

(No Model.)

2 Sheets—Sheet 1

W. S. WELLS.  
APPARATUS FOR TANNING.

No. 294,420.

Patented Mar. 4, 1884.

Fig. 1.

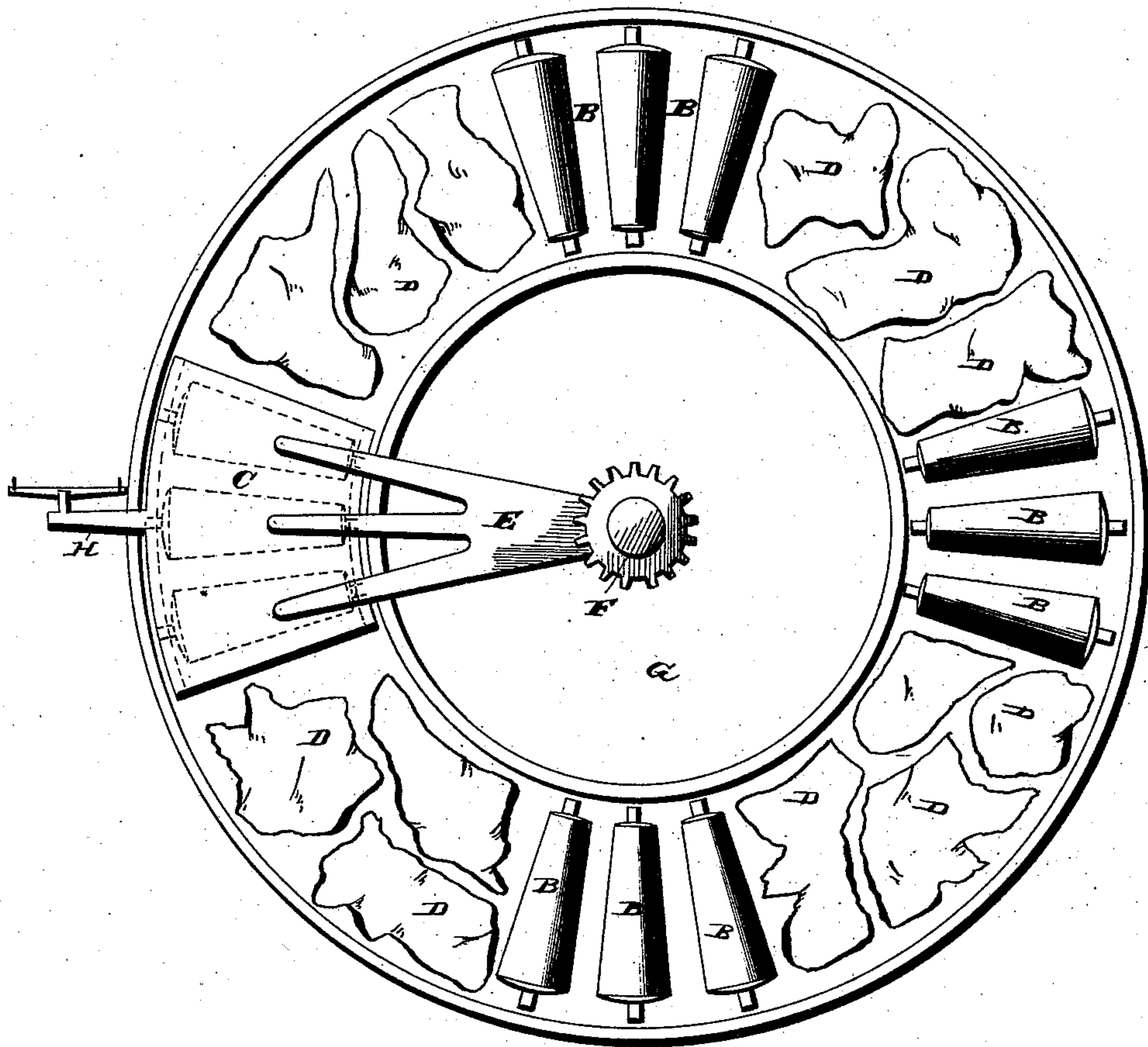
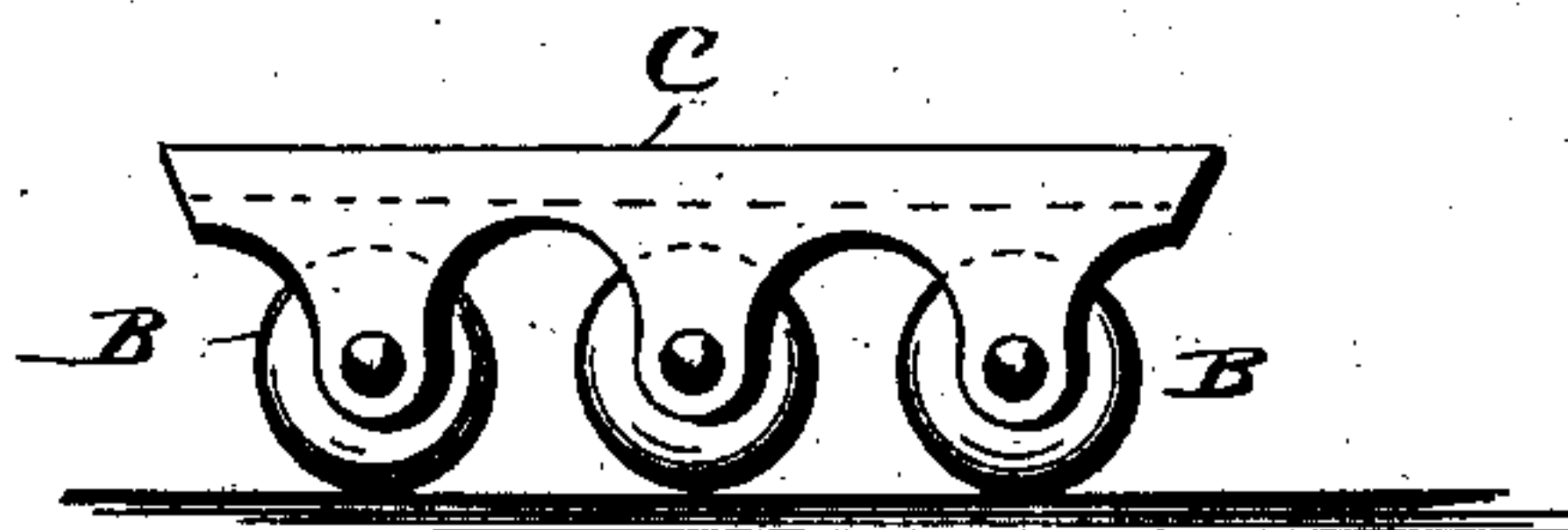


Fig. 2.



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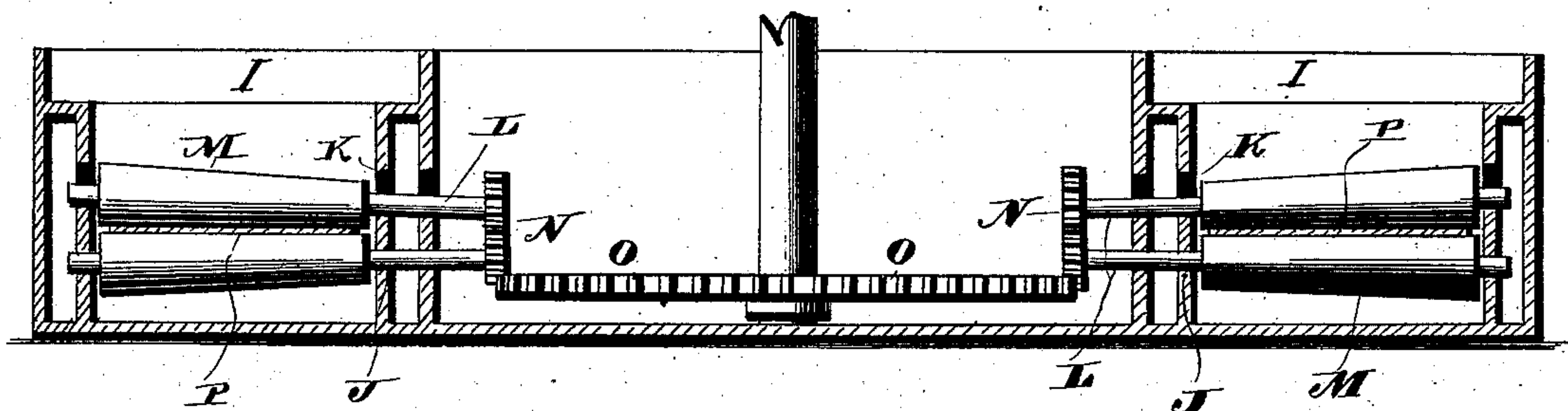
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**WITNESSES**

WITNESSES  
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# UNITED STATES PATENT OFFICE.

WALTER S. WELLS, OF NEW YORK, N. Y.

## APPARATUS FOR TANNING.

SPECIFICATION forming part of Letters Patent No. 294,420, dated March 4, 1884.

Application filed March 8, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER S. WELLS, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Tanning; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in apparatus for tanning, the object being to greatly facilitate such operations and to produce grades of leather equal in quality to those produced by the old-fashioned methods involving steeping and maceration.

With this object in view my invention consists in the apparatus herein described for carrying out my process.

In the accompanying drawings, Figure 1 is a representation in plan view of one of the forms which my apparatus may assume, a portion of the cars being removed to show the mode of grouping the rollers. Fig. 2 is a view in side elevation of one of the cars in which the rollers are mounted. Fig. 3 is a view in vertical section of a modification of the apparatus shown in Fig. 1, and Fig. 4 is a plan view of the car used in connection with the modified apparatus.

A is an annular trough, having a flat bottom and vertical inner and outer walls. Rollers B, mounted in cars C, and extending transversely across the said trough, are designed to compress the hides D, which are disposed on the bottom of the trough substantially in the manner shown. These cars are propelled in making the circuit of the trough by power transmitted to them through frames E, rigidly secured to and radiating from the shaft F, which rises centrally within the space or chamber G, and which is actuated by steam, water, or similar motive power. If motive agencies of this character are not available, the cars may be actuated by horse-power applied through beams H, extending from them, a track for the horse being made in this instance around the trough.

The materials entering in the construction of parts herein described, the peculiar form which they assume, and the scale on which

they are made will be varied according to the dictation of the circumstances surrounding the erection of each apparatus. The trough may be constructed of wood and lined or not with zinc, brass, or other metal not susceptible to the action of the tanning-liquor; or it may be constructed of plates or sections of metal not attacked by the tanning-liquor, or, if so, lined on the inside with non-corrosive material. Again, an admirable trough may be formed of brick, stone, or other mason work, the inner walls of a trough so constructed being rendered smooth by a facing of cement or other material. If desired, also, the entire structure may be formed from Portland or similar cement. Finally, I would have it understood that I do not limit myself to the use of any particular material in the construction of the trough, nor to constructing it in any particular form, for it may be oval as well as circular in shape, and, if desired, it may be straight, provision being made in case a straight construction is adopted to reverse the rollers B at its ends. The rollers may be formed of metal, stone, cement, wood, rubber, or other material. In case they are made of iron or other metal susceptible to the corrosive action of tanning-liquor, they should be coated, galvanized, or plated with metal not so susceptible. In case the rollers are not sufficiently heavy to effect the desired compression of the hides, the cars may be weighted until the desired effect is obtained. The actuation of the rollers in curved paths, as when annular or oval troughs are employed, is facilitated by making them conical in shape, as herein shown. With apparatus having straight troughs cylindrical rollers will be employed. Sufficient space should be left between the ends of the rollers and the walls of the troughs to permit the tanning-liquor to circulate between them. It is desirable during the operation of tanning that the liquor employed be as tranquil as possible, in order not to disturb the hides under treatment. With this end in view the rollers may be perforated or encircled by a spiral groove, which will allow the liquor to circulate around and under the rollers without in any wise destroying the efficiency of their action. Disturbance of the tanning-liquor may also be avoided by mak-



ing the rollers comparatively small and employing sufficient tanning-liquor to submerge them to the depth of several inches. The number of rollers employed and the mode of grouping them may be varied as desired, and will depend upon the construction and design of each apparatus.

Having set forth the construction of the apparatus, it now remains only to describe the method of carrying out the process.

After having been prepared in the usual manner for tanning, the hides are spread upon the bottom of the trough, the rollers being moved as need be to expose the whole surface thereof. The tanning-liquor is now introduced into the trough in sufficient quantities to cover the hides to the depth of several inches. This done, the rollers are passed over the hides, being reversed in the direction of their motion as often as need be. As the rollers pass over the skins they are compressed, and the tanning-liquor which they have absorbed is forced out of them. As soon, however, as they are relieved of the pressure of the rollers, they reabsorb the liquor, which is strengthened in the usual manner as the process progresses. The rapidly-alternating exclusion and absorption of the liquor from and by the hides forward those changes which the hides undergo in being converted into leather. If desirable, the hides may be turned over from time to time, so that both sides may be subjected alike to the action of the rollers.

In the modified construction shown in Fig. 3 of the drawings, I represents an annular trough, the inner and outer walls of which are provided with bearings J, provided with vertical slots K, in which the shafts L of the conical rollers M are inserted, the upper rollers being vertically adjustable to compensate for variations in the thickness of the hides. The rollers are actuated in rotation by power transmitted to them through pinions N, attached to the shafts projecting from the inner ends of the rollers, the pinions of the several pairs of rollers meshing with a common gear-wheel, O, located in the space inclosed by the trough and actuated by any suitable motive power.

An annular carrier, P, interposed between the rollers and rotated in a horizontal plane by the motion thereof is designed to receive the hides which are spread upon it.

If desired, springs and devices to vary their tension may be associated with the upper rollers, for the purpose of varying the pressure which the same exert upon the hides.

In carrying out my improved process of tanning with the modified apparatus above described, the rollers and the carrier are submerged in the tanning-liquor and the hides turned over as often as need be.

In view of the changes herein suggested, and of others of which the invention is susceptible, I would have it understood that I do not limit myself to the exact construction herein shown and described, but that I hold myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. An apparatus for tanning, consisting, essentially, of a trough, a bed or flat surface within the trough, on which the hides are spread, rollers located in said trough, and means to actuate said rollers for compressing the hides between said bed or supporting surface and the rollers, substantially as set forth.

2. An apparatus for tanning, consisting, essentially, of an annular trough, beveled rollers located therein, and means to actuate said rollers in compressing the hides or other skins which are spread upon the bottom of the trough, substantially as set forth.

3. An apparatus for tanning, consisting, essentially, of an annular trough, beveled rollers mounted in cars located in the trough, and means to actuate the said cars, substantially as set forth.

4. An apparatus for tanning, consisting, essentially, of an annular trough, beveled rollers located therein, a vertical shaft located in the center of the space inclosed by the trough, connections between the shaft and rollers, and means to rotate the shaft, substantially as set forth.

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

WALTER S. WELLS.

Witnesses:

E. D. GRANT,

CHAS. E. WHARTON.