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H. KARLE & J. SCHMIDT.

PRODUCTION OF SUBSTANCES RESEMBLING LEATHER.

APPLICATION FILED SEPT. 30, 1902.

NO MODEL.

Fig. 1.

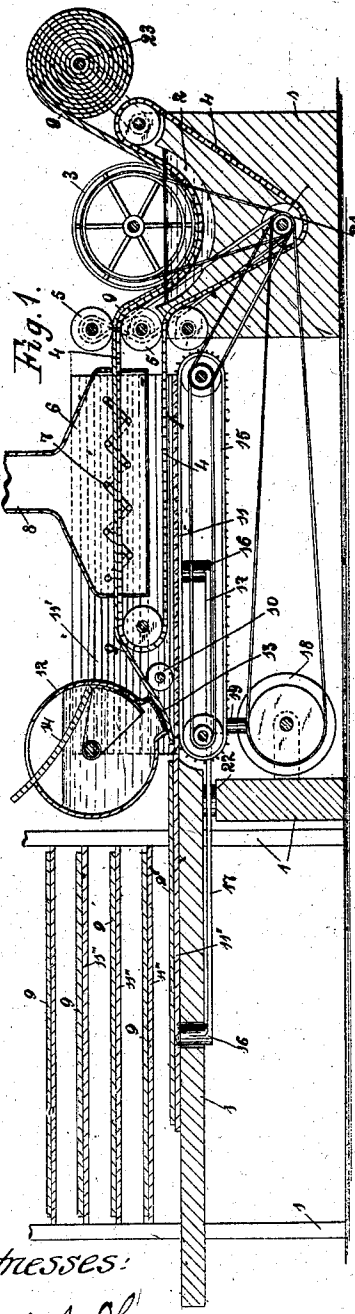
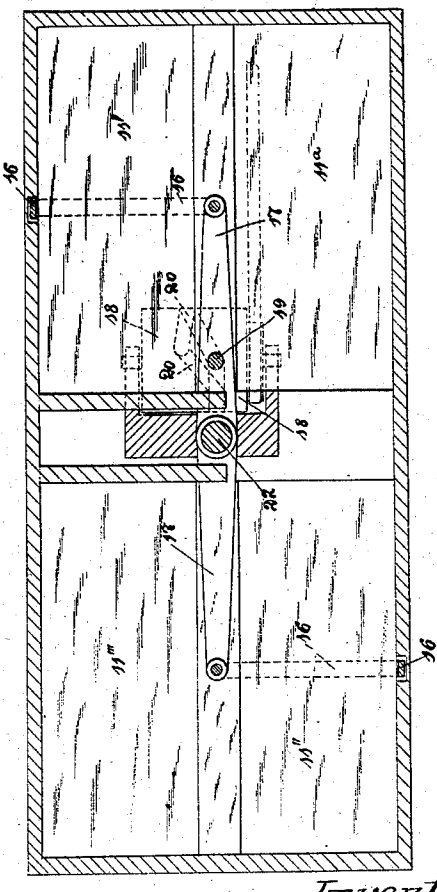


Fig. 2.



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HUGO KARLE, OF SECKENHEIM, AND JEAN SCHMIDT, OF MANNHEIM, GERMANY.

PRODUCTION OF SUBSTANCES RESEMBLING LEATHER.

SPECIFICATION forming part of Letters Patent No. 750,371, dated January 26, 1904.

Application filed September 30, 1902. Serial No. 125,359. (No specimens.)

To all whom it may concern:

Be it known that we, HUGO KARLE, residing at Seckenheim, near Mannheim, and JEAN SCHMIDT, residing at Mannheim, Germany, have invented certain new and useful Improvements in Production of Substances Resembling Leather, of which the following is a specification.

The present invention relates to a process for the production of substances resembling leather.

The process consists, substantially, in passing a "fleece" through an impregnating liquid, squeezing same out by means of pressing-rolls, passing it through a drying-stove, pouring again liquid on same, placing it on plates, passing it into a drying-chamber, and then dyeing, dressing, or otherwise treating or finishing same.

The accompanying drawings illustrate an apparatus which may be employed for this process.

In the drawings, Figure 1 is a longitudinal vertical section through the entire apparatus, and Fig. 2 is a detail plan of the reversing or reciprocating device.

On a frame 1 there is arranged a trough 2 for the impregnating liquid. Into this trough there dips a roller 3, and under this roller there passes a sieve-like metal web 4, which runs over several guide-pulleys. This metal web 4 runs between the two pressing-rolls 5 and then on through a drying-chamber 6, which is provided with a heating-coil 7 and with a pipe 8 for drawing off the vapors that are generated. Between the guiding-web 4 and the guide-roller 3 there is passed a strip of fleece 9, which unwinds from the roller 23. This strip 9 is composed of two layers of wadding, whose fibers are situated at right angles to one another. The fleece 9 is led over a guiding-pulley 10 and is laid upon the sieve-like frames 11. These frames 11 have the four different characteristic positions 11^a 11′ 11″ 11‴. Above the frame 1 there is further arranged a sprinkling-drum 12, which is provided with a sieve-like outlet 13, that can be closed by means of any suitable slide or valve 14. In the lower part of the frame 1 there is arranged a conveyer-web 15 for the frames 11 and a feeding device for changing the frames. The feeding device consists, substantially, of the carriers or dogs 16, of the lever 17, which is pivoted on a pin 22 of the roller 18, and of the stud 19, which works in a groove 20 in the roller 18. All the various mechanisms are driven from a central shaft 21.

The impregnating liquid, which is contained in a trough 2, is prepared as follows: First, ninety-seven per cent. poppy-oil, to which three per cent. "white-burnt" vitriol is added, is boiled in a vessel fitted with a stirring device; second, eighty per cent. astrachan fibrin glue, ten per cent. fish-oil, two per cent. extract of leather-lye, two per cent. potash, and six per cent. camphor are boiled together. These two boilings are mixed together in equal quantities—that is, fifty per cent. of each boiling—and are diluted with hot water to from eighty to ninety per cent.

The binding medium in the sprinkling-drum 12, with which the fleeces are to be saturated, is prepared as follows: Raw caoutchouc which has been swelled, rolled, washed, cleaned, and dried is caused to completely swell up in a small quantity of naphtha, and it is diluted with benzol or benzin until it has become liquid. From forty-nine to fifty-two kilograms of the benzin or benzol are employed to one kilogram of caoutchouc, according to the specific gravity of the benzin or benzol. To the dilute caoutchouc there may now be added with advantage a solution of "Borneo mort" and resin in such proportions that the mixture in the sprinkling-drum consists of one-third Borneo mort, one-third dissolved caoutchouc, and one-third resin.

The procedure in carrying out the process and employing the apparatus is now as follows: All the mechanisms having been set in motion by means of the central shaft 21, the fleece strip 9 is passed, by means of the sieve-like metal web 4 and of the guide-roller 3, through the impregnation liquid which is contained in the trough 2. From the liquid the fleece strip 9 then passes through the two pressing-rollers 5, which squeeze the liquid out of it as effectually as possible. Thence

the metal web 4 conveys the fleece strip through the drying-chamber 6, in which the moisture still present in the fleece is evaporated by the action of the heating-coil 7, the vapors of said moisture escaping then through the exit-pipe 8. The fleece strip 9 then passes on over the guide-pulley 10 and moves gently onto the sieve-like frame 11, which has a uniform forward movement imparted to it by the conveyer-belt 15, that is also driven from the main shaft 21. Shortly before the fleece strip 9 moves onto the frame 11 it passes under the sieve-like outflow 13 of the sprinkling-drum 12, and when the valve 14 is open the fleece is sprinkled with the liquid contained in the drum, the degree of moistening of the fleece being capable of regulation by opening the valve 14 to a greater or less extent. The frame 11 now moves farther on and arrives finally in the position 11″. In the meantime the roller 18 has now rotated to an extent such that the inclined portion of its groove 20 begins to force the stud 19 of the lever 17 to one side. This has the result of causing the carrier or dog 16, situated in the left-hand portion of Fig. 2, to move the advanced frame 11 out of the position 11″ into the position 11‴ and at the same time to push a fresh frame 11 out of the position 11′ into the position 11ª. Immediately afterward the groove 20 then moves the lever 17, and consequently also the two dogs 16, back again into their original positions. The frame, (which has been moved into the position 11‴,) together with the fleece strip 9 lying upon it, is now moved by means of a hoist into a drying-chamber, and it is then dyed with dyes which are dissolved in the moistening liquid, and it is passed through design-rollers, dressed, or otherwise ornamented and finished.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. A process for the production of material resembling leather, consisting of first impregnating fibrous substances with a liquid which is prepared by mixing a decoction of poppy-oil and "white-burnt" vitriol with a decoction of fibrin-glue fish-oil, extract of leather, potash and camphor, diluted with hot water up to eighty or ninety per cent., then removing the excess of liquid from the fibrous material, then drying the same, then mixing it with a solution of caoutchouc resin solution such as linseed-oil or resin solution, then subjecting the fibrous material to a final drying process and finally finishing or dressing it, substantially as described.

2. A process for the production of material resembling leather, consisting of first impregnating fibrous substances with a liquid which is prepared by mixing a decoction of poppy-oil and "white-burnt" vitriol with a decoction of fibrin-glue, fish-oil, extract of leather, potash and camphor, diluted with hot water up to eighty or ninety per cent., then removing the excess of liquid from the fibrous material, then drying the same, then mixing it with a solution of caoutchouc, thickening same with Borneo mort and resin, then subjecting the fibrous material to a final drying process and finally finishing or dressing it, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two witnesses.

HUGO KARLE.
JEAN SCHMIDT.

Witnesses:
JOH SECKEMANN,
JACOB ADRIAN.