

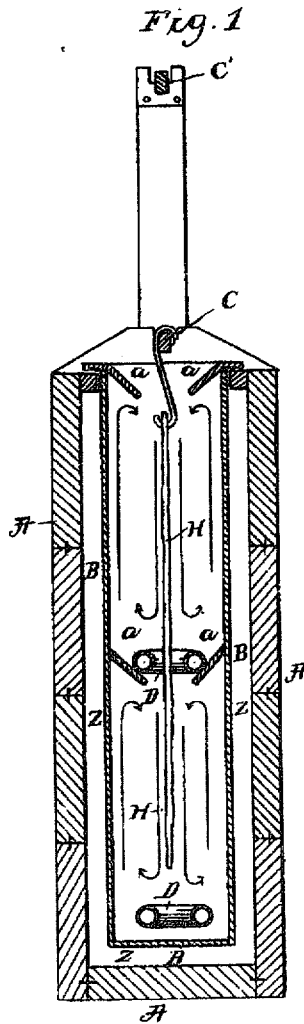
(No Model.)

2 Sheets—Sheet 1.

G. F. LANDAUER.  
PROCESS OF DYEING LEATHER.

No. 418,414.

Patented Dec. 31, 1889.



WITNESSES:

W. E. Bowen  
E. R. Brown

INVENTOR  
Georg Friedrich Landauer

BY

Richard R.

ATTORNEYS

(No Model.)

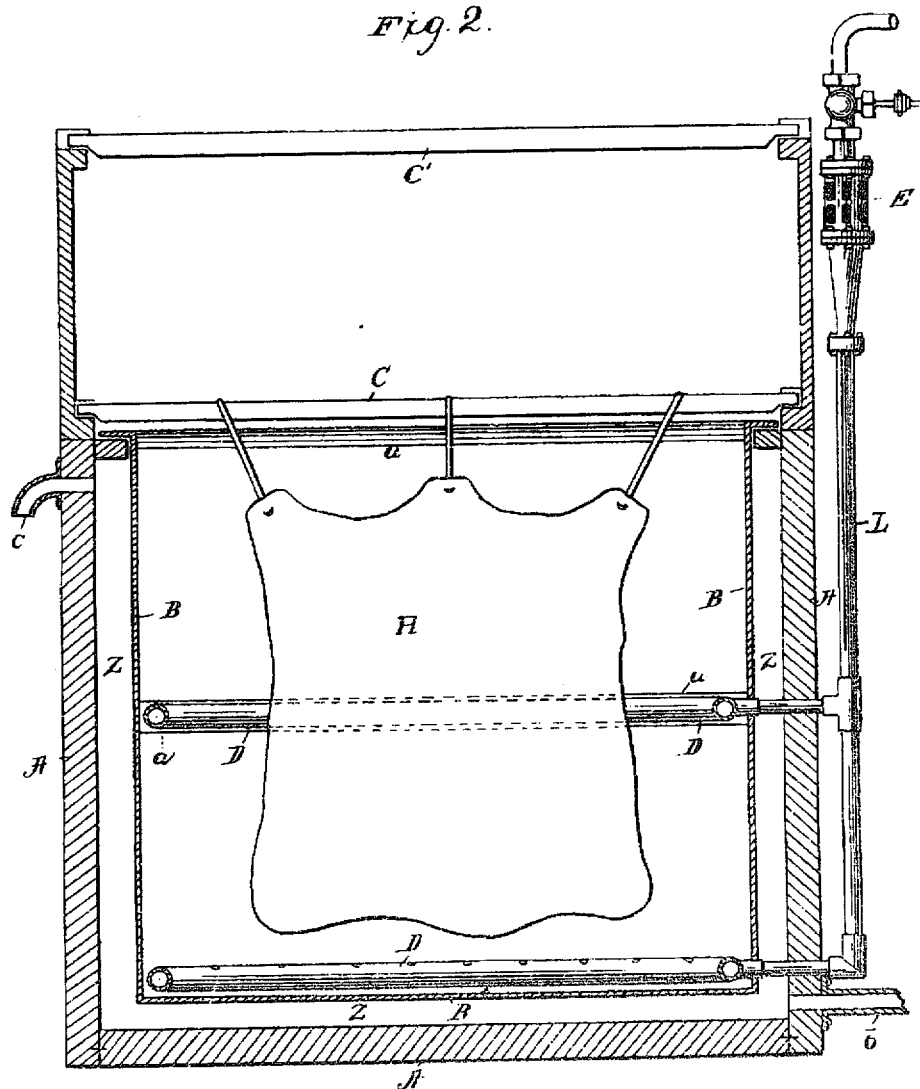
2 Sheets—Sheet 2.

G. F. LANDAUER.  
PROCESS OF DYEING LEATHER.

No. 418,414.

Patented Dec. 31, 1889.

Fig. 2.



WITNESSES

W. E. Bowen  
C. R. Brown

INVENTOR

Georg Friedrich Landauer

BY

Richardson & Co.

ATTORNEYS

# UNITED STATES PATENT OFFICE.

GEORG FRIEDRICH LANDAUER, OF FRANKFORT-ON-THE-MAIN, GERMANY.

## PROCESS OF DYEING LEATHER.

SPECIFICATION forming part of Letters Patent No. 418,414, dated December 31, 1889.

Application filed June 21, 1888. Serial No. 277,746. (No specimens.)

*To all whom it may concern:*

Be it known that I, GEORG FRIEDRICH LANDAUER, manufacturer, residing at Frankfort-on-the-Main, in the Empire of Germany, have  
5 invented new and useful Improvements in Dyeing Leather, of which the following is a specification.

This invention relates to a method or process of dyeing leather.

10 The said method or process consists, principally, in causing, during the heating of the dye-bath by means of steam and admixed atmospheric air, the necessary movement of the dye-liquor in order to effect a uniform de-  
15 position of the dye or coloring-matter upon the leather, and consequently the regular or equable dyeing of the same.

The apparatus by which I prefer to practice my process is represented in the accom-  
20 panying drawings, wherein—

Figure 1 represents the apparatus in longitudinal section, and Fig. 2 the same in cross-section.

In a wooden box or receptacle A, which is  
25 of oblong shape in plan, is placed a dye box or vessel B, which consists of galvanized sheet iron or copper or any other suitable material, and is made of similar shape but of smaller dimensions than the outer box or receptacle A, so that a space Z is formed be-  
30 tween the walls of the two boxes, which space is filled with water. The latter enters the intermediate space Z at or near the bottom of the outer wooden box through the pipe *b* and  
35 leaves it again at the upper part through the pipe *c*. At the bottom of the said dye box or vessel B and in the middle of the latter are placed in proximity to its walls two pipes D D, which present an oblong figure in order to  
40 correspond in shape to the plan of the box, and which are provided at their upper sides with small holes. These pipes communicate with a pipe L on the outside of the outer box, the latter pipe having at its end a Körtling or  
45 other suitable steam-jet blower E, which is set in connection with a steam-admission pipe adapted to be closed by a valve. On the longer vertical sides of the oblong dye box or vessel B, at its upper and middle part, are  
50 placed sheet-metal strips *a a*, arranged obliquely. The flesh sides of two hides H to be

died having been put against each other, the said hides are secured by hooks to a bar C, placed above the dye box or vessel in such a manner that they are suspended in the mid- 55 dle of this box or vessel and that the dye-liquor will circulate in contact with their surface. For facilitating the introduction and removal of the hides the aforesaid bar C is adapted to be placed at the upper end of 60 the outer box or receptacle at C'.

When the dye box or vessel B is filled with the dye-liquor and the hides H are immersed in it in the described manner, the steam-jet blower E is set in action by opening the inlet 65 valve in the steam-pipe and forces, besides steam, atmospheric air into the oblong pipes D D in the dye box or vessel. Through the small holes at the upper side of these oblong pipes D D the steam, mixed with air carried 70 with it, is forced into the dye-liquor. The steam is for the purpose of heating the dye-liquor and setting it in motion, while the atmospheric air is designed to prevent the liquor from becoming too hot and also to enable 75 a moderate amount of steam to produce the requisite movement of the liquor. The oblique sheet-metal strips cause the liquor to circulate in the dye box or vessel B on the outer sides of the hides H in such a manner 80 that the liquor passes equably in contact with both hides, thus preventing more dye or coloring-matter being deposited at one point of the hide than at another. This circulation is represented in the accompanying drawings 85 by arrows.

By reason of the continual movement of the dye-liquor the dyeing of the hide will be absolutely regular and uniform.

The overheating of the dye-liquor is obvi- 90 ated by allowing, when necessary, more cold water to pass through the intermediate space Z between the two boxes or receptacles A and B. By suitably arranging the space the dye-liquor can always be readily maintained at 95 the temperature best adapted for the dyeing operation.

According to the various sizes of the apparatus, either one or more than two oblong pipes can of course also be used in lieu of two 100 pipes, as described and shown in the drawings, with a correspondingly smaller or larger

number of the sheet-metal strips *a a*. The latter may in some cases be dispensed with if several pipes are arranged close to each other.

5 Having thus described my invention and the manner of employing the same, what I claim, and wish to have secured to me by Letters Patent of the United States of America, is—

10 1. As an improvement in the art of dyeing leather, wherein the dye-liquor is heated and the desired movement of the same is effected by the introduction into the dye-bath of steam and atmospheric air, the method of  
15 preventing the overheating of the dye-liquor and maintaining the same at a suitable temperature, the same consisting in immersing

the dye-liquor-containing vessel in cold flowing water, substantially as set forth.

2. The herein-described improved method 20 of dyeing leather, consisting in suspending the hides in a dye-bath, injecting mixed steam and air into said bath to circulate and heat the liquor, deflecting the liquor in motion against the hides, and passing a current of 25 cold liquid in contact with the exterior of the dye-bath vessel, substantially as set forth.

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

GEORG FRIEDRICH LANDAUER.

Witnesses:

FRANZ WIRTH,  
JOSEPH PATRICK.