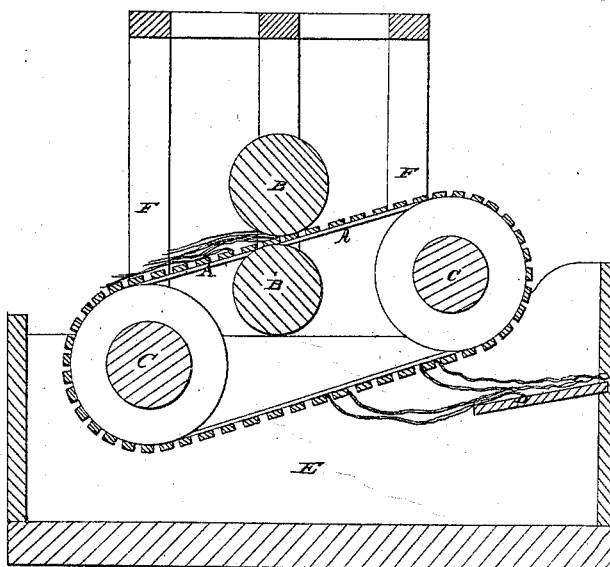


A. VAN PELT.
TANNING APPARATUS.

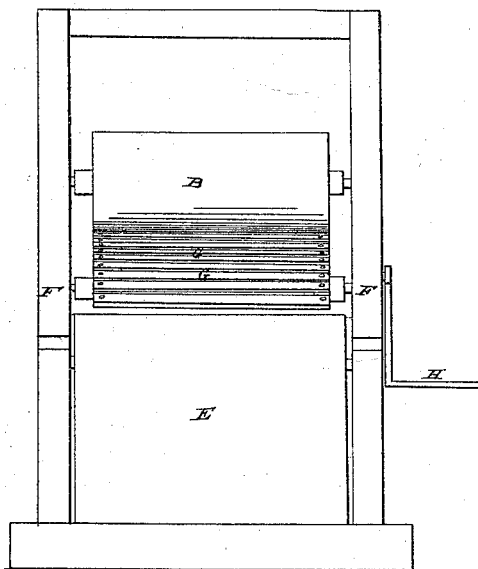
No. 2,706.

Patented July 8, 1842.

Section.



End Elevation.

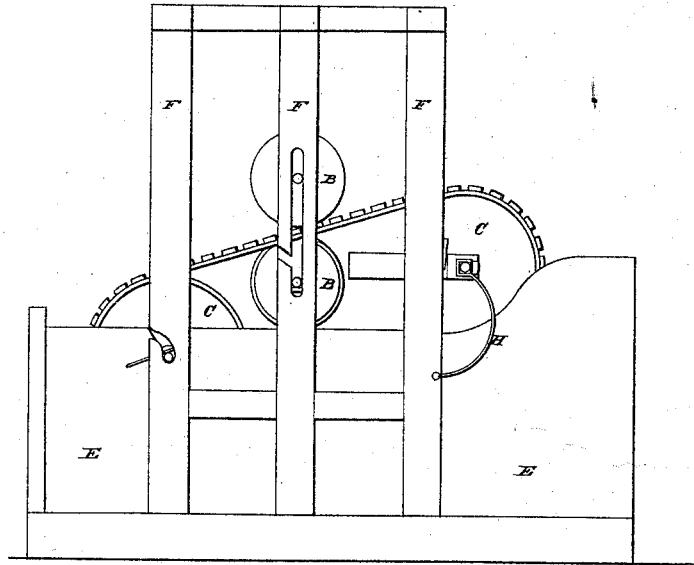


A. VAN PELT.
TANNING APPARATUS.

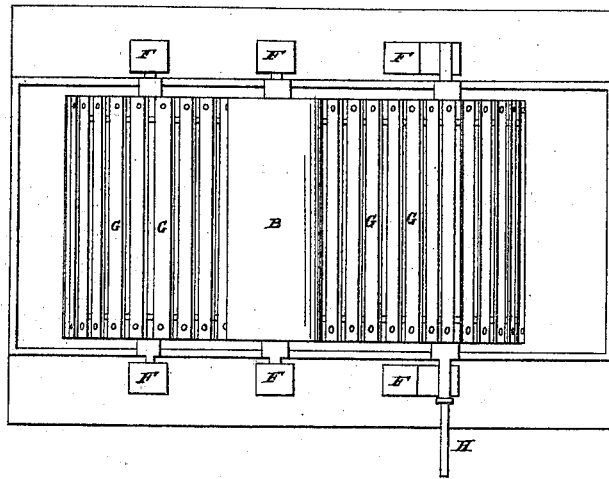
No. 2,706.

Patented July 8, 1842.

Side Elevation



Plan



UNITED STATES PATENT OFFICE.

ABRAHAM VAN PELT, OF SOMERSET COUNTY, NEW JERSEY.

TANNING HIDES.

Specification of Letters Patent No. 2,706, dated July 8, 1842.

To all whom it may concern:

Be it known that I, ABRAHAM VAN PELT, of the county of Somerset and State of New Jersey, have invented a new machine to be used for tanning leather, liming hides and skins, washing sheepskins, and other purposes to which the same patent principles are applicable, its advantages being such as to yield a great saving of manual labor and materially to shorten the length of time required in the above operations by the old methods; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

The tanning machine consists of a suitable frame, with two horizontal shafts with a drum or broad wheel and flange upon each end of both shafts. Over these drums or wheels, pass within the space prescribed by the flanges, two strong straps or bands of leather, (or other strong and pliable substance) connecting the two shafts, each band encircling two drums or wheels, one on each shaft. Upon these parallel bands are fastened transverse slats or laths of wood, of suitable size, secured at each end to the bands with copper rivets, nails, or screws, or of other metal, that will not discolor the liquor by contact, and thus stain the leather by chemical action. The slats or lath, are placed at suitable, and regular distances apart, around the circumference of the said bands. The slats and bands, thus united and combined, form one whole substantial band, or pliable moving frame, revolving upon the drums described. Across those slats, and inside and between the bands, are placed and secured, the hides, skins, &c., by strings or otherwise to be tanned. This revolving frame thus loaded, with a hide or skin folded around every slat or a less number, is then put in motion by any ordinary moving power, such as water, steam, horse, or hand power, brought in communication at either shaft. Underneath is placed a vat of liquor into which revolves the lower part of this loaded band, of sufficient depth to thoroughly immerse the hides and skins at that portion of its circumference. As the hides and skins are raised from the liquor in constant succession by the rotary motion of the frame to which they are attached as above described, they pass between one or

more pairs of rollers situated near the center of the machine, midway between the wheels or drums upon its upper and ascending surface. The rollers are of sufficient weight and compression aided if necessary, by springs, to force out of the pores of the tanning leather the whole, or a large quantity of the liquor with which they are filled, already exhausted of a portion of its astringent and impregnating qualities, and thus prepare them again as they descend and are immersed for the free entrance of new and fresh liquor.

By the ordinary process tanning is a slow and expensive operation. Soon as the hides and skins are immersed, their pores and open texture are filled, and the whole saturated with the liquor. The astringent principle held in solution is readily communicated to the raw hides and skins, but the pores and texture still remain filled with the reduced liquor without opportunity to discharge, thus preventing the entrance of fresh liquor. As long as the hides and skins are suffered to remain in this situation, the work of attracting the tannin or astringent principle is very slow, the whole being absorbed through the medium of this weakened liquor under great disadvantage. With the new tanning machine the reduced liquor is immediately expelled from the hides and skins, and they are thus prepared for the easy entrance of new and fresh liquor, and this again expelled, in constant succession night and day if required. The machine once put in motion, from its simplicity and harmonious action, requires but little attention until the leather is tanned which, as shown above, is speedily accomplished. The liquor in the mean while, may be changed and increased in strength at pleasure.

For tanning sole and harness leather and heavy stock in general, the leather or other pliable bands may not prove sufficient. In that case, I propose to substitute for them flat copper chains, or jointed bands, or of other metal, that will not discolor the liquor, thus staining the leather by a chemical action. The drums or wheels may also contain a suitable number of teeth or cogs, with corresponding sockets or open links, in the chains to receive the same, and to assist the movement of the rotary frame. Also the wheels or drums upon which the same revolves, instead of being a continued circle

around their circumference, may better answer this purpose to have their circumference divided into a series of short equal planes or surfaces, the joints of the bands fitting to the length of the said planes, with shoulders or projections attached to the ends of the drums or wheels, projecting beyond the surface and at proper intervals, fitting against corresponding shoulders or projections, on the bands to aid in propelling the movable frame. The wooden slats or lath, attached as first described, and the hides and skins attached in the same manner.

For liming hides and skins, to prepare them for an easy and expeditious removal of the hair, I substitute iron chains as being stronger and cheaper, not being liable to the same objection working in a solution of lime water, as they would be in bark or other liquor for tanning, together also, with such alterations in the form of the drums or wheels and chains, described in machine for tanning sole and harness leather and heavy stock. The slats require to be stronger, and farther apart for this purpose, as hides and skins with hair on would absorb a greater volume of water, give greater weight, and occupy more space, than hides and skins prepared for bark liquor. The hides and skins for this purpose are to be placed on the movable frame around the slats, and secured in the same manner as those for tanning. The constant agitation of the lime water, as the hides and skins are drawn through it, the forcing out the caustic solution by the rollers and alternate immersion again, materially hastens and expedites the process with great saving of labor.

For washing sheep skins, that is to cleanse the wool upon the skins before it is pulled or removed, I employ the same machine as the one first described, with leather bands, or of other strong pliable substance, with the exception that the slats are placed farther apart. The skins are placed on the revolving frame in the same manner as those for tanning. Moving through the water contained in the vat or whatever solution may be most suited to cleanse them, the water is

forced out from the fleece by the compression of the rollers, carrying with it the impurities from the wool, and as the water can be changed at pleasure, or running water made to circulate through the vat, the operation of the above rapidly accomplishes this purpose. If preferred, the slats may be fastened on metal chains or jointed bands, together with all the alterations mentioned, in machine for tanning sole and harness leather and heavy stock.

All the above mentioned machines may be constructed of various sizes and degrees, which may best suit their purpose and the extent of their operation.

The drawings represent four views of the tanning machine, as follows: Side elevation, section, plan, and end elevation.

The same letters refer to every view.

A A is the combined band, or pliable moving frame.

B B are two rollers, between whose surface passes the moving frame A A.

C C are the drums or broad wheels upon which revolves the moving frame A A.

D is a small sloping platform, upon which fall the loose ends of the hides and skins as they pass into the liquor.

E E is the vat containing liquor through which moves the lower or under part of moving frame A A.

F F F is the permanent frame into which is erected the machinery.

G G G, G G G are the slats or laths of wood, around which are placed the hides and skins to be tanned.

H is a crank by which the machine is put in motion.

What I claim as my invention and desire to secure by Letters Patent is—

The combination of the "pliable moving frame," with the pressing rollers, and also with the vat, constructed and arranged substantially as herein described.

ABM. VAN PELT.

Witnesses:

J. J. GREENOUGH,
GEO. R. WEST.