

UNITED STATES PATENT OFFICE.

ABEL T. ATHERTON, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN TANNING COMPOUNDS.

Specification forming part of Letters Patent No. 117,241, dated July 25, 1871.

To all whom it may concern:

Be it known that I, ABEL T. ATHERTON, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain Improvements in Tanning Compounds, also in the process of making the same, of which the following is a specification:

My invention relates to the combination of certain alkalies with the liquid product obtained from charcoal-kilns, as hereinafter described; also the process by which said liquid product is obtained.

On May 26, A. D. 1868, a patent was granted to Morton E. Converse and myself for the attachment of pipes to kilns used in the manufacture of charcoal, said pipes being for the purpose of collecting and saving the liquid products arising from the destructive distillation of the wood. I have since found that by a process hereinafter described I am enabled to produce with said product, in combination with certain alkalies, a tanning compound of great value, and at considerably less expense than other compounds used for the same purpose.

It is a well-known fact that creosote possesses great tanning properties, and that it is obtained from wood-tar by the distillation process; but, owing to the expense heretofore of obtaining the same, it has never entered practically into tanning compounds. By my invention I am enabled to preserve the greater part of the creosote derived during the process of carbonizing the wood in the kilns, as before stated, and incorporate the same into the other liquid products as they flow from the pipes attached to the said kilns.

The great trouble heretofore in the use of pyroligneous acid in combination with other chemicals for tanning purposes has been the absence of a sufficient quantity of creosote in said compound, and without which it has been utterly impossible to successfully use said acid, &c., for this purpose. During the carbonization of the wood the greater part of the tar resulting from said carbonization passes off with the liquid products from the kiln (sufficient heat not having been generated to distil the tar at first) and settles to the bottom of the acid-receiver. After removing this tar from the receiver I again introduce it into the kiln through an opening made in the top of the kiln, (this opening, when the operation of distilling the tar is not going on, is closed with an air-tight cover,) and by coming

in contact with the wood being carbonized, which is in a much greater heated condition, it is immediately converted into creosote, which again passes from the pipes attached to the kiln, and is combined with the rest of the liquid products which came from the wood. After obtaining said liquid it is necessary to so prepare it that there shall be only acid enough in the same to neutralize the lime used in removing the hair from the skins. I accomplish this by adding a sufficient quantity of common salt or other suitable alkali. This being done, the remainder of the acid not neutralized by the salt neutralizes the lime in the skin, and the creosote, being set free, penetrates and tans said skins in a superior manner in less than one-fourth of the time commonly employed (when good leather is produced) without the slightest injury to the skin, as it is also well known that creosote is perfectly harmless when used for this purpose. It is impossible to state the quantity of salt necessary to neutralize the excess of acid in the liquid products, as the quantity of acid and creosote in a given quantity of wood varies with the different kinds of wood; but any person skilled in the art of tanning by any of the old processes can, in a short time, ascertain the requisite quantity of alkali required.

By the use of my invention the expensive process of "drenching" is entirely dispensed with, and but two operations are needed in tanning skins, viz., the "liming of the skin" for removing the hair, and afterward the immersion of said skins in my tanning compound.

I do not claim the use of pyroligneous acid, used either separately or in combination with other alkalies, as numberless experiments have been made by the use of these compounds which were wholly unsuccessful. Neither do I claim the different processes and apparatus employed in manufacturing pyroligneous acid, although I do not confine myself to the making of my tanning liquid to a kiln, as the same arrangement for distilling the creosote may be made with regard to retorts; but

What I do claim is—

1. The process, as herein described, of making a tanning compound.
2. The tanning compound, as described, as a new article of manufacture.

ABEL T. ATHERTON.

Witnesses:

ALBERT M. MOORE,
NELSON F. LIBBY.