(No Model.) 3 Sheets—Sheet 1.

T. J. QUINN.

LEATHER GRAINING MACHINE.

No. 556,162. Patented Mar. 10, 1896.

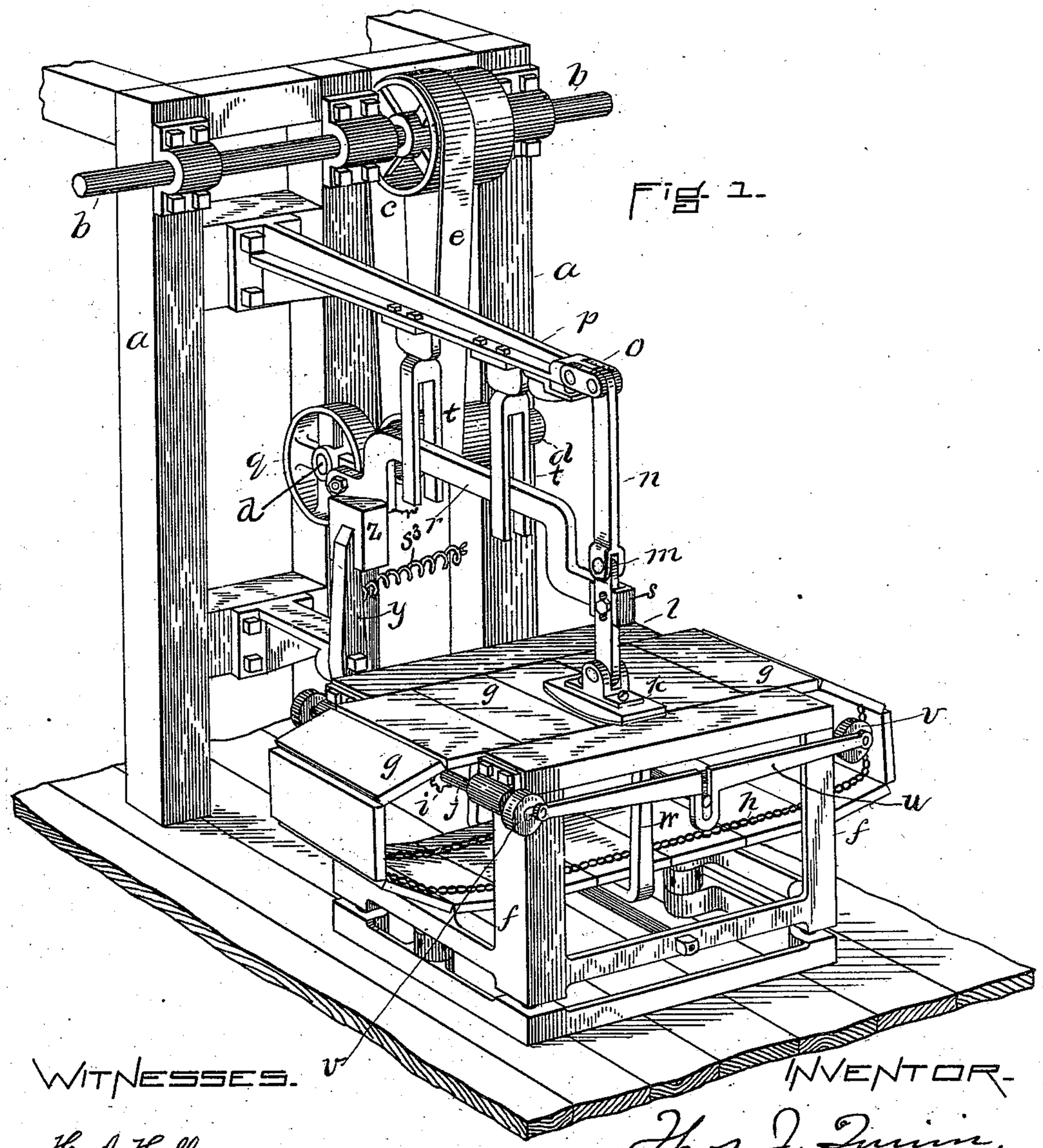

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

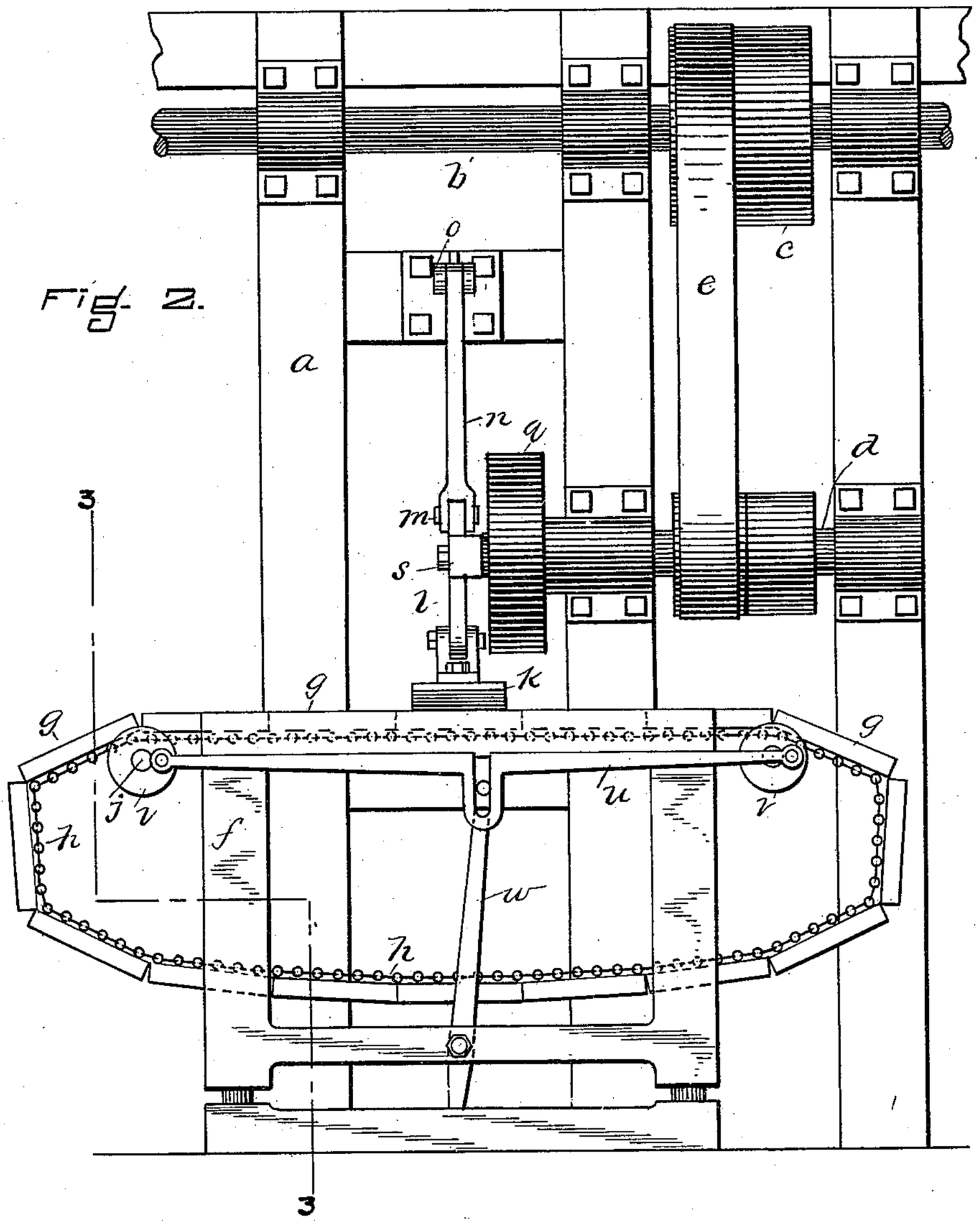

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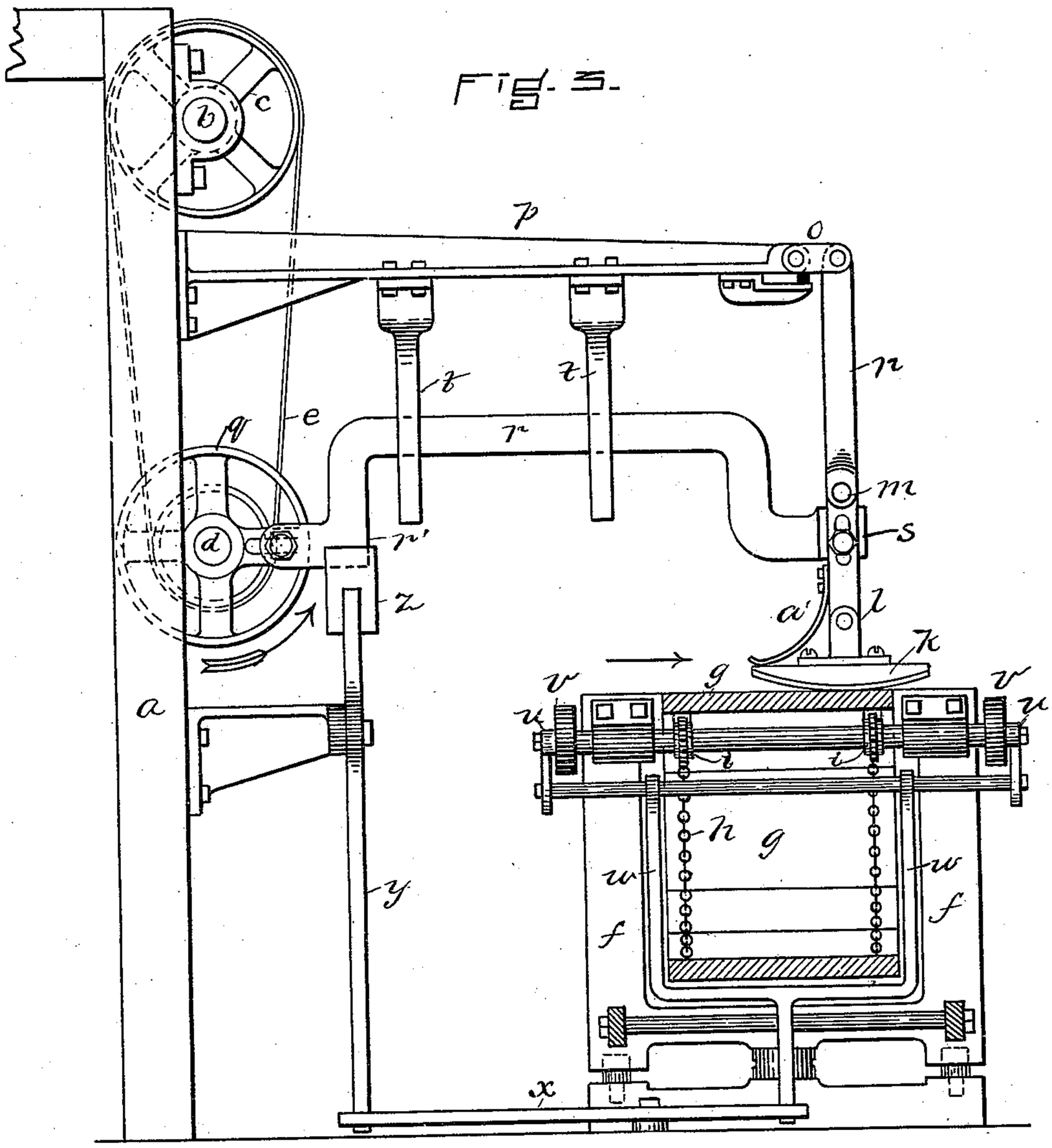
Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS J. QUINN, OF STONEHAM, MASSACHUSETTS.

LEATHER-GRAINING MACHINE.

SPECIFICATION forming part of Letters Patent No. 556,162, dated March 10, 1896.

Application filed June 13, 1892. Serial No. 436,446. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. QUINN, of Stoneham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Leather-Graining Machines, of which the following is a specification.

This invention has relation to means employed in the treatment of hides and skins in the process of boarding and graining the same, as is done in the treatment of leather made from split hides, goat and sheep skins, &c.

It is the object of the invention to provide a machine which shall be efficient in the highest degree in soft-boarding and springing up the grain of skins, and which shall accomplish this result by means simulating handwork in its results and mode of operation.

It is also the object of the invention to provide a machine for the purpose mentioned in the use of which it may be convenient in the highest degree to introduce and remove the skins, and in which the operation of boarding may be performed with great expedition.

To these ends the invention consists of a machine for the purpose mentioned comprising in its construction a sectional movable table and a movable graining-board adapted to operate on the skins placed upon the table, substantially as hereinafter described and claimed.

Reference is to be had to the annexed drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the said drawings, Figure 1 is a perspective view of the improved machine complete. Fig. 2 is a front or end elevation of the same. Fig. 3 is a sectional side view, the section being on the line 3 3 of Fig. 2.

In the drawings, *a* designates the main frame of the machine, which may be composed of any suitable material and of any form which may adapt it to perform its required functions.

b is a horizontal driving-shaft supported in bearings connected with uprights of the frame, connected with which shaft is a pulley *c*, around which and a pulley on a shaft *d* is passed a belt *e*, for the purpose of communicating motion from the former to the latter shaft.

f designates a frame which supports the bed of the machine, which bed is composed of cork, wood, or other suitable material, and is constructed in sections *g* connected by means of a chain *h* attached to their inner sides or faces, so as to form an endless belt or apron, which is passed about sprocket-wheels *i*, connected with shafts *j* arranged to rotate in bearings connected with the frame *f*. The chains *h* are connected only to the inner sides of the sections *g*, thus permitting the upper portions or rails of the frame *f*, which are flush with the surfaces of said sections, to closely fit the ends of said sections, whereby hides or skins may overlie the frame *f* and rest on the upper rails thereof, for the purpose hereinafter set forth.

k designates the graining-board, having its lower or working face made in the form of a segment of a circle, the said board consisting of a base of wood, cork, or other suitable material, having a facing of cork or other suitable yielding material. The graining-board *k* is pivoted to the lower end of a bar *l*, which is jointed at *m* to a similar bar *n*, which latter device is connected at its upper end through the medium of a link *o* to the outer end of an arm or bracket *p*, supported by the frame *a*.

q is a wheel affixed upon the shaft *d* and provided with a wrist or crank pin whereby it is pivotally connected with a pitman or bar *r*, provided at its forward end with a vertically-arranged guideway *s*, in which the bar *l* is adapted to move and by which it may be guided vertically.

t designates pendent arms or brackets affixed to the arm *p* and slotted at their lower ends or in their lower parts, in which slots the pitman *r* is adapted to be moved and guided.

With the construction thus far described it will be seen that if the machine were to be set in motion the graining-board *k* would be moved across the sectional table through the medium of the wheel *q* and connections therewith and with the arm *p* with a motion simulating in operation and effect that of the human arm, the joint between the bars *l* and *m* serving the office of the elbow, and the link connection of the upper end of the bar *n* with

the arm or bracket *p* performing the functions of the shoulder-joint.

The gravity of the graining-board and its connections serve to keep said board down upon the table with the requisite force.

I have described the table as being made in sections and in the form of an endless apron passed around the sprocket-wheels *i* on the shafts *j*, between which shafts the table is supported upon suitable tracks. This construction and arrangement of parts is provided in order that a step-by-step movement may be imparted to the sectional table under the graining-board to bring the skins which may be placed on the sections of the table into position successively to be acted upon by the board.

I may employ variously-constructed means for moving the sectional table in proper time, such as a "Geneva stop" or a pawl-and-ratchet movement actuated by gearing from the shaft *d* or any other suitable means. As herein shown, I accomplish the step-by-step movement of the table through the means of rods *u* pivoted at their ends upon crank-pins projecting from the sides of disks or wheels *v*, secured on the ends of the rods or shafts *j*.

A forked lever or yoke *w* fulcrumed on the frame of the machine has a pin-and-slot connection at its upper end with the rods *u*, and is adapted at its lower end to be engaged and moved by a lever *x*, which at its opposite end is engaged and adapted to be moved by the lower end of a lever *y*, on the upper end of which is a block *z*, having its inner face inclined or cam-shaped, as shown in Fig. 1, so that as the pitman *r* is reciprocated a shoulder *r'* thereon may engage the said inclined face of the said block and actuate the lever *y*, rods *u*, and intermediate connections, turning the shafts *j* and carrying the table along to the extent of the width of one of the sections thereof. The momentum of the table will carry the crank-pins of the disks *v* past "dead-center," so that at the next movement of the lever or yoke *w* the said disks may be turned. A spring s^3, properly constructed and arranged, may be provided for actuating the said levers in the opposite direction.

A spring *a'*, Fig. 3, may also be provided and arranged so as to bear upon the inner end of the graining-board to hold it normally down upon the table, giving the board a rocking motion.

The bars *l* and *n* may be rendered adjustable at their point of joining, as shown, in order to suit the action of the graining-board to varying circumstances.

In the use of the invention a skin in doubled position may be placed upon the advancing sections of the table, so as to be subjected to the action of the graining-board as it passes thereunder, and when a section of the table is moved from under the graining-board the skin thereon passes along with the bench or table until changed in different position on an advancing section to be again acted upon by the graining-board until it is finished. In this way a single operator may be enabled to do as much or more work than could be done by one were the table made stationary and it made necessary to have the operator move the skin along while the machine was in motion, if desired.

The action of the graining-board upon the skins being, as before stated, similar to that of handwork, I am enabled by my invention to soft-board skins, so as to soften, spring up and tone the grain to a degree even superior to that accomplished by handwork. I also claim that this machine will wet-grain a goat-skin equal, if not superior, to the average workman now employed for that purpose and that it will do double the quantity.

The graining-board *k*, being movable at a right angle to the path of movement of the skins on the table, does not interfere with the movement of said table by either retarding or accelerating such movement. Furthermore, the upper portions or rails of the frame *f* form fixed tables each side of the movable table and flush therewith, thus permitting skins to extend thereover and be held thereon when the attendant wishes the skin to be prevented from moving with the sections *g*. These fixed tables or rails, as shown in Figs. 1 and 3, are entirely free from any superstructure or other obstructions to the overlapping of the skins for the purpose above stated. In other words, the entire structure of the frame *f* is flush with or below the level of the movable table.

What I claim is—

1. A machine for treating hides and skins, comprising in its construction an endless movable table formed of sections hingedly connected to each other solely at their inner sides, fixed rails or tables for supporting the skins each side of the movable table, said fixed rails being entirely free from obstructions to the passage of skins thereover, a movable graining-board, and means for reciprocating said graining-board in a direction at a right angle to the path of movement of said sections, substantially as described.

2. A machine for treating hides and skins, comprising in its construction an endless movable table formed of sections hingedly connected to each other solely at their inner sides, fixed rails or tables for supporting the skins each side of the movable table, said fixed rails being entirely free from obstructions to the passage of skins thereover, a movable graining-board, a pitman for actuating the graining-board, connections between the graining-board and pitman, and elbow and shoulder joints in said connections, the pivots of the connections and joints being parallel with the path of movement of the sections, and the pitman being at a right angle to said path, substantially as described.

3. A machine for treating hides and skins,

comprising in its construction an endless movable table formed of sections hingedly connected to each other solely at their inner sides, fixed rails or tables for supporting the skins each side of the movable table, said fixed rails being entirely free from obstructions to the passage of skins thereover, a movable graining-board, means for reciprocating said board in a path at right angles to the path of movement of the table, and means for automatically moving said table with a step-by-step movement, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 28th day of May, A. D. 1892.

THOMAS J. QUINN.

Witnesses:
HORACE BROWN,
HERBERT A. HALL.