No. 840,029. PATENTED JAN. 1, 1907.

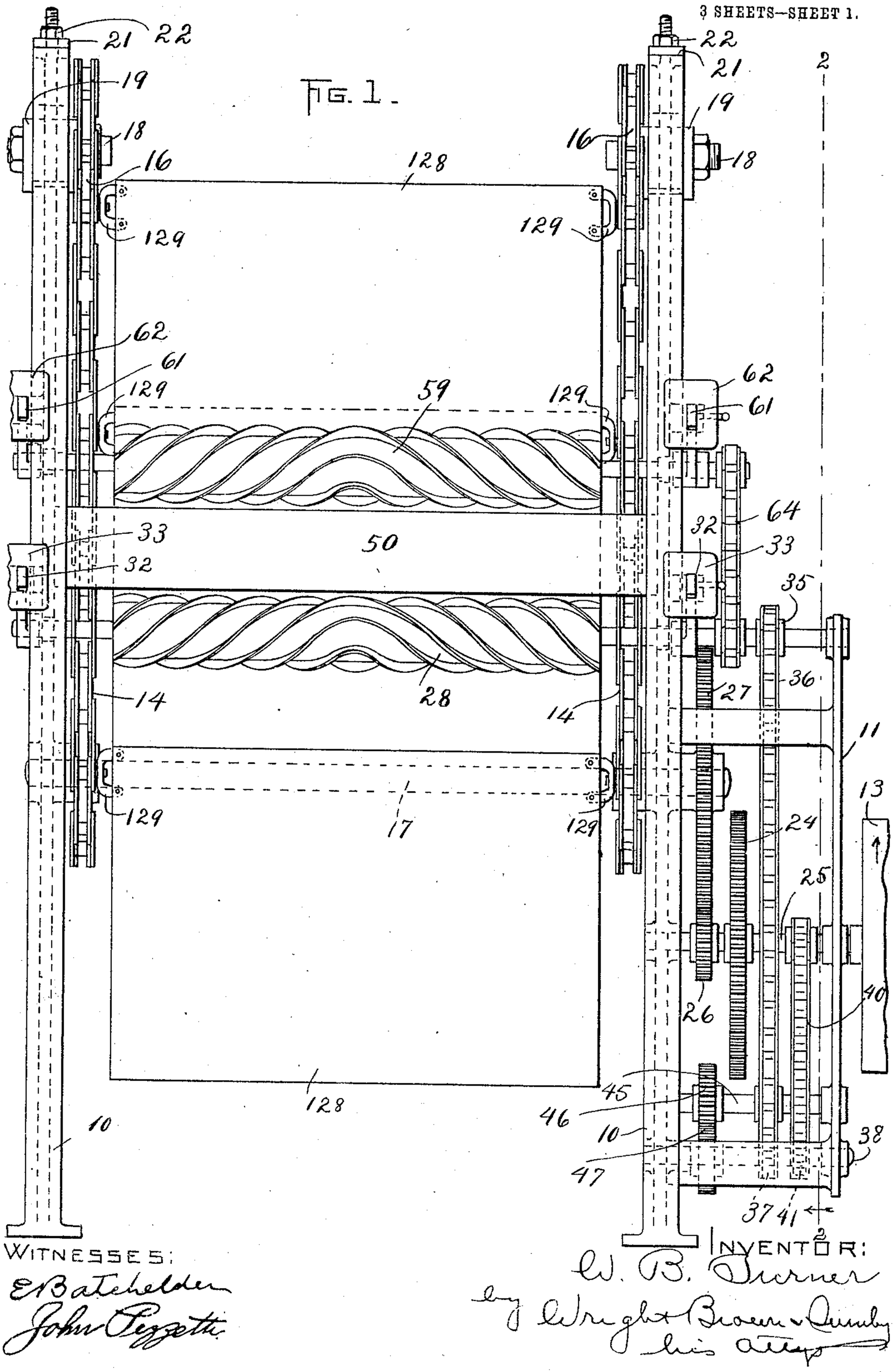
W. B. TURNER.

LEATHER TREATING MACHINE.

APPLICATION FILED AUG. 24, 1900.

3 SHEETS—SHEET 1.

FIG. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

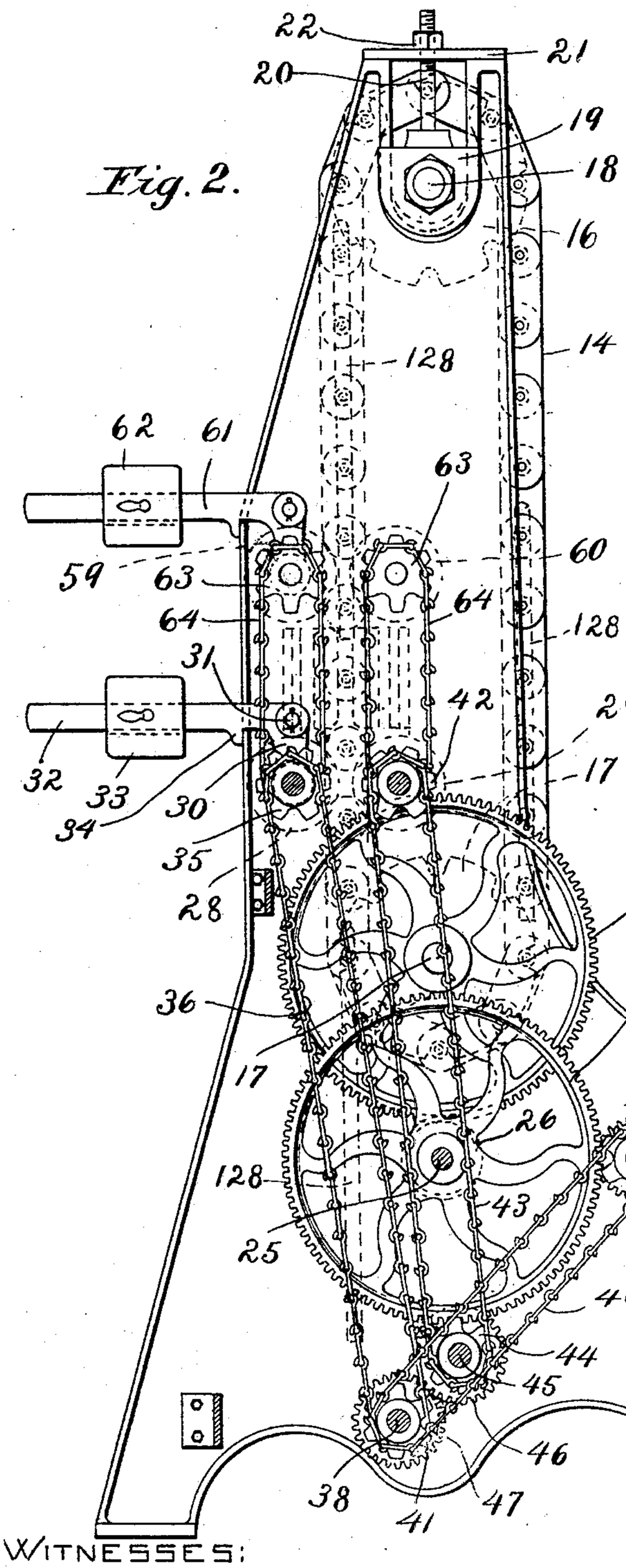
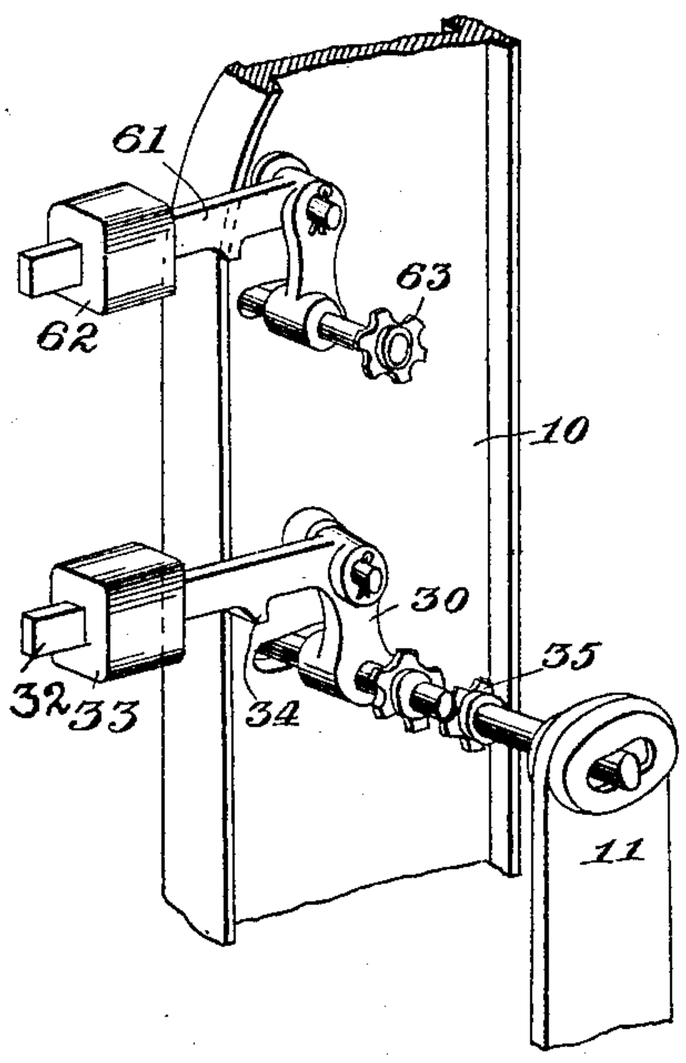


Fig. 6.



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3 SHEETS—SHEET 3.

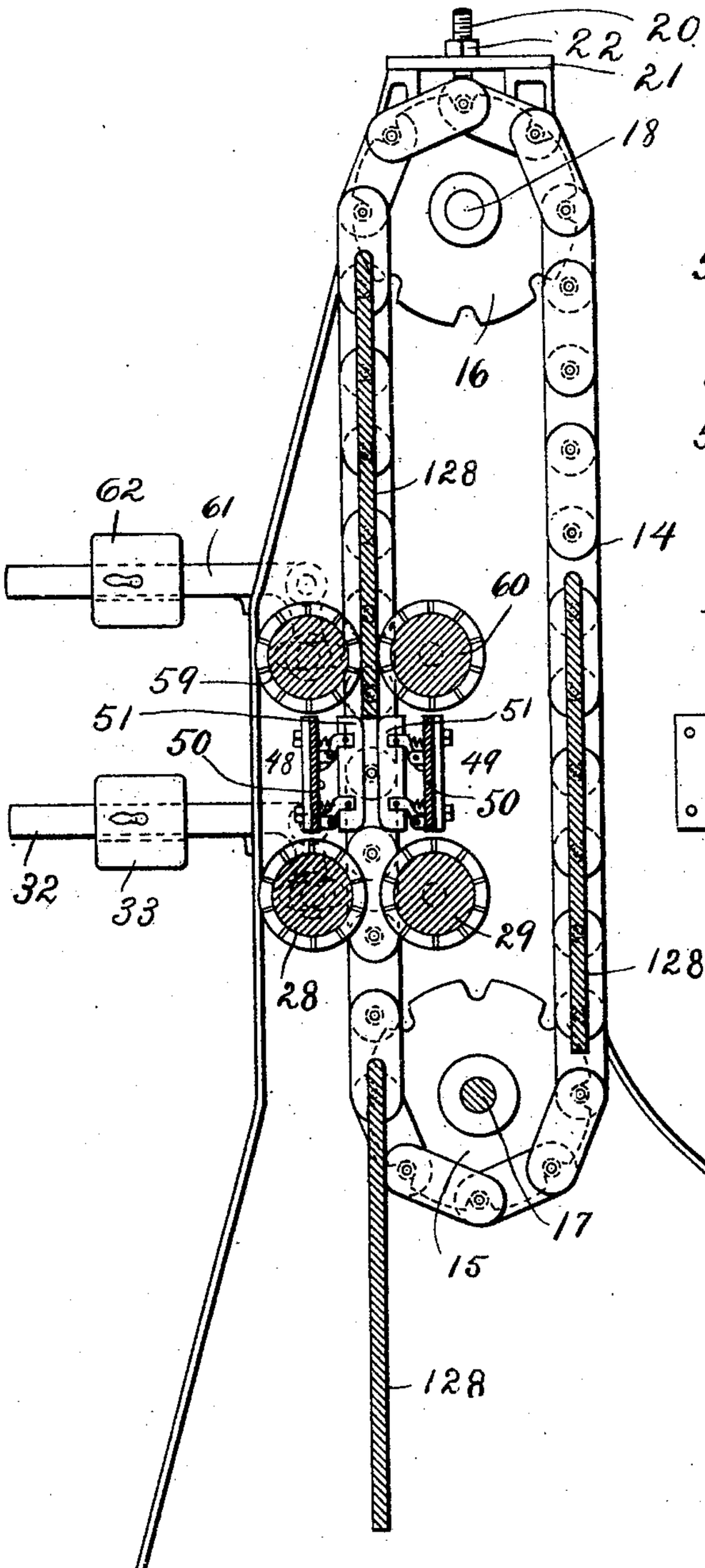


FIG. 3.

FIG. 5.

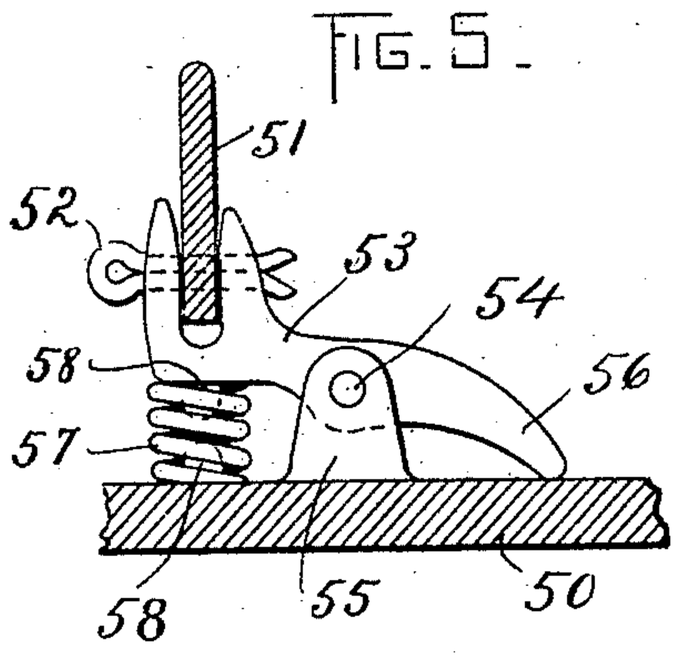
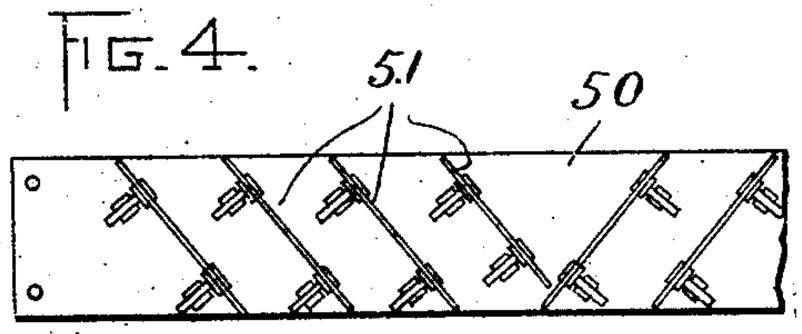


FIG. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM B. TURNER, OF MELROSE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE TURNER TANNING MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

LEATHER-TREATING MACHINE.

No. 840,029. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed August 24, 1900. Serial No. 27,932.

To all whom it may concern:

Be it known that I, WILLIAM B. TURNER, of Melrose, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Leather-Treating Machines, of which the following is a specification.

This invention has relation to machines for treating hides, skins, and leather, having more particular relation to that type of machines in which a plurality of tables or work-supports are passed in endless succession between members arranged to operate upon skins or hides doubled over the ends of the said supports and lying against both faces thereof.

Hitherto in such machines it has been proposed to employ members consisting either of a plurality of blades having their edges arranged in a plane parallel to the path of movement of the tables or else a pair of spirally-bladed rolls, the members in either case being disposed opposite each other to act simultaneously on the skin or hide on both faces of the support as the latter passes between them. Where a single set of either of said members is employed, it has been impossible, to my mind, to secure the best results. If the members consist only of the plurality of blades arranged to provide a flat working surface, the skin or hide is apt to be presented to them in a wrinkled condition, whereby the wrinkles are accentuated by the pressure of the edges of the blades against them, and, again, if the sprially-bladed rolls alone be used the blades which are rigid and unyielding from end to end do not properly operate upon all parts of the surface of the hide or skin when the skin varies in thickness at different points, as is usually the case.

According to my invention I am enabled to more uniformly treat skins or hides than heretofore, since I obviate the difficulties related hereinbefore by equipping the machine with two different sets of instrumentalities which accomplish the two different functions of first spreading the hide or skin laterally from the middle to the edges, as well as longitudinally, and then treating it as may be desired.

The illustrated embodiment of my invention which I shall hereinafter describe in detail is equipped with a pair of members, such as spirally-bladed rolls, which engage the skins or hides on the support and spread or stretch them longitudinally and laterally to effectively remove all wrinkles and a second pair of members consisting of independent short yielding blades arranged to form a flat surface, said second members being located to act upon the hides or skins after they have left the rolls and remove liquid therefrom if the machine be employed for "putting out" or perform such other function as may be desired to accomplish.

I have contemplated the employment of an additional pair of bladed rolls, as shown, to supplement the liquid-removing and other functions of the second pair of members after the skins have left the second pair of members, and it will be apparent that I may, if desired, omit the intermediate members and cause the last-mentioned rolls to act on the skins directly after they leave the first pair of rolls.

One roll of each pair is preferably journaled in fixed bearings and the other in yielding bearings, which are provided with means for pressing the roll which they carry toward the other roll, the pressure-applying means being preferably adjustable to vary the pressure of the rolls on the skin as may be desired. I consider it preferable to drive the first pair of rolls at a relatively high speed and adjust the pressure so that it will be relatively light, the second pair of rolls being driven at a relatively slow speed and adjusted to exert a relatively strong pressure on the skin. The object of this difference between the speed and pressure of the two pairs of rolls is to enable the roll of the first pair to more effectively smooth or put out the skins and the rolls of the second pair, which are driven more slowly and exert more pressure than those of the first pair, to more effectively remove liquid from and otherwise finally treat the skins.

The tables or supports are connected to endless carriers, whereby they are passed in proper succession between the working members or instrumentalities, the machine differing in this respect from that type of machine in which a single table is passed into the space between the members and then withdrawn.

Referring to the accompanying drawings,

Figure 1 represents in front elevation a machine embodying my invention. Fig. 2 represents a side elevation of the same with some of the operative shafts in section. Fig. 3 represents a vertical section through the machine. Fig. 4 represents in detail one of the working members. Fig. 5 represents the manner of mounting the blades of the members shown in Fig. 4. Fig. 6 represents in perspective view the means for mounting the roll-shafts to permit the rolls to move.

The machine is provided with upright side standards 10, which may be constructed in any desirable design for properly supporting the operative parts. Secured to one of the standards is a bracket 11, which is utilized in supporting the gearing which is located outside of the standard.

The main driving-shaft is indicated at 12, and it receives motion from a belt-wheel 13, which is rigidly secured thereto. From this shaft motion is imparted to the rotating or working members and also to the carrier for the work-supports or tables. The carrier consists of two sprocket-chains 14 14, which are supported upon sprocket-wheels 15 15 16 16. The sprocket-wheels 15 are rigidly secured upon a shaft 17, journaled in the standards 10, while the sprocket-wheels 16 are journaled upon stud-shafts 18, projecting inwardly from the sliding blocks 19, arranged in vertical guides at the upper ends of the side standards. Each of the said blocks is adjusted by means of a threaded spindle 20, passing through a bar 21, placed at the top of the standard, there being a nut 22 threaded upon the end of the said spindle and resting upon the said bar 21.

The shaft 17 is driven from the main power-shaft 12 by speed-reducing gearing comprising a pinion 23 on the shaft 12, intermeshing with a large gear 24 on an intermediate shaft 25, journaled in the bracket 11 and the adjacent standard 10. The said shaft 25 carries a pinion 26, intermeshing with and driving a large gear 27 on the shaft 17.

The tables or work-supports, of which there may be as many as may be desired, are indicated at 128, each being loosely attached at their ends near their top edges by brackets 129 to the chains 14. Being thus supported, the tables hang loosely and are adapted to be drawn vertically upward between the working members at the front of the machine and to then descend at the back of the machine. To permit this, the sprockets 15 and 16 are arranged in the same vertical planes.

The skins or hides in operating the machines are hung upon the upper edges of the tables, and the working members or instrumentalities are arranged to operate upon those portions of the skin which lie against the side faces of said tables or supports. The members which operate to laterally and longitudinally stretch the hide or skin upon a table and remove the wrinkles therefrom consist in the present instance of two rolls 28 29, each of which has blades or vanes extending from its middle in opposite directions helically toward the outer ends. The roll 29 is provided with trunnions journaled in the standards, while the roll 28 is journaled in the downwardly-extending arms 30 of elbow-levers fulcrumed upon studs 31. The trunnions of the roll 28 pass through slots in the standards 10 11, as shown in Fig. 6. Each lever has an outwardly-projecting arm 32, upon which is adjustably secured a weight 33. The weights hold the roll yieldingly toward the roll 29 to permit the ends to yield outwardly independently, said arms 32 having stops 34, which limit the inward movement of the roll by the engagement of said stops with a portion of the frames. Power is imparted to the rolls to drive them in opposite directions and also in directions opposite to the direction of movement of the supports or tables.

The roll 28 has on the trunnion at one end a sprocket-wheel 35, which is driven by a sprocket-chain 36 from a sprocket-wheel 37 on a shaft 38, journaled in the bracket 11 in the adjacent standard 10. The shaft 38 is driven from the initial power-shaft 12 by sprocket-gearing comprising a sprocket 39 on the last-mentioned shaft, a chain 40, and a sprocket 41 on the shaft 38. Intermeshing gears 46 and 47 are secured upon the shafts 45 and 38, whereby the former is driven by the latter.

In order to permit the rolls 28 and 59 to move toward and from the rolls 29 and 60, the trunnions of the rolls pass through curvilinear slots in the standards, as shown in dotted lines in Fig. 3.

By this construction and arrangement of parts it will be seen that the bladed rolls rotate at a comparatively high rate of speed, while the carriers move slowly in a direction opposite the direction of rotation of the acting portions of the rolls to permit the rolls to thoroughly stretch and take out the wrinkles from the skin. The said rolls may, in addition to stretching and smoothing out the skin or hide, perform any other desirable function.

After the skin or hide has been stretched it is acted upon by another pair of members arranged vertically above the rolls 28 and 29. Said members are indicated as a whole at 48 49. Each member consists of a cross bar or back 50, secured at its ends to the side standards, said cross-bars being arranged at equal distances from the carrier which passes between them. Short independently-movable blades 51 51 are attached to the cross bars or backs 50, those on one half of each bar being arranged at an inclination to those on the other half, as indicated in Fig. 4. Each blade 51 is secured at its ends by pins 52 in

yielding supports 53, pivoted at 54 to lugs 55 on the bar. The end of each support is provided with a finger 56, which rests against the surface of the bar 50, and between the other end of the support and the bar there is a spring 57, held in place by projections 58 58 on the bar and on the support, respectively. Each blade is capable of slight lateral movement, the support being cut away, as shown in Fig. 5, to permit it.

The function of the blades in the machine which I have illustrated is to put out or wipe from the skin substantially all liquid left therein after being tanned or washed; but they may perform other functions as desired.

I find it desirable in many cases to employ still another pair of members for removing any liquid that may still remain in the skins, and, as indicated upon the drawings, they may consist of a pair of bladed rolls 59 and 60, substantially similar to those shown in 28 and 29. The roll 60 is mounted in stationary bearings, while the roll 59 is mounted in the elbow-levers 61, which are provided with adjustable weights 62. The rolls 59 and 60 are driven by sprocket-gearing. Each roll has on its end trunnion a sprocket 63, driven by a sprocket-chain 64 from a sprocket-wheel 65 on the trunnion of the roll directly beneath it. By this mechanism the rolls 59 and 28 rotate in one direction, while the rolls 29 and 60 rotate in the opposite direction.

I prefer to adjust the weights 33 and 62 so that the weight 33 will impart a lighter pressure to the roll 28 than that imparted by the weight 62 to the roll 59. This arrangement causes the rolls 28 and 29 to grasp and press upon the skin more lightly than the rolls 59 and 60. I also prefer to arrange the gearing which drives the two pairs of rolls so that the rolls 28 29 will be driven at a more rapid rate of speed than the rolls 59 60. As a result I cause the rolls 28 and 29 to rotate at a relatively high speed and exert a relatively light pressure upon the skin to exert a very effective smoothing or putting-out action, while the rolls 59 and 60, which rotate at a relatively slow rate and exert a relatively heavy pressure upon the skin, are caused to very effectively remove such free liquid as may still remain in the skin after it passes between the intermediate members 48 49.

The operation of the machine will be easily understood from the foregoing description. The hides or skins are placed upon the tables or supports as the latter pass successively upward in front of the machine, the finished skins being removed by a man standing in the rear of the machine as the tables descend. As each table or support is carried upward by the carrier the skin thereon is laterally and longitudinally stretched by the bladed rolls 28 29 to remove wrinkles. Then the blades of the second pair of members scrape or rub the skin in any desired manner, while the blades of the third pair of members effectively polish or otherwise treat the skin.

From the foregoing description it will be obvious that many changes may be made in the machine without departing from the spirit and scope of the present invention and that while I have shown those instrumentalities or working members which are best adapted for use in a putting-out machine yet they may be replaced by others to carry on the operations of slating, fleshing, staking, &c.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, it is declared that what is claimed is—

A machine of the character referred to comprising an endless carrier, a substantially flat table or work-support carried thereby, a pair of oppositely-disposed bladed rolls to act on the hide or skin on both faces of said support for the purpose of removing wrinkles laterally and longitudinally therefrom, means for rotating said rolls so that their peripheral portions next the table will move in a direction opposite to the direction of movement of said table, and working members each having blades arranged in a plane parallel to the path of movement of the table or support, said working members being arranged to work upon the skin after it has left the said rolls.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM B. TURNER.

Witnesses:
C. F. BROWN,
E. BATCHELDER.