

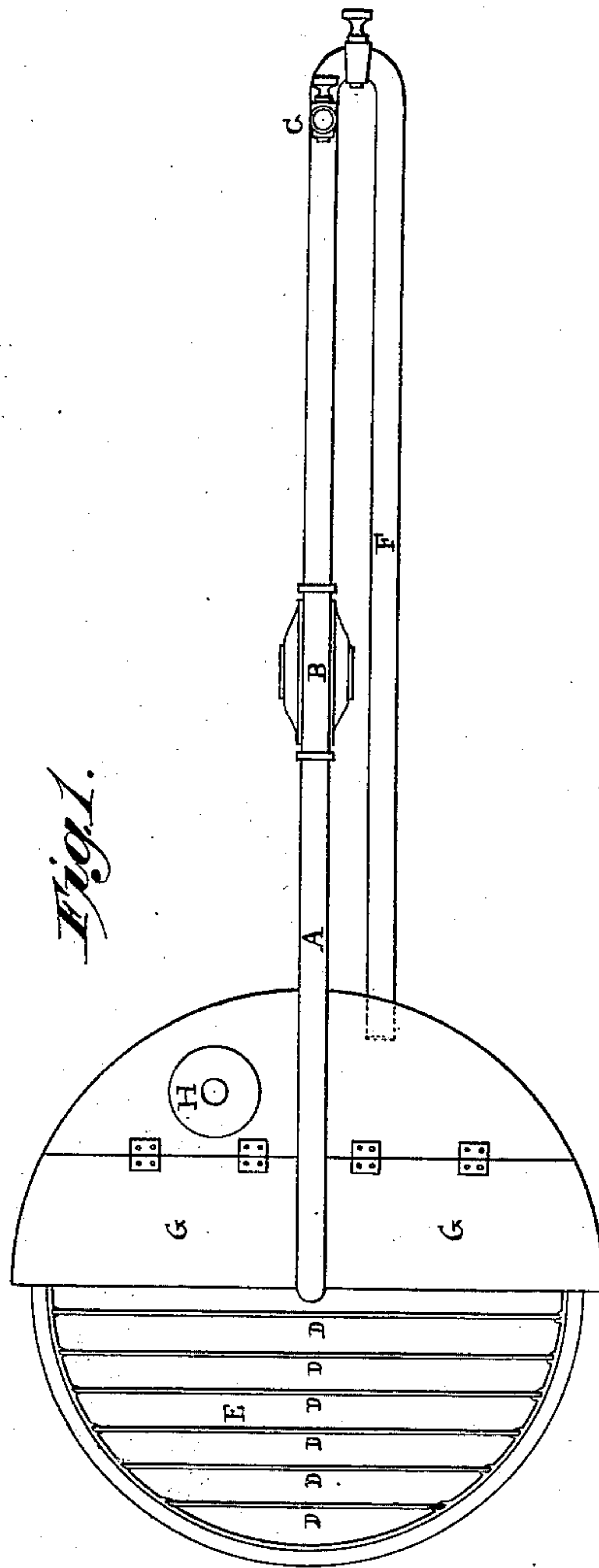
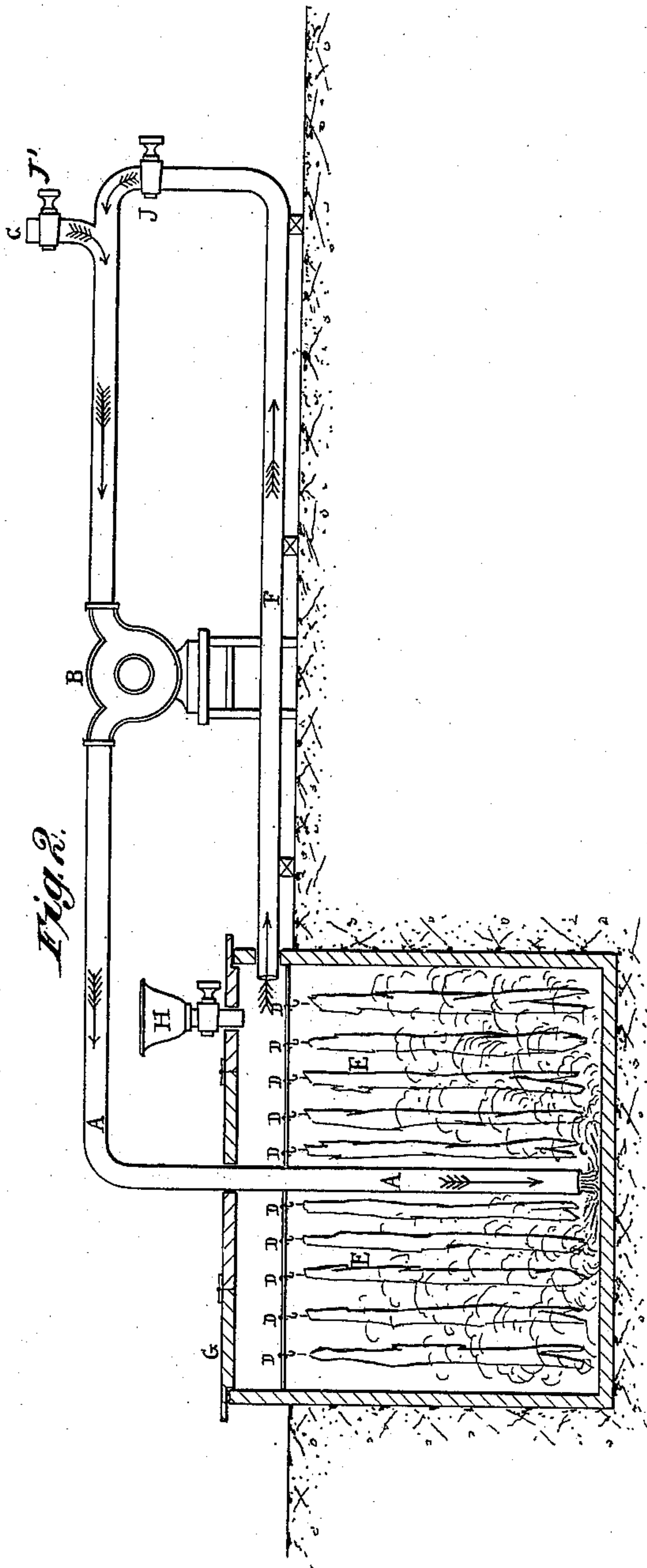
(No Model.)

A. MILLOCHAU & F. CHAILLY.

PROCESS OF AND APPARATUS FOR TANNING.

No. 375,455.

Patented Dec. 27, 1887.



Witnesses.

Geo. W. Rea

Robert Gruett.

Inventors,  
Adolphe Millochau  
Francois Chailly.

By James L. Norris,  
Atty.



# UNITED STATES PATENT OFFICE.

ADOLPHE MILLOCHAU AND FRANÇOIS CHAILLY, OF PARIS, FRANCE, AS-  
SIGNORS TO CAMILLE AUGUSTE MILLET, OF SAME PLACE.

## PROCESS OF TANNING.

SPECIFICATION forming part of Letters Patent No. 375,455, dated December 27, 1887.

Application filed November 30, 1886. Serial No. 220,271. (No model.) Patented in France June 23, 1886, No. 176,965; in Belgium October 7, 1886, No. 74,770; in Austria-Hungary November 5, 1886, No. 44,360, and in England November 22, 1886, No. 15,200.

*To all whom it may concern:*

Be it known that we, ADOLPHE MILLOCHAU and FRANÇOIS CHAILLY, both citizens of the Republic of France, and residents of Paris, France, have invented a new and useful Improvement in Processes of Tanning, (for which we have obtained patents in France, dated June 23, 1886, No. 176,965; Belgium, dated October 7, 1886, No. 74,770; Austria-Hungary, dated November 5, 1886, No. 44,360, and Great Britain, dated November 22, 1886, No. 15,200,) of which the following is a full, clear, and exact specification.

Our invention has for its chief object to enable the tanning of hides and skins to be effected more rapidly than heretofore.

The invention consists in withdrawing or sucking out, by means of a ventilator, rotary pump, or other apparatus, the air found at the top of a closed tanning-vat containing the skins and tanning-liquid, and conducting said air back again to the bottom of the tanning-vat by means of the same apparatus which has withdrawn the air from the top of the vat.

The invention also consists in mixing with the air withdrawn from the top of the tanning-vat a small quantity of atmospheric air taken from the outside of the apparatus.

Our said invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view showing the arrangement of apparatus for carrying our process into practice, and Fig. 2 is a central vertical section of the said apparatus.

The hides or skins to be tanned are suspended from bars D, placed at the upper part of the tan-pit E, which can be hermetically closed by means of a hinged cover, G, or a hydraulic joint, or by any other suitable means. A rotary pump or fan, B, forces air through the pipe A to the bottom of the tan-pit. The air forced into the liquid by this pump can be drawn from the pit through the pipe F, so that it is more or less charged with tannic principles. Furthermore, such air, obtained in the described manner, can be mixed with a suitable quantity of air drawn from the external atmosphere through the pipe C in or-

der to replace the air which may escape by leakage. A cock, J, is provided, by means of which the introduction of air from the upper part of the pit can be regulated, and a similar cock, J', is located in the pipe C for regulating the admission of air from the outside of the apparatus. The funnel H serves to introduce water and tannic principles into the pit.

Instead of placing the substances from which the tanning-liquor is formed in the pit with the hides or skins, the said tanning-liquor can be prepared separately. For this purpose we place the water and the tanning substances in a vat, which can be closed, if desired, and we introduce a current of air at the bottom of this vat to effect the maceration and dissolution of the bark and tanning. The substances can be stirred by the air either in a continuous manner or at intervals. When the liquors are thus prepared, they are poured into the pit in which the hides are suspended as described, and the tanning is then commenced, air being caused to enter continually at the bottom of the pit.

The tanning-liquors can be prepared either with pulverized bark or with pieces or chips of wood containing tannic principles.

The liquors can be of any desired degree of concentration.

According to circumstances, we can, as already stated, inject at the bottom of the vat either the air or vapor alone, which is drawn from the upper part of the pit through the pipe F, or air mixed in variable proportions with external air drawn through the pipe C.

The stirring or agitating of the liquor by air, as described, produces excellent results in the tanning, and the liquors are perfectly clear.

It might have been supposed that the air would give rise to oxidation capable of producing gallic acid, which would have blackened the hides; but this result is not produced, the liquors, on the contrary, being purified.

The chief merit or advantage of our process of tanning resides in the fact that a continuous circulation of air charged with tannic principles takes place through a closed vat or pit;



or, in other words, the air which is at first admitted at the bottom of the vat is used over and over again, it being forced to the bottom of the vat and drawn out at the top thereof by  
5 the same apparatus, such as an air-pump or blower. It will be understood that the circulation of the same air is continued as many times as may be found necessary for the tanning of different kinds of skins. Since the  
10 oxygen is practically extracted from the air after a few passages through the tanning-liquor, it follows that the production of gallic acid cannot take place, and hence we avoid the formation of badly-tanned or dark leather.  
15 As there is some loss of air by leakage through the joints or walls of the vat and pipes, and it is desirable to prevent the formation of a vacuum, we make provision for the admixture of fresh air with the charged air which has  
20 been repeatedly passed through the vat. The means for attaining such end have been fully set forth in the description of the apparatus.

We claim—

1. The process of tanning hides, consisting  
25 in placing the tanning-liquor and hides in a

closed vat or pit and causing a constant circulation of the same atmospheric air through such vat by injecting the air at the base of the vat, withdrawing it at the top thereof, and repeatedly conveying the air charged with tannic principles back again to the base of the  
30 vat, substantially as described.

2. The process of tanning hides, consisting in placing the tanning-liquor and the hides in a closed vat or pit, continuously passing  
35 the same atmospheric air through the same by admitting it at the bottom of the vat, withdrawing it at the top of the latter, and admixing the air charged with tannic principles with common atmospheric air and carrying  
40 the mixture back again to the bottom of the tanning-vat, substantially as described.

In testimony whereof we have hereunto signed our names in the presence of two subscribing witnesses.

ADOLPHE MILLOCHAU.  
FRANÇOIS CHAILLY.

Witnesses:

A. PENISSAT,  
A. GOUDKIND.