No. 774,238. PATENTED NOV. 8, 1904.

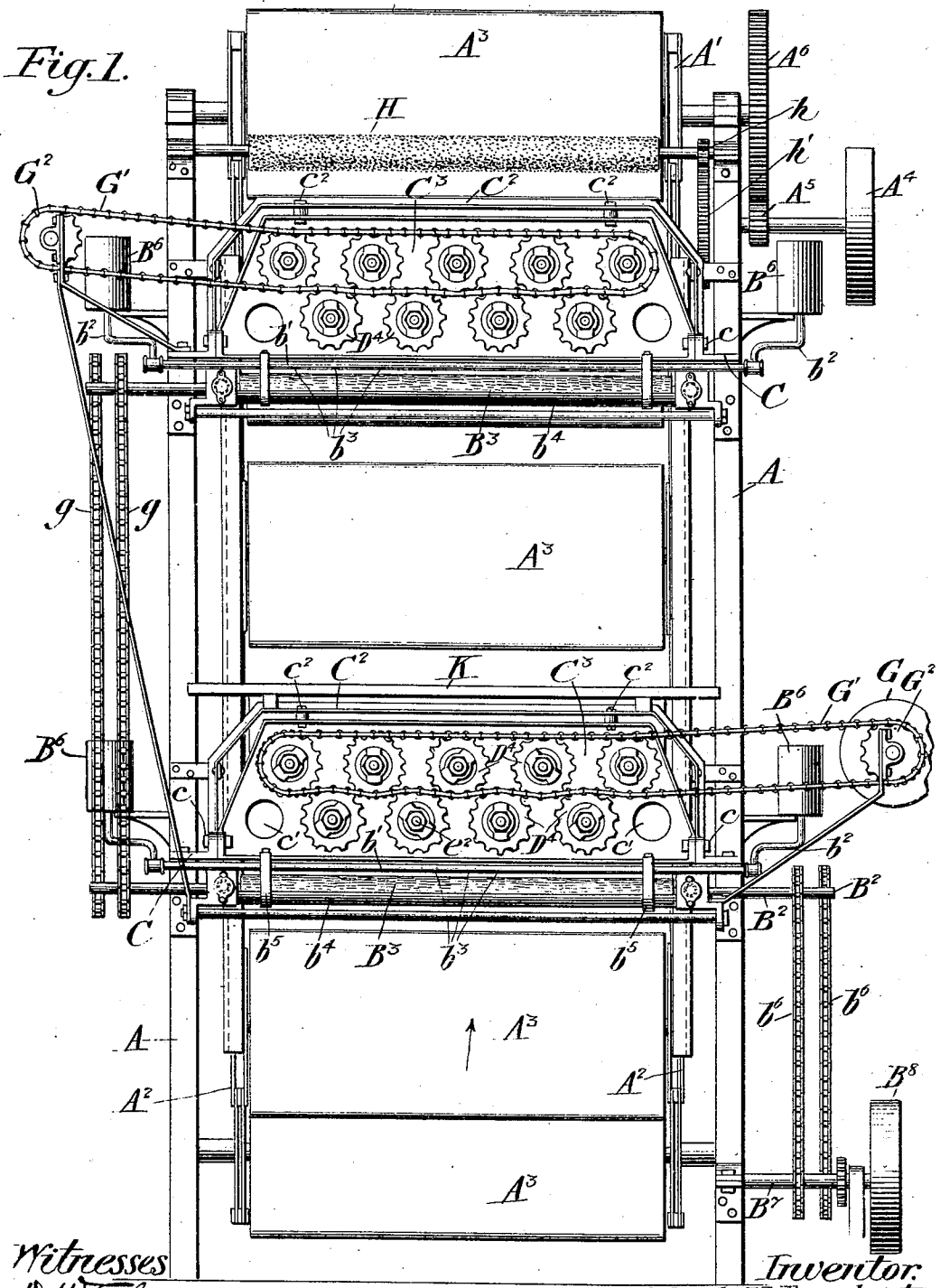
H. F. DOUGHERTY.

MACHINE FOR TREATING HIDES.

APPLICATION FILED AUG. 28, 1903. RENEWED MAY 5, 1904.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.



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J. Harrycutter.

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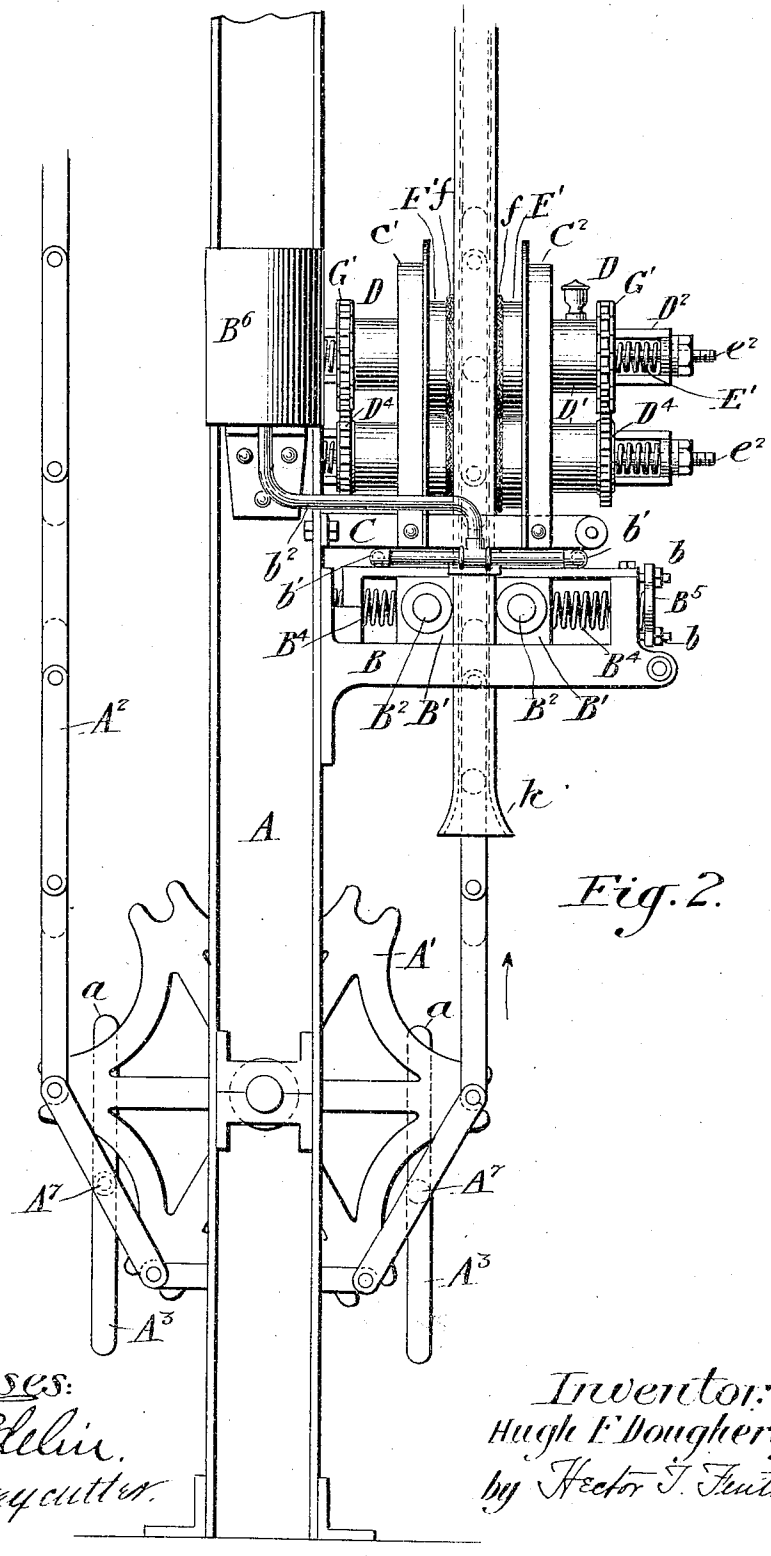


Fig. 2.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.

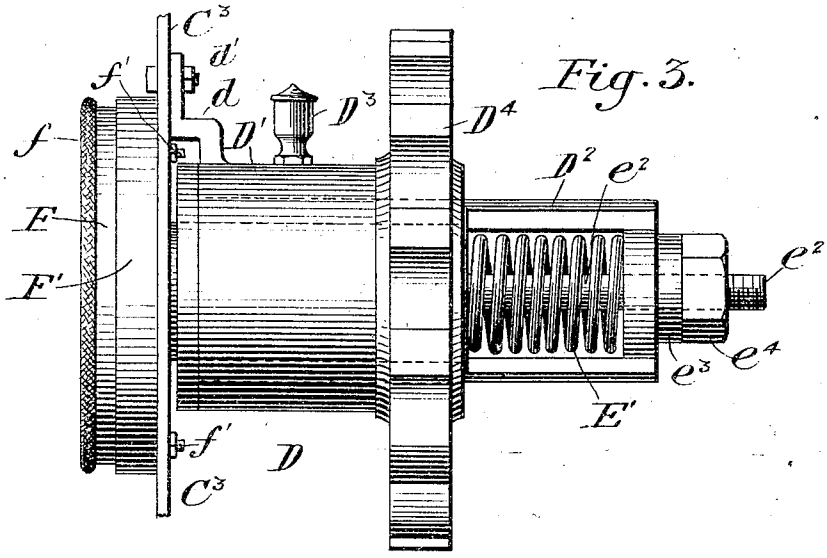
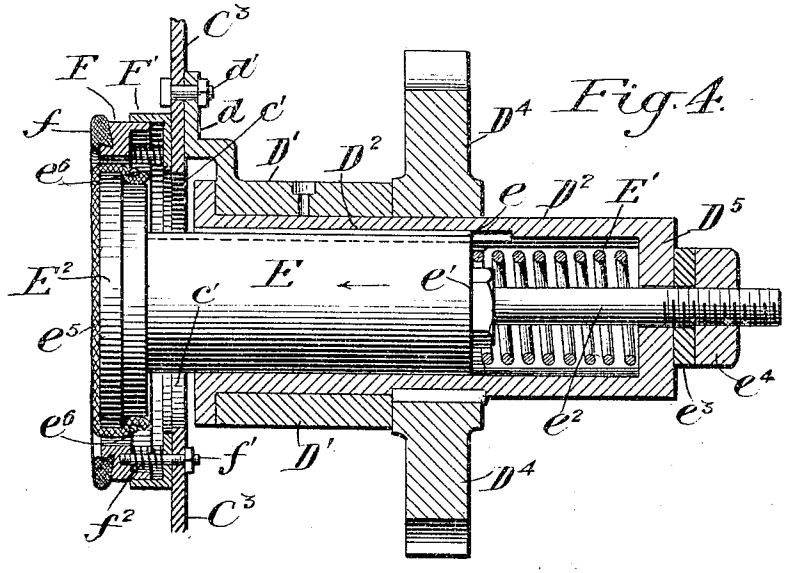


Fig. 4.



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PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 774,238. Patented November 8, 1904.

UNITED STATES PATENT OFFICE.

HUGH F. DOUGHERTY, OF WILMINGTON, DELAWARE, ASSIGNOR TO DOUGHERTY MACHINE COMPANY, OF WILMINGTON, DELAWARE.

MACHINE FOR TREATING HIDES.

SPECIFICATION forming part of Letters Patent No. 774,238, dated November 8, 1904.

Application filed August 28, 1903. Renewed May 5, 1904. Serial No. 206,579. (No model.)

To all whom it may concern:

Be it known that I, HUGH F. DOUGHERTY, a citizen of the United States, residing at Wilmington, State of Delaware, have invented certain new and useful Improvements in Machines for Treating Hides, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The invention to be hereinafter described relates to machines for finishing hides, and more particularly to such type thereof that apply to the grain side of the hide a seasoning composition.

It is essential in applying a seasoning or other finishing compound to the grain side of a hide that the compound enter the substance thereof, and this result can only be satisfactorily secured by rubbing the grain side of the hide with the compound in directions with and against the grain, while at the same time subjecting the surface being rubbed to considerable pressure. By this manner of manipulation the compound is worked thoroughly into the hide, the movement of the compound over the surface and under pressure in a direction against the grain serving to force the compound into the substance of the hide, while the movement under like conditions with the grain serves to thoroughly work the grain-surface and give a smooth face for glazing. The more uniform the pressure and rubbing action given the hide the more acceptable and uniform will be the finished product. Heretofore the operations thus very generally outlined have been performed mainly by hand, and considerable skill and care have been necessary to prevent wrinkles or folds being formed as the rubbing and liquid-applying instrumentality was moved over the surface of the hide, to prevent which the operative was compelled to apply the liquid with a rubbing pressure by one hand and hold by the other hand the portion of the hide being treated. Such treatment was both slow and unsatisfactory by reason of the fact that uniformity of pressure and rubbing over the entire surface of the hide was impossible, and hides in the hands of different or, indeed, the same operatives would vary greatly.

The object of the present invention is to provide a machine wherein these hand operations above set forth shall be closely imitated and yet wherein the defects of such hand manipulation shall be overcome and a more uniform product of superior quality furnished.

With these general objects in view the invention consists of the parts and combinations, as will be hereinafter described and then definitely pointed out in the claims.

In the drawings, Figure 1 is a front elevation of a machine embodying the present invention in one of the forms in which it may appear. Fig. 2 is an enlarged detail, in side elevation, showing more particularly the means for applying the seasoning compound by rubbing pressure, some of the parts being omitted for sake of clearness. Fig. 3 is a detached detail view, in side elevation, of one form of device that may be employed to apply the seasoning compound to the hide by pressure and rubbing action; and Fig. 4 is a longitudinal section of the parts shown in Fig. 3.

The main frame for supporting the operative parts of the device may comprise any usual or desired character or form of framework, as upright A, in which are journaled the upper and lower pairs of sprocket or chain wheels A′, Fig. 2, carrying the table-supporting chains A^2, upon which are mounted the tables A^3, the chain of tables thus formed deriving movement from the sprocket or chain wheels A′, driven from any suitable source of power, as from the band-driven wheel A^4, through gearing A^5 and A^6, as shown in Fig. 1. Of course it is to be understood that any usual character of tables and chains and driving means may be employed, the invention not being limited in these respects, and while the tables A^3 are shown as pivotally mounted at A^7 upon the links of the chain A^2, so as to always maintain an upright or vertical position, it is to be understood that any desirable and suitable form and mounting of the tables may be employed.

Under the construction of device as illustrating the present embodiment of my invention the hides to be seasoned or finished are placed over the upper edges *a* of the tables as they pass about the lower sprocket or chain wheels A′ and are carried to the action of the instrumentalities which more particularly embody the present invention and where the hides are subjected to a coating of the seasoning or finishing compound and a rubbing pressure with and against the grain of the hide, as will now be more fully explained.

The means for applying the compound and for then giving the rubbing and pressing action referred to may be generally known as the "seasoning" devices for the purposes of identification, and as such devices are preferably duplicated in the machine for a purpose that will appear a description of one set is sufficient.

Mounted in a suitable bracket, as B, secured to the machine-frame, are the sliding boxes B′ B′, carrying the journals B^2 B^2 of rollers B^3 B^3, Figs. 1 and 2, said boxes B′ B′ and rollers B^3 B^3 being disposed one on each side of the plane of movement of the tables A^3 and the boxes B′ B′ being normally forced toward each other by springs B^4 B^4, the tension of which may be regulated as desired by suitable plates B^5 and adjusting-bolts *b b*.

The rollers B^3 B^3, as seen in Fig. 1, extend transversely of the machine, and immediately above each of said rollers is a supply pipe or conduit *b′*, connected to suitable reservoirs B^6 B^6 on each side of the machine by connections b^2 for supplying the seasoning compound or liquid to the rollers B^3 B^3, whose surfaces are covered by some absorbent or liquid-holding material, such as felt or the like, the pipe or conduit *b′* having perforations b^3 in its lower wall to permit the compound or liquid to be supplied in required amount. Below the rollers B^3 are the drip-pans b^4 for catching any surplus of compound, said drip-pans being hung from the machine-frame in any desired manner, as by hangers b^5 b^5, Fig. 1. From this construction it will be noted that as the tables carrying the hides pass upward between the rollers B^3 B^3 said rollers will press against the exposed grain-surface of the hides and supply thereto the compound from the tanks B^6 B^6, the rollers being preferably driven from any suitable source of power, as by means of sprocket-chains b^6 b^6, connecting sprocket-wheels on journals or shafts B^2 B^2 of rollers B^3 B^3 with sprocket-wheels driven from shaft B^7, carrying the belt-wheel B^8, all as fully explained for operating the unhairing-rollers in my former patent, No. 726,267, dated April 28, 1903. As will be obvious, any other suitable means may be employed for rotating the rollers B^3 B^3.

Secured to suitable supporting-brackets C, carried at each side of the main frame, are the two auxiliary frames C′ C^2, one in front and one in rear of the plane of movement of the tables as they travel upward between the rollers B^3 B^3, and pivotally connected to the auxiliary frames at *c c* are the carrying-plates C^3 C^3, provided with openings *c′*, carrying and supporting devices D, as will be presently described, and said devices will hereinafter be referred to for the purpose of identification as the "rubbing-pressure" devices.

From the pivotal connection of the auxiliary frames C^2 with the carrying-plates C^3 at *c c* it is evident that the plates C^3 may be turned outward away from the tables A^3 when desired, and to maintain the carrying-plates C^3 in proper position during the operation of the rubbing-pressure devices suitable catches or bolts c^2 c^2 may be employed.

The rubbing-pressure devices hereinbefore referred to and generally designated by reference-letter D are shown more clearly in detail in Figs. 3 and 4, wherein D′ is a cylindrical casing having fingers or projections *d*, whereby the individual rubbing-pressure devices may be readily secured to the carrying-plates C^3 in proper relation to the openings or perforations *c′* in said plates. Rotatably mounted within the casing D′ is the sleeve D^2, having fixedly secured thereto the sprocket-wheel D^4, whereby said sleeve may be rotated in the casing, a suitable oil-cup D^3 being provided, if desirable, to supply a suitable lubricant between the sleeve and casing.

Mounted within the sleeve D^2, so as to be freely movable in the direction of its longitudinal axis, is the rubber carrying-plunger E, having a key-and-slot connection *e* with the sleeve D^2, so that while the said plunger may move longitudinally within the sleeve it also is rotatable therewith.

Disposed between the inner end *e′* of the plunger and the cross-piece D^5 of the sleeve is a spring E′, normally acting to move the plunger in the direction of the arrow, Fig. 4, and extending from the end *e′* of the plunger is a screw-threaded stem e^2, having the lock-nuts e^3 e^4 on the end thereof, whereby the extent of movement in the direction of the arrow given the plunger by the spring E′ may be regulated.

At its outer end the plunger E has an enlarged head E^2, over which a suitable piece of rubbing material, such as carpet or the like, e^5, may be placed and secured to the head by means of a band e^6, as will be clear from Fig. 4. Of course the particular character of material covering the head of the plunger, as likewise the particular means for securing it thereon, are immaterial; but it has been found that carpet secured in place by a wire band answers the purpose very well.

Referring to Figs. 1 and 2, it will be noted that the rubbing-pressure devices D are arranged upon the carrying-plates C^3 in two rows, the devices being arranged in staggered relation in the two rows, so that all parts of

the surface of the hide may be treated without fail. The sprocket-wheels D^4 of the rubbing-pressure devices D are engaged by a suitable sprocket-chain G', as shown, which is driven from a sprocket G^2 through any suitable means, as the belt-pulley G. Of course it is to be understood that the driving means for giving rotating movement to the sleeves D^2, and consequently the rubber carrying-plungers E, may be of any suitable character, and while I have shown the sprocket-chain and sprocket-wheels as one form of such driving means it is not to be understood therefrom that the invention is limited in this respect.

As heretofore pointed out, there is a carrying-plate C^3 and rubbing-pressure devices disposed on each side of the path of movement of the tables A^3, as shown more clearly in Fig. 2, and from the construction described it will be apparent that as the tables A^3 pass and carry the hides between these devices the pads carried by the rubbing-pressure devices D will press with considerable force upon the surface of the hides, dependent upon the tension of the springs E', and that as they thus press upon the surface of the hides they are rotated by means of the sprocket wheels and chain described or other suitable means. Thus the surface of the hide being supplied with the seasoning compound by the rollers B^3 B^3 is subjected to pressure and rubbing action, and the rubbing action being circular in the plane of the surface of the hide it is clear that the said surface will be rubbed in a direction both with and against the grain, thus working the compound well into the body of the hide.

Since the plungers E, carrying the rubbing material or pads e^5, are forced against the surface of the hide with considerable pressure and are then rotated as described, it is evident that the portions of the hide being treated by the plungers would wrinkle and fold, to the ultimate destruction of the hide or its material injury, to prevent which means have been provided to hold each portion or section of the hide against the table as the circularly-moving plungers act thereon, and such means will now be described.

Referring to Figs. 3 and 4, F represents a ring of somewhat larger diameter than the plunger-head E^2, which it surrounds, said ring F being provided with suitable means, as a groove, for holding a retaining-pad f and having projecting from its inner face at intervals pins f', said pins f' being adapted to hold the ring F in position upon the plate C^3, surrounding the covered head E^3 of the plunger. Interposed between the ring F and the plate C^3 is a guide-ring F', which serves to guide the ring F in its movements toward and from the plate C^3, springs f^2 normally acting to yieldingly maintain the ring F pressed away from the face of plate C^3 and toward and against the hide carried by the table. Thus the ring F acts to hold or retain the portion of the hide being rubbed by the pressure-rubbing device smooth and without the wrinkles or folds that would otherwise occur. It is evident, of course, that many changes might be made in the form and general character of the means for holding portions of the hide under treatment from wrinkles or folds, and while the specific form described is well suited for this purpose I do not wish to be understood as limiting my invention in this respect, as any means which will press upon the surface of the hide to hold it smooth against the table about the portion of the hide being treated to the combined pressure and rubbing action described will be well within the scope of my present invention. It will be noted also that while the means for preventing the wrinkles and folds acts about the portion of the hide being treated it also permits the table and hide carried thereby to be moved under or past said means during the pressing and rubbing action.

As heretofore pointed out, a set of seasoning devices is disposed near the lower part of the machine-frame and a duplicate set near the upper part thereof, as clearly represented in Fig. 1, a platform K being disposed between the two, so that an attendant may stand upon said platform, and as the tables and hides rise from between the lower seasoning devices he may shift the hides on the table to bring that part that was on the edge of the table as it passed through the lower seasoning devices in position to be treated by the upper set of seasoning devices.

The rollers B^3 B^3 of the upper set of seasoning devices may be driven from any suitable source of power—as, for instance, by means of sprocket-chains g g, connected to the lower rollers B^3 B^3.

Disposed in suitable bearings above the upper seasoning devices there is preferably employed a pair of brushes H, one on either side of the path of movement of the tables A^3, and said brushes are driven at a high speed by suitable means, as gearing h h', to impart to the surface of the hide a finishing brushing action to make ready for glazing.

From the above-described device it will be noted that the essential features of the present invention are not limited to the particular form of mechanical parts whereby the objects of the invention are attained, as these may be varied within the scope of mechanical skill without departing from the characteristics of the invention, which broadly embrace the seasoning or other finishing of a hide by means of devices that impart to the hide a rubbing and pressing action, the rubbing action being against and with the grain of the hide on a portion thereof that is held temporarily against a table or support to prevent wrinkling or folding.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for seasoning hides, the combination of a table adapted to support a hide, means for maintaining a portion or section of the hide against the table to prevent wrinkling or folding, and devices for subjecting the portion of the hide so maintained against the table to a combined rubbing and pressing action, the rubbing action being in directions with and against the grain.

2. In a machine for seasoning hides, the combination of a table on which the hide is adapted to be supported with the grain-surface thereof exposed, means for distributing the seasoning compound upon the exposed surface of the hide, means for maintaining a portion or section of the hide upon the table to prevent wrinkling or folding, and devices for treating the said surface of the hide to a rubbing and pressing action, a spring acting upon said devices to impart the desired uniform pressure on the hide, the rubbing action being in the direction of and against the grain of the hide to work the seasoning compound into the hide and impart a smooth surface.

3. In a machine for treating hides, the combination of devices for maintaining a portion of the hide to prevent wrinkling or folding of said portion during treatment, and means for subjecting the portion of the hide so maintained to a combined pressing and rubbing action, the rubbing action being in directions with and against the grain.

4. In a machine of the character described, the combination of means for distributing a compound on the surface of a hide, means for maintaining a portion or section of the hide to prevent wrinkling or folding, and devices for treating the section or portion of the hide so maintained to a rubbing and pressing action, the rubbing action operating in the direction of and against the grain.

5. In a machine for seasoning hides, the combination of a table on which the hide is adapted to be supported with the grain-surface thereof exposed, means for distributing the seasoning compound upon the exposed surface of the hide, means for maintaining a section or portion of the hide to prevent wrinkling or folding, and devices for treating the said surface of the hide to a rubbing and pressing action, the rubbing action being in the direction of and against the grain of the hide to work the seasoning compound into the hide and impart a smooth surface.

6. In a machine for seasoning hides, the combination of a table adapted to support a hide, means for moving the table, devices for applying to the exposed surface of the hide a seasoning compound, means for treating the surface of the hide with the seasoning compound thereon to a combined rubbing and pressing action during the movement of the table, a spring acting upon said means to impart the desired uniform pressure, and means to prevent wrinkling or folding of the section or portion of the hide being treated, the rubbing action operating in directions with and against the grain of the hide.

7. In a machine for seasoning hides, the combination of a table on which the hide is adapted to be supported with part of the hide on each side of the table, means disposed to act on opposite sides of the table for distributing the seasoning compound upon the surface of the hide, rubbing and pressure devices disposed to act upon the hide on opposite sides of the table, and means independent of said rubbing and pressure devices for maintaining against the table the portions of the hide being treated by the rubbing and pressure devices to prevent wrinkling or folding.

8. In a machine for seasoning hides, the combination of an endless chain of tables for supporting the hides to be treated, two sets of seasoning devices arranged one above the other, and a platform disposed between the said two sets, each set of seasoning devices comprising means for applying the seasoning compound to the hide to be treated, rubbing and pressure devices for acting upon the hide, and means for maintaining portions of the hide against the table to prevent wrinkling or folding during the action of the rubbing and pressure devices.

9. In a machine for seasoning hides, the combination of a table for supporting hides to be treated, means for supplying a seasoning compound to the surface of the hide, and a series of rubbing and pressure devices acting upon the surface of the hide, each of said devices comprising a plunger having a rubbing pad or head, an adjustable spring for yieldingly forcing the pad or head against the surface of the hide, and means for rotating the plunger and pad or head while so held against the hide.

10. In a machine for seasoning hides, the combination of a table for supporting the hides to be treated, and a rubbing-pressure device acting upon the surface of the hide, said device comprising a plunger having a rubbing pad or head, means for yieldingly forcing the pad or head upon the hide, devices for rotating the pad or head on an axis substantially at right angles to the surface of the hide while held against the same as described, and means for maintaining the portion of the hide being treated against the table to prevent the formation of wrinkles or folds.

11. In a machine for treating hides, the combination of a suitable supporting-frame, a carrying-plate pivotally connected thereto and carrying a series of rubbing-pressure devices, the pivotal connection of the carrying-plate with its supporting-frame being such that said plate may be swung upon its pivotal supports to turn the rubbing-pressure devices away

from the hide being treated, catches for normally maintaining the carrying-plate with the rubbing-pressure devices in operative position, and means for actuating said devices to cause them to press upon the hide and simultaneously subject the hide to a rubbing action with and against the grain.

12. In a machine for treating hides, the combination of a table adapted to support a hide, means for applying to the surface of the hide a seasoning compound or fluid, means for treating the surface of the hide to a combined rubbing and pressing action, the rubbing action operating in directions with and against the grain of the hide, devices for yieldingly maintaining the portion of the hide being treated to the combined rubbing and pressing action to prevent the formation of wrinkles or folds, and means for moving the table and hide carried thereby past the rubbing and pressing means and maintaining devices during the treatment specified.

In testimony whereof I have hereunto affixed my signature this 27th day of August, A. D. 1903.

HUGH F. DOUGHERTY.

Witnesses:
WILLIAM H. GIBBONS,
RUFUS STEWART.