

No. 637,421.

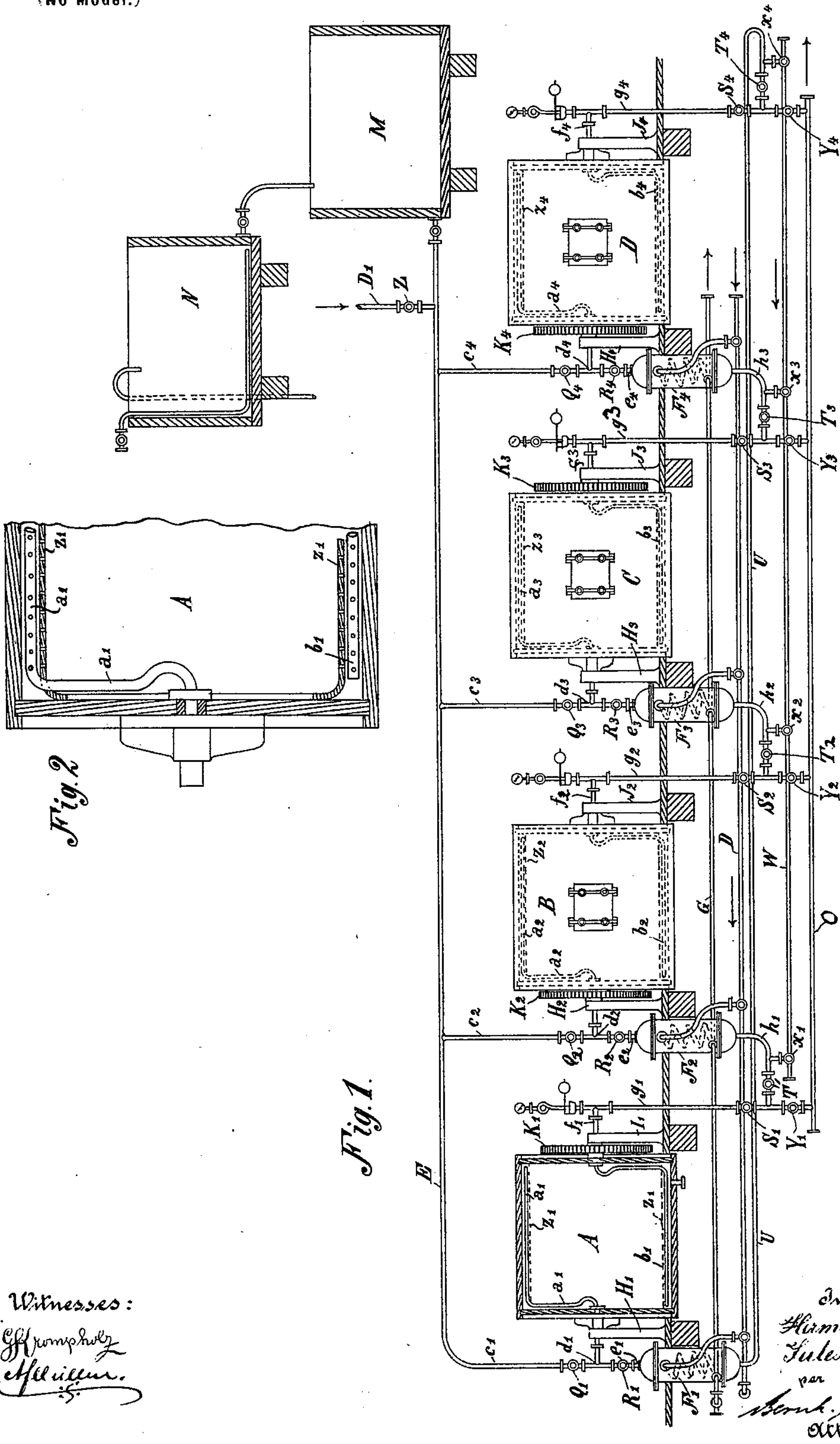
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H. SCHMIDT & J. LANDINI.

TANNING APPARATUS.

(Application filed Sept. 15, 1896.)

(No Model.)



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UNITED STATES PATENT OFFICE.

HERMANN SCHMIDT AND JULES LANDINI, OF HAMBURG, GERMANY.

TANNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 637,421, dated November 21, 1899.

Application filed September 15, 1896. Serial No. 605,945. (No model.)

To all whom it may concern:

Be it known that we, HERMANN SCHMIDT, manufacturer, a subject of the Emperor of Germany, and JULES LANDINI, merchant, a citizen of the French Republic, residing at Hamburg, Germany, have invented certain new and useful Improvements in Processes of and Apparatus for Tanning Green Hides; and the invention consists in the improved process and the novel construction of the apparatus employed in carrying out said improved process, as hereinafter fully described and claimed.

The same invention has already been patented by us in the Empire of Germany, Patent No. 92,364 of 1897, and in the Kingdom of Great Britain, Patent No. 13,686, June 20, 1896.

In the drawings hereto annexed, Figure 1 is a vertical longitudinal sectional view of a series of revolving drums, their operating-gearing, the heaters, the tank for heating the tannic acid, the collecting-tank for receiving the heated tannic acid, and the valved connecting-pipes of the apparatus; and Fig. 2 is an enlarged sectional view of a portion of one of the revolving drums disconnected or detached from the plant or series of connected revolving drums.

Referring by letter to the accompanying drawings, the apparatus by which this process is carried out in the present instance comprises a set or series of four drums A, B, C, and D, which are supported in suitable bearings in the upper ends of the vertical standards $H^1 I^1$, $H^2 J^2$, $H^3 J^3$, and $H^4 J^4$ and are revolved by any suitable power. Each of the revolving drums A, B, C, and D is connected with the supply-tank M N through the pipe E, which is provided with the air-pipe D', having the valve Z. The pipe E has the valved branch pipes $c^1 c^2 c^3 c^4$, provided with stop-cocks or valves $Q^1 Q^2 Q^3 Q^4$ above the horizontal branch pipes $d^1 d^2 d^3 d^4$ and stop-cocks or valves $R^1 R^2 R^3 R^4$ between the heaters $F^1 F^2 F^3 F^4$. The pipes $d^1 d^2 d^3 d^4$ connect with conducting-tubes $a^1 a^2 a^3 a^4$, which enter the drums through hollow axes in the left ends of said drums and pass upwardly and quite to the opposite ends of said drums between the exterior wall of said drums and their perforated linings $Z^1 Z^2 Z^3 Z^4$. From these drums A B C D pipes $b^1 b^2 b^3 b^4$, between the perforated linings $Z^1 Z^2 Z^3 Z^4$, lead out the hollow

axes at the right ends of said drums through valved pipes $f^1 f^2 f^3 f^4$ and connect with the vertical valved pipes $g^1 g^2 g^3 g^4$, which are connected at their lower ends with the waste-pipe O. The pipes $f^1 f^2 f^3$ are also connected with the lower ends of the heaters $F^2 F^3 F^4$, provided with heating-coils within, by valved pipes $h^1 h^2 h^3$ in order that the tannic acid used to tan the hides may be heated in its passage through the heaters to the drums, the heat being supplied from any suitable source through the pipe G to the heaters. The heaters $F^1 F^2 F^3 F^4$ are also connected with the draw-off or waste pipe O, so that the water of condensation may be drawn off through the same. The heaters $F^1 F^2 F^3 F^4$, containing the steam-coils connected with the steam-pipe, are connected with valved circulating-pipes $e^1 e^2 e^3 e^4$, through which the tannic acid may be conducted to either of the revolving drums at the will of the attendant.

The drums are provided with doors, through which the hides may be entered and removed.

It should be understood that the fresh skins are first placed in any one of the revolving drums, which are all connected, as described, and in whichever drum the skins are first placed they are subjected to the action of the weaker tannic acid. The skins thus treated are subjected progressively to the action of a stronger tannic acid in the next drum, and by the next drum is meant either one of the series that may contain the tannic acid of the properly-increased strength, not necessarily the drum B or the drum C or the drum D, but any one of them, as the strength of the tannic acid therein may suggest, as any one of said drums may be put in action or cut out of action by the proper cocks or valves when necessary. It should be understood that the fresh skins are placed first in one of the revolving drums containing a weak acid and there subjected to the action of this weak acid. The skins thus treated are then removed from the first or initial drum containing the weak tannic acid and placed in another drum of the set containing a stronger tannic acid than contained in the first drum. The skins after being subjected to the action of the stronger tannic acid in the second drum are then removed from the second drum and placed in a third revolving drum containing a still stronger tannic-acid liquid, and thus on throughout the entire set of drums. When

the tannic acid in the drums becomes weakened from frequent use, the weakened acid is strengthened to the proper degree by the addition of fresh tannic acid to the weakened tannic acid in whichever drum it may have become weakened. The skins in drum A having been subjected to partial tanning, the valve Z of the air-pressure pipe D' is opened, and by opening at the proper time the valves Q' and Q³ air-pressure is admitted to the drums A and C. The overpressure produced in these drums and the solution in drum C being weakened from having acted on the fresh skins to which it has communicated its tannin is forced through the waste-pipe o, the tubes f³ g³, and valves S³ and Y³ into the draw-off pipe Z, which conducts the tannic acid to the next revolving drum in which it is to be utilized. The tannic acid in the drum A having been reduced in strength by having been relieved of its tannin through imparting it to the skins passes or flows through the waste-pipe C', the tubes f' g', valves S' T', tube h', heater F², valve R², tube a², and conducting-tube a³ into drum B. From the drum B the solution which formerly possessed middle strength and has imparted its tannin to the skins is forced into the drum C. The valve Z being now closed, new ooze or tannic acid of a power stronger is conducted from the collecting-tank M through the tubes E c², valve Q², tube a², and the entrance-tube into drum B, the skins in said drum having been first subjected to the action of a medium tannic acid, the latter being brought by the waste-pipe b², tubes f² g², valve T², tube h², heater F³, valve R³, tube d³, and conducting-tube a³ to the drum C, while the weak tannic acid is passed from drum C to drum D, the latter having in the meantime been provided with fresh skins and placed in operation. The ooze in the drums B C D after having acted on the skins lying in the drums a sufficient length of time and having partially tanned the skins the valve F of the air-pressure pipe and the valves Q² and a⁴ are opened and the tannic acid in the drum D, which has not delivered all of its tannic acid to the skins, is forced by air-pressure through the waste-pipe C⁴, tubes f⁴ g⁴, and valves S⁴ Y⁴ into the draw-off pipe, through which it is led off for further use, while the tannic acid in drum B, which has been reduced to middle concentrating power, is forced into the drum C after having first closed the valve Q⁴. The tannic acid which is of low concentration is now forced into the drum D. The drum A after having been relieved of its partially-tanned skins and having been provided with fresh skins is followed by the drum D, which is placed in operation, and a stronger tannic acid is conducted thereto from the collecting-tank M (the valve Z being closed) through the tubes E c³, valve Q³, tube d³, and the conductor a³ into the drum C, so that the tannic acid of middle strength is forced from C to D, while the tannic acid in drum D, being of weaker

power, passes through the waste-pipe C⁴, tubes f⁴ g⁴, and valves S⁴ T⁴ into the pipe U and through this pipe into the heater F', and from there through the tube e', valve R', tube d', and the tube-entrance a' into the drum A in order to act therein upon fresh skins. The drum B is in the meanwhile put out of operation in order that the finished skins may be removed to make room for fresh ones. In this described manner the drums are put out of operation one after the other and when kept in use are furnished at first always with the weaker tannic acids, which are gradually increased in strength, so that the skins in the drums are subjected to tannins gradually increased in strength as the skins are changed from one drum to another.

Near to and in front of each drum there is provided a heater F' F² F³ F⁴, hereinbefore described, through which the tannic acid must pass before its entrance into the drum in order that the tannic acid may be more or less warmed, which is essential in the process. The warming is effected by the steam-coils S' S² S³ S⁴, receiving their steam from a steam-coil.

The water-pipe W is provided with valves X' X² X³ X⁴ and tubes h' h² h³ h⁴, connected with the heaters for the purpose of supplying water to the solution of tannic acid, if it be necessary, to dilute the tannic acid to regulate its strength.

As hereinbefore described, the drums A B C D have perforated edges Z' Z² Z³ Z⁴. In the annular spaces between the edges and the drum-wall are entrance-tubes a' a² a³ a⁴ and the waste-pipes b' b² b³ b⁴. The perforated edges serve to distribute the entering tannic acid quite evenly to the contents of the drums and to retain small particles of flesh that become loosened from the hides, and also any other small unclean substances that may have adhered to the hides and have been loosened therefrom during treatment, and thus separate them therefrom before the tannic acid is forced into the next drum. When the tanning has been completed, these unclean substances may be removed from the drums.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

In an apparatus for tanning green hides, the combination with revolving drums, stationary heaters, and a tannic-acid tank; of valved connecting-pipes so disposed that the tannic-acid solution in the tannic-acid tank may be changed from drum to drum, and from the tannic-acid tank to the drums, with or without passing through the heaters, substantially as and for the purpose set forth.

In witness whereof we have hereunto set our hands in presence of two witnesses.

HERMANN SCHMIDT.
JULES LANDINI.

Witnesses:

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