C. J. GLASEL.

AUTOMATIC HIDE TANNING MACHINE.

APPLICATION FILED OCT. 2, 1905.

922,415.

Patented May 18, 1909.

2 SHEETS—SHEET 1.

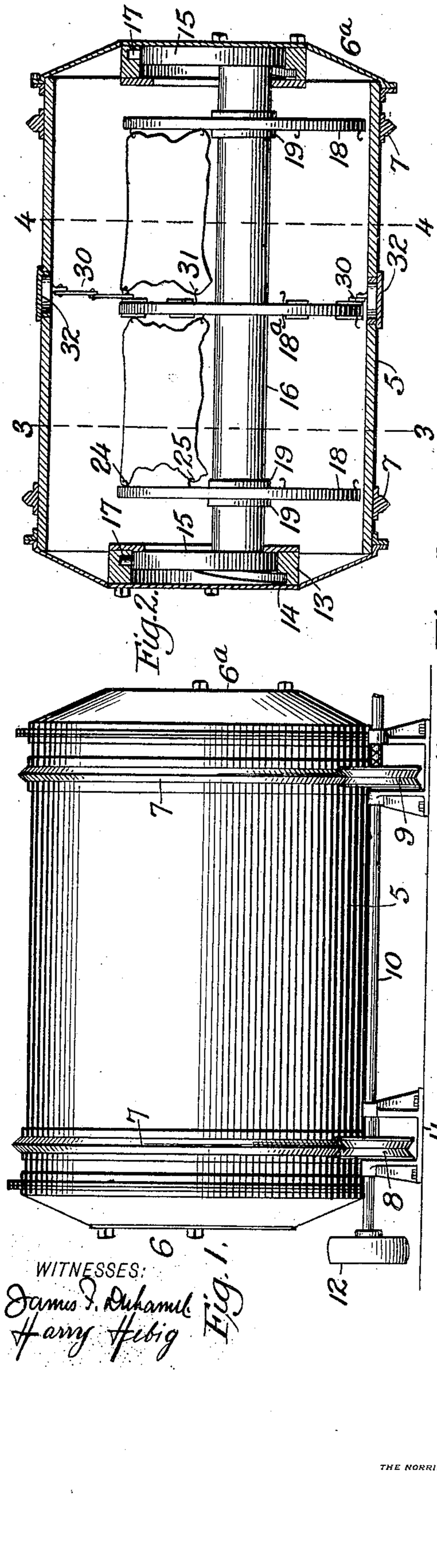

Fig. 1.

Fig. 2.

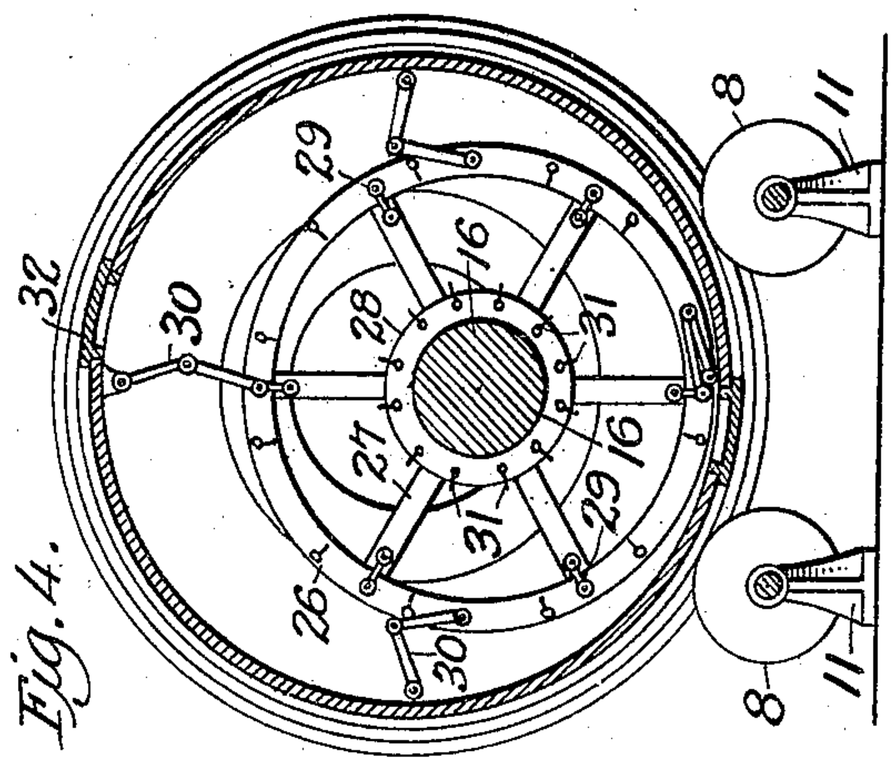

Fig. 4.

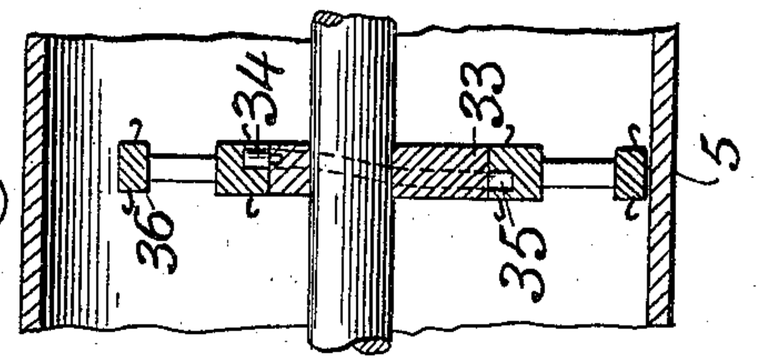

Fig. 5.

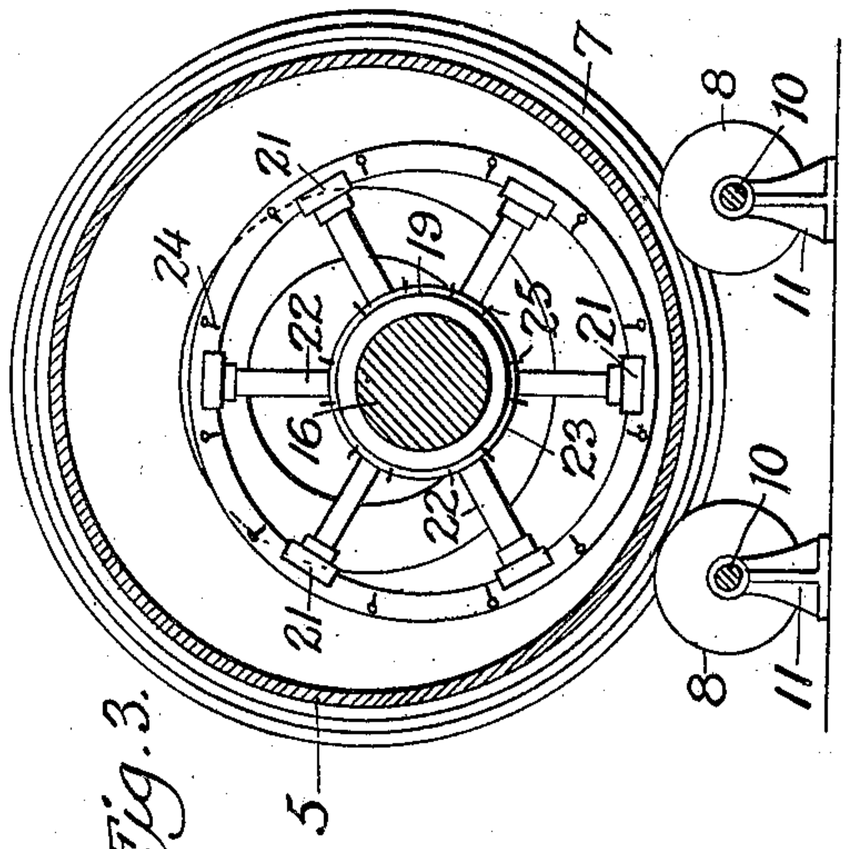

Fig. 3.

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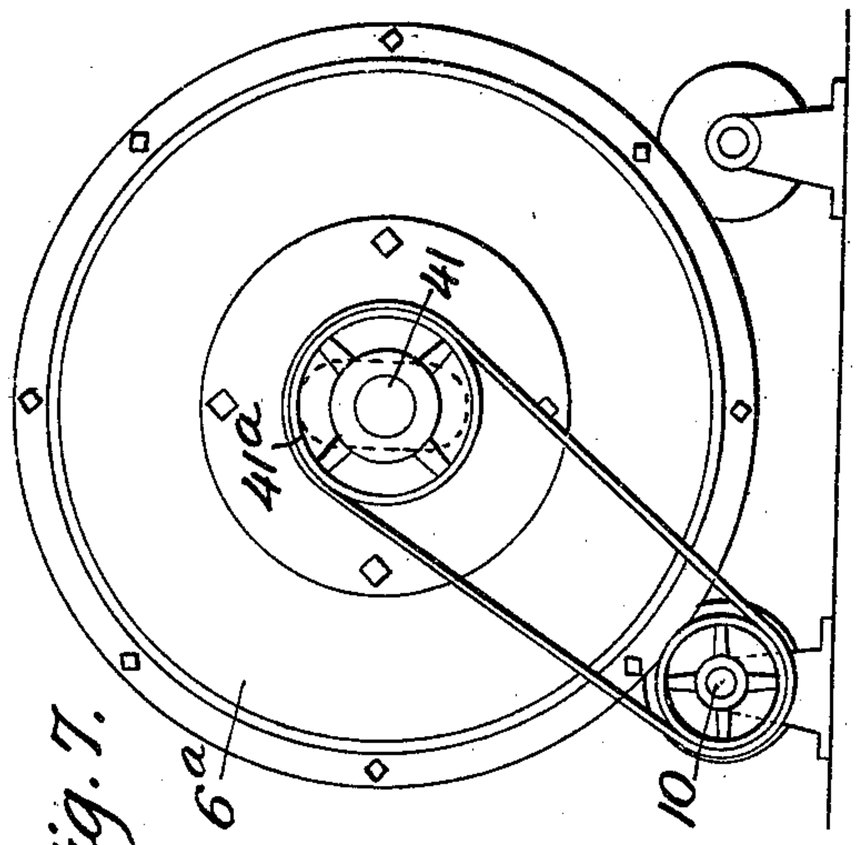

Fig. 7.

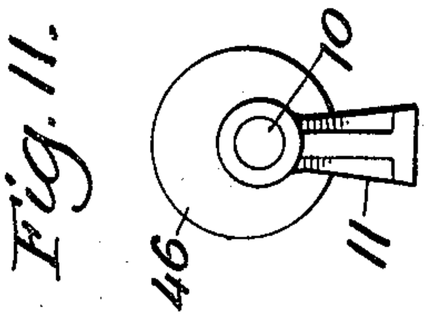

Fig. 11.

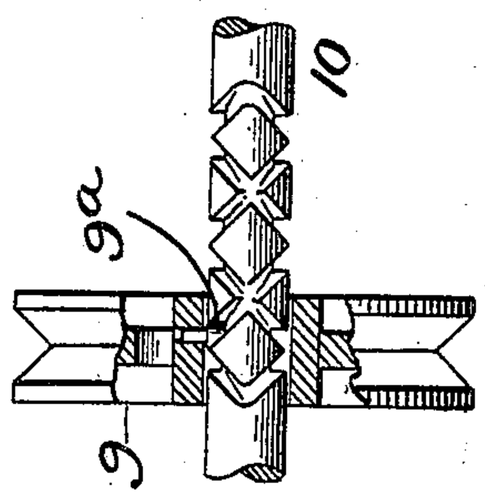

Fig. 10.

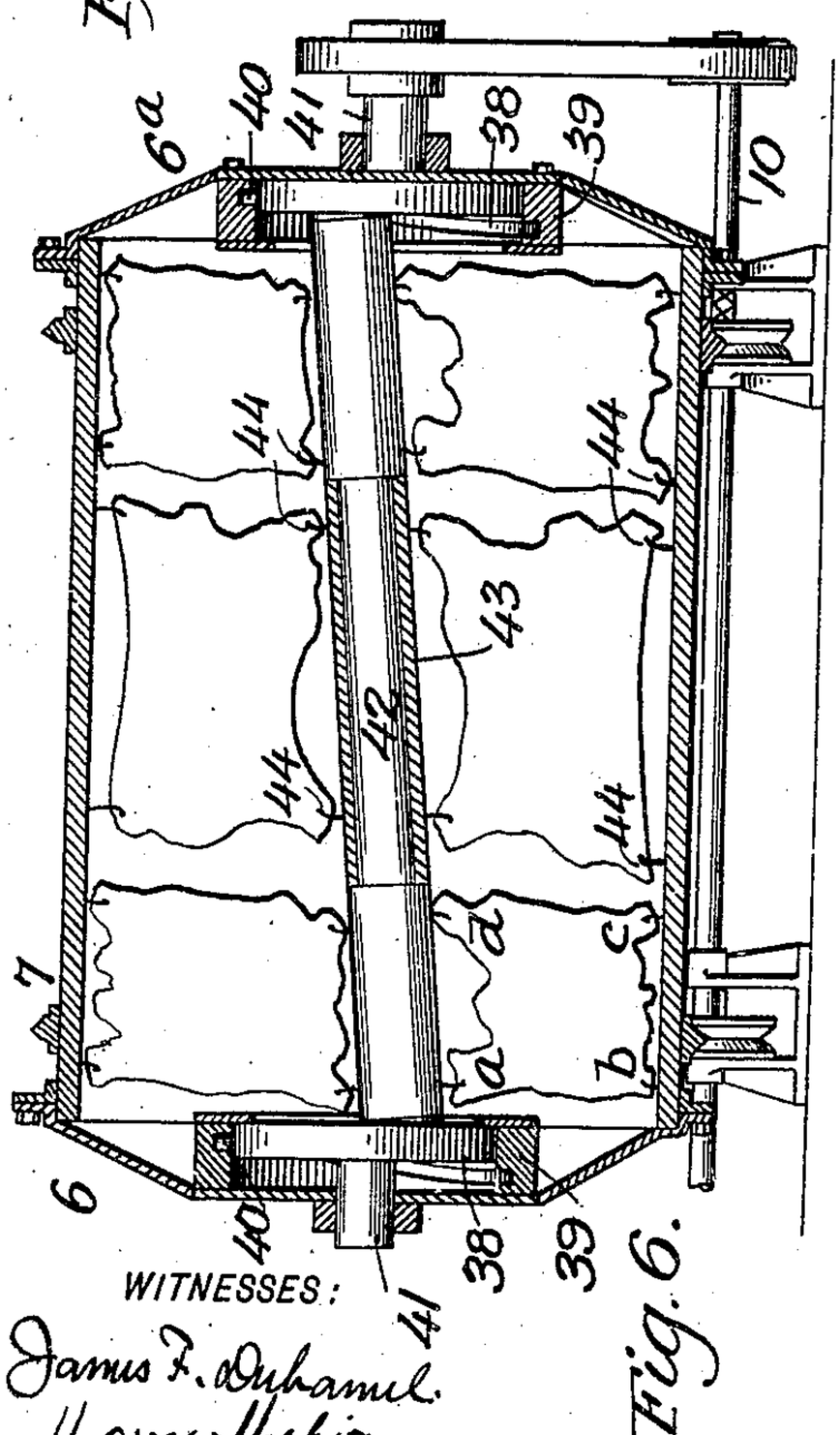

Fig. 6.

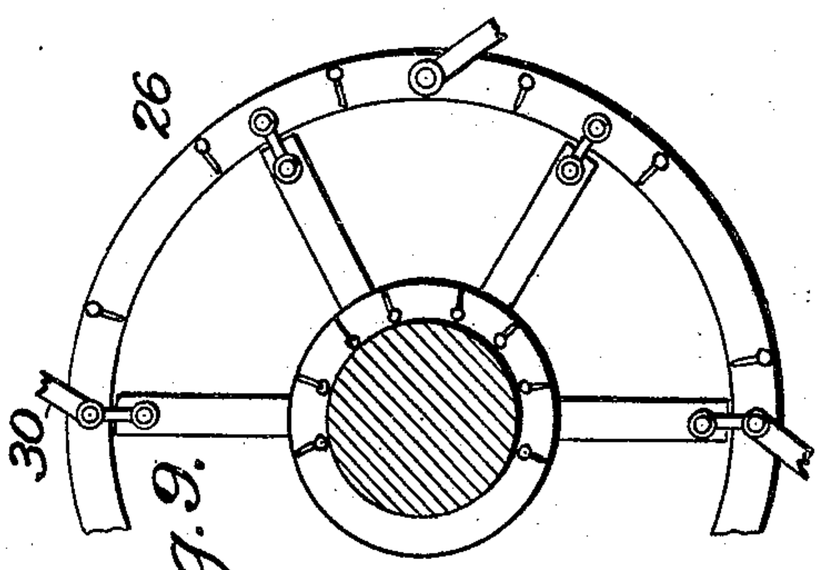

Fig. 9.

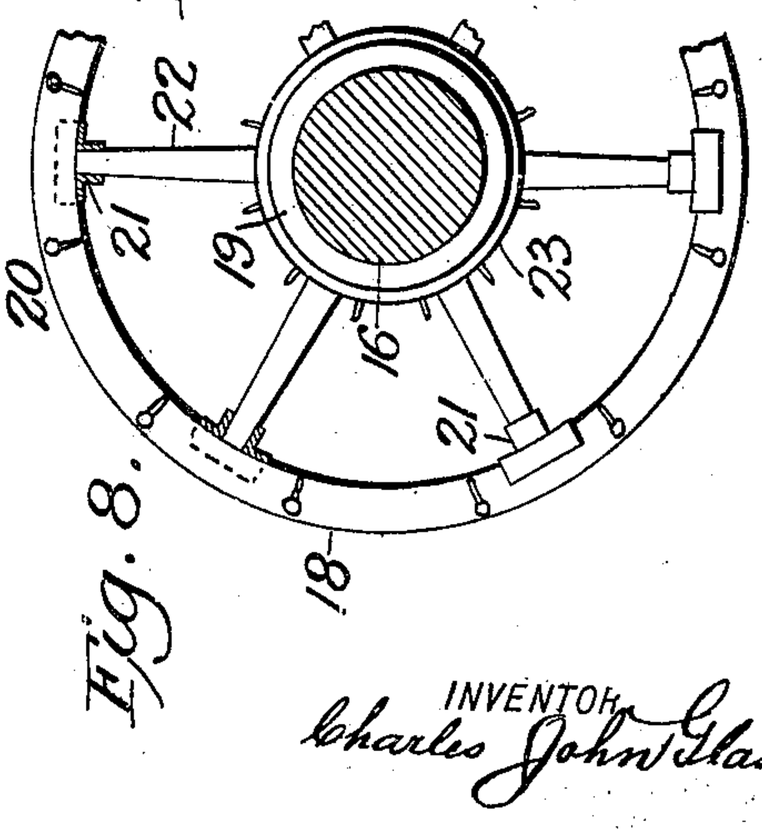

Fig. 8.

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CHARLES JOHN GLASEL, OF SOUTH BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO LOUIS BEHRE, OF HANOVER, GERMANY.

AUTOMATIC HIDE-TANNING MACHINE.

No. 922,415. Specification of Letters Patent. Patented May 18, 1909.

Application filed October 2, 1905. Serial No. 281,003.

To all whom it may concern:

Be it known that I, CHARLES JOHN GLASEL, a citizen of the United States, residing at South Boston, Massachusetts, have invented new and useful Improvements in Automatic Hide-Tanning Machines, of which the following is a specification.

My invention relates to automatic hide and leather treating machines and has for its object the novel construction and management of its parts whereby the skins or hides to be treated are manipulated, worked and carried by rigid connections with the receptacle in combination with moving connections which are adapted to move in radial, longitudinal or various directions and be contained within said receptacle but moving independently of it. These and other details and objects of my invention are more 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 the various views.

Figure 1 is an elevation of a tanning machine embodying my invention. Fig. 2 is a longitudinal sectional view. Fig. 3 is a cross sectional view on the line 3—3 of Fig. 2. Fig. 4 is a cross sectional view on the line 4—4 of Fig. 2. Fig. 5 is a fragmentary sectional detail showing a modified form of a frame. Fig. 6 is a longitudinal sectional view of the machine showing a means of mounting the skins without using frames. Fig. 7 is an end view of this form of machine. Fig. 8 is a fragmentary elevation of one of the end frames. Fig. 9 is a similar view of the intermediate frame. Fig. 10 is a view illustrating the reciprocating means for the supporting roller. Fig. 11 is a view of a modified form of supporting roller.

In view of the well known construction and operation of these tannery receptacles, I have not illustrated all the details of the cylinder 5 of the various figures but have shown only enough to clearly illustrate my invention.

The cylinder 5 may be of any desired construction and size, and is provided with heads 6 and 6^a and circumferential rails or hoops 7, the latter running in the grooves of supporting and propelling rollers 8 and 9 on shafts 10. These shafts are journaled in standards 11 of the construction shown in Fig. 1 where it will be seen that there is some space existing between the upright supports of each standard which allows ample room for a longitudinal movement of each roller along its shaft, the shaft at roller 9 being double threaded to allow of a reverse movement of the roller when it reaches the limit of its confines and starts back in a reverse direction. The roller 9 is provided with its necessary interior stud 9^a which plays in the reversing thread and the roller 8 is slotted at its hub to play on a spline on the shaft and freely move longitudinally while rotating with said shaft. The roller 9 is caused by the screw threads to move forward and reverse with a reciprocatory motion, and the cylinder 5 is thus caused to reciprocate through the connection between the rails 7 and grooved wheels; the rollers 8 and 9 at the same time imparting a rotary movement to the cylinder. The shaft 10 and its rollers are rotated by means of the pulley 12. Thus the cylinder 5 is bodily rotated and also longitudinally reciprocated, the reciprocal movement being as great as the distance between the arms of standards 11. The reciprocal movement of the cylinder causes a continuous agitation of the tanning agent therein, and increases the efficiency of the action of the agent in the process of tanning by repeatedly bringing the agent into contact with the hide with a splashing or washing effect against the hide.

In Fig. 2 it will be seen that the heads 6 and 6^a are each on their interior provided with rings 13 having interior eccentric grooves 14 and within these rings are fitted coinciding disks 15 carrying a uniting shaft 16 at a point eccentric with their centers but identical with relation to the axis of the cylinder. On the periphery of each disk is a stud with roller 17 which runs in the groove 14 of the adjacent ring and carries the disk up and down the ring's interior, working in unison by means of the connecting shaft 16. With relation to the shaft 16, the disks 15 are eccentrics and the shaft is of sufficient soliditl and weight to retain same below the axis of

the cylinder when it is revolved. Upon the shaft 16 are loosely mounted frames 18 and 18[a] of wheel-like construction, the end frames 18 being held against longitudinal movement by the collars 19 while the intermediate frame 18[a] is free to rotate and slide on the shaft. The construction of the frames 18 is shown in Fig. 3, where it will be seen that a ring or tire 20 is provided with a plurality of sockets 21 to receive the spokes 22 whose inner ends are carried by a hub 23, the inner side of each ring having hooks 24 or similar attaching means to secure parts of the hides and hooks 25 on the hubs serve the same purpose at that point. The intermediate frame 18[a] is composed of a ring 26 and spokes 27, the latter radiating from the hub 28 which is loose on the shaft 16. The ring and the spokes are connected by means of loosely pivoted links 29 in order to allow a yielding relation between the two parts and the ring is attached to the interior of the cylinder by means of toggle arms 30 of thin resilient material yet sufficiently substantial to afford means to cause the frame 18[a] to follow the cylinder in its rotation but yield to any lateral strain put upon it from either side. This frame has hooks or clamps 31 on each side adjacent to the frames 18 and to the hooks of the three frames hides are hung as shown in Fig. 2 and as the cylinder 5 revolves and, through the medium of the grooves 14 and rollers 17, reciprocates the shaft 16 and the frames 18 first toward one end and then the other, the hides being held practically stationary by one end at the intermediate frame are stretched and allowed to relax alternately by the reciprocating frames. With the arrangement of hooks around the rings a considerable number of hides may be placed in position and treated. When the treatment has been concluded the ring 18[a] is disconnected from the cylinder by removing the toggle arms 30, access being had to them by the manholes 32, and by removing the head 6 and releasing the grooved ring 13 from the head 6[a], the shaft, its frames and the hides may be taken out and a new supply furnished. In the treatment of the hides the cylinder is partly filled with certain liquors, air, gases, etc., well known to the art and as the device is actuated, the hides are immersed and carried from the liquid, the stretching and relaxing operation continually going on to cause the pores of the skin to absorb the solution which penetrates the tissues and layers of the skins and a continuous progress is systemized to preserve them in the leather fiber. After this capillary action of the pores the skin is stretched and the contraction of the pores expels the used solution and leaves the pores ready for a new or fresh supply.

In Fig. 5 is shown a modified arrangement of one of the frames, preferably the intermediate frame; wherein the eccentric 33 is mounted fast on the shaft 16 and has its roller 34 play in the groove of the hub 35 of the frame 36. The shaft is in the case stationary and the frame connected by any suitable means with the interior of the cylinder so that when the latter is operated the frame is carried in and out of the solution which is thus kept agitated, and the hides are immersed and subjected to the stretching action while secured to this frame and one or more adjacent frames.

In Figs. 6 and 7 is shown a means by which the hides are stretched and relaxed on lines radial and parallel with the axis of the device while being immersed and removed from the solution. In this means of accomplishing this end I employ the usual eccentrics 38 in the cam-grooved rings 39 and having the studs 40 to act in the groove to shift the eccentrics longitudinally. The eccentrics are provided with shafts or trunnions 41 one of which is provided with a pulley 41[a] to rotate same and receives motion from a similar pulley on the roller shaft 10. They are also united by a shaft 42 on a line intersecting the axis of the cylinder and provided with several loose sleeves 43 which carry points, hooks or clamps 44 to secure the hides whose other ends are attached to the interior of the cylinder by hooks similar to 44. This arrangement provides for the radial action on the hides to a more or less degree as the center of the cylinder is receded from and provides for the treatment of hides of different sizes and quality. The hides are in this case subjected to stretching and contracting manipulations on various angular lines between the point *a* and the points *b* and *c*, in Fig. 6 as the eccentrics 38 are shifted to the left hand end of the cylinder and as the shaft 42 moves around and upward at the same end of the cylinder, the strain between the points *a* and *b*, and *c* and *d*, increases and the reverse movement of the parts produce relaxation in the hide between these points, and as the eccentrics 38 reverse their movement the strain is from the point *d*.

In Fig. 11 is shown an eccentric supporting roller 46 which may be utilized to produce a vertical movement of the cylinder when used in pairs on each side of the apparatus, or when used on one shaft only may produce a movement about the shaft with ordinary rollers. With the management of the frames as shown in Figs. 3 and 4, a clear and open space is left in the upper part of this cylinder which affords abundant room for the accommodation of the hides.

Various modifications or variations may suggest themselves in the construction and operation of this invention without departing from the essence of the invention as set forth in the following claims.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a machine of the character described, the combination with a receptacle, of means for alternately immersing and removing the hides from a solution, and means for simultaneously exerting a strain in plurality directions on the hides during the alternate treatment.

2. In a machine of the character described, the combination with a rotating receptacle of substantially rigid suspension means within same for the hides, and means connected with and operated by the receptacle for exerting a stretching and relaxing effect on the hides alternately on intersecting lines.

3. In a machine of the character described, the combination with a rotating receptacle having fixed means for holding the hides, of movable means attached to the hides and adapted to rotate with the cylinder and reciprocate longitudinally, and means operated by the receptacle for actuating the movable means.

4. In a machine of the character described, the combination with a rotating receptacle, of means for reciprocating the receptacle while it revolves, means for securing the hides with fixed relations within the cylinder while it revolves and means within the cylinder and operated by same for stretching the free ends of the hides along intersecting lines.

5. In a machine of the character described, the combination with rotating receptacle, of means for simultaneously rotating and longitudinally reciprocating same, means for securing the hides with fixed relations to the receptacle, and means for straining parts of the hides and relaxing same as the receptacle rotates.

6. In a machine of the character described, the combination with a rotating receptacle, of means for simultaneously rotating and longitudinally reciprocating same, means within the receptacle for affixing one or more ends of the hides, and means operated by the receptacle for alternately stretching and relaxing the hides from their free ends.

7. In a machine of the character described, the combination with a rotating and reciprocating receptacle, of means for rotating and reciprocating same, fixed points within the receptacle for holding one or more parts of the hides and means intermittently operated by the receptacle for stretching or straining the free ends of the hides.

8. In a machine of the character described, the combination with a rotating cylinder, annular exterior tracks, rollers for the tracks, driving shafts, splines on the shafts, reversing screws on the shaft, studs carried by the rollers to play in the threads of the screws and means within the cylinder for stretching the hides or fiber of same on lines intersecting each other within a fixed area.

9. In a machine of the character described, the combination with a rotating and longitudinally reciprocating receptacle, of heads, means for securing the hides with fixed relations to the receptacle, movable means attached to the free ends of the hides and means carried by the heads for imparting motion to the movable means to stretch and relax the free ends of the hides.

10. In a machine of the character described, the combination with a rotating receptacle having heads secured to its ends, of a shaft connecting the heads, securing means within the receptacle to hold the skins, means connecting the free ends of the skins with the shaft, means for rotating the shaft with the cylinder and means for longitudinally reciprocating the shaft independently of the receptacle.

11. In a machine of the character described, the combination with a rotating and longitudinally reciprocating receptacle, of means for securing the hides therein, a removable head or heads and means carried by the heads for holding the free ends of the hides and rotating and reciprocating independently of the receptacle.

12. In a machine of the character described, the combination with a rotating receptacle adapted to contain hide treating solutions, of exterior means for rotating and longitudinally reciprocating same, heads on the receptacle, grooved rings within the heads, fixed means within the receptacle to attach the hides thereto and rotating and reciprocating means independent of the receptacle for stretching the hides on intersecting lines while being carried in and out of the hide treating solution.

13. In a machine of the character described, the combination with a rotary receptacle, means for rotating same, clamps or hooks at fixed points within the receptacle for holding the hides, movable hooks adapted to engage the free ends of the hides and exert on them a stretching and relaxing effect, means sustained by the head of the receptacle for carrying the hooks and means operated by the receptacle for actuating the hook carrying means.

14. In a machine of the character described, the combination with a water tight receptacle, of means for imparting a simultaneous reciprocating, rotary and vertical rocking motion, and means within the receptacle for exerting a stretching and relaxing effect on the hides and operated by the receptacle.

15. In a machine of the character described, the combination of a receptacle with a rotating and longitudinally reciprocating

axle, rotating eccentrically around the center of said receptacle and in other interchangeable fixed grooves in various angles in said receptacle, as set forth.

In testimony whereof, I, CHARLES JOHN GLASEL have signed my name to this specification in the presence of two subscribing witnesses, this twenty seventh day of September 1905.

CHARLES JOHN GLASEL.

Witnesses:
JAMES F. DUHAMEL,
HARRY C. HEBIG.