

UNITED STATES PATENT OFFICE

2,011,590

PLASTIC ARTIFICIAL LEATHER
COMPOSITIONPaul Henri Perrin, Chatou, and Gaston Hubert
Vulliet-Durand, Paris, France; said Vulliet-
Durand assignor to said PerrinNo Drawing. Application March 12, 1931, Serial
No. 522,154. In France March 20, 1930

10 Claims. (Cl. 106—39)

The present invention relates to artificial products imitating leather, skins, parchment and like material, of animal or vegetable origin, and possessing qualities which are much superior to those of the artificial leathers hitherto produced.

The imitation leathers now sold in the market are manufactured by impregnating textile fabrics, or agglomerating leather powder, obtained by grinding waste leather, said products being thereafter varnished and given a suitable grain. The agglomerated leather powder products are those whose qualities come the nearest to natural leather, but they offer serious defects, and chiefly the following:

1—Their strength is relatively small, and in particular, they will tear at the seams;

2—They are not sufficiently flexible to allow their use in the manufacture of fancy leather goods;

3—They are not adapted for the manufacture of thin sheets.

The present invention has for its object to obviate the defects above specified and to impart to such products the qualities which they lack, and chiefly an unusual strength and a remarkable flexibility, by adding to the raw material a substance called "konniyakuko" or "koniaku" or "konjak", that is a powder obtained by grinding the tubercles of an araceous plant (*Amorphophallus rivieri konjak*) which is found throughout Japan, and which has hardly been employed hitherto except as a foodstuff and an adhesive substance (see the article "konjak" in Webster's New International Dictionary, Springfield 1912).

Obviously, the invention is not limited to the manufacture of imitation leather in the strict sense of the word, but it covers all artificial products similar to leather, skins, or like material, either by their appearance or by their composition, such products having in all cases the two essential qualities of natural leather, that is a great strength and a good flexibility, and this to a variable degree, which may equal or even exceed that of natural leather or like substances.

The composition of matter to which the koniaku is added may vary considerably, and certain examples will be further given, but whatever be the composition adopted, experience has shown that the koniaku confers upon the resulting artificial product an extraordinary strength, so that the seams cannot practically be torn, as well as a flexibility comparable with that of the skins employed in fancy leather work. Furthermore, the products containing koniaku may be

manufactured in thin sheets, and may be subjected to the various usual treatments of natural leather, such as tanning, graining, dyeing, colouring, embossing, etc.

The raw material forming the body or the base of the final product may be of any kind, and it is not limited to the substances in common use in the imitation leather industry. Thus, use may be made of fibrous substances, either in sheets (sheets of paper) or in bulk (such as fibres, hair, cotton tow, or other fibrous substances, wood or like pulp, of cellulosic or ligneous, or other nature).

The base or body may further consist of a powdered material (such as powdered cotton, wood, peat etc.). It may be advantageous to use the powder obtained from waste natural leather or other material commonly employed in the manufacture of artificial leather.

The base may also consist of a fabric or netting formed of fibres, threads, etc., which are naturally or artificially arranged or interwoven in a more or less regular manner.

Broadly, the nature and texture of the base or body can be varied within wide limits, according to the abundance and the price of the raw material at hand, and to all other conditions, as will be recognized by those skilled in the art.

The composition containing the base or body and koniaku may also contain other elements, (adapted to make the material insoluble, impermeable, or flexible). Among these, tannin may be mentioned as a typical example of a material effective in rendering the material insoluble, and glycerin, starch syrup and other hygroscopic substances as softeners.

Sheets of artificial leather of suitable thickness may be directly obtained from the aforesaid composition, generally in the form of a paste, by a simple drying. The treatment may also be carried out by calendering, rolling, moulding, spinning, or the like.

Another method consists in coating or impregnating a solid base or body with a composition containing koniaku, either alone or mixed with other substances. This method is chiefly used for the impregnation of textile fabrics, sheets of paper, etc. at atmospheric pressure or under a suitable pressure, or with the alternate application of vacuum and pressure, as is usually employed in impregnation processes.

Sheets of artificial leather can also be produced by superposing sheets of paper (such as unsized paper, tissue paper, etc.) or textile fabric or the like, between which are interposed

layers of a paste or coating consisting chiefly of koniaku, and containing eventually fibre or the like. The number of superposed sheets will depend upon the thickness which is to be given to the finished product.

The resulting sheets can then be subjected to any desired treatment, such as tanning, graining, dyeing, embossing, etc.

A composition which has given valuable results is given below by way of example:

Water	1000 c. c.
Powdered koniaku	20 grams
Glycerin	40 c. c.
Tannin solution, 2.5 per cent	125 c. c.

This composition can be mixed with a fibrous base or body of any kind, of the type above indicated, or it may serve to coat or impregnate a base or body, or it may be interposed between base sheets, as already explained. By way of example, the weight of the above-mentioned composition may be 6 times the weight of the base or body.

Obviously, the invention not only contemplates the use of natural koniaku, but also of all artificial products obtained by synthesis whose composition is essentially the same as that of natural koniaku.

In like manner, the aforesaid compositions are given solely by way of example, as it is impossible to specify all the different substances which are available for use, but experience has shown that in all cases the addition of koniaku confers upon the artificial product such qualities (chiefly the strength and flexibility) that it may enter into competition with natural leather, skins, and similar natural substances, in their different fields of use.

Having now described our invention what we claim as new and desire to secure by Letters Patent is:

1. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku, tannin, and a fibrous base.

2. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku and tannin.

3. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku, tannin, and glycerin.

4. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku, tannin, and wood pulp.

5. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku, tannin, and vegetal fibres.

6. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku, tannin, and a fabric.

7. An artificial product imitating leather which comprises superposed base sheets united together by means of a composition containing koniaku and tannin.

8. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku, tannin, and a powdered base.

9. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku, tannin, and powdered leather.

10. A composition of matter for use in the manufacture of artificial leather and the like which contains koniaku, tannin, and cotton powder.

GASTON HUBERT VULLIET-DURAND.
PAUL HENRI PERRIN.