UNITED STATES PATENT OFFICE.

FRIEDRICH KNAPP, OF BRUNSWICK, GERMANY.

IMPROVEMENT IN THE ART OF TANNING.

Specification forming part of Letters Patent No. **193,520**, dated July 24, 1877; application filed March 16, 1877.

To all whom it may concern:

Be it known that I, Dr. FRIEDRICH KNAPP, of Brunswick, in the Empire of Germany, have invented an Improved Process of Tanning Hides and Manufacturing Leather; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention has for its object the substitution, in the manufacture of leather, of a cheap mineral reagent for vegetable tanning principles, and the obviation of laborious processes in the said manufacture after the hides have been tanned.

The invention consists in the substitution of a novel and peculiarly-prepared basic sulphate of iron, having peculiar properties, for the vegetable reagents heretofore used for tanning hides.

The basic sulphate of iron used differs from the basic sulphate of iron heretofore known to chemists, and it may form the subject of another application for Letters Patent; but for the better explanation of my present invention I herein describe its mode of manufacture, and its distinctive physical properties.

To make the said basic sulphate of iron for use in tanning, I add to a boiling solution of ordinary green vitriol (sulphate of iron) nitric acid in sufficient quantitity to thoroughly oxidize the said iron salt, and when the effervescence caused by the resulting reaction has ceased, I add green vitriol (sulphate of iron) till the solution becomes of a sirupy consistence, and of a yellow-red color.

The sirupy nature of the solution and its color are distinctive characteristics of the basic sulphate made as described, these properties not being found in the basic sulphate of iron heretofore known to chemists and described in chemical treatises, which salt does not form a sirupy solution, and is of a much darker color—to wit, a brown-yellow. Moreover, the basic sulphate of iron heretofore known and used in the arts, decomposes when its solution is boiled, whereas the basic sulphate of iron used in the process forming the subject of this specification and application may be boiled in solutions having the density of from thirty (30) to forty (40) degrees Baumé without decomposition; and it has, moreover, the property of being copiously taken up by the hides and skins of animals, changing the same into valuable leather.

In the use of the improved basic sulphate of iron as a tanning material, the hides or skins, having the hair and adherent fleshy portions removed in the usual manner, are placed in the cold solution of the said ferric-oxide salt of the proper density, in which they are allowed to remain for two, or, at most, four days, during which time it is not necessary to handle the hides in any manner, all the laborious operations attending the use of tan-bark liquor while the hides or skins are subjected to the action of such liquor being wholly obviated. At the end of the time named the hides or skins are removed from the solution of ferric-oxide salt, and further treated.

The hides, after being removed from the tanning liquor and cleaned, are then subjected to the usual currying and finishing operations.

I claim—

The process of tanning hides or skins by steeping them in a solution of basic sulphate of iron, produced by first boiling a solution of ordinary green vitriol (sulphate of iron) and nitric acid to oxidize the iron salt, and then adding green vitriol (sulphate of iron) until the solution becomes the proper consistency, substantially in the manner herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of January, 1877.

DR. FRED. KNAPP.

Witnesses:

P. SOMMERMEYER,

E. GOTTFRIEDSEN.