(No Model.)

3 Sheets—Sheet 1.

S. HALEY.

LEATHER DRESSING MACHINE.

No. 325,675. Patented Sept. 8, 1885.

FIG. 1.

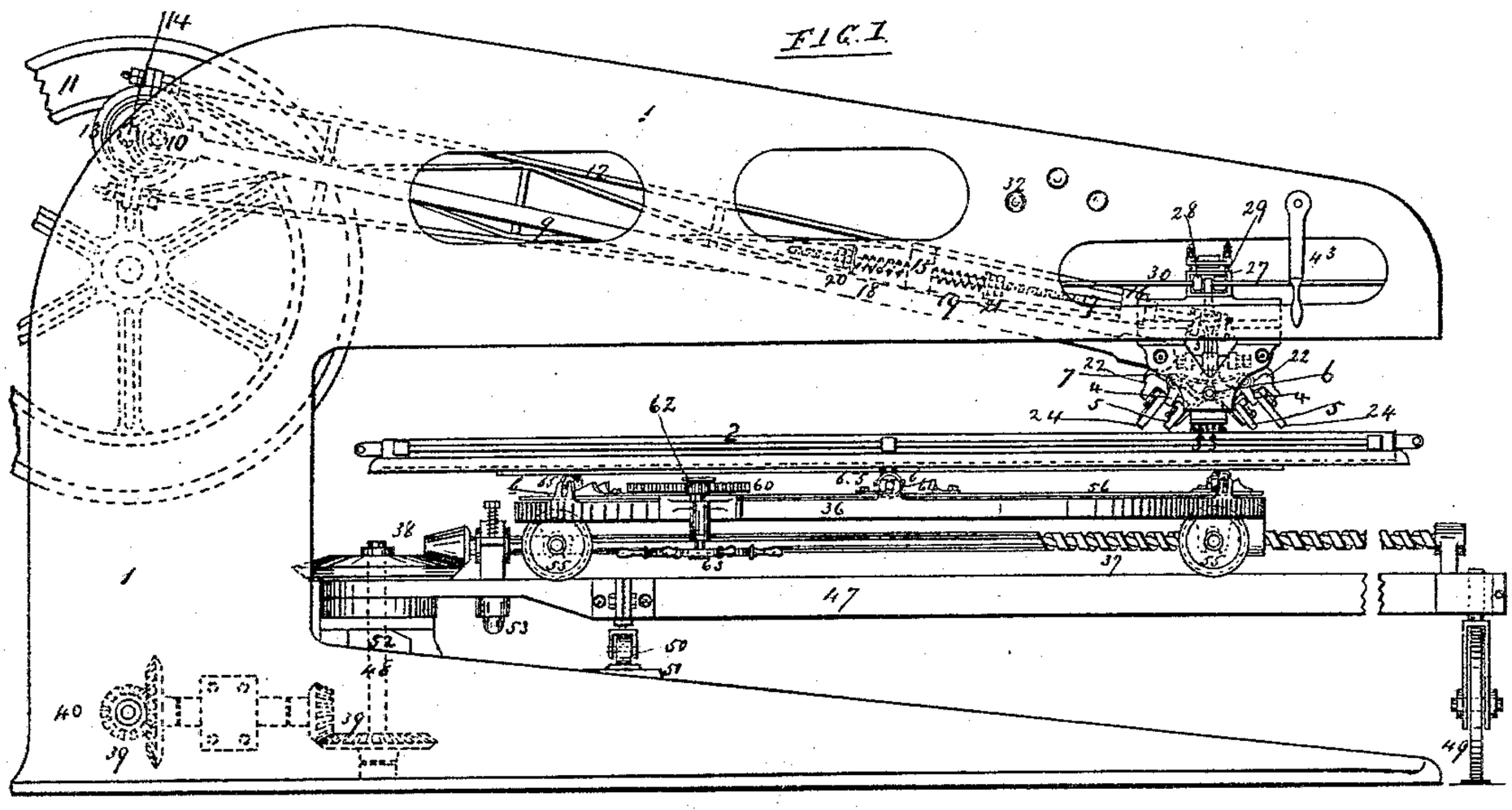
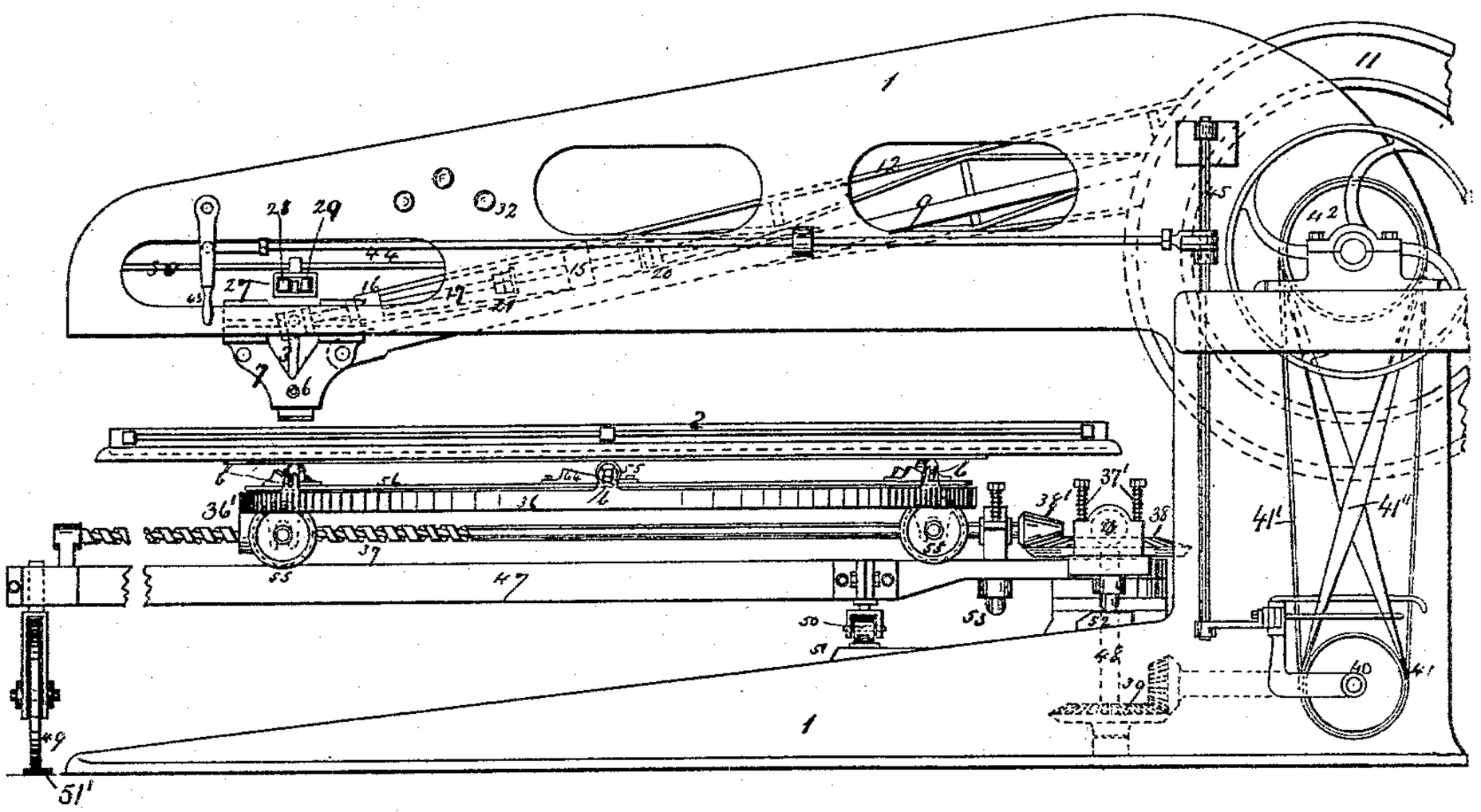


FIG. 2.



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(No Model.) 3 Sheets—Sheet 2.

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FIG 6.

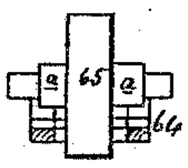

FIG. 7.

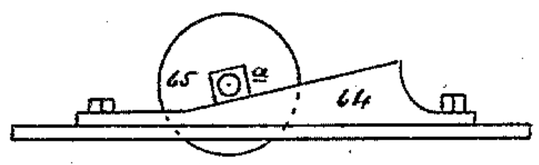

FIG. 3.

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Fig. 4.

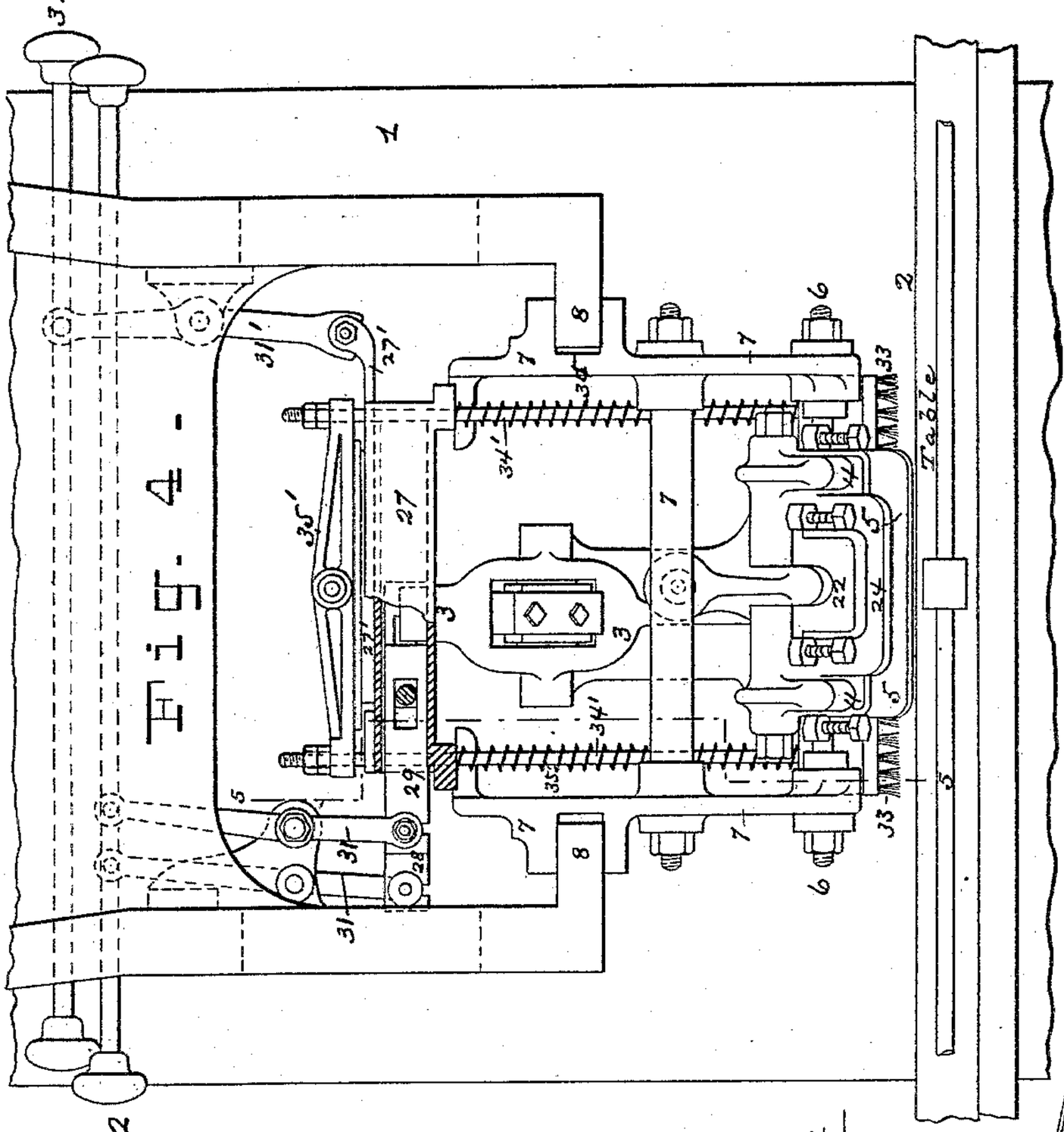


Fig. 5.

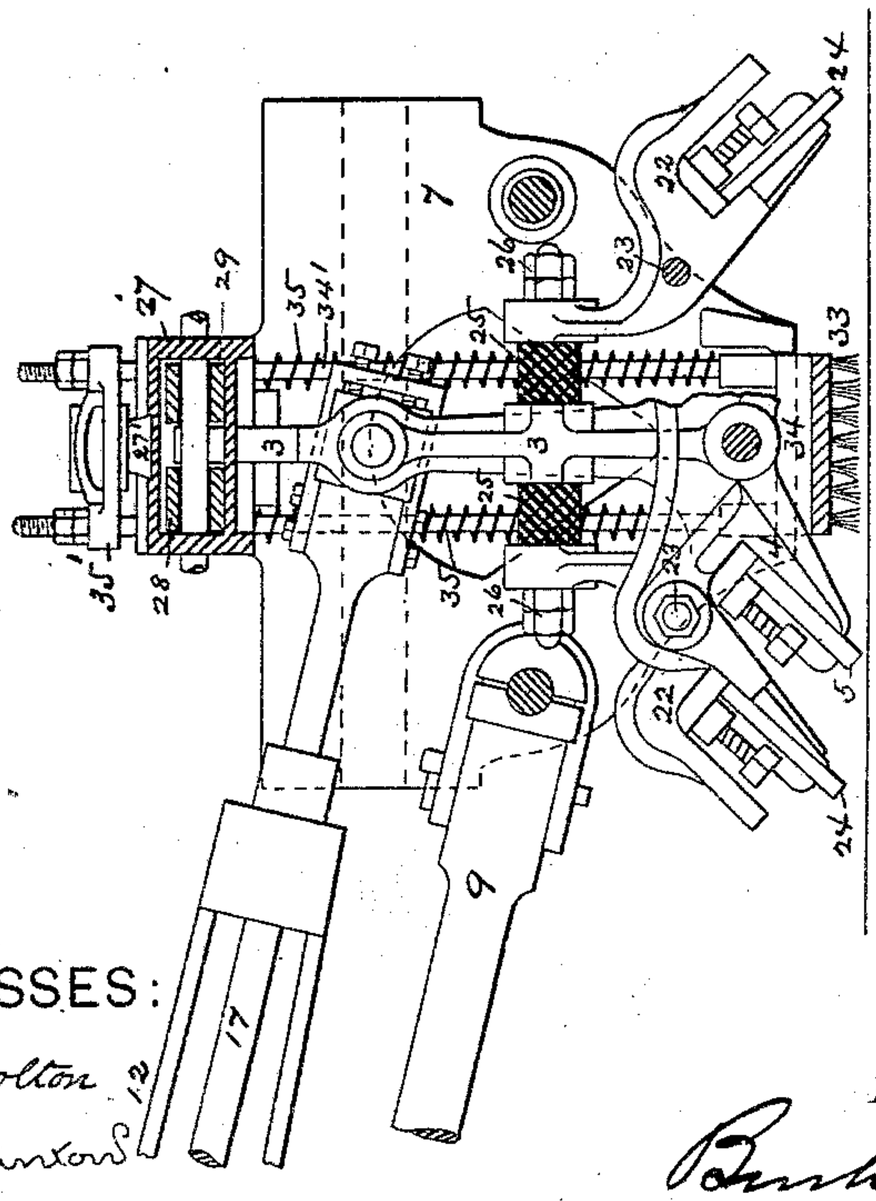
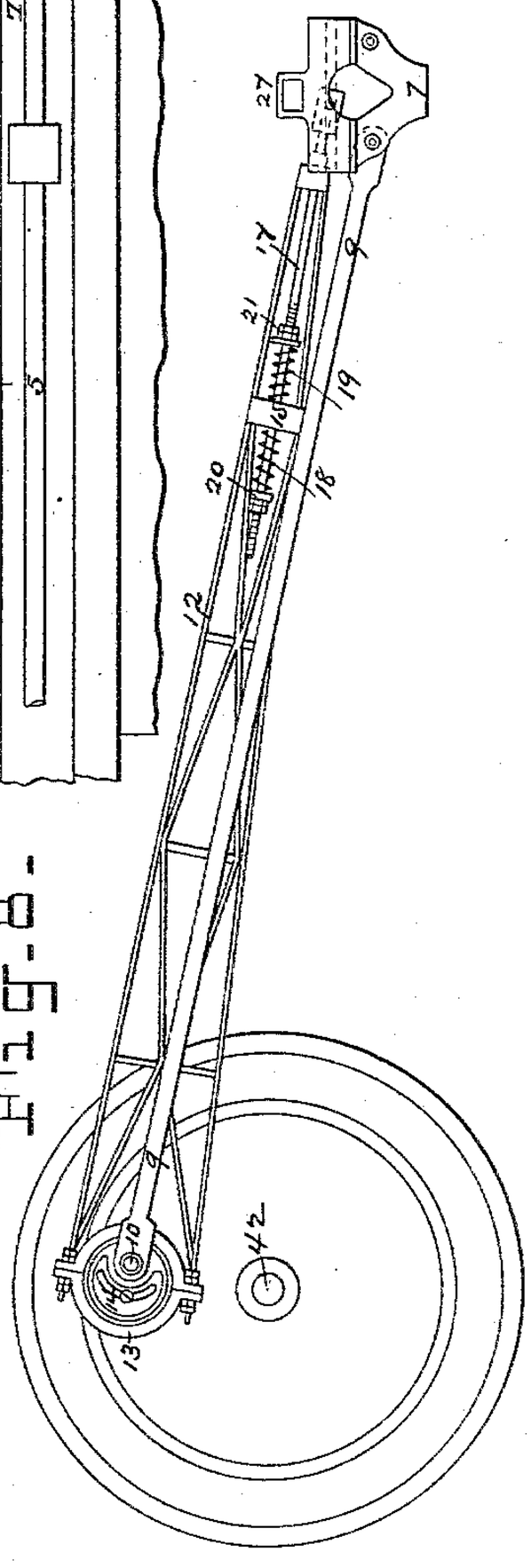


Fig. 8.



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UNITED STATES PATENT OFFICE.

SAM HALEY, OF BRAMLEY, NEAR LEEDS, ENGLAND.

LEATHER-DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 325,675, dated September 8, 1885.

Application filed April 14, 1885. (No model.) Patented in England March 11, 1884, No. 4,677.

To all whom it may concern:

Be it known that I, SAM HALEY, a subject of the Queen of Great Britain, residing in Bramley, near Leeds, England, have invented certain new and useful Improvements in Machinery for Preparing and Dressing Leather, of which the following is a specification.

This invention has reference to that class of machinery employed in scouring, resetting, stoning, and otherwise preparing hides and leather, in which are commonly employed rotating and vertically adjustable tables, duplicate sets of stones, and stones and brushes, which are caused to move back and forth over the leather; and my object is in part to provide such a machine with an improved head-stock, in part to provide improved connecting-rods for operating the head-stock, and in part to provide an improved means for operating the tables, whereby every portion of the table may be conveniently brought under the tools, and whereby one table may be shifted out of the way while the other is under the tools, all as will be hereinafter more fully described and carefully defined in the claims.

In the drawings which serve to illustrate my invention, Figure 1 is an elevation of one side of my machine. Fig. 2 is an elevation of the other side. In this view the stones and their holders are not shown. Fig. 3 is a plan of the machine with the upper parts removed. This view is designed mainly to illustrate the arrangement whereby the tables may be interchanged. Fig. 4 is a front view of the head-stock and head of the machine on a larger scale than the first three figures. Fig. 5 is a sectional elevation of the head-stock, the plane of the section being indicated by line 5 5 in Fig. 4. Figs. 6, 7, and 8 are detached detail views, the first two being respectively front and side elevations of the device for effecting the vertical adjustment of the bed, and the last a side elevation of the connecting-rods for actuating the head-stock and its carriage.

1 represents the bed-plate of the machine and the arm or head in which the head-stock and carriage play. This head extends out horizontally over the table on which the leather-hide is placed while being treated.

I will first describe the head-stock and its appurtenances and the means for operating it.

The head stock comprises the standard 3, which carries the clamps 4, which receive and hold the adjustably-mounted stones 5. The standard 3 is mounted to rock or oscillate on studs or journals 6, rotatively mounted in a carriage, 7, which is mounted to reciprocate horizontally, in the manner of a cross-head on guides 8 on the head 1. This latter is suitably shaped and hollowed to receive the head-stock and its carriage, and to provide room for its movement to and fro. Reciprocating motion is imparted to the carriage 7 through the medium of a crank or crank-wheel, 11, on the main shaft 42, and a connecting-rod, 9, which is coupled at one end to a wrist-pin, 10, on said crank, and at the other to said carriage 7. In order to impart to the head-stock a rocking motion on its studs 6 in carriage 7, whereby the one set of stones may be lifted off the leather at the end of the stroke and the other set of stones applied for the return-stroke, the stones are mounted, as best seen in Fig. 5, on opposite sides of the center of oscillation (on studs 6) of the head-stock, and means are provided for imparting the oscillatory motion to the head-stock, which I will now describe. A connecting-rod, 12, has its one end coupled to the upper part of the standard 3 at a point above the center of oscillation, and at its other end it has a strap which embraces an eccentric 13, mounted on the wrist-pin 10 of crank 11, to which rod 9 is coupled, as best seen in Fig. 8. The eccentric 13 is so set with reference to the stroke of the crank 11 that the tool will be lifted from contact with the leather just before the crank has reached the end of its outstroke, and to oscillate the head-stock so as to reverse the positions of the tools and put the opposite tool in contact with the leather just after the crank has passed the center and the return-stroke has been begun. The effect is to gradually remove one tool from the leather at the end of the stroke and put the other softly and gradually in contact with the leather at the beginning of the next stroke. When the head-stock stands vertical at the ends of the stroke, neither stone is in contact with the leather. The pressure of the stone on the leather is greatest at mid-stroke. The eccentric is provided with a slot and a set-screw 14, whereby its position with respect to

the crank may be varied somewhat. The connecting-rod 12 is not rigidly attached to the head-stock. A screw-threaded rod, 17, is coupled to the head-stock and plays through blocks 15 and 16, forming part of rod 12. On each side of block 15 on rod 17 are cushion-springs 18 and 19, which abut, respectively, against nuts 20 and 21 on rod 17. These springs permit of an elastic extension and contraction of the connecting-rod 12 to some extent, and thus allow the head-stock to oscillate a little independently and adapt itself to variations in the thickness of the leather.

The head-stock is constructed to carry two additional stones, 24 24, mounted in tool-holders or clamps 22 22, pivoted or hinged at the points 23 23. These increase the capacity of the machine. These clamps or holders are constructed so that they may oscillate a little upon their pivots or hinges if the variations in the thickness of the leather require it, each being provided with a rubber cushion, 25, placed behind the heel of the holder, which latter is held up to the cushion by means of a bolt and nut, 26. The two cushions 25 are placed on opposite sides of the standard 3, and one bolt, with nuts on each end, passes through both heels of holders 22, both cushions 25, and the standard. Thus the holders are cushioned against movement in both directions. In order to show how the clamps 22 are mounted, I have broken away parts at the right in Fig. 5. The clamps themselves may be constructed as usual or in any way. I make no claim to their specific construction.

The carriage 7 is arranged so that two, four, or eight stones may be in operation, as required, and this is effected by locking part of the tools, as in the case of the present construction. To effect this the carriage 7 is provided with a bridge or box, 27, in which the upper end of standard 3 oscillates. In this box are arranged sliding bars 28 and 29, attached to rods 30 and actuated by levers 31 and handles 32. The bars 28 and 29 may be slid into box 27 on each side of the standard 3, and they will then prevent it from oscillating. Thus the stones will be rendered inoperative; or either bar may be slid into the box and it will render the stones inoperative while moving in one direction, but leave them operative while moving in the other direction. In Fig. 4 I have broken away the bridge or box 27 in order to better show the sliding bars in elevation. When the tools are rendered inoperative by the sliding of both bars into box 27, the springs 18 and 19 in connecting-rod 12 will yield sufficiently to compensate for the endwise movement of said rod imparted by eccentric 13.

In addition to the stones, brushes 33 are mounted in the tool-holder. These brushes are fixed to a frame, 34, which is attached to the lower ends of four sliding-rods mounted in the tool-holder, and springs 35″ on these rods serve to keep the brushes pressed down elastically upon the leather. Nuts on the tops of the rods limit the downward movement of the brushes.

The brush or brushes 33 may be raised out of contact with the leather by the means indicated in Figs. 4 and 5. The upper ends of the four rods 34′ pass through a plate, 35′, on the top of the bridge 27, and a dovetail wedge, 27′, is adapted to be moved in under plate 35′ by a lever, 31′, actuated by a rod, 32′. This device I do not claim.

The peculiar construction of the head-stock herein shown enables me to place the tools closer together than in former constructions, and I obtain in consequence an increased length of stroke with the same throw of the crank.

I will now describe the construction of the tables on which the leather is placed and their operative mechanism.

Two like tables are employed, one of which may be under the tools while the leather is being placed on the other. These tables are so constructed and mounted that one can be moved out from under the tools and the other moved into its place in a moment. In bed-plate or frame 1 is rotatively mounted a shaft, 40, carrying three tight and loose pulleys, 41. 39 indicates two sets of bevel-gears, whereby rotary motion is communicated from shaft 40 to a vertically-arranged shaft, 48, also mounted in the bed-plate. On the upper end of shaft 48 is carried a bevel-wheel, 38, usually a smooth or frictional driver, the purpose of which is to drive the feed-screw of the table, as will be hereinafter explained. The shaft 40 is driven from the main driving-shaft 42 through the medium of belts, as seen in Fig. 2. In order to be able to rotate shaft 40 in opposite directions at will, two belts, 41′ 41″, one crossed, are employed, and a belt-shifter, whereby one of the belts may be thrown on a tight and the other on a loose pulley. This belt-shifter comprises the usual fork, 46, fixed on the end of a vertical rod or shaft, 45, mounted in bearing on the frame 1, a rod, 44, coupled to a crank-arm on shaft 45, and a handle, 43, coupled to the other end of rod 44. This arrangement of the belts, pulleys, and belt-shifter is a well-known device, and I do not claim it.

The two tables and their carriages are constructed alike, and it will only be necessary to describe one of them.

A carriage, 47, is provided with outer wheels, 49, and inner wheels, 50, which run respectively on suitable parti-circular tracks, 51′ and 51, arranged concentric with the shaft 48. The inner end of this carriage 47 pivots on and fits loosely on shaft 48, so that said carriage may swing around said shaft as a center, its wheels rolling on the tracks. Mounted on carriage 47 is another carriage, 36, of circular form, provided with track-wheels 55, which run on the side frames of carriage 47 as tracks. This carriage is capable of a movement toward and from, or radial to, the shaft 48, and this movement is imparted through a screw, 37, rotatively mounted on carriage 47 and working in a nut, 36′, on the

carriage 36. Rotary motion is imparted to the screw through the medium of a bevel-pinion, 38′, on the end of said screw, which pinion is normally in peripheral contact with bevel-wheel 38.

By means of the reversing mechanism before described—namely, the belts, belt-shifter, and tight and loose pulleys—it will be obvious that screw 37 may be rotated in either direction at the will of the operator and the table 36 run in or out.

2 is the upper table or bed on which the leather is placed. This table is rotatively mounted by means of a central or axially-arranged stud, 35, thereon, which fits into a socket-bearing in the carriage 36, whereby the table may be rotated in either direction at the will of the operator. Thus it will be seen that the table 2 may be given three horizontal movements—namely, one on its axis, one radially to or from the shaft 48, and one concentrically around shaft 48. By reason of these three movements any part of the leather may be conveniently brought under the tools. By means of the radial movement produced by the screw 37 the leather may at any time be moved in a direction opposite to that of the tools, as will be well understood.

The mechanism for raising and lowering the table 2, whereby the leather may be put into or out of contact with the tools at any time, will now be described.

On the circular carriage 36 is mounted a circular turn-table, 56, which is in the nature of a wheel with arms 57, and a central boss or hub through which the axial stud 35 of the table 2 passes. Thus the turn-table 56 is interposed between the table 2 and the carriage 36, and is rotatively mounted on the axis 35 of the table. The turn-table may be given an oscillatory movement on its axis by means of a bell-crank lever, 58, fulcrumed on the carriage 36 at 59. The short arm of the lever is slotted, (see Fig. 3,) and the slot in its end engages a stud or pin, 61, in the turn-table, and the long arm is provided with a segment-rack, 60, which meshes with a pinion, 62, on the same shaft with an operative hand-wheel, 63. The shaft of this pinion and hand-wheel is rotatively mounted on carriage 36. The rotation of the pinion 62, by its engagement of the rack on the lever, moves the latter, and, through pin 61, this lever moves the turn-table on its axis. Fixed adjustably on the turn-table are a number (six, as seen in Fig. 3) of inclined planes, 64, which are shown enlarged and detached in Figs. 6 and 7. Each plane 64 has two like cheeks and a space between them. In this space is mounted a roller, 65, the axes of which engage slots in brackets 6 on the carriage 36. This slotted construction permits of some vertical movement of the roller. Slipped loosely on the axes of the roller are square collars *a a*, one on each side of the roller, which collars rest on the cheeks of the inclined planes 64. The table 2 rests on and rolls on these rollers 65. When the operator wishes to raise the table 2, he turns the turn-table 56 by means of the hand-wheel 63, so that the inclined planes 64 will be driven under the collars *a a* on the axes of rollers 65 in the manner of wedges, which serves to lift said rollers, and consequently the table 2, the stud 35 on the latter being capable of lifting in its socket. By an opposite movement of the turn-table the inclined planes are withdrawn and the table lowered.

It remains to be described how the sets, composed each of carriages and tables, are interchanged, one being under the tools while the other is standing idle. In Fig. 3 the overhanging head of the machine is omitted, and from that set of carriages and tables under the tools the carriage 36 and all carried thereby is omitted. From the other or idle set (seen at the left in Fig. 3) only the table 2 is omitted.

As the carriage 47 swings concentrically around shaft 48, it will be obvious that the bevel-pinions 38′ on the ends of screws 37 will always be in contact with the wheel 38, whatever may be the position of the carriage, unless means be provided for disengaging pinion 38′ when its carriage is standing idle. To effect this disengagement the bearing of the screw 37, at its end next the pinion 38′, is mounted on vertically-arranged standards 37′, so that it may play a little vertically, and is held down to its place by springs on said standards. A rounded projection, 53, on the said bearing projects downward through carriage 47, and when a set of carriages and tables is moved around from under the tools, the projection rides up on an incline, 52, on the bed-plate, and lifts pinion 38′ out of contact with wheel 38. As the two sets of carriages, &c., are moved out from under the tools in opposite directions, one to the right and one to the left, two of these inclines 52 will be required. The tracks 51 and 51′ are usually a little more than a semicircle.

The wheel 38 and 38′ are, preferably, friction-wheels; but they might be toothed wheels.

Each set of carriages and tables is complete in itself, and the sets are constructed alike.

Having thus described my invention, I claim—

1. In a machine for dressing leather, the combination, with an oscillating head-stock, substantially as described, of the main driving-shaft and crank and the connecting-rods 9 and 12, coupled to the crank and head-stock, substantially as described, whereby the head-stock, in addition to its reciprocating motion, has imparted to it a lifting motion, for the purposes set forth.

2. In a machine for dressing leather, the combination, with the table 2, of the carriage 47, on which it is mounted, constructed to swing radially, and the tracks on which said carriage 47 runs, all arranged substantially as shown, whereby one table and carriage may be moved out of the way and another wheeled into its place, for the purposes specified.

3. In a machine for dressing leather, the combination, with the reciprocating headstock, and its operating mechanism constructed substantially as described, of the table 2, its carriage 36, mounted on a track, and the screw mechanism, substantially as described, whereby the table bearing the leather may be automatically moved in a direction opposite to that in which the tools move, for the purposes set forth.

4. In a machine for dressing leather, the combination of two sets of tables and their carriages and tracks, constructed and arranged substantially as described, and their operating mechanism, whereby one table may be prepared while the other is under the tools, and the working capacity of the machine be thus increased, as set forth.

5. In a machine for dressing leather, the combination of the table 2, its carriage 36, provided with wheels 65, and the turn-table 56, provided with inclined planes or wedges 64 and rotatively mounted on carriages 36, whereby table 2 may be raised and lowered, as set forth.

6. In a machine for dressing leather, the combination of the table 2, the carriage 36, provided with the wheels 65, the turn-table 56, mounted rotatively on carriage 36, and provided with inclines or wedges 64, the bell-crank lever 58, coupled to said turn-table, and having a segment-rack, 60, and the pinion 62 and its shaft, all arranged to operate substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SAM HALEY.

Witnesses:
CHARLES GILLIARD,
A. B. CROSSLEY.