

UNITED STATES PATENT OFFICE.

FRANZ WALTHER WARTENBERGER, OF ALTONA, GERMANY.

COMBINED TANNING AND DYEING PROCESS.

SPECIFICATION forming part of Letters Patent No. 658,032, dated September 18, 1900.

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To all whom it may concern:

Be it known that I, FRANZ WALTHER WARTENBERGER, a subject of the King of Prussia, German Emperor, residing at No. 11 bei der Johanniskirche, Altona, in the Province of Schleswig-Holstein and German Empire, have invented a certain new and useful Combined Tanning and Dyeing Process, of which the following is a specification.

10 The present invention relates to the art of tanning and dyeing skins; and it has for its object a process whereby the tanning and dyeing of skins may be combined and effected simultaneously in a most expeditious and yet
15 thorough manner.

With this end in view my improved process consists, first, in subjecting the skins or hides which have been prepared for tanning by the usual liming and bating processes to
20 the action of a weak aqueous solution of picric acid, to which the dyestuffs, such as anilin colors, have been added, so that the picric acid, as well as the dyestuff, may act simultaneously upon the skins; and, second, in sub-
25 jecting the thus simultaneously tanned and dyed hides or skins to the action of a solution of hyposulfite of soda ($\text{Na}_2\text{S}_2\text{O}_3 + 5\text{H}_2\text{O}$) or other reagent in order to fix not only the picric acid, but also the dye. The skins
30 tanned and dyed are then finished for market by beating, rubbing, scraping, &c., in the usual manner. The essential feature of this invention lies, therefore, in the use of a highly-diluted solution of picric acid, into
35 which is incorporated the dyestuff—that is to say, in the simultaneous application of picric acid and dyestuff and in the subsequent treatment with a suitable reagent for fixing both the picric acid and the dye in the simul-
40 taneously tanned and dyed hides:

The carrying into practice of my improved combined tanning and dyeing process is very simple, and the steps necessary to make a marketable leather are as follows: The hides
45 or skins previously prepared by the usual liming and bating processes are steeped in a combined tanning and dyeing solution, which may be obtained by mixing about seven hundred parts, by weight, of water, ten parts,
50 by weight, of picric acid, and one part, by weight, of the desired anilin dye or color at ordinary temperature, which in some cases

may be raised to about 30° centigrade and maintained at this temperature during the tanning and dyeing process. The duration
55 of the latter depends upon the nature and weight of the hides and varies, accordingly, from about two to four hours. Practical experiments have shown that by this operation not only an effectual tanning but also a most
60 excellent coloring of the hides is obtained, which is accounted for by the fact that the picric-acid solution acts at the same time as a carrier for the dye, and thereby enables the
65 latter to better and more uniformly permeate the pores of the grain of the skins than would be the case if the latter were dyed
70 after having been tanned. When the hides are thoroughly tanned and well dyed, they are removed from the combined tanning and dyeing liquor and subjected to a subsequent
75 treatment, which consists in rinsing the leather in a solution of about twenty parts of water, about four parts of hyposulfite of soda, ($\text{Na}_2\text{S}_2\text{O}_3 + 5\text{H}_2\text{O}$), and about one to three
80 parts of hydrochloric acid. The hyposulfite solution or other equivalent agent has the effect of fixing the picric acid, of depriving the latter of its discoloring and poisonous
85 properties, and of fixing the color or dye. After this treatment the leather is washed and then curried in the usual manner.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The process of simultaneously dyeing and tanning hides and skins, previously prepared for tanning in the usual manner, which consists in subjecting the same to the action
90 of a solution of a dyestuff and of an acid tanning agent incapable of fixing the dyestuff, and subjecting the dyed and tanned hides or skins to the action of a solution of a reagent capable of fixing both dyestuff and acid tanning agent.
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2. The process of simultaneously dyeing and tanning hides and skins, previously prepared for tanning in the usual manner, which consists in subjecting them to the action of a dyestuff and picric acid and subjecting the
100 dyed and tanned hides or skins to the action of a solution of a suitable hyposulfite and hydrochloric acid.

3. The process, which consists in subject-

ing hides or skins, previously prepared for tanning by the usual processes, to the action of a solution of about ten parts of picric acid, of about seven hundred parts of water, and
5 of about one part of anilin dye or color, substantially as and for the purpose set forth.

4. The process, which consists in subjecting hides or skins, previously prepared for tanning by the usual processes, to the action

of a weak solution of picric acid containing 10 a suitable dyestuff, and then to the action of a solution of a hyposulfite and hydrochloric acid, substantially as and for the purpose set forth.

FRANZ WALTHER WARTENBERGER.

Witnesses:

ALEXANDER SPECHS,

E. H. L. MÜMMENHOFF.