

(No Model.)

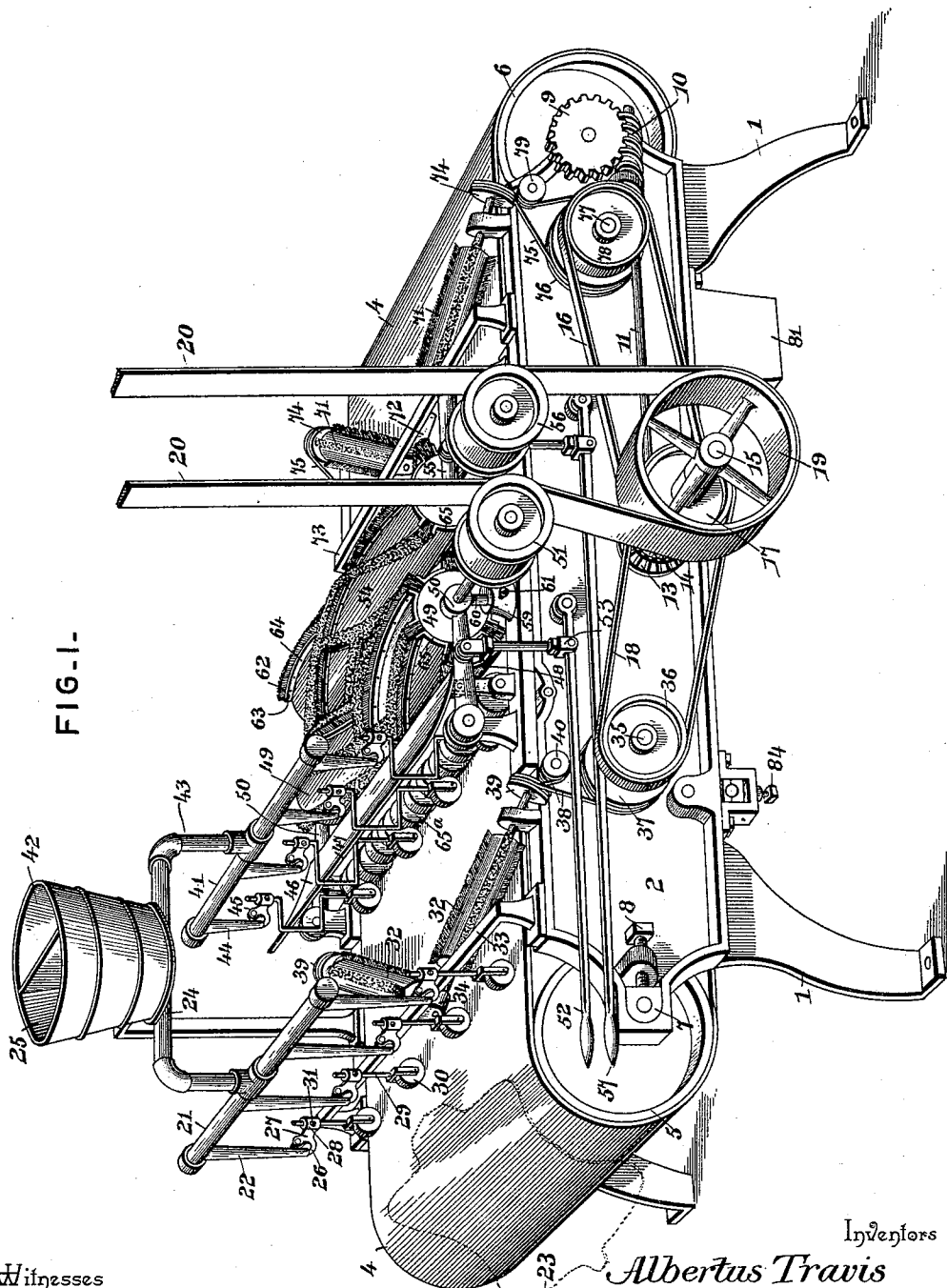
2 Sheets—Sheet 1.

A. TRAVIS & W. P. EARLEY.

APPARATUS FOR TREATING AND COLORING HIDES OR SKINS.

No. 583,871.

Patented June 1, 1897.



Witnesses

Jas. K. McLaughlin
V. B. Hillyard.

By their Attorneys,

Inventors

Albertus Travis
Willoughby P. Earley

C. A. Snow & Co.

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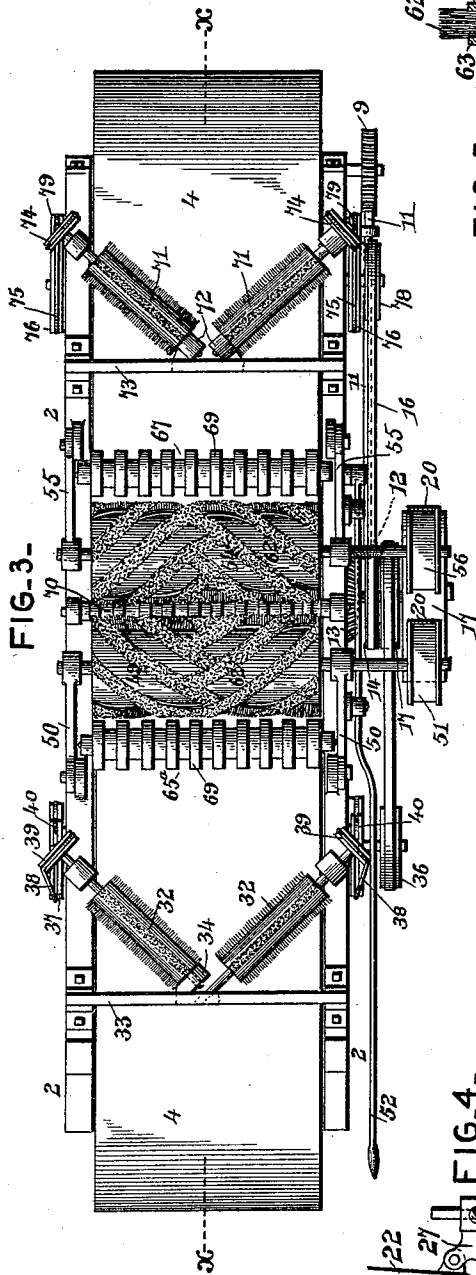


FIG. 3-

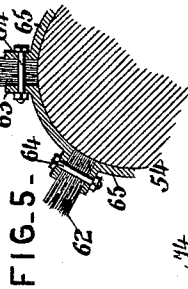


FIG. 5-

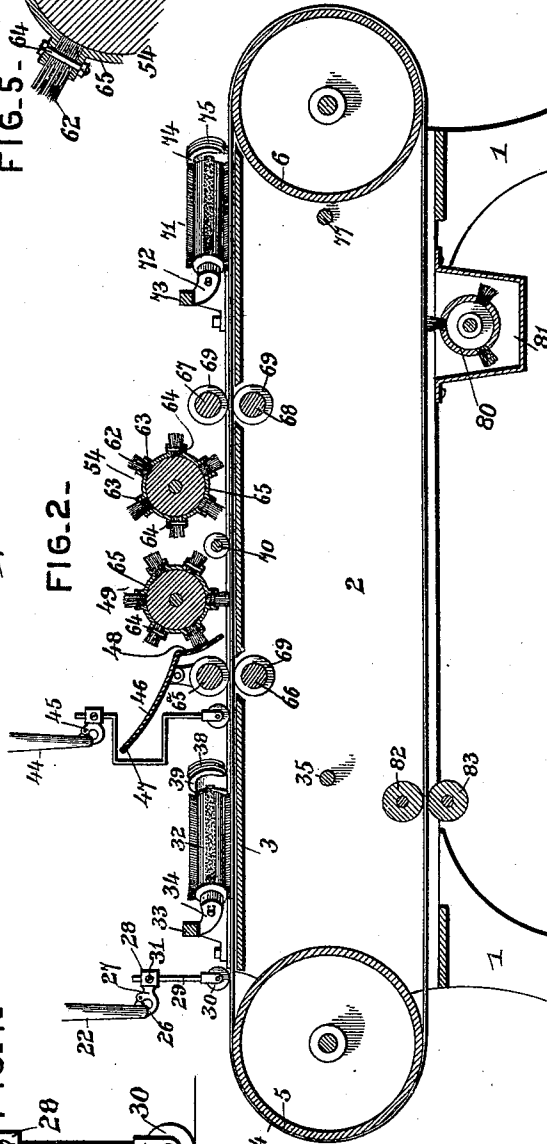


FIG. 2-

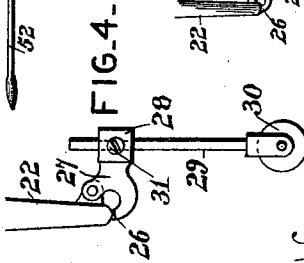


FIG. 4-

Witnesses

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UNITED STATES PATENT OFFICE.

ALBERTUS TRAVIS AND WILLOUGHBY PARKER EARLEY, OF PEABODY,
MASSACHUSETTS.

APPARATUS FOR TREATING AND COLORING HIDES OR SKINS.

SPECIFICATION forming part of Letters Patent No. 583,871, dated June 1, 1897.

Application filed February 19, 1896. Serial No. 579,920. (No model.)

To all whom it may concern:

Be it known that we, ALBERTUS TRAVIS and WILLOUGHBY PARKER EARLEY, citizens of the United States, residing at Peabody, in the county of Essex and State of Massachusetts, have invented a new and useful Apparatus for Treating and Coloring Hides or Skins, of which the following is a specification.

This invention relates to that class of apparatus for treating and coloring hides and skins and which embodies a carrier, means for distributing the coloring-matter or dye, and brushes for spreading the dye over the surface of the skins, and has for its object to automatically control the supply of the dye or coloring-matter, so that no waste thereof will occur, the supply being controlled by the skin or hide and caused to flow thereon only; to apply seasoning to the skin in an economical manner and in a way similar to the dye or coloring-matter; to evenly distribute the seasoning; to finish the leather or skin by imparting thereto a smooth surface, and to render the working of this class of machinery more effective and practical.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a machine for attaining the objects of this invention. Fig. 2 is a longitudinal section thereof about on the line X X of Fig. 3. Fig. 3 is a top plan view thereof. Fig. 4 is a detail view of a nozzle and the valve mechanism connected therewith. Fig. 5 is a detail view showing the manner of constructing the distributing rollers and the means employed for attaching the tufts thereto.

Corresponding and like parts are referred to in the following description and designated in the various figures of the accompanying drawings by the same reference-characters.

The framework of the machine may be of

any suitable design to receive and support the operating parts and, as shown, comprises legs 1 and side plates 2, connected together in any substantial way. A table or bed 3 has connection with the upper edges of the side plates 2 and is intended to support the upper portion of the endless carrier 4 and the hides and skins placed thereon against the action of the several sets of rollers and valve-actuating mechanism.

The endless carrier 4 may be constructed of any material suitable for the purpose and is preferably a belt of rubber supported at its ends upon drums or pulleys 5 and 6, one of the drums being adjustable to allow for the taking up of any slack in the carrier, the bearings 7 of the drum 5 being adjustable and moved by means of set-screws 8, operating in lugs projecting laterally from the framework. The drum 6 is mounted in fixed bearings and is formed with or has applied thereto a worm-wheel 9, which meshes with a worm-thread 10 upon the end of a longitudinal shaft 11, mounted in bearings on one side of the framework. The front end of the shaft 11 has a bevel-pinion 12, which meshes with a bevel gear-wheel 13, secured to or formed with a band-pulley 14, placed upon a stub-shaft 15, and around which passes a drive-belt 16, by means of which motion is transmitted to the finishing-brushes in the manner presently to be described. A second band-pulley 17 is secured upon the shaft 15, and a drive-belt 18 transmits motion therefrom to the rotary brushes for distributing the coloring or dye material. A band-pulley 19, of larger dimensions than the band-pulleys 14 and 17, is also secured upon the shaft 15 and is driven from any suitable source of power by means of a belt 20.

A distributing-pipe 21 is arranged transversely over the carrier 4 near its front end and has a series of pendent nozzles or nipples 22 to direct the dye or coloring-matter upon the hide or skin 23, passing beneath them. A pipe 24 connects the distributing-pipe 21 with a reservoir or tank 25 and serves to convey the coloring-matter from the said reservoir to the distributing-pipe. Each nozzle or nipple 22 is normally closed by a valve 26, provided at the free end of an arm

27, pivoted to the nozzle and having a sleeve 28, in which is adjustably fitted a stem 29, having a traveler 30 at its lower end to be operated by the hide or skin 23, so as to open the valve when the skin is passing beneath it, whereby the coloring-matter will be supplied to effect the desired end. The stem 29 is secured in the sleeve 28 by any convenient means, so that the relative distance of the traveler 30 above the carrier can be varied to suit the different thicknesses of skins and provide for the opening of the valve to a greater or less extent. A binding-screw 31 operates in a threaded opening in a side of the sleeve 28 and serves to secure the stem 29 in its adjusted position. The weight of the arm 27, the sleeve 28, the stem 29, and the traveler 30 serves under normal conditions to maintain the valve 26 in closed relation against the delivery end of the nozzle, and when the skin engages with the traveler 30 the latter will move and cause the arm 27 to turn upon its pivotal support and unseat the valve 26, thereby permitting the dye or coloring solution to flow upon that portion of the skin immediately below and passing beneath the nozzle delivering the coloring solution. The nozzles or nipples 22 will be provided in sufficient number, so as to properly dispense the coloring material to the skin or hide passing beneath them, and each will have a normally-closed valve and valve-opening mechanism actuated by the hide or skin.

Rotary brushes 32 are located in the rear of the color-dispensing mechanism and are arranged so as to distribute and spread the coloring-matter evenly upon the skin or hide. The best results are attained by oppositely inclining the rotary brushes and placing them with their converging ends pointing toward the front of the machine and having them inclining rearwardly and outwardly and of a length to extend from about a middle point of the carrier to the edges thereof. A cross-bar 33 is supported at its ends by pillow-blocks having connection with the side plates or other portion of the framework, and is formed with a bracket 34, intermediate of its ends, having bearings in which are journaled the front ends of the rotary brushes 32, the outer ends of the latter obtaining a bearing in suitable mountings attached to and forming part of the framework. A shaft 35 extends transversely of the machine and is journaled in the side plates thereof, and has a band-pulley 36, around which passes the drive-belt 18, by means of which motion is transmitted thereto from the shaft 15 in the manner herein stated, and this shaft 35 is supplied at its ends with band-pulleys 37, which actuate belts 38, which in turn drive the rotary brushes 32 by passing around pulleys 39 on the projecting journals thereof, the rear portion of the belts 38 being deflected by direction-pulleys 40 to enable the said belts 38 to properly transmit motion to

the pulleys 39 and the rotary brushes 32, operatively connected therewith.

A distributing-pipe 41 is located in the rear of the distributing-brushes 32 and extends parallel with the distributing-pipe 21 and is connected with a tank or reservoir 42 by means of a pipe 43 and is supplied at intervals in its length with a series of nozzles 44, corresponding to the nozzles 22, and which nozzles are normally closed by a valve mechanism 45, similar in construction and operation to the valve mechanism employed for closing the said nozzles 22, and since this part of the mechanism is a duplicate of that previously described at length it is not deemed necessary to enter into a detailed description thereof. The tanks 25 and 42 may be separate receptacles or, as shown, may be compartments of a single vessel which is subdivided by a vertical partition, and in this instance the dye or coloring-matter is placed in one compartment and the seasoning solution in the other compartment.

A plate 46 is located immediately in the rear of the nozzles 44 and has an upper portion 47, projecting beneath the said nozzles 44, so as to receive the seasoning mixture, and the rear portion 48 curves downwardly and its lower edge terminates a short distance above the plane of the carrier 4, so as to deliver the seasoning directly upon the surface of the skin passing beneath it. The purpose of this plate 46 is to cause a spreading of the seasoning mixture before the latter is applied, thereby enabling the said mixture to be delivered to the skin evenly, whereby it will be treated alike throughout its surface, thereby obviating spotting and streaking.

A rotary brush 49 is placed immediately in the rear of the plate 46 and is adapted to be brought in engagement with the surface of the hide or skin passing beneath it, and this brush operates over the curved portion 48 of the plate 46 and tends to spread the seasoning mixture upon that portion 48 of the plate 46 and take up the seasoning mixture and apply the same to the surface of the skin passing beneath it. This rotary brush 49 is journaled to pivoted arms 50 and is provided at one end with a pulley 51, which engages with the front portion of the drive-belt 20, by means of which the said rotary brush 49 is operated. The rotary brush can be elevated so as not to engage with the skin or hide passing beneath it, and for this purpose a lever 52 is located at one side of the machine and is connected by means of a link 53 with the adjacent pivoted arm 50, whereby upon operating the said lever 52 the brush 49 can be raised or lowered as required. As previously described, the curved portion 48 of the plate 46 conforms to the path of travel of the tufts applied to the surface of the rotary brush, and in order to obviate any binding between these parts the plate 46 is pivotally supported at its ends, as shown, thereby enabling it to adapt itself to the relative position of the brush 49 in its ver-

tical adjustments. The plate 46 and the rotary brush 49 unitedly form a means for evening and distributing the seasoning mixture to the surface of the skin to be treated and will be so designated in the subjoined claims.

A companion brush 54 is juxtaposed to the brush 49 and is parallel therewith and is journaled to pivoted arms 55 and supplied with a pulley 56 at one end, which engages with the rear portion of the drive-belt 20, by means of which the said brush 54 is rotated, and a lever 57, corresponding to the lever 52, is connected by a link 58 to the adjacent pivoted arm 55 to raise and lower the brush 54 for a purpose similar to the vertical adjustments of the brush 49. It will be observed that the brushes 49 and 54 are rotated in reverse directions, and by a proper manipulation of the levers 52 and 57 either one or both of the brushes may be brought in contact with the skin or hide being treated. Adjustable stops are provided to limit the downward movement of the brushes 49 and 54 by engagement with the free end of the pivoted arms 50 and 55, and these stops comprise sockets 59 and blocks 60, adjustably secured in the sockets by means of binding-screws 61. The brushes 49 and 54 have the tufts or strips 62 applied thereto in substantially the same manner, said tufts or strips being secured between parallel flanges 63, formed on the surface of the brush-bodies in any convenient way, bolts or pins 64 extending through the flanges 63 and the inner ends of the tufts or strips 62, so as to secure these parts in fixed relation. The flanges 63 are provided by bending the edge portions of segmental strips 65, which latter are fitted to the brush-body and are secured thereto in any practicable manner whereby the desired results are attained. In order to keep the skin or hide stretched and spread upon the carrier, the tufts or strips 62 are disposed so as to extend from the middle of the brush-bodies to the ends thereof in spiral lines, the tufts or strips upon one end portion of the brush-bodies running in an opposite direction to the tufts or strips upon the other end portion, whereby the tendency of the tufts or brush-strips at one end of the brush-bodies to move the skins to one edge of the carrier is counteracted by the action of the tufts or brush-strips at the opposite end of the said brushes, as will be readily comprehended. The tufts or brush-strips upon the rotary brush 49 are arranged in a reverse position to the corresponding tufts or brush-strips upon the brush 54, so that the active surfaces of the brushes will operate in precisely the same manner owing to the reverse direction of rotation of the two brushes 49 and 54, as herein stated.

A roller 65^a is located in advance of the brush 49 and acts in opposition to a companion roller 66, placed beneath the upper portion of the carrier 4 to hold the skins in an outstretched condition and prevent their wrinkling, puckering, or plaiting when operated

upon by the brush 49. Corresponding rollers 67 and 68 are located immediately in the rear of the brush 54 for a purpose similar to the rollers 65^a and 66, and these rollers are provided at intervals in their length with bands 69, of rubber or other compressible material, to obtain a grip upon the skin and prevent a longitudinal movement thereof or a creasing, which would be likely to result if the surfaces of the said rollers were smooth and uninterrupted throughout their length. A roller 70 is located intermediate of the brushes 49 and 54 and acts in opposition to the table or bed 3 to attain the same result as effected by the use of the rollers 65^a, 66, 67, and 68, and, like these rollers, is supplied with elastic bands 69.

Finishing-brushes 71 are disposed at the rear end of the machine and incline in opposite directions from their front ends, and are journaled at their front ends in bearings 72, provided on a cross-bar 73, supported at its ends from the framework of the machine. The rear ends of the brushes 71 have pulleys 74, which receive drive-belts 75, passing around pulleys 76 at the ends of a transverse shaft 77, and provided at one end with a band-pulley 78, which receives its motion from the drive-belt 16, driven from the shaft 15, in the manner set forth. The rear portion of the belts 75 passes over direction-pulleys 79 for a purpose akin to the direction-pulleys 40. The finishing-brushes 71 are clothed with strips of felt or other material for imparting a smooth surface and finish to the skins.

A cleansing-brush 80 is placed beneath the lower portion of the carrier 4 and operates in a trough 81, containing water, and engages with the lower side of the carrier, so as to remove therefrom all trace of the coloring-matter and seasoning mixture, thereby preventing staining and soiling the rear side of the skin or hide.

Compression-rollers 82 and 83 are disposed to engage with opposite sides of the lower portion of the carrier 4 and act in the capacity of wringers to remove the excess or surplus moisture from the carrier prior to the reception thereon of the hide or skin to be treated. One of the compression-rollers, as 83, is vertically adjustable, whereby the required degree of compression upon the carrier can be secured, and is mounted in bearings which are adjusted by means of set-screws 84.

The hide or skin to be treated is placed upon the front portion of the carrier 4 and is advanced by the latter toward the rear end of the machine, where it is dropped into a suitable receptacle or is taken up by an attendant. As the skin advances it actuates the valve-controlling mechanism of the color-dispensing apparatus, whereby a proper quantity of the dye or coloring material is discharged upon the said skin, and in its progress the rotary brushes 32 distribute the coloring material upon the surface of the skin, and the latter advancing operates the valve-

controlling mechanism of the appliance for dispensing the seasoning mixture, whereby a supply of the latter is secured and distributed upon the skin by means of the brushes 49 and 54, after which the brushes 71 smooth and finish the skin thus treated, thereby completing the operation.

Having thus described the invention, what is claimed as new is—

10 1. In apparatus for treating hides and skins, the combination of a distributing-pipe having a series of nozzles, pivoted arms bearing valves normally closing the said nozzles, travelers having connection with the pivoted arms, and
15 a carrier for advancing the hide or skin beneath said travelers to automatically unseat the said valves, substantially in the manner set forth for the purpose described.

20 2. In an apparatus for treating hides and skins, the combination of a carrier, a distributing-pipe having a series of nozzles, pivoted arms bearing valves normally closing the said nozzles, and stems having adjustable connection with the pivoted arms and bearing travelers to engage with the hide or skin, whereby
25 the valves are automatically unseated, substantially as and for the purpose set forth.

3. A machine for coloring and seasoning a hide or skin in a continuous operation, the
30 same comprising a mechanism for dispensing the coloring-matter, an independent mechanism for subsequently applying the seasoning mixture, independent means for smoothly and evenly distributing the coloring and seasoning material over the surface of the hide
35 or skin, and a single carrier for successively presenting the hide or skin to be treated to the several mechanisms, substantially as and for the purpose set forth.

40 4. In an apparatus for treating hides and skins, the combination of valved nozzles automatically actuated by the hide or skin for dispensing a substance thereon, a carrier for moving the hide beneath the nozzles, a pivoted
45 plate comprising an upper portion extending beneath the nozzles for receiving the said substance and a lower curved portion, a rotary brush mounted in movable bearings and operating upon the curved portion of the
50 pivoted plate to spread and evenly apply the

substance to the surface of the hide, and means for simultaneously moving the brush and turning the plate upon its axis, substantially as and for the purpose set forth.

5. In an apparatus for treating hides and skins, the combination of a carrier, a drive-belt for transmitting motion to the carrier-actuating mechanism, a means for applying a substance to the surface of the hide or skin to be treated, rotary brushes having pulleys
60 engaging frictionally with the opposite portions of the said drive-belt, and means for raising and lowering the said brushes to bring one or both in engagement with the hide or skin to be acted upon, substantially as set
65 forth.

6. An apparatus for treating hides and skins, comprising an endless carrier, actuating mechanism therefor embodying a drive-belt, a distributing-pipe for supplying coloring-matter to the skin, having a series of
70 valve-controlled nozzles actuated automatically by the skin being treated, brushes for distributing the coloring-matter, a distributing-pipe for supplying a seasoning mixture, having a series of valve-controlled nozzles
75 adapted to be operated automatically by the skin being treated, a plate for evening the seasoning mixture, rotary brushes having band-pulleys in direct engagement with the
80 opposite portions of the aforesaid drive-belt, means for raising and lowering the said brushes, rollers placed in juxtaposition to the rotary brushes and having elastic bands at intervals in their length, oppositely-disposed
85 finishing-brushes, a cleansing-brush for removing the coloring-matter and seasoning mixture coming upon the said endless carrier, and compression-rollers for removing the excess of moisture from the said carrier,
90 substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

ALBERTUS TRAVIS.
WILLOUGHBY PARKER EARLEY.

Witnesses:
DANIEL SNEIDER,
NOBLE WATTERS.