting and fulling and would yield a
useful mixture with wool. The resinous fibers
have the property of shrinking more strongly
than wool in the felting and fulling processes. In
many cases this is an advantage.

The dyeing properties of the artificial fibers in
question differ from those of wool. If uniform
dyeing of the felt made from the mixed fibers is
desired, it is preferable to dye both kinds of fibers,
or at least one of them, before making the mix-
ture. The difference in the dyeing capacity exist-
ing between wool and the resin fibers may be
made use of for the production of mottled felt.
Spinning artificial fibers together with white wool
and subsequently top-dyeing with wool dyestuffs
produces an uniformly mottled felt of excellent
quality.

The following examples illustrate the inven-
tion:

Example 1.—3200 grams of a mixture of equal
parts of wool waste and South African wool and
800 grams of artificial fibers from after-chlorinat-
ed polyvinyl chloride are mixed and carded in the
usual manner, again mixed and oiled. After
thorough working, the mixture is passed into a
carding machine and wound in the usual manner
on a lap drum. The lap formed on the drum is
cut and subdivided into equal portions of 350
to 400 grams. The weighed quantities are fed at
right angles to the direction of the fibers to a
carding cone. The double cone thus produced is
cut along the base of the cone and felted on a
plate felting machine. After it has been fullled in
dilute sulfuric acid the felt is carbonized in the
usual manner and passed to the fulling beaters,
and the wool dyed in the usual manner. In gen-
eral, the polyvinyl chloride fibers remain undyed
in this operation. The finishing operations are
those usual in the hat-making industry.

Example 2.—80 per cent of wool are thoroughly

mixed by carding them several times with 10 per cent of rayon staple fibers and 10 per cent of fibers from polyvinyl chloride, and carded to slivers on a wool carding machine, which when
8 worked up on a plate felting machine yield a felt which has the same properties as a felt from pure wool.

10 *Example 3.*—70 parts of wool, 15 parts of rayon staple fibers and 15 parts of artificial fibers from polyvinylchloride are mixed by carding and the mixture is worked up as described in the preceding example.

15 *Example 4.*—70 parts of wool are mixed with 20 parts of rayon staple fibers and 10 parts of artificial fibers from polyvinyl chloride and worked up to a felt in form of plates in the usual manner.

What we claim is:

A soft pliable felt, resembling a felt consisting entirely of wool, but having a different affinity for acid wool dyestuffs and a substantially improved internal strength compared with a felt comprising wool and cellulose hydrate fibers, said felt
5 consisting of a mixture of wool and at most the same quantity of thermoplastic fibers from a polymerization product of organic unsaturated compounds selected from the group consisting of
10 polyvinylesters, polyvinylethers and mixtures of these compounds, chlorinated rubber, and polymerization products of mixtures of vinyl compounds with dienes.

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