

# UNITED STATES PATENT OFFICE.

CARL DREHER, OF NIEDERINGELHEIM, GERMANY, ASSIGNOR TO C. H. BOEHRINGER SOHN, OF SAME PLACE.

## PROCESS OF MANUFACTURING LEATHER.

SPECIFICATION forming part of Letters Patent No. 590,036, dated September 14, 1897.

Application filed October 21, 1896. Serial No. 609,582. (No specimens.) Patented in Germany April 9, 1897, No. 91,822.

*To all whom it may concern:*

Be it known that I, CARL DREHER, chemist, doctor of philosophy, of Niederingelheim, on the Rhine, Germany, have invented new and useful Improvements in Processes of Manufacturing Leather, of which the following is a specification, and for which Letters Patent No. 91,822 were obtained with my consent by my assigns in Germany under date of June 23, 1896, but issued April 9, 1897.

Formerly tannin was exclusively used in the manufacture of leather, but in recent years the practice of filling skins with mineral oxids—for example, chromium oxids—has become more and more common.

In manufacturing chrome-tanned leather the chromium oxid is formed within the skins by charging them first with chromium salt, say chromium chlorid, and then depositing the oxid of chromium by immersing the skins so charged in an alkaline bath, or the skins are treated with salts of chromium-trioxid, and these salts are subsequently reduced in a second bath containing a reducing medium—such, for example, as sodium thiosulfate or sulfureted hydrogen. The fixing of the oxid of chromium in the skins may, however, be effected much more easily and even in a single bath if the skins are treated with a mixture of trioxid of chromium or its salts and lactic acid or salts thereof.

Very good leather may be made in a comparatively short time in a single bath if, for example, ox-hides be treated in a bath containing for every liter of water four grams lactic acid, (seventy-three per cent.,) 2.6 grams bichromate of potash, and 0.9 grams sulfuric acid. In this bath the skin prepared for tanning as usual and previously slightly swelled should be allowed to remain for about three days and then successively for a period of

eight days in a bath at first twice as strong and then four times as strong as that above mentioned. The skin after only three days immersion appears to be thoroughly penetrated with oxid of chromium and it looks green throughout. The skins are afterward washed, dried, and prepared, as usual.

Thinner skins, as calfskins and goatskins, are transformed into leather by treating them for about two days in a bath containing for every liter of water four grams lactic acid, (seventy-three per cent.,) 2.6 grams bichromate of potash, and 0.9 grams sulfuric acid.

The best mode of procedure is to swell the skins slightly for about half an hour in the bath containing at first only the lactic acid above, adding the sulfuric acid and bichromate of potash afterward. To accelerate the process, the bath also may be slightly heated, say, to about 40° centigrade.

Now what I claim, and desire to secure by Letters Patent, is the following:

1. The herein-described improvement in the process of tanning skins, which consists in treating said skins in a bath containing a chrome compound, a mineral acid and lactic acid or salts thereof, substantially as and for the purpose herein described.

2. The herein-described improvement in the art of chrome-tanning skins, which consists in treating said skins with chrome compounds and with lactic acid or its salts, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL DREHER.

Witnesses:

RICHARD WIRTH,  
EVA SATTLER.