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ARTIFICIAL PRODUCT IMITATING SKINS AND LEATHER AND PROCESS FOR MAKING SAME

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The products which are found in the market under the denomination of mock-leather, synthetic leather, etc., although quite numerous, are all connected to two principal methods of manufacture, which are as follows:

1. The method analogous to what is used for oil-cloth, which consists in applying, upon a fabric backing, one or more layers of a flexible substance such as rubber or the like, in colouring this substance, and in graining its surface.

2. The method which consists in mixing and agglomerating animal or vegetable fibres by means of strong binding substances containing rubber or the like, in colouring this product which is manufactured in sheets, and in graining its surface.

Among these imitation products, the ones which have the greatest resemblance to leather are those consisting of agglomerates fibres of any kind, but in the two methods above mentioned, such products are plastic substances rather than leather, since in both cases the flexibility of the product is obtained by means of coating or binding substances which are flexible and rubber like. The flexibility of these plastic products is due to their chemical constituents.

As compared with genuine leather, they have several fundamental defects which are as follows:

1. Their great instability in the course of time, as to their flexibility. The action of the substances which make them supple or plastic will finally cease, the rubber becomes sticky or brittle, etc.

2. The imitation products with fabric backing are adapted for extension in the direction of the bias, but not in the direction of the thread.

3. The imitation products formed by agglomeration cannot be readily made in thicknesses of 3/10 mm. or below, they are by no means substantial at the seams, they are not sufficiently flexible for book-binding, for case and sheath-making, etc.

The process according to the invention eliminates all such drawbacks, and permits of obtaining products having all the qualities and adapted for all the uses of skins and leather. The products obtained are resistant and quite flexible owing to a construction of the substance which permits the constituent fibres to move upon one another as is the case in genuine leather. According to the invention, this result is obtained by the use of inorganic salts of organic fatty acids which are mixed with or precipitated upon fibres in the presence or not of a colloid.

Use is chiefly made of the inorganic salts of the organic fatty acids such as capric, caproic, caprylic, erucic, lauric, linoleic, linolenic, myristic, oenauthic, oleic, palmitic, pelargonic, ricinic, ricinoleic, stearic, tridecylique, undecylenic, undecylic etc. and other similar products.

Such products are employed alone or mixed with one another or with other substances.

By way of indication, which is not limitative, very satisfactory results are obtained with salts of aluminium, magnesium, zinc, bismuth, etc., of the said acids.

In order to obtain such skins or leathers, the following methods of operation can be used.

Example 1

Method in which the fibre is mixed with an inorganic salt of an organic fatty acid.

(*a*) The proceeding is quite the same as if it were desired to load paper pulp with an inorganic product in the beating engine; the pulp, consisting of manila or cotton which is properly worked up while keeping the fibres as long as possible, is mixed with a quantity having preferably the same weight of stearate of zinc or the like.

(*b*) To facilitate the mixing the stearate of zinc is preliminarily placed in suspension in a vessel provided with stirrers, containing water and the colloid such as mucilage, gum, or the like.

(c) When the whole forms a homogeneous mixture in the beating engine, it is treated in the same way as for making ordinary paper or cardboard.

(*d*) The resulting sheets are then coated or spread on one side with a solution of a suitable sizing paste.

Example 2

Method in which an inorganic salt of an organic fatty acid obtained by double decomposition is precipitated upon the fibre.

(*a*) In the beating engine containing the refined pulp and water at the proper temperature, there is dissolved the desired quantity of a soluble salt, such as zinc sulphate, acetate, chloride, or the like, and the whole is allowed to stand until the fibres become impregnated.

(*b*) In a tank which is optionally heated, there has been place, on the other hand, an aqueous solution of an alkaline stearate, or other alkaline salt of a fatty acid.

(c) The solution *b*, when placed in the beating engine, will precipitate on the fibre the insoluble inorganic salt of the organic fatty acid.

(*d*) The precipitate and the pulp can be washed in the engine by means of the usual washing drum.

(*e*) A colloid may be added, as in the preceding example and the process is finished in the same way.

The sheets obtained by either of these processes can be treated, like the skins and leather impregnated with various products, by dyeing, colouring, varnishing, graining, etc.

The aforesaid indications are given solely by way of example, and all details of execution and application of the process can be varied at will without departing from the principle of the invention.

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