C. J. GLASEL.
METHOD OF TREATING HIDES OR SKINS.
APPLICATION FILED DEC. 8, 1905.


ANDREW B. GRAHAM Co., PHoo-Lithographers, washingtoN, d. c.
UNITED STATES PATENT OFFICE.

CHARLES JOHN GLASEL, OF BOSTON, MASSACHUSETTS.

METHOD OF TREATING HIDES OR SKINS.

952,703.


To all whom it may concern:

Be it known that I, CHARLES JOHN GLASEL, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Methods of Treating Hides or Skins, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a novel process or method of treating hides and skins, and is especially designed and adapted for tanning hides and skins and particularly for tanning with vegetable tanning matter thick hides, such as are employed for making sole, belt, harness and wax leathers.

In the tanning of thick hides for the manufacture of sole, belt, harness and wax leathers as now commonly practiced, an exceedingly long time is required for the proper action of the vegetable tanning agent, such for instance as oak, hemlock and quebracho extracts, to take place in and through the hide, so that the latter may be uniformly tanned, and frequently from sixty to one hundred and twenty days is required for this purpose.

The present invention has for its object to provide a process or method for treating hides and skins by which the time required for tanning or otherwise treating the hides and skins, and particularly for tanning thick hides with vegetable tanning agents, may be materially reduced, with a corresponding reduction in the cost of the resulting product.

In accordance with this invention, the hide or skin is subjected to tension, and is drawn or stretched to an abnormal or excessive condition, and is thus worked and manipulated in one or more directions, that is, longitudinally, transversely, or otherwise, while in the presence of the tanning agent, and this tension is plastically worked, for the best results, intermittently, so that the pores of the hide or skin may be opened and contracted, to facilitate the penetration of the tanning agent into and through the hide or skin.

The intermittent excessive tension referred to effects a working of the fibers of the hide or skin by opening up the pores without in the least impairing the quality of the resulting product.

The manipulation of the hide or skin may be effected in various ways, and, in the present instance, I show a tanning machine, drum or receptacle in which the hide or skin is subjected to tension and plasmatric action while in the presence of the tanning or depilating agent.

These and other details and objects of my invention are very fully described in the following specification and set forth in the appended claims.

In the drawings forming part of this specification and accompanying same, like reference characters are used to designate the same parts in both views.

Figure 1 is an end elevation of one form of apparatus with which to practice this invention, and Fig. 2, a longitudinal section of the apparatus shown in Fig. 1.

The apparatus herein shown consists of a receptacle or drum a, which is rotatable by means of grooved wheels b, c, mounted on shafts d and engaging tracks or bands e on the circumference of the drum or receptacle.

Within the drum or receptacle are located means for intermittently placing the hides or skins g under tension or plasmatropic action, and in the present instance one form or construction of stretching mechanism is shown, but it will be understood that other forms or constructions of mechanisms may be used for stretching and working the hides or skins. The mechanism herein shown consists of a shaft h extended longitudinally in the drum or receptacle a, having fast on its opposite ends disks i, which, as shown, are eccentrically mounted on the shaft and revolve in suitable bearing rings j, attached to the inner side of the heads k of the drum or receptacle a. The rings j are provided with cam grooves m, into which are extended studs or rollers n on the periphery of the disks i, the cam grooves being suitably shaped to produce reciprocation of the disks and the shaft h. But it is understood that the disks i and the cam grooves m may be made in any other shape desired to produce any other motion by said shaft h.

The shaft h has loose on it a plurality of sleeves o, which are reciprocated with the shaft and which are provided with suitable means for attaching or securing one end or several edges of the hides or skins g to said sleeves. In the present instance, the sleeves o are shown as provided with hooks p, which...
engage one edge or side of the hides or skins which have their opposite side or edge secured as by hooks or to the inner circumference of the drum or receptacle a.

The bearing disks i are provided as herein shown with journals 3, 6, extended through the heads k of the drum or receptacle, and journaled in suitable supports 9 attached thereto, one of said journals, as 5, being provided with a pulley 10, which is connected by a belt 12 to a pulley 13 on the shaft d, which latter may be considered the main or driving shaft of the machine.

The disks i may be eccentrically mounted on the shaft h on diametrically opposite sides of the axis of the drum or receptacle a for a purpose as will be described.

From the above description it will be seen that the drum or receptacle is rotated and carries with it the hides or skins, which, in the present instance, are represented as extended longitudinally in the drum or receptacle.

It will also be seen that the shaft h and the sleeves o are reciprocated longitudinally in the receptacle or drum, and also that said shaft and sleeves have imparted to them a tilting motion, that is, a motion radially with relation to the drum or receptacle.

It will further be seen that as the shaft h and the sleeves o are reciprocated with relation to the drum or receptacle the ends or portions of the hides or skins attached to the sleeves are moved with them, and this movement is resisted by the portions of the hides or skins attached to the drum, and, as a result, the hides or skins are abnormally stretched in one direction while the shaft h is moved to the end of its stroke or travel in one direction, are then relaxed and again excessively stretched plastically while the shaft is moved to the end of its stroke or travel in the opposite direction, which operation is repeated at each complete reciprocal of the shaft h.

The excessive stretching of the hides or skins by the reciprocation of the shaft h, and the rocking motion thereby produced, may be designated the longitudinal stretching and contracting of the said hides or skins. As the shaft h and its sleeves tilt or move toward and from the drum or receptacle, the hides or skins are excessively stretched and relaxed in a direction substantially at right angles to that in which they are stretched and relaxed by the reciprocation of the shaft, and the abnormal stretching effected by the movement of the shaft toward and from the circumference of the drum or receptacle may be designated the radial stretching of the hides or skins. The longitudinal and radial motion results in an abnormal stretching of the hides or skins in a third direction, which is the resultant of these two motions, and may be designated the diagonal stretching of the hides or skins.

In Fig. 2 the hides or skins marked 30, 31, indicate the contracted condition, and the hides or skins 32, 33, indicate the abnormal stretched condition due to the radial movement of the shaft h, and the hides marked 34, 35, indicate the relaxed plasmatic condition of the radial movement, and the elongated condition of the longitudinal movement of the shaft in one direction.

Having the shaft h mounted in a straight longitudinal line and pivoted to ring q and provided with cam grooves m, as shown, with rollers n, to the periphery of the disks, d, I assemble various shaped frames or cages or employ other means to accomplish the above described result.

The manipulation of the hides or skins is effected in the presence of the tanning agent or matter, which may be of any desired or usual form, either liquid, air, or gas, whether hot or cold, and, in the present instance, the tanning agent is represented as a liquid by the dotted lines 20, 90 which may be supplied to the receptacle or drum, through the manhole 21, or in any other suitable manner. The liquor may fill the drum or receptacle, or, as may be preferred, it may only partially fill the same as indicated in Fig. 2, and said liquid may, if desired, be circulated through the drum in any suitable manner, or a given quantity necessary for each tanning may be admitted into the drum or receptacle, and the exhausted liquor withdrawn after each tanning operation.

In operation, the hides or skins may be placed in position within the drum by removing one head of the same, and when properly secured the head is replaced on the drum, the tanning or depilating agent admitted therein, and the drum or receptacle and shaft h are set in rotation. By means of the stretching and relaxing action of the hides and skins above referred to, the pores of the hides or skins are opened and closed or contracted, and during the open condition of the pores, the tanning agent or matter is permitted to enter the pores and reacts with the elements of the hides or skins to tan or otherwise treat the same. As the pores are contracted or closed, the surplus tanning or other agent employed is changed and forced out of the pores, thereby cleaning the same and serving to put the pores in condition for further penetration of the tanning agent on the next opening of said pores. In this manner the tanning agent is admitted into, and expelled from, the pores of the hides or skins, and this operation continues until the tanning agent has penetrated the hides or skins through and through, and thereby effectively tanned or converted the same in a uniform manner.
By the manipulation of the hides or skins in the manner described in the presence of the tanning agent, the time required to thoroughly or completely tan the hides or skins may be reduced to a minimum, and, in practice, thick hides for the manufacture of sole and belt leather have been tanned with vegetable tanning agents in a few days.

The invention of my method or process has been described with relation to the process of tanning sole and belt leather with vegetable tanning agents, but it is not desired to limit the invention in this respect, as the method or process is equally well adapted to be used for all kinds of tanning, either vegetable or mineral, with attending reduction in time for effectively tanning the hides or skins. This illustrates my method in a rotary drum or cylinder, but I do not want to be limited to same, as my method can be applied in a stationary vat or in any receptacle where it is possible to use a tanning agent or matter.

Furthermore, it is not desired to limit the invention to tanning hides and skins, for it is also applicable for other treatments of hides and skins, as for instance in depilation, bleaching, coloring, etc.

Various modifications or variations may suggest themselves in the use of this method or process without departing from the essence of the invention as set forth in the following claims. Moreover, this method or process is not to be confined to use in any drum, machine or apparatus, but can be employed in any way that is capable of producing the desired result.

Claims—
1. The method of treating a hide which consists in supporting the hide from opposite sides thereof and moving it bodily through a tanning agent while in alternately tense and relaxed conditions.
2. The method of treating a hide which consists in supporting the hide from opposite sides and rotating it bodily through a tanning agent while in alternately tense and relaxed conditions.
3. The method of treating a hide which consists in suspending it from different points on opposite sides thereof and subjecting the texture of the hide to tension and contraction on intersecting lines, alternately, in the presence of a tanning agent.
4. The method of treating a hide which consists in supporting the hide from opposite sides thereof, maintaining said sides in substantial parallelism and moving one of said sides alternately in opposite directions, in the presence of a tanning agent.
5. The method of treating a hide which consists in supporting the hide from opposite sides thereof, moving it bodily through a tanning agent, and mechanically and positively working said hide into alternately tense and relaxed conditions.
6. The method of treating a hide which consists in suspending the same and moving it bodily through a tanning agent, and mechanically working the hide on lines between its points of suspension to open and close the pores thereof.
7. The method of treating a hide which consists in suspending the hide in a tanning agent, and mechanically working the hide in a plurality of directions between the points of suspension to open and close the pores thereof.
8. The method of treating a hide which consists in suspending the same from opposite sides thereof and rotating it bodily through a tanning agent, and mechanically working said hide between its points of suspension into tense and relaxed conditions.

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

CHARLES JOHN GLASEL.

Witnesses:
HENRY O. CUSHMAN,
B. L. NEWMAN.