Newsleather

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Edition 3, 2024

Welcome

This is the third edition of our scientific newsletter, dedicated to providing the latest updates on research, regulatory developments, technology, and standard methods in the leather industry.

In this issue, we are starting a series of publications about the use of patents in the leather industry. We will review two old patents that shaped the leather industry.

Patents are a complex subject, involving the interplay of technology, science, art, and legal expertise. The process of obtaining a patent is intricate and often requires the expertise of a patent attorney for the submission, interaction with the patent examiner, and defense of the patent. The patent process varies across different countries, resulting in situations where patents may be granted in some regions but not in others.

Thank you for joining us on this journey. We look forward to your feedback and contributions in future editions.

Please share your comments and suggestions to secretary@iultcs.org

Wishing you all a Happy New Year! Keep Tanning!

Kind regards,

Dr. Luis A. Zugno, editor

Traditionally, leather technology has been kept as a trade secret, with recipes and formulations guarded closely by the Master Tanner. Often, the chemicals were coded, and only handwritten formulations existed. Tanneries were tightly closed industries. However, with the advent of the industrial revolution, tanneries had to become more transparent, requiring the disclosure of chemicals and formulations. This shift created an opportunity to use patents to protect intellectual property. Today, both trade secrets and patents continue to play a crucial role in the leather industry.

A **patent** is a special legal protection for inventors. It gives them the exclusive right to use, make, and sell their invention for a set period, usually 20 years. This means no one else can use or copy their invention without permission.

Patents encourage inventors to create new things by ensuring they can benefit from their hard work. To get a patent, inventors must describe their invention in detail so others can understand how it works. This sharing of knowledge helps inspire more new ideas and inventions.

In simple terms, a **patent** is like a reward for inventors that also helps spread new knowledge and technology.

Patents play a crucial role in innovation by:

1. **Protection of Intellectual Property**: Patents safeguard inventors from unauthorized use of their inventions, ensuring they can control and monetize their innovations.
2. **Incentive for Innovation**: By granting exclusive rights to profit from inventions, patents provide a strong incentive for investing time and resources in research and development.

3. **Promotion of Knowledge Sharing**: The requirement for public disclosure of patented inventions fosters knowledge dissemination, which can inspire further innovation and development in related fields.
4. **Economic Growth**: Patents drive economic growth by encouraging the commercialization of new technologies, leading to the creation of new products, services, and industries.

While patents provide significant advantages, they also come with certain challenges:

1. **Cost**: The process of obtaining and maintaining a patent can be expensive, including application fees, legal fees, and maintenance fees. In the United States the total cost for the life of the patent is estimated in 100,000 dollars.
2. **Time-Consuming**: The patent examination process can be lengthy, often taking several years to complete. In most countries patents are valid for 20 years.
3. **Enforcement**: Enforcing patent rights can be complex and costly, particularly in cases of international infringement.

In this newsletter we will review 2 important and historical United States patents on the leather industry:

1. The two-batch system for chrome tanning patented in the United States by Schultz on January 8, 1884, next month completing 141 years. The two patents “Tawing Hides and Skins” describe the use of bichromate of potash (potassium bichromate) being reduced by sodium sulfite or sodium thiosulfate. Patents: US291784A and US291785.

   Schultz patents were challenged by Zahn citing prior art. The New Jersey court said that the process is not entirely new or original and that similar patents existed at the time of Schultz's patent. This video

has a great representation of the patent dispute: https://bit.ly/409Q5w7

2. Dr. Otto Rohm patented in 1908 the invention of a bating process using extract of the pancreas of animals and a mixture of salts of alkali and ammonia. This new bating method served as a replacement for the traditional use of dog dung in the bating process. The most known product of this patent (now expired) is called Oropon® and is still being used today. Patent US886,411. The German patent was issued on June 7, 1907: DE200519C https://patents.google.com/patent/DE200519C/en

The patent when issued became a public document and can be accessible easily. At the end of this newsletter, we have the complete text of these patents. The old patents are simple and very objective; today are more complex.

We will continue our discussion on patents and how to make searches in the future issues of Newsleathers.

UNITED STATES PATENT OFFICE.

AUGUSTUS SCHULTZ, OF NEW YORK, N. Y.

TAWING HIDES AND SKINS.

SPECIFICATION forming part of Letters Patent No. 291,784, dated January 8, 1884.

Application filed May 31, 1883. (No specimens.)

To all whom it may concern:

Be it known that I, AUGUSTUS SCHULTZ, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new Improved Process of Tawing Hides and Skins, of which the following is a specification.

This invention relates to a new process for tawing hides or skins, said process consisting in subjecting said hides or skins to the action of compounds of metallic salts—such as bichromate of potash—and then treating the same with hyposulphite of soda, by which term is understood that salt which is more recently sometimes called "thiosulphate of soda," ($Na_2S_2O_3$.)

In carrying out my process, I unhair the rawhides and prepare them in the same manner in which they are made "ready" for tanning. If the hides have not been pickled, I subject them to the action of a solution of bichromate of potash in the presence of an acid—such as hydrochloric acid—or, if the hides have been pickled, they may be treated in a solution of bichromate of potash in water without the addition of an acid. In this solution the hides are left for a shorter or longer time, according to their thickness and to the strength of the solution employed. A skiver or the face of a sheep-skin can be done in a strong solution, as above described, in about fifteen minutes, while a full skin "roan" would require in the same solution about one hour. I call the solution "weak" if it contains five per cent. or less of the weight of skins of bichromate of potash, and I call the solution "strong" if it contains more than five per cent. of bichromate of potash. It is not material, however, how strong the solution is. The skins are completed if small pieces cut from the thickest parts of said skin show that the solution has entirely penetrated. The skins are then ready to be taken out, and after the adhering liquor has run off the skins are introduced into the second solution, which consists of hyposulphite of soda dissolved in water, and adding an acid, such as hydrochloric acid. The solution may be strong or weak of hyposulphite, and the quantity of acid used at first may be less than requisite to split up the entire quantity of hyposulphite, and more acid may be added if the skins show that more is required, which is indicated by the color of the skins. When they are done, they show a whitish, blueish, or greenish color, according to the time they are kept in the hyposulphite solution. A skiver which first has been exposed to the action of the bichromate for fifteen minutes will be ready by remaining in the hyposulphite solution about twenty minutes. For thicker skins a proportionately longer time is required. For some skins—such as calf or steers' skins—it is desirable that the same, after having been withdrawn from the second or hydrosulphite solution, shall be returned to the bichromate solution, which imparts to them a brownish color and leaves them in a favorable condition to be colored black. The coloring can be done after the skins leave the hyposulphite solution, and after they have been exposed for the second time to the bichromate solution. The leather coming from the hyposulphite solution is especially adapted for light or dark colors, and by proper dyeing methods better and brighter colors can be produced than on leather done by tanning. After the leather is treated in the manner above indicated, it may be colored, soaped, and greased in the usual way. Leather can also be made by reversing the operation and first soaking the hides in a solution of hyposulphite of soda and then exposing them to the action of the bichromate solution. By using the solutions indicated at a heat of about 80° Fahrenheit, the process will be done in a shorter time than if the solutions are used cold. By my process the gelatine contained in the hides is rendered insoluble by means not injurious to the leather. If leather made by tannin is put in a strong soda solution, the tannin is extracted and a dark-brown liquor is formed. If leather made by my process is put in a strong soda solution, the liquor obtained shows only a little milky color.

Leather made by my process is very strong, soft, elastic, and my process is applicable to hides or skins of every description.

What I claim as new, and desire to secure by Letters Patent, is—

The within-described process for tawing hides and skins, said process consisting in subjecting the hides or skins to the action of compounds of metallic salts—such as a solution of bichromate of potash—and then treating the same with a compound containing hyposulphurous acid, (or as it is otherwise called "thiosulphuric" acid,) such as a solution of hyposulphite of soda or of potash in the presence of hydrochloric acid.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

AUGUSTUS SCHULTZ. [L. S.]

Witnesses:
W. HAUFF,
WILLIAM MILLER.

UNITED STATES PATENT OFFICE.

AUGUSTUS SCHULTZ, OF NEW YORK, N. Y.

TAWING HIDES AND SKINS.

SPECIFICATION forming part of Letters Patent No. 291,785, dated January 8, 1884.

Application filed July 18, 1883. (No specimens.)

To all whom it may concern:

Be it known that I, AUGUSTUS SCHULTZ, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Tawing Hides and Skins, of which the following is a specification.

This invention relates to a new process for treating hides or skins, said process consisting in subjecting said hides or skins to the action of a bath prepared from a metallic salt—such as bichromate of potash—and of then treating the same with a bath containing sulphurous acid.

In carrying out my process I unhair the raw hides and prepare them in the same manner in which they are made ready for tanning. If the hides have not been pickled, I subject them to the action of a bath of bichromate of potash in an acid, such as hydrochloric acid; or, if the hides have been pickled, they may be treated in a solution of bichromate of potash in water without the addition of an acid. In this solution the hides are left for a longer or shorter time, according to their thickness and to the strength of the solution employed. A skiver or the face of a sheep-skin can be done in a strong solution, as above described, in about fifteen minutes, while a full skin "roan" would require in the same solution about one hour. I call the solution weak if it contains five per cent. or less of the weight of the skins of bichromate of potash, and I call the solution strong if it contains more than five per cent. of bichromate of potash. The skins are done if small pieces cut from the thickest part thereof show that the solutions have entirely penetrated. The skins are then ready to be taken out of the solution, and, after the adhering liquor has run off, the skins are introduced into the second bath, which consists, by preference, of sulphite of soda dissolved in water, to which an acid—such as hydrochloric acid—should be added, in order to set free the sulphurous acid. The hydrochloric acid or its substitute may be added to the bath in a free state or through the medium of skins previously pickled, such skins being impregnated with the proper acid. The solution may be strong or weak of sulphite, and the quantity of acid used at first may be less than requisite to exhaust the bath of the sulphite, and more acid may be added if the skins show that more is required, which is indicated by the color of the skins. When the skins are done, they show a whitish, bluish, or greenish color, according to the time they are kept in the sulphite bath. A skiver which first has been exposed to the action of the bichromate bath for fifteen minutes will be ready by remaining in the sulphite bath about twenty minutes. For thicker skins a proportionately longer time is required.

For some skins—such as calf or steer skins—it is desirable that the same, after having been withdrawn from the second or sulphite bath, shall be returned to the bichromate bath, which imparts to them a brownish color and leaves them in a favorable condition to be colored black. The leather coming from the sulphite bath is especially adapted for light and also for dark colors, and by proper dyeing methods better and brighter colors can be produced than on leather done by tannin. After the leather is done in the manner above described, it may be colored, soaped, and greased in the usual way.

Leather can also be made by reversing the operation and first soaking the hides in a sulphite bath, and then exposing them to the action of the bichromate bath. By using the baths described at a heat of about 80° Fahrenheit the process will be done in a shorter time than if the baths are used cold. Tawed leather made by my process is very strong, soft, and elastic, and my process is applicable to hides or skins of every description.

Instead of using sulphite of soda, I can use other sulphites or bisulphites in presence of an acid or an aqueous solution of sulphurous acid.

What I claim as new, and desire to secure by Letters Patent, is—

The within-described process for tawing hides and skins, said process consisting in subjecting the hides or skins to the action of a bath prepared from a metallic salt—such as bichromate of potash—and then to the action of a bath capable of evolving sulphurous acid—such as a solution of sulphite of soda—in presence of another acid—such as hydrochloric acid—substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

AUGUSTUS SCHULTZ. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.

UNITED STATES PATENT OFFICE.

OTTO RÖHM, OF ESSLINGEN, GERMANY.

PREPARATION OF HIDES FOR THE MANUFACTURE OF LEATHER.

No. 886,411. Specification of Letters Patent. Patented May 5, 1908.

Application filed October 12, 1907. Serial No. 397,149.

To all whom it may concern:

Be it known that I, OTTO RÖHM, a subject of the German Emperor, residing at Esslingen, Germany, have invented a certain new and useful Improvement in the Preparation of Hides for the Manufacture of Leather, of which the following is a specification.

For bating hides, that is to say, for removing the lime and fatty matter from the hides after the liming process, dog manure has been used for a long time.

The present invention has for its object, to provide a simpler and more reliable method of removing the lime, together with the fatty matter and the remnant of the hairs. For this purpose I treat the hides with an aqueous extract from the pancreas of animals. The principal constituent of the said pancreatic extract is trypsin, the effect of which is materially assisted by the other enzyme of the pancreas, viz. steapsin, which has the property of splitting up fat and completing the saponification of the fat contained in the hides.

Aqueous pancreatic extracts alone have a very efficient bating action, but it is advantageous to add salts of ammonia or of alkalies or mixtures of such salts. The favorable effect of these salts on hides becomes apparent chiefly by the fact, that the hides shrink, become thinner and are less liable to become rough, on being placed in pure water after the bating process, which defect is liable to occur, when the hides have a strong alkaline reaction and the water contains a considerable quantity of calcium-bicarbonate.

The details of procedure will appear from the following example: A pancreas weighing about 250 grams is extracted with 1 liter of water, and 10 cubic centimeters of this extract are added to 990 cubic centimeters of a 0.1 per cent. aqueous solution of ammonium chlorid. The solution thus obtained is an excellent bate.

When the hides, which have been limed and have an alkaline reaction, are introduced into the bating liquid, the hides are liable to become rough, through the precipitation of calcium carbonate, in case the water employed contains much calcium-bicarbonate in solution. This defect may occur, whether the bating liquid contains trypsin alone, or together with salts of ammonia or alkali, and it may be avoided by subjecting the water intended for the preparation of the bate, to a preliminary treatment, which consists in precipitating the carbonic acid by means of a suitable quantity of lime water, or in adding to the bating liquid before the introduction of the hides starch-paste or other organic or inorganic materials adapted to envelop the calcium carbonate.

If desired, both remedies, viz. lime water and starch-paste, may be used at the same time.

What I claim is:—

1. The process for bating hides, which consists in treating the hides with an aqueous extract of the pancreas of animals, substantially as described.

2. The process for bating hides, which consists in treating the hides with an aqueous pancreatic extract containing an ammonia-salt, substantially as described.

3. The process for bating hides, which consists in treating the hides with an aqueous pancreatic extract containing a mixture of salts of alkali and ammonia, substantially as described.

In witness whereof I have set my hand hereunto in the presence of two subscribing witnesses.

OTTO RÖHM.

Witnesses:
H. STRÄHLE,
OTTO HAAS.