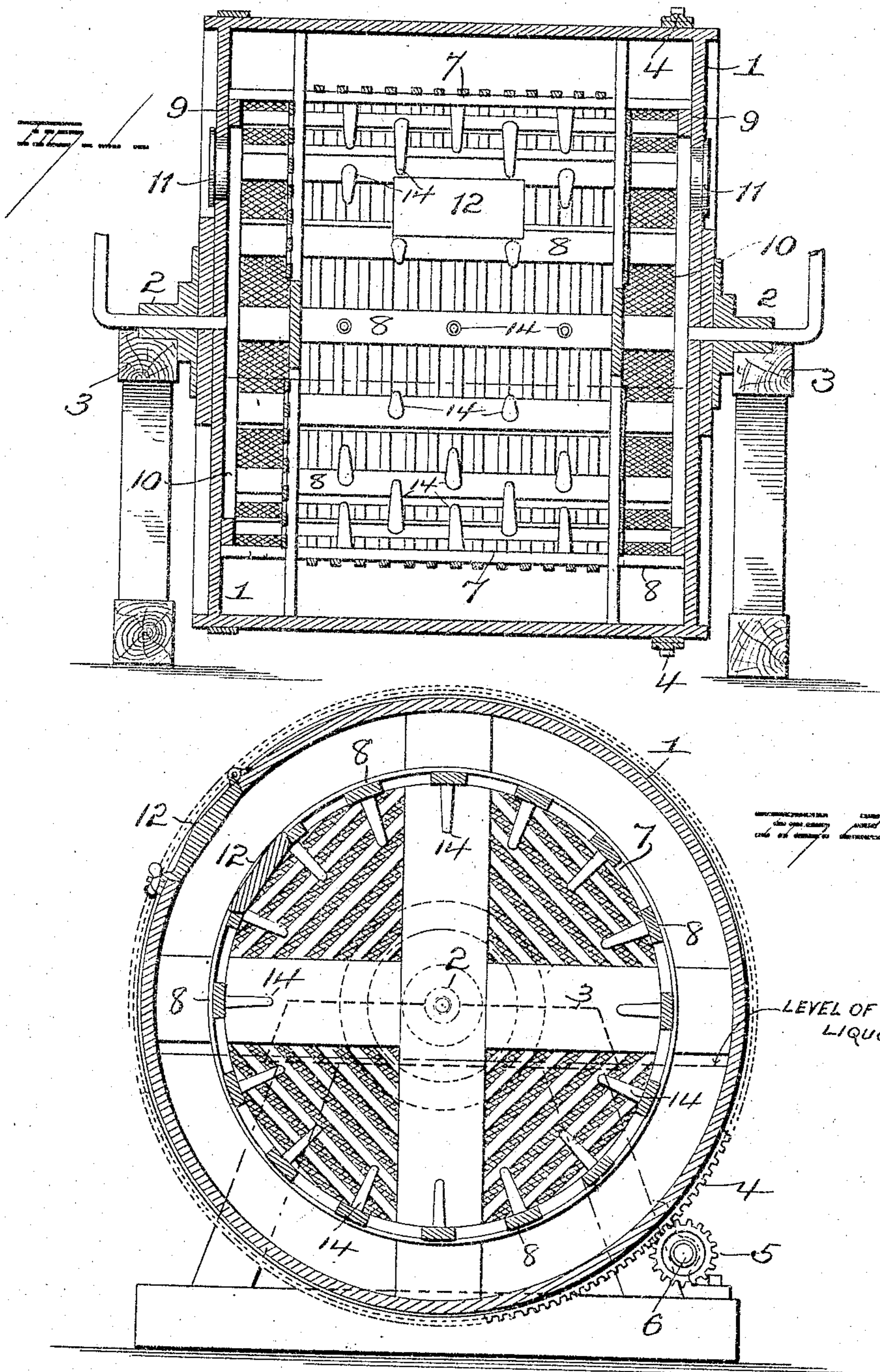


No. 780,450.

PATENTED JAN. 17, 1905.

E. G. STEINKE.
TANNING APPARATUS.
APPLICATION FILED OCT. 13, 1904.



WITNESSES

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ERNEST GUSTAV STEINKE, OF CINCINNATI, OHIO, ASSIGNOR TO THE
LOUISIANA LEATHER MANUFACTURING COMPANY.

TANNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 780,450, dated January 17, 1905.

Application filed October 13, 1904. Serial No. 228,334.

To all whom it may concern:

Be it known that I, ERNEST GUSTAV STEINKE, a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain
5 new and useful Improvements in Tanning Apparatus; 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
10 use the same.

My invention relates to an improvement in tanning apparatus, the object of the invention being to provide an improved apparatus of this character of the rotary-drum type in
15 which the hides can be perfectly tanned without danger of overheating and in which the necessity for using strong liquor is obviated; and the invention consists in certain novel features of construction and combinations and
20 arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

Drum tannage would be the generally-adopted method for making all grades of
25 heavy sole, harness, and belting leather to-day were it not for the many objections to the drum itself, such as in use. It must be admitted that leather of excellent quality has been tanned by the drum process. The
30 trouble, however, has been to obtain a uniform grade of leather of good quality and appearance. One pack may come out all right, while the next one would be inferior in every respect, and while there might be other causes
35 for the failure the principal reason must be traced to the apparatus or drum itself.

The drums in common use to-day are of a diameter of seven feet by six feet long. The seven-foot-diameter drum has been found to
40 give best results, as the hides after being carried up by the pins in the drum have a sufficient fall into the liquor, which fall plumps the hides, opens the pores, and allows the tannin to rapidly penetrate the fiber, thus accelerating the tanning process. When the di-
45 ameter is smaller, the hides do not plump enough. When larger than seven feet, they are liable to injury from too high a fall. Now, admitting that the seven-foot drum is

the best one, we find that the drum will have 50
to be filled up to within one foot of its center with tanning material, and the drum, containing twenty to twenty-five hides, (according to weight,) after being in motion for, say, twenty-four hours will register a temperature 55
of about 85° Fahrenheit, with hides one-half tanned, but thoroughly plumped. A continuous run of another twenty-four hours will complete the tannage, provided the temperature can be kept down to below 100°, at 60
which point the fiber of the hides is in danger of being burned. In order to prevent this, the liquor inside the drum has to be of a great degree of density and strength in tannic acid, for if the hides are not tanned when 65
the temperature goes up to danger-point they must suffer both in grain and texture. The opening of the drum to let the liquor cool off is of little use, for the swollen hides will go back, and the result will be a flat 70
strained leather full of raw streaks through back and kidneys. The objections, therefore, to the use of an ordinary drum are, first, necessity of using strong liquors, and, second, danger of overheating liquor. In 75
other words, it takes an expert to watch the run of the drum, and the manufacture of leather on a large scale is almost impossible. My new apparatus thoroughly and absolutely overcomes these objections and will now be 80
described in detail.

In the accompanying drawings, Figure 1 is a view in longitudinal section, and Fig. 2 is a view in cross-section.

1 represents an outer horizontal drum, 85 preferably of ten feet diameter and eight feet in length, having hollow gudgeons 2 at the center of its ends, supported to turn in bearings at the upper ends of suitable standards 3, and an annular rack 4 is provided around 90
said drum and is adapted to be driven by a pinion 5 on shaft 6, connected up with any approved source of power.

In drum 1 is a smaller drum 7, preferably of seven feet diameter, as that diameter of 95
drum has been found most effective in use. This inner drum 7 comprises a series of longitudinal slats 8, extending from end to end of

drum 1 and secured within confining-rings 9 on the ends of drum 1, and the ends of drum 7, which are spaced about one foot from the ends of drum 1, are composed of closely-assembled strips or slats and wire screen, and extend to the drum 1, forming spaces or chambers 10 at each end of one foot width and adapted to contain solid extract and prevent the same reaching the hides in drum 7, said solid extracts being inserted through man-holes 11 in the ends of drum 1.

The outer and inner drums 1 and 7 have alined doors 12 and 13, respectively, to permit the insertion and removal of hides from drum 7, and in the latter, along its longitudinal slats, several series of pins 14, preferably of hard wood and about one foot in length, are secured and adapted to carry up the hides from the liquor and permit them to fall thereinto as the drum is revolved.

By constructing my improvements as above explained, while I provide a hide-containing drum of the preferred diameter, (seven feet,) I have provided means whereby I use three to four times the amount of liquor and have three to four times the amount of air-space than with drums as heretofore made, which allows the use of liquors of one-third the strength heretofore necessary, and the larger amount of liquor and air-space will prevent overheating. The leather cannot be damaged in any way, and I find that I can tan the heaviest hides in from forty-eight to fifty-six hours, for while the liquor is only one-third the strength as used in yard tannage the amount of tannic acid is there nevertheless, and the hides absorb the tannin in diluted form even more rapidly than with a more concentrated liquor.

In operation the liquor is in drums 1 and 7 up to the level shown, (about one foot from the center.) The drums are then revolved and the hides are carried up by the pins and plumped into the liquor, and, as above explained, by providing the additional liquor capacity enables a liquor of one-third strength to be employed, and by providing the additional air-space the hides are perfectly tanned without danger of burning or other injury. The solid extracts can be placed in the end chambers between the ends of the drums 1

and 7, and only the liquor will contact with the hides.

A great many slight changes might be made in the general form and arrangement of the parts described without departing from my invention, and hence I do not restrict myself to the precise details set forth, but consider 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. A tanning apparatus comprising an outer imperforate drum, an inner open-work drum coaxial therewith provided with pins and a compartment separated from each of the drums by reticulated material.

2. A tanning apparatus comprising an outer imperforate drum, an inner open-work drum coaxial therewith provided with pins, and a compartment at each end of the apparatus separated from each of the drums by reticulated material.

3. A tanning apparatus comprising a drum to contain tanning fluid, an annular series of slats disposed within said drum, pins projecting inwardly from said slats, reticulated partitions inwardly removed from the ends of the drum, and reticulated material inclosing the annular series of slats between said reticulated partitions and the ends of the drum.

4. In an apparatus of the character described, the combination with an outer drum, of an inner drum composed of longitudinal slats secured to the ends of the outer drum, slatted ends for the inner drum extending to the sides of the outer drum, alined doors in the sides of said drums for the admission of material to be tanned, and a manhole in the end of the outer drum for the insertion of solid extracts to the end chamber between the ends of the drums.

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

ERNEST GUSTAV STEINKE.

Witnesses:

COLON SCHOTT,
GUSTAV TIPIT.