UNITED STATES PATENT OFFICE.

FRIEDRICH KNAPP, OF BRAUNSCHWEIG, GERMANY.

IMPROVEMENT IN MANUFACTURE OF SOAPS.

Specification forming part of Letters Patent No. **221,072**, dated October 28, 1879; application filed May 13, 1878.

To all whom it may concern:

Be it known that I, FRIEDRICH KNAPP, Doctor of Philosophy, and Professor, of Brunswick, Germany, have invented an Improvement in Iron Soaps, and processes for making the same, or soaps in which the alkaline bases ordinarily used are replaced by an iron base; and I hereby declare that the following is a full, clear, and exact description of the same.

I produce the said iron soap by precipitation of an iron soap from a solution of ordinary soap through the agency of a solution of the special basic sulphate of iron, Letters Patent for which were granted to me July 24, 1877, said Letters Patent being numbered 193,521.

For the better understanding of this my present invention, I will briefly describe the process of making the aforesaid basic sulphate of iron, and its properties which distinguish it from other basic sulphates of iron.

The said special basic sulphate of iron is made as follows: To a boiling solution of proto-sulphate of iron (green vitriol) is added as much nitric acid as will thoroughly oxidize the salt contained in the said solution. When the effervescence which ensues upon the addition of the nitric acid has subsided, the operation is reversed—that is to say, sulphate of protoxide of iron is added to the solution till said solution assumes a sirupy consistence, and acquires a yellow-red color. The said sirupy consistence of the solution of the said salt, the yellow-red color, and the appearance of an orange-red transparent varnish, when the said salt is solidified by slow evaporation of the solution, are peculiar characteristics of the said basic sulphate made in the manner described.

The color of the solidified salt is much lighter than that of the basic sulphate of iron hitherto known, and it possesses the property of resisting the decomposing action of heat while in a state of solution. It is capable of being boiled in solutions of the strength of from 30° to 40° Baumé without decomposition unlike the before-known basic sulphate of iron, which decomposes when boiled in aqueous solution. The said basic sulphate of iron has, moreover, the property of being copiously taken up by the skins of animals, in which it produces remarkable changes, rendering said salt an important re-agent in the manufacture of leather.

I make the iron soap which forms the subject of the present application by precipitating it from a solution of ordinary soap through the agency of a solution of the said sulphate, which decomposes the solution of ordinary soap in proportion to the amount added until the whole of the fatty acids have been separated from the alkaline base or bases.

It will be seen that so much of the said basic sulphate is added to the soap solution as is required to form the iron soap; and it is evident that the proportions cannot be positively fixed, inasmuch as they differ according to the strength of the soap solution. I would here state, however, that for one hundred parts of the soap forming the present invention, the following proportions will be found satisfactory: 9.51 parts of the mixed sulphate, and 90.49 parts of the fatty acids of ordinary soap.

The iron soap thus produced is especially designed for use in tanning purposes, and it will be copiously taken up by the skins of animals in which it produces, as before stated, remarkable changes, rendering it an important agent in the manufacture of leather.

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

The iron soap made from a solution of ordinary soap by the use of a solution of the herein-described basic sulphate of iron, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand.

DR. FRIED. KNAPP.

Witnesses:
Dr. F. SALOMON,
Dr. M. MÜLLER.