H. LOESCHER.

MANUFACTURE OF LACE LEATHER AND APPARATUS THEREFOR.

No. 182,684. Patented Sept. 26, 1876.

Fig: 1.

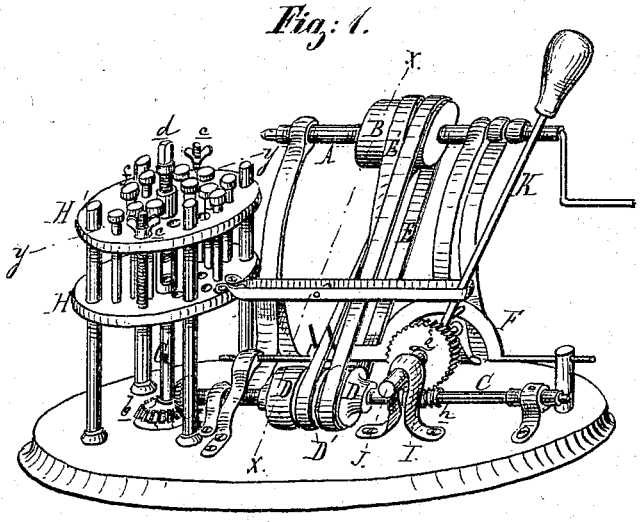


Fig: 2.

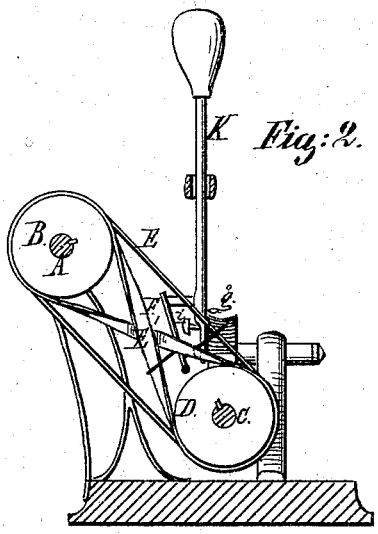
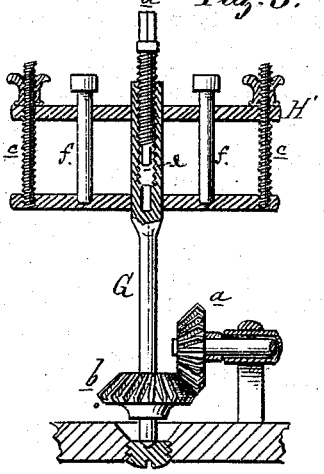


Fig: 3.



Witnesses

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UNITED STATES PATENT OFFICE.

HERMANN LOESCHER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN THE MANUFACTURE OF LACE-LEATHER AND APPARATUS THEREFOR.

Specification forming part of Letters Patent No. **182,684**, dated September 26, 1876; application filed July 18, 1876.

To all whom it may concern:

Be it known that I, HERMANN LOESCHER, of Chicago, in the county of Cook and State of Illinois, have invented an Improvement in a Process and Apparatus for the Manufacture of Lace-Leather, of which the following is a specification:

The object I have in view is to produce lace-leather of greater strength and tenacity than that produced by treating skins with lime and acids.

The first step in my process is to remove the hair from the hide by fermentation by subjecting it to a decaying process for a few days. The next step is to dry the skin to a flinty hardness; and the last step consists in subjecting the dried skin to a process of torsion and beating until thoroughly softened, when it will have the toughness of rawhide, with the pliability of kid.

The softening process can be accomplished in various ways, but I prefer to use the machine which I will now proceed to describe, referring to the accompanying drawing, in which—

Figure 1 is a perspective view. Fig. 2 is a cross-section at *x x;* and Fig. 3 is a cross-section at *y y.*

A represents an elevated driving-shaft, continuously rotated in one direction, and carrying a drum, B. On the floor below, in suitable bearings, a counter-shaft, C, is journaled, carrying two fast pulleys, D, and an intermediate loose pulley, D′. E E′ are, respectively, an open and a crossed belt, both passing around the drum, and one on one of the fast pulleys, and the other on the loose pulley, being moved to and fro by a belt-shipper, F, to reverse at intervals the motion of the counter-shaft, at the end of which there is a bevel-pinion, *a*, meshing with another one, *b*, on a vertical shaft, G, the upper end of which passes up through two horizontal plates, H H′, the upper one, H′, being adjustable with relation to the other as to the distance between them through screws *c c*, as shown. The spindle G has a slot, *e*, cut in it to receive one end of the dry hide, which may be secured therein by a screw, *d*, or in any other convenient way. The plates H H′ are perforated with two concentric rows of holes, to receive wooden pins or brakes *f*, the inner row of which, when the hide is first put in, are removed. The spindle is driven at a high speed, and, as above stated, its motion is reversed at short intervals of time, so that the hide will beat against the outer row of brakes, and be wound around the spindle, then unwound, wound up in the opposite direction, again beating against the brakes. After the beating process has partially softened the skin, the inner row of brakes are put in, to give an additional amount of friction or braking surface, and the process is then completed, resulting in soft, pliable, and extremely tough leather.

The motion of the counter-shaft may be reversed in various ways, one of which may be described as follows: A standard, I, is erected in front of the counter-shaft, across and above which a shaft, J, is journaled in said standard, carrying at its inner end a worm-wheel, *g*, meshing with a worm, *h*, on the said counter-shaft. A lever, K, has its lower end pivoted to the inner end of the shaft J, and is connected by a pivot-pin with the belt-shipper. On the inner face of the worm-wheel there is a wrist-pin, *i*, which strikes the lever in its rotation, carrying it along with it until the shipper has moved the belts on the pulleys and reversed the motion of the counter-shaft, when, coming around on the opposite side, it again strikes said lever and reverses the motion again.

What I claim as my invention is—

1. The process for converting green hides into lace-leather without the use of lime or acids by first unhairing the hide through fermentation, then drying the skin, and, finally, softening it by beating it, substantially as described.

2. In a machine for softening hides, the combination, with the spindle G, the shaft C, the open and crossed belts E E′, and mechanism for automatically shifting the said belts to rotate the spindle alternately in opposite directions, substantially as described and shown.

HERMANN LOESCHER.

Witnesses:

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EMIL H. FROUNNAUD.