

United States Patent Office.

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OF ROCHESTER, NEW YORK.

Letters Patent No. 62,611, dated March 5, 1867.

IMPROVED METHOD OF TREATING HIDES AND SKINS FOR TANNING.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that we, ISAAC C. COLTON, of the city of Buffalo, and ALBERT M. HASTINGS, of the city of Rochester, in the State of New York, have invented a new and improved Method of Treating and Preparing Hides and Skins for Tanning, and of tanning hides, skins, and leather of all kinds; and we do hereby declare that the following is a full and exact description thereof.

Our invention has relation as well to the softening and cleansing of skins and hides necessary to be performed to prepare them for tanning, as to the operation of tanning; and consists in the employment of the following-described processes, viz:

First. For the process of softening and cleansing of the skins and hides, we employ a closed tub or cylinder, with a suitable "man-hole" or aperture, through which to put the hides or skins to be operated upon, with a cover suitably arranged for screwing or fastening on, so as to prevent the escape of air, water, or liquor. The hides or skins are inserted into the tub, vessel, or cylinder, and the cover properly secured. We then employ a force-pump, working with a pipe or hose inserted into the vessel or cylinder, through a hollow journal, and thereby force, by hydraulic or hydro-dynamic pressure, a sufficient quantity of water or cleansing liquor into the vessel or cylinder, to fill the same, and by the application of sufficient force or pressure, suddenly force the water or liquors into and through every minute pore of the hides or skins, and infiltrating the same perfectly and fully into and through all the fibres thereof. A quantity of air will be in the vessel or cylinder; this will be compressed by the action of the force-pump while injecting the fluids, thus producing a combined action of pneumatic, hydraulic, or hydro-dynamic pressure. By this means the softening or cleansing process is accomplished thoroughly in a few hours, which requires many days by the ordinary modes and applications now in use. If the vessel or cylinder is stationary, suitable means should be employed for internal agitation of the contents, so that the result may be speedily accomplished, and every part be operated upon effectually and equally. This can be done by a wheel or revolving dashers, fastened to a shaft worked from the outside. Preferably a rotating cylinder should be used, with brackets or pins fastened on to the interior sides thereof, at intervals, and projecting towards the centre, so that as the cylinder revolves the hides and skins, as well as the water or liquor, will be constantly moved and agitated. This internal movement and agitation is essential to the proper working of the process. Beneath or under the vessel or cylinder a vat or tub is placed to receive the hides and skins, when the cover of the vessel or cylinder is removed.

Second. For tanning hides or skins the process and means applied are the same as above described, using any tannic acids or tanning liquors at pleasure and to any degree of strength required. The cylinder, however, should be of suitable strength to admit of a high degree of pressure, and, if of iron, should be galvanized or tinned on the inside so as to prevent discoloration of the leather by the chemical action of the tannic acid on the iron. Copper cylinders would be preferable. When the skins or hides are properly prepared for tanning, they can be inserted into the cylinder as before described, the cover securely fastened down to prevent the escape of air and liquors, and tannic acids or tanning liquors of any desired temperature forced in by the use of a force-pump, as before described, or by any other mechanical appliance that will produce the required pressure, and until a requisite degree of pressure is obtained. The cylinder should be made to revolve slowly, and should have the means or appliances for producing internal movement or agitation before described, and which is essential to the full success of the process. This combination of pressure with internal movement tends suddenly to open all the pores and minute fibres of the leather so that it will at once receive a full and thorough infusion of the tan, tannic acid, or tanning liquors. A chemical combination is thereby at once formed of the tannic acids and tanning liquors with the gelatine inherent in the hides and skins, thus producing fully tanned leather in a few hours, which by other and the usual modes is only produced by vast labor, extending through many weeks, and, in case of heavy hides, requiring months. The internal movement produces the same effect as the manual labor and frequent handling of the skins in the ordinary process of tanning. The use of pneumatic or hydrostatic pressure with the internal movement or agitation of the interior mass is essential to the speedy and effectual working of the process. The tanning liquors can be used cold or hot, but, if heated, care should be used not to injure the fibre of the leather by a high degree of heat.

We claim no particular form of apparatus or machinery; what we claim as our invention, and desire to secure by Letters Patent, is—

1. The treating and preparation of hides and skins for tanning by the combined action of hydraulic or hydro-dynamic, and pneumatic pressure, or by either mode of pressure separately, in combination with rotary motion, or internal agitation or movement of the contents or materials to be operated upon, while under pressure, by the means and substantially as described; and

2. The tanning of hides, skins and leather by the combined or separate use of hydraulic or hydro-dynamic and pneumatic pressure, in a closed cylinder, in combination with rotary motion, or internal agitation or movement of the tanning liquors and hides or skins, while under pressure, by the means and substantially as above described.

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Witnesses:

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