

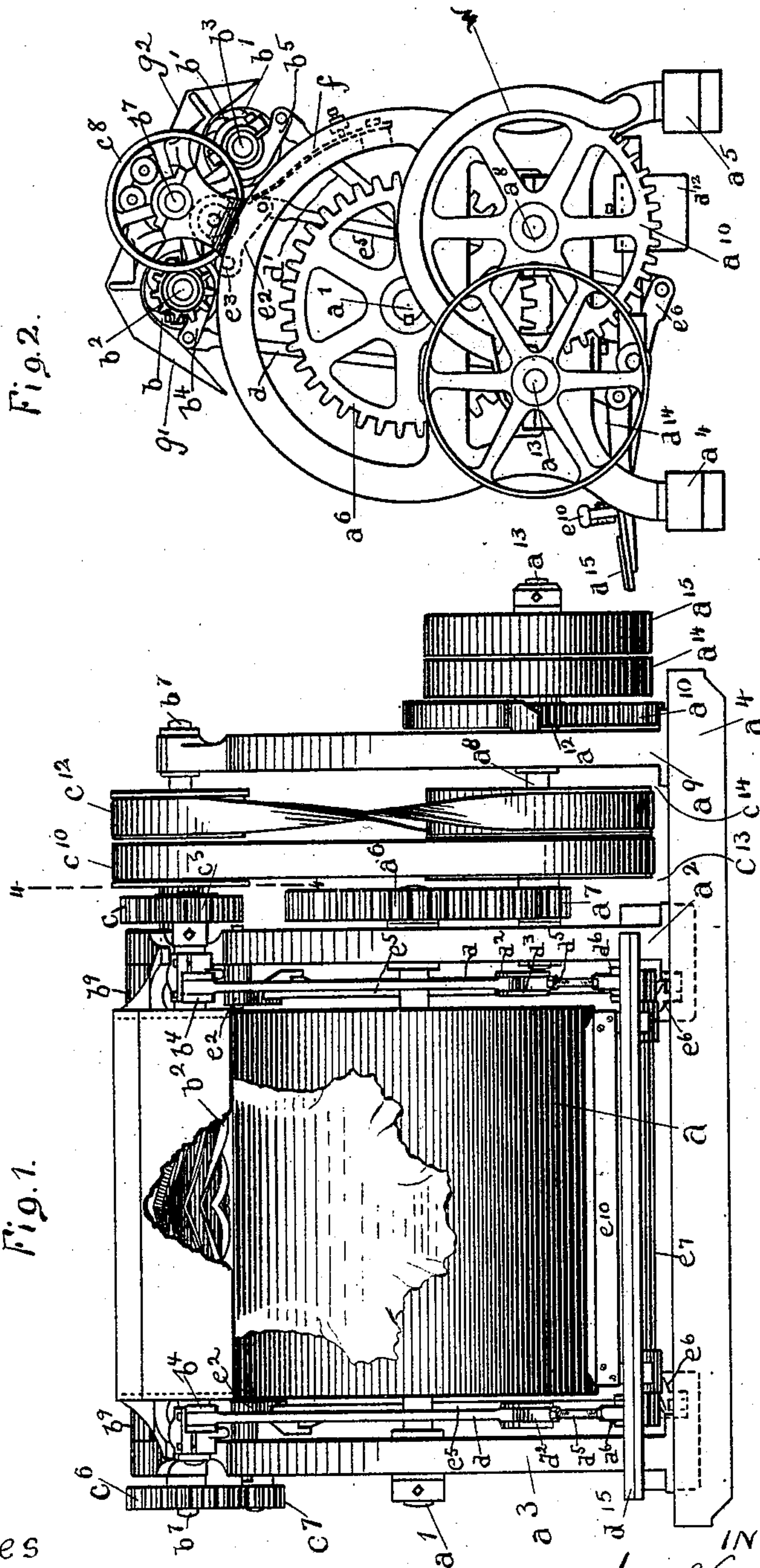
(No Model.)

2 Sheets—Sheet 1.

I. VAUGHN.
LEATHER WORKING MACHINE.

No. 539,104.

Patented May 14, 1895.



Witnesses
Chas. F. Stackpole.
W. F. Crowley.

INVENTOR
Ira Vaughn
By Jas. H. Churchill
Attorney.

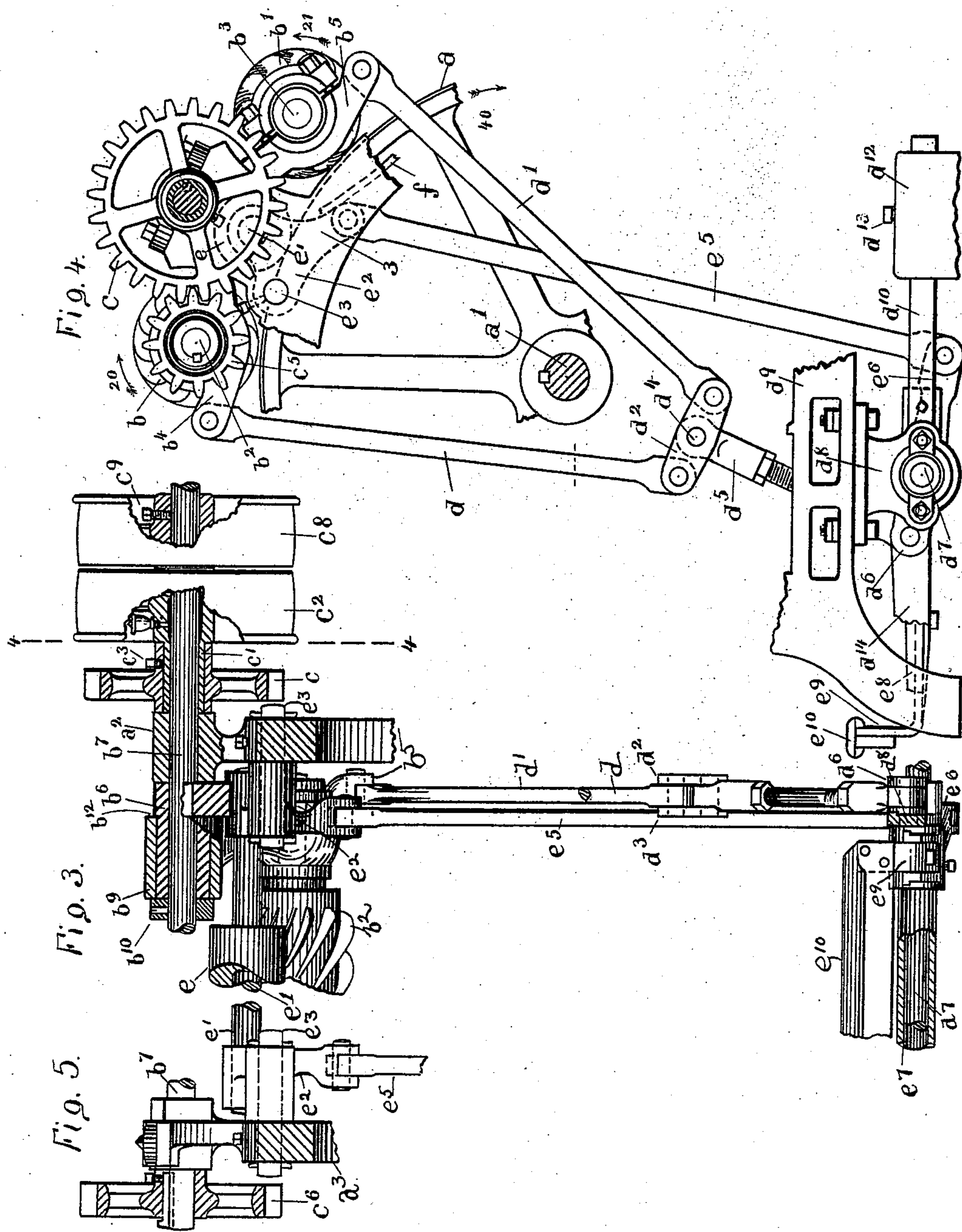
(No Model.)

2 Sheets—Sheet 2.

I. VAUGHN.
LEATHER WORKING MACHINE.

No. 539,104.

Patented May 14, 1895.



Witnesses:

Chas F. Stackpole.
M. F. Crowley.

Inventor:

Ira Vaughn
by Jas. H. Churchill
Attorney.

UNITED STATES PATENT OFFICE.

IRA VAUGHN, OF SALEM, MASSACHUSETTS, ASSIGNOR TO THE VAUGHN MACHINE COMPANY, OF PORTLAND, MAINE.

LEATHER-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 539,104, dated May 14, 1895.

Application filed November 2, 1894. Serial No. 527,722. (No model.)

To all whom it may concern:

Be it known that I, IRA VAUGHN, of Salem, county of Essex, and State of Massachusetts, have invented an Improvement in Leather-Working Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

10 This invention relates to a machine or apparatus for treating skins or hides and is especially designed to effect a more rapid working of the skin or hide than machines as heretofore made and known to me.

15 In accordance with this invention, the whole of one side of the skin or hide is acted upon in one continuous operation, and to accomplish this result the hide or skin is carried by a table or support, preferably made in the form of a cylinder or drum, which for the best results travels in one direction, and has co-operating with it preferably two or more operating devices, preferably knife or blade-carrying rolls. The drum or support also has co-operating with it one or more binding or feed rolls, preferably located between the knife carrying rolls. The movable drum or support may and preferably will be supported in fixed bearings, and the operating knife-carrying rolls, and the binder and feed roll may and preferably will be movable with relation to the drum or support or vice versa. These and other features of this invention will be pointed out in the claims at the end of this specification.

35 Figure 1 is a front elevation, partially broken out, of a machine embodying this invention; Fig. 2, an end elevation of the machine shown in Fig. 1, looking toward the left; Fig. 3, a detail in elevation and section, on an enlarged scale, of parts of the machine shown at the right in Fig. 1; Fig. 4, a sectional detail, on an enlarged scale, to be referred to, the section being taken on the line 44, Figs. 1 and 3; and Fig. 5, a sectional detail, to be referred to, of the left-hand position of the machine shown in Fig. 1, looking from the front side.

50 In the present embodiment of this invention, I have chosen to illustrate the support for the hide or skin as fixed, with relation to

the operating devices and the co-operating devices as movable bodily toward and from the said support. The support for the hide or skin may and preferably will be made as a cylinder or drum a , mounted in any suitable or desired manner on a shaft a' having bearings in uprights $a^2 a^3$ constituting part of the frame work of the machine, the said uprights being preferably made open as shown in Fig. 2. The uprights $a^2 a^3$ may be supported on stringers, beams or timbers $a^4 a^5$, or on any other suitable foundation.

The drum or support a is designed to travel preferably in one direction, although, if desired it may be made to travel in reverse or opposite directions. In the present instance, the drum a is designed to be rotated in one direction, which may be accomplished by a driving mechanism, preferably of the construction herein shown, the said mechanism consisting of a gear a^6 fast on the shaft a' , at one end of the drum, and pinion a^7 in mesh with said gear and fast on one end of a counter-shaft a^8 , having bearings in the upright a^2 , and in an upright a^3 . The shaft a^8 , outside of the upright a^3 has fast on it a gear a^{10} , which meshes with the pinion a^{12} fast on a shaft a^{13} suitably supported in bearings in the upright frame a^9 . The shaft a^{13} may and preferably will constitute the main or driving shaft for the machine, and in the present instance the said shaft has mounted upon it a fast pulley a^{14} , and a loose pulley a^{15} , which in practice are designed to be connected by a suitable belt not shown with a suitable power shaft.

From the above description, it will be seen that rotation of the shaft a^{13} produces rotation of the shaft a^8 by means of the pinion a^{12} and gear a^{10} , and the rotation of the shaft a^8 produces rotation of the drum a by means of the pinion a^7 and gear a^6 . The drum or support a has co-operating with it preferably a plurality of operating devices, herein shown as two in number and preferably made in the form of cylindrical rolls $b b'$, (see Figs. 2 to 4,) the said rolls carrying vanes or blades b^{20} , and for the best results I prefer to make the operating rolls substantially such as shown and described in United States Patent No. 344,069, dated June 22, 1886. As above specified, the operating rolls $b b'$, are movable with

relation to the drum a , and this result may and preferably will be accomplished after the manner herein shown and as will now be described. The operating rolls b b' , are fast upon shafts b^2 b^3 , having bearings in suitable boxes which are supported by pivotal arms or levers b^4 b^5 , there being two arms b^4 supporting the shaft b^2 near its opposite ends, and two arms or levers b^5 supporting the shaft b^3 near its opposite ends. Inasmuch as the construction of these movable levers is the same at both ends of the machine, a detailed description of but one end will suffice in order to enable the working of the apparatus to be readily understood.

Referring to Figs. 3 and 4, the arm or lever b , is provided with a hub b^6 loosely mounted on a shaft b^7 extended the length of the machine and supported in the three uprights a^3 , a^2 , a^9 , as shown in Fig. 1. The hub b^6 of the lever b^4 has loosely mounted on it a hub b^9 of the lever or arm b^5 , and the hub b^6 is prevented from having longitudinal movement on the shaft b^7 by means of a collar b^{10} fast on the shaft b^7 (see Fig. 3) and between which and the upright a^2 , the hub b^6 is located. The hub b^6 for a portion of its length is made of smaller diameter so as to form a shoulder b^{12} between which and the collar b^{10} , the hub b^9 of the lever b^5 is confined. The operating rolls b , b' , are rotated in opposite directions, as for instance, the roll b may be supposed to be rotating in the direction indicated by arrow 20, Fig. 4, and the roll b' may be supposed to be rotating in the direction indicated by arrow 21, in said figure. The rotation of roll b may be effected as herein shown, by the means of a gear c fast on an extended hub c' , of a pulley c^2 , loose upon the shaft b^7 , the gear c being represented in the present instance as made fast on the hub c' , by a set screw c^3 . The gear c meshes with a pinion c^5 fast on the roll shaft b^2 . (See Fig. 4.) The shaft b^7 at the opposite or left hand side of the machine, viewing Fig. 1, has fast on it a gear c^6 , which meshes with a pinion c^7 fast on the left hand end of the roll shaft b^3 . The shaft b^7 has fast on it at the right hand end of the machine, a pulley c^8 , shown as secured on the shaft b^7 by the set screw c^9 . The pulleys c^2 , c^8 , are designed to be connected by belts c^{10} , c^{12} , with fast pulleys c^{13} , c^{14} on the shaft a^{13} , the belt c^{10} being shown as a straight belt, and the belt c^{12} , being shown as a cross belt, whereby the operating roll b' , may be rotated in the reversed direction from the operating roll b . The operating rolls b , b' , as above set forth are adapted to be moved toward and away from the drum, which may and preferably will be accomplished after the manner herein shown.

Referring to Fig. 4, the roll supporting levers b^4 , b^5 , have their outer ends joined by connecting rods d , d' , to a pivoted cross-head preferably composed of two links or bars d^2 , d^3 , pivoted at or near their center as at d^4 , to one end of the preferably extensible rod or

link d^5 , having its other end pivotally connected to a crank or arm d^6 , on a treadle or rock shaft d^7 , supported as herein shown in suitable hangers d^8 depending from cross bars d^9 of the uprights a^2 , a^3 . The rock shaft d^7 , has also secured to it a crank or arm d^{10} , provided with a counterbalancing weight d^{12} for the operating rolls b b' , said weight being preferably made adjustable on the crank or arm d^{10} , as by set screw d^{13} . The rock shaft d^7 also is provided with cranks or arms d^{14} , extended toward the front of the machine, and to which is secured a cross piece or board d^{15} , forming a foot treadle by which the operator may rock the shaft d^7 so as to move the operating rolls b , b' , into contact with the drum or the skin thereon. The drum a has further co-operating with it a binding or feed roll e . Represented by dotted lines in Fig. 4 and by full lines in Fig. 3.

The binding roll e , may be of any suitable construction and is mounted on shaft e' , extended longitudinally across the machine between the operating rolls b , b' , and supported at its ends in levers or arms e^2 , pivoted as at e^3 , to the frame work of the machine, the shaft e' , as represented in Fig. 4, being supported by a short arm of the said lever, while the long arm 3, is connected by a rod or link e^5 to a crank or arm e^6 extended rearwardly from a sleeve e^7 mounted on the treadle shaft d^7 , the said sleeve as herein shown, being provided with arms e^8 extended toward the front of the machine and provided with upright portions e^9 to which a cross or foot bar e^{10} is secured, the said cross or foot bar forming a supplemental foot treadle, by which the binder or feed roll may be removed from out of contact with the drum a .

By reference to Figs. 1 to 4 inclusive, it will be seen that the normal position of the operating rolls b , b' , is away from the drum a , the said rolls being thus removed by the counterweight d^{12} , which rocks the shaft d^7 so as to turn the levers or arms b^4 , b^5 upward, viewing Fig. 4, but when the foot treadle d^{15} is depressed by the operator, the rock shaft d^7 is moved so as to bring the rolls b , b' , toward the drum a .

The normal position of the binder or feed roll e is in contact with the drum a as represented in Fig. 4, the said roll being thus maintained in contact with the drum a , preferably by means of a spring f suitably secured to the frame work of the machine and acting on the arm 3 of the lever e^2 , to depress the arm 3, and thereby bring the binder roll e , in contact with the drum a . When the feed treadle e^{10} is depressed by the operator, the sleeve e^7 carrying the crank or arm e^6 is rocked in such direction as to turn the lever e^2 on its pivot e^3 , against the action of the spring f , and thereby raise the binder roll e , away from the drum. The binder roll e , is frictionally rotated by the drum a .

The operation of the apparatus herein shown may be briefly described as follows:

The hide or skin, which may be a light skin or a heavy hide, is taken by the operator and one end placed upon the drum a , which on its revolution in the direction indicated by arrow 40, Fig. 4, carries the end of the hide or skin placed upon it, under the binder or feed roll e , and when the hide or skin is grasped between the binder roll and the drum, the operator depresses the treadle d^{15} , and brings the operating rolls b, b' , into contact with the hide or skin to perform the particular work to which it is desired the hide or skin should be subjected, and for the purpose of illustration, it may be supposed that the hide or skin is to be unhaired. The operating roll b acts upon substantially the whole of the hide with the exception of that portion that has passed beyond it to the binder roll e , and the roll b' is brought in contact with this portion of the hide, that is, that portion which is unacted upon by the roll b is acted upon by the roll b' . The drum a makes a complete revolution, and in practice, it is designed that the drum a should be continuously revolving while the machine is in operation, so that as soon as one hide has been carried under the operating rolls b, b' , a new hide may be placed upon the drum a to follow the hide previously acted upon.

It will thus be seen that the whole of one side of the hide is acted upon in one operation, and also that the capacity of the machine is greatly in excess of those now commonly constructed and known to me, such for instance as shown in United States Patent No. 525,372, granted to me September 4, 1894. If in the treatment of a hide or skin, the operator should desire to remove a hide or skin after it has been partially treated, as for instance, if he has discovered that the hide was going to be imperfectly treated, he would remove the pressure upon the foot treadle d^{15} , and depress the treadle e^{10} . The removal of the pressure upon the foot treadle d^{15} , allows the counterbalance d^{12} , to remove the operating rolls b, b' , from engagement with the hide, and the depression of the treadle e^{10} removes the binder roll from the hide, leaving the latter free to be drawn off from the drum a , by the operator.

The apparatus herein shown is designed to have its drum a rotate continuously in one direction while the machine is in operation, but I do not desire to limit my invention in this respect as it is evident that a suitable driving pulley might be applied to the shaft a^{13} to effect a reverse movement or rotation of the drum a , if it should be so desired.

In some instances it may be found advantageous to carry the drum forward in one direction so as to act upon the complete hide and then reverse the drum in the opposite direction and act upon the complete hide, while traveling in the opposite direction. In both instances, that is, when the drum a , is made to rotate continuously in one direction or is reversed after the end of the hide has passed

beyond the operating roll b' , it will be noticed that the whole of one side of the skin is acted upon, thereby avoiding stopping of the machine and frequent handling of the hide, such as is the case in the operation of the machine shown in my Patent No. 525,372 above referred to.

The gear wheel a^{10} may and preferably will be provided with a guard w suitably attached to the upright a^9 , and the operating rolls b, b' may and preferably will be covered by suitable hoods g', g^2 .

I claim—

1. In a machine for treating hides or skins, the combination of the following instrumentalities, viz:—a traveling support for the hide or skin, a feed roll or device co-operating with the traveling support and between which and the said support, the hide or skin is fed, a rotatable operating device located on one side of the feed roll or device to act on the greater portion of the hide or skin as it passes to the feed roll, a second rotatable operating device located on the opposite side of the feed roll or device and rotatable in a reverse direction from the operating device on the opposite side of the feed roll and acting on the portion of the hide or skin unacted upon by the first operating device after it has passed the feed roll and while the said support is traveling in the same direction, and mechanism to reversely rotate said operating devices, the operating devices being in contact with the hide or skin at the same time during the travel of the said support, and the said operating devices and the traveling support being movable one with relation to the other, substantially as described.

2. In a machine for treating hides or skins, the combination of the following instrumentalities, viz:—a rotating drum of substantially large diameter upon which the hide is loosely laid, a feed or binding roll of smaller diameter co-operating with the said drum and the hide or skin laid thereon, a rotating operating roll located on one side of the binder roll and rotating in a direction opposite to the rotation of the drum to work against the travel of the hide or skin, a second operating roll located on the opposite side of the binder roll and rotating in an opposite direction to the first operating roll to work upon the hide or skin in the direction of its travel while the first operating roll is working on the hide or skin, and mechanism to produce the opposite rotations of the operating rolls, both of the operating rolls and the drum being movable one with relation to the other, substantially as described.

3. In a machine for treating hides or skins, the combination of the following instrumentalities, viz:—a rotating drum to support the hide or skin, a binding roll normally in contact with the said drum and rotated thereby, reversely rotating operating rolls to act on the hide or skin normally removed from the drum, and means to bring both of the said re-

versely rotating operating rolls toward the drum and into contact with the hide or skin being treated, to cause both rolls to act on the hide or skin during the travel of the drum in one direction and means to remove the binding roll from the drum to release the hide or skin, substantially as described.

4. In a machine for treating hides or skins, the combination of the following instrumentalities, viz:—a traveling support for the hide or skin, reversely rotatable operating rolls to act on different parts of the hide or skin while the support is traveling in one direction, a rotatable binder or feed roll intermediate of the said operating rolls and movable

bodily into and out of contact with the hide or skin, and mechanism to reversely rotate the operating rolls whereby that portion of the hide or skin unacted upon by one roll may be acted upon by the other roll on the passage in one direction of the hide or skin beneath the said rolls, substantially as described.

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

IRA VAUGHN.

Witnesses:

JAS. H. CHURCHILL,
M. F. CROWLEY.