(No Model.) 3 Sheets—Sheet 1.

W. EVANS.

HIDE AND SKIN MACHINERY.

No. 592,952. Patented Nov. 2, 1897.

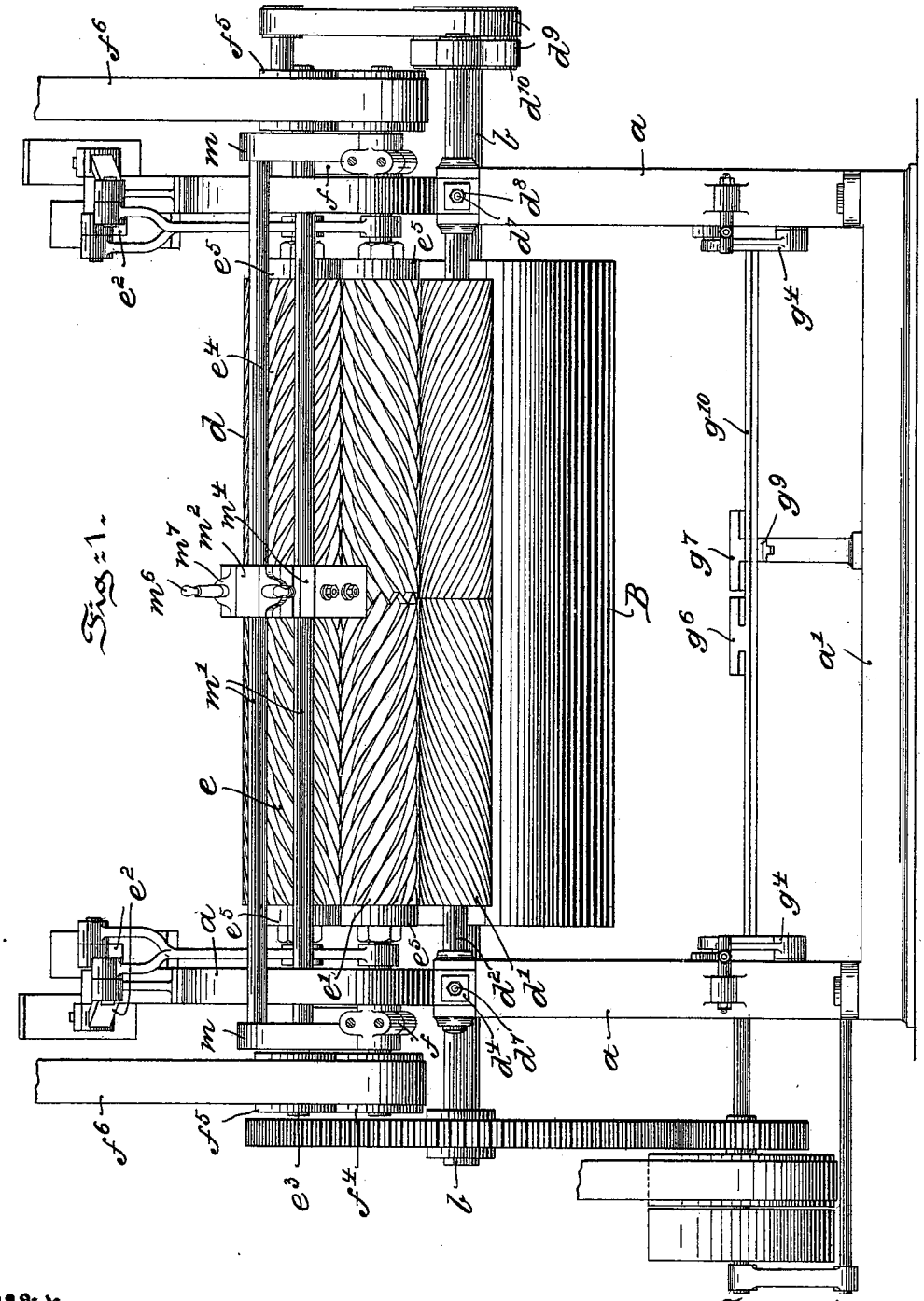


Fig. 1.

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Fig. 3.

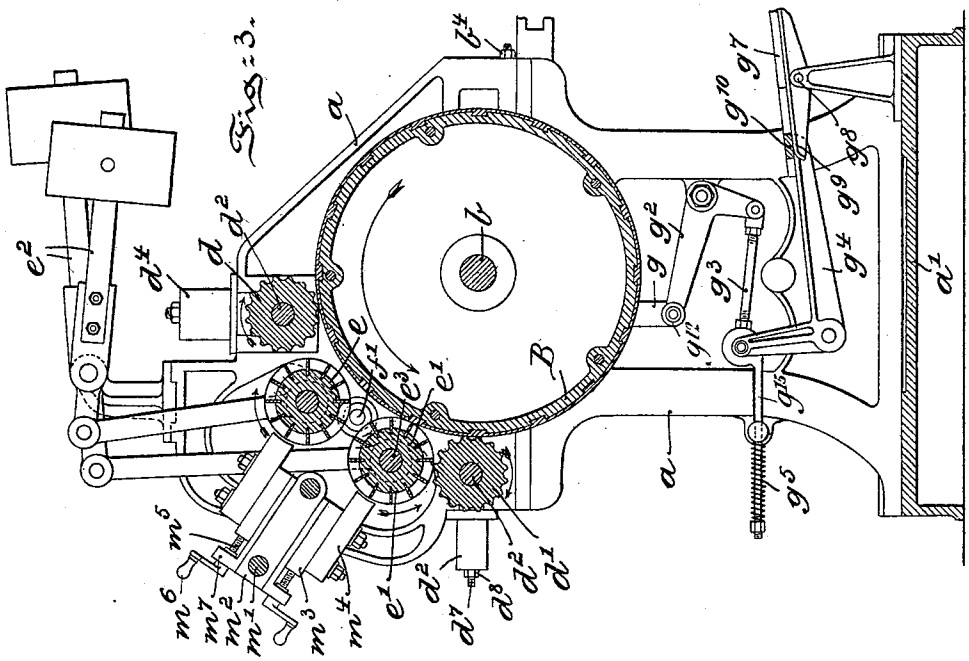
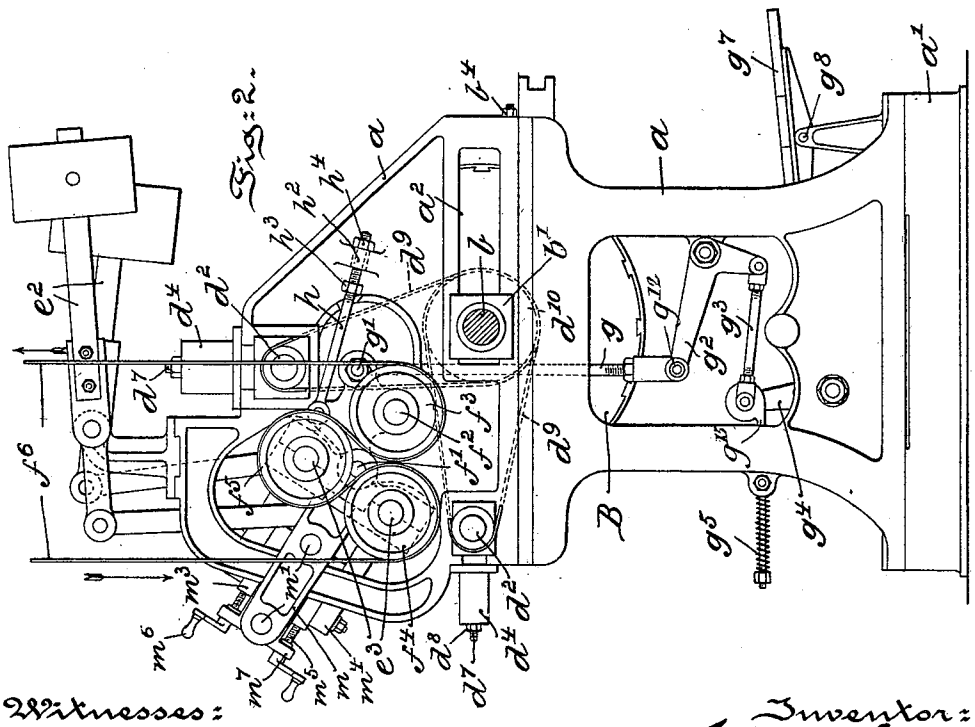


Fig. 2.



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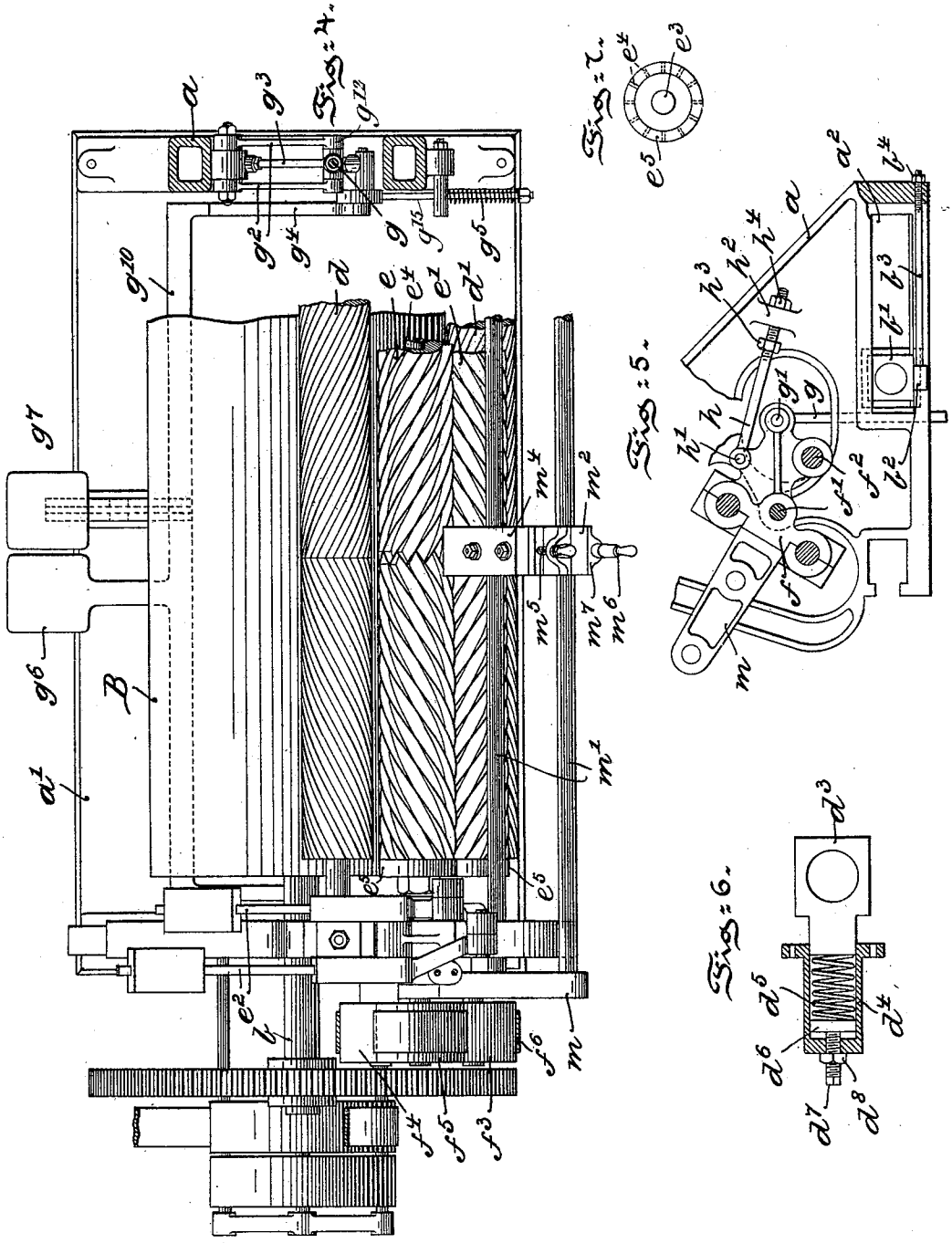
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UNITED STATES PATENT OFFICE.

WILLIAM EVANS, OF PHILADELPHIA, PENNSYLVANIA.

HIDE AND SKIN MACHINERY.

SPECIFICATION forming part of Letters Patent No. 592,952, dated November 2, 1897.

Application filed January 13, 1897. Serial No. 619,040. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM EVANS, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented cernew and useful Improvements in Hide and Skin Machines, of which the following is a specification.

My invention has relation to a machine for fleshing, cleansing, or shaving hides, skins, or leather, and for analogous purposes; and it relates particularly to the construction and arrangement of such a machine.

The principal objects of my invention are, first, to provide a machine having two finishing-rolls whereby a hide or skin may be fleshed, cleansed, shaved, or otherwise treated from end to end at one and the same operation and without removing the hide or skin from the machine or reversing the operation of the machine by bringing each finishing-roll successively down into operative position with respect to the hide or skin; second, to provide in such a machine a drum upon which the hide or skin is mounted or supported, two fleshing, shaving, or finishing rolls or cylinders adapted to be alternately brought down upon the hide or skin on the drum, and two gripping and feed rollers between which the rolls or cylinders rotate, said grip and feed-rollers resting normally upon the drum; third, to provide in such a machine, in connection with the fleshing, shaving, or finishing rolls or cylinders, a treadle arrangement for each roll or cylinder so connected that when one of the rolls or cylinders, is depressed the other will be simultaneously elevated, and vice versa; fourth, to provide in such a machine, in connection with the grip and feeding rollers, a spring-bearing normally adapted to force each roller toward the drum; fifth, to provide in such a machine a drum upon which the hide or skin is adapted to be supported and means for adjusting and setting said drum toward or away from the fleshing, shaving, or finishing rolls or cylinders; sixth, to provide in such a machine, in connection with the two fleshing, shaving, or finishing rolls or cylinders, a bracket or frame forming the bearings for the shafts of said rolls or cylinders and pivoted to the main frame of the machine, a treadle-rod adapted to rock said bracket upon its pivot and to thereby bring each roll or cylinder alternately toward or away from the drum, and a stop adapted to limit the rocking movement of said bracket; seventh, to provide in such a machine, in connection with the two rolls or cylinders and their swinging supports, two longitudinally-arranged rods carried by said supports and two grinding-blocks carried by said rods and each adapted to traverse the periphery of one cylinder to sharpen the blades of the same, said grinding-blocks being maintained in fixed relationship with respect to the said rolls or cylinders, and, eighth, to provide in such a machine, in connection with the two rolls or cylinders and the drum, a collar located at each end of each roll and projecting flush or substantially flush with the periphery of the blades of the roll, whereby accidental chipping or other damage by said rolls or cylinders to the drum or bed is prevented and at the same time each roll or cylinder may have two points of frictional contact with said drum or bed, all of which is highly advantageous in machines wherein the drum or bed is hard or composed of comparatively hard material.

My invention, stated in general terms, consists of a machine for treating hides, skins, leather, or analogous materials, constructed and arranged in substantially the manner hereinafter described and claimed.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a rear elevational view of a machine embodying main features of my invention. Fig. 2 is an end elevational view thereof. Fig. 3 is a cross-sectional view of the machine. Fig. 4 is a top or plan view of the machine, certain portions thereof being broken away. Fig. 5 is a side elevational view of the swinging support for the rolls or cylinders and of the means for adjusting the drum. Fig. 6 is an enlarged side view, partly sectioned, of the spring-bearing for one of the grip and feed rollers; and Fig. 7 is a detail view of one end of a cylinder or roll, showing the collar flush with the blades of said cylinder or roll.

Referring to the drawings, a represents the standards or frame of the machine, preferably mounted upon a base a'. In the frame a is supported a shaft b, having mounted thereon a drum B, upon which the hide or skin is adapted to be mounted when being worked in the machine. The shaft b is provided with bearing-blocks b', adapted to slide in a slot or recess a^2 of the frame a, and each block b' is provided with an ear or lug b^2, to which is secured one end of a bolt b^3, the other end of the bolt passing through the frame a, as indicated in Fig. 5 of the drawings. The bolt b^3 and the block b' may be advanced and retracted in the frame a, and thus the shaft b and the drum B can be adjusted and set by the jam-nut b^4 in the frame a of the machine.

Upon the drum B are adapted to rest two gripping and feeding rollers d and d', revolving in opposite directions, as indicated by the arrows in Fig. 3, and at a speed proportionately the same as that of the drum B. Each roller d or d' has its shaft d^2 mounted in a box d^3, which is guided in a sleeve or cap d^4, and between the sleeve d^4 and the box d^3 is interposed a spring d^5, substantially as shown in Fig. 6. The tension of this spring d^5 is preferably regulated by means of the plug d^6 and bolt d^7, adapted to be advanced or retracted in the cap or sleeve d^4, the jam-nut d^8 serving to prevent movement of said bolt.

Between the two gripping-rollers d and d' are arranged two fleshing, shaving, or working rolls or cylinders e and e', as shown clearly in Fig. 3. These cylinders are each suspended from counterweighted or counterpoised arms or levers e^2, so that the cylinders may be moved down upon the work without backlash or slip. Each cylinder or roll is provided with blades e^4, and at either end of the roll or cylinder is located a collar e^5, having a smooth periphery flush or substantially flush with the upper edges of the blades e^4. These collars e^5 are adapted to rest upon the drum B and to prevent thereby chipping or other damage to the drum by the blades e^4, and they also permit of two points of frictional contact between the drum and the rolls or cylinders. The shafts e^3 of these cylinders have their bearings in brackets or frames f, each of which is pivoted, as at f', to the frames or standards a of the machine.

Each bracket f is adapted to be oscillated respectively by a link g, which is pivoted, as at g', to the bracket f, and, as at g^{12}, to a double-armed angle-lever g^2, pivotally supported at either end of the machine in the framework a. The free end of the angle-lever g^2 is pivotally connected by a rod g^3 with one end of a second angle-lever g^4. From the pivotal connection of the rod g^3 with the lever g^4 extends an arm g^{15}, sliding in the frame a, and normally retracted by a spring g^5, as clearly indicated in Figs. 2 and 3. The angle-levers g^4 are pivoted at either end of the machine and are connected at their free ends by means of a cross-rod g^{10}, which carries the treadle-piece or foot-rest g^6. The oscillating brackets f are limited in their motion by means of the rod h, one end of which is pivoted to the bracket, as at h', while the other end is passed through an ear h^2 of the frame a. This end of the rod h is threaded to receive two nuts h^3 and h^4, one on either side of the ear. By advancing or retracting the rod h the brackets and the cylinders may be adjusted with regard to their operative position upon the drum B, and by adjusting the nuts h^3 and h^4 the range or swing of movement of the bracket, and consequently of the cylinders, is controlled.

At either end of the machine each of the brackets f is provided with a short stud f^2, upon which is adapted to rotate an idle-pulley f^3. The shafts e^3 of the cylinders at either end of the machine are also provided with driving-pulleys f^4 and f^5. To drive the pulleys f^4 and f^5 from a common main driving-pulley, the driving-belt f^6 is passed under the pulley f^4, over the pulley f^5, and under the idle-pulley f^3, as shown in Fig. 2. By this arrangement the bracket may oscillate without tension or strain upon the belt, since the driving-pulleys f^4 and f^5 are on one side of the fulcral point f' and the idle-pulley f^3 on the other side thereof, and hence an elevation of the pulleys f^4 and f^5 causes a corresponding depression of the pulley f^3, and vice versa.

Secured to each bracket f or integral therewith is an obliquely-arranged frame m. The two frames m are connected by the cross-rods m', and upon these cross-rods m' slides a carriage m^2, having on its upper and lower faces a slide m^3, to which is secured a grinding-block m^4, of emery or the like. Each sliding block m^3 is advanced or retracted on the carriage m^2 by means of a threaded bolt m^5, operated by a crank or handle m^6, which is supported on an extension m^7 of the carriage. By thus mounting the carriage m^2 and grinding-blocks m^4 upon the cross-rods m' the grinding mechanism for each cylinder is always in fixed relationship thereto and any movement of the cylinders is imparted by the frame m to the cross-rods m', carriage m^2, and blocks m^4. Hence no matter what the position of the cylinders with respect to the drum B the blades e^4 of the cylinders may be sharpened and trued and the collars e^5 may be turned or ground down by the grinding-blocks.

The treadle or foot-piece g^6 is placed alongside of an auxiliary treadle or foot-piece g^7, pivoted as at g^8, and having an arm or finger g^9, resting under the cross-rod g^{10}, which connects the angle-levers g^4 at either end of the machine. When now the angle-levers and cross-rod g^{10} are depressed by depressing the treadle g^6, the auxiliary treadle g^7 will be elevated, and by depressing this auxiliary treadle g^7 the other treadle g^6 will be elevated. The depression of the treadle g^6 will, through the angle-levers g^4 and g^2, depress the links g,

which in turn will oscillate the brackets *f* in their pivotal supports, so that the upper cutter or fleshing-cylinder *e* is depressed and the lower cylinder *e'* elevated with respect to the drum B. The depression of the treadle g^7 reverses the movement to the brackets *f*, so that the lower cylinder *e'* is depressed and the upper cylinder *e* elevated with respect to said drum.

The two cutter, fleshing, or finishing rolls or cylinders *e* and *e'* rotate in opposite directions, as indicated by the arrows in Fig. 3, and are moved into alternate engagement with the hide or skin on the drum B by the movement of the brackets *f*, which is controlled by the treadles g^6 and g^7. In their normal position the upper cylinder *e* is elevated above the drum or in inoperative position, as shown in Fig. 3, while the other cylinder is almost in contact with the drum or in operative position with respect to said drum. By depressing the treadle g^6 the position of the two cylinders is reversed, since the brackets *f* are oscillated in a downward direction by the links *g* and the parts connecting said links with the treadle g^6. When now the treadle g^7 is depressed, the treadle g^6 will be elevated and the two cylinders will be brought to their original position by the upward movement of the brackets *f*. The shafts of the gripping-rollers *d* and *d'* are each preferably driven by a belt d^9 from a driving-pulley d^{10} on the shaft *b* of the drum B, and the drum B and rollers *d* and *d'* rotate at a speed much less than that imparted to the cylinders *e* and *e'*.

In operation, supposing the cylinders to be in the position indicated in Fig. 3, a hide is placed on the drum B and fed by the grip-roller *d* toward the cylinder *e*. The treadle g^6 is now depressed to bring the cylinder *e* down upon the hide, which is shaved or finished thereby, until its shaven or finished end reaches the second grip-roller *d'*. The treadle-lever g^7 is now depressed to bring the second cylinder *e'* down upon the hide and to elevate the other cylinder into inoperative position. The cylinder *e'* now shaves or finishes the remainder of the hide or skin, when a second hide or skin may be introduced and the operation continued. It will thus be seen that a hide or skin may be completely finished at one operation without reversing the skin or the movement of the machine, and hence much time, labor, and expense are saved. Again in certain hides which are split down the backbone the first cylinder may be used to remove the backbone and the second cylinder to finish the hide from end to end.

It will be manifestly obvious to those skilled in the art to which my invention appertains that as to details modifications may be made therein without departing from the spirit or scope thereof, and hence I do not wish to be understood as limiting myself to the precise construction and arrangement of all the parts as hereinbefore explained and illustrated; but,

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character described, a drum upon which the hide or skin is supported, two finishing rolls or cylinders, means for depressing one of said rolls or cylinders and elevating the other, whereby each roll or cylinder may be brought alternately into operative position with respect to the hide or skin on said drum and two gripping and feeding rollers between which said rolls or cylinders are adapted to rotate, said rollers being normally pressed against the drum, substantially as and for the purposes described.

2. In a machine of the character described, a drum upon which the hide or skin is supported, two finishing rolls or cylinders, and a treadle mechanism adapted to raise and depress said rolls or cylinders and arranged so that upon the alternate elevation of each, the other of said rolls or cylinders will be depressed with respect to said drum, substantially as and for the purposes described.

3. In a machine of the character described, two finishing rolls or cylinders each carried by a shaft, two brackets each of which forms the bearings for either end of the shafts, each bracket being pivotally supported at the end of the machine, and means for oscillating each bracket on its support, whereby one of said rolls or cylinders may be depressed and the other simultaneously elevated, substantially as and for the purposes described.

4. In a machine of the character described, a drum, two finishing-rolls each carried by a shaft, a bracket pivoted at one end of the machine and carrying the shafts of the rolls or cylinders, and a treadle mechanism adapted to oscillate said bracket and thereby bring one roll into operative position and the other roll simultaneously into inoperative position with respect to the drum, substantially as and for the purposes described.

5. In a machine of the character described, two finishing-rolls, brackets supporting said rolls, means for oscillating said brackets, cross-rods carried by said brackets, a carriage adapted to slide on said cross-bars, two grinding-blocks carried by said carriage, each adapted to traverse the periphery of one roll, and means for feeding said blocks toward or away from said rolls, said blocks being maintained by said cross-rods in fixed relationship with respect to said rolls, substantially as and for the purposes described.

6. In a machine of the character described, two finishing-rolls, pivoted brackets forming the bearings for said rolls, an idle-pulley carried by one of said brackets on one side of its pivotal support, pulleys adapted to drive said rolls and located on the other side of the pivotal support of said brackets, and a driving-belt passed around the driving and idle

pulleys, substantially as and for the purposes described.

7. In a machine of the character described, a drum and two fleshing, shaving or finishing rolls or cylinders, each of said cylinders being provided with blades terminating at either end in a collar having a smooth periphery flush or substantially flush with the upper edges of the blades of said rolls or cylinders, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

WILLIAM EVANS.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.