(No Model.) 2 Sheets—Sheet 1.

J. A. HAUSER.

SAWMILL.

No. 547,432. Patented Oct. 8, 1895.

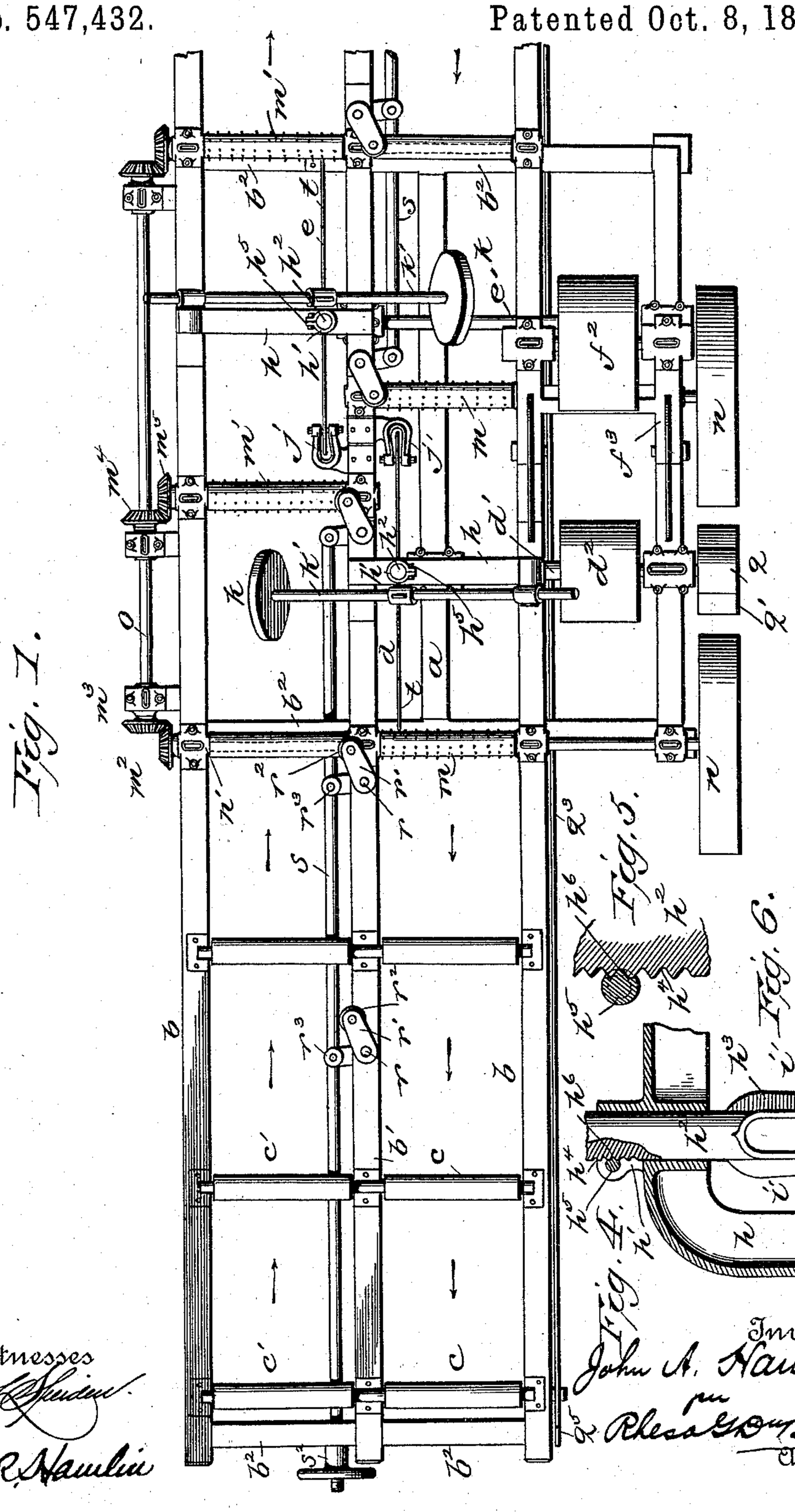

Fig. 1.

Fig. 6.

Fig. 4.

Fig. 5.

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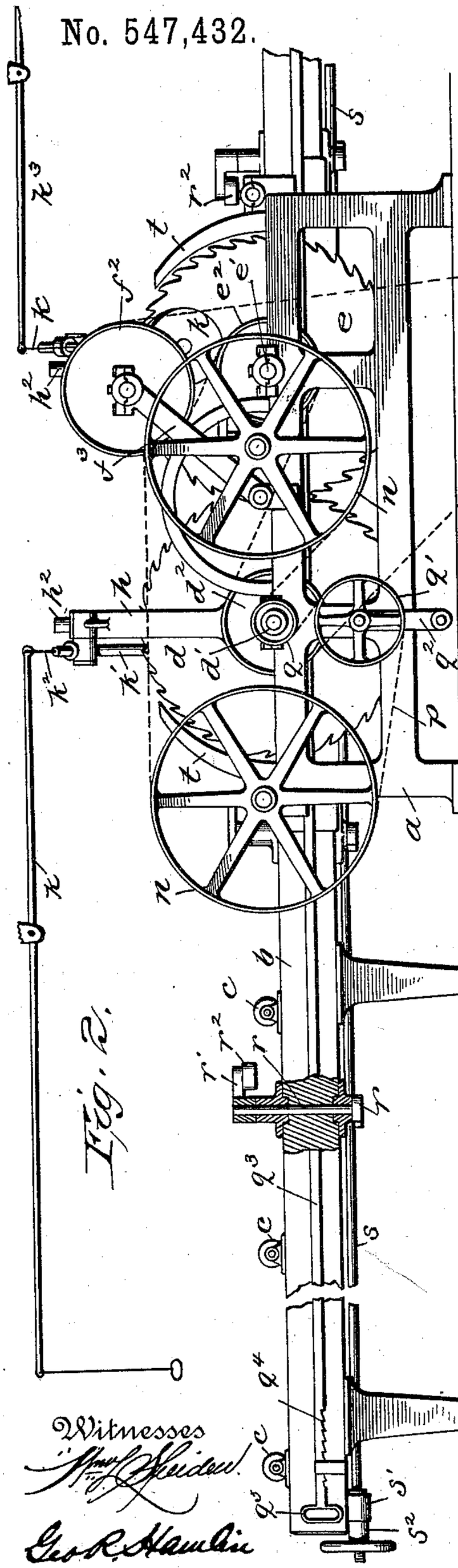

Fig. 2.

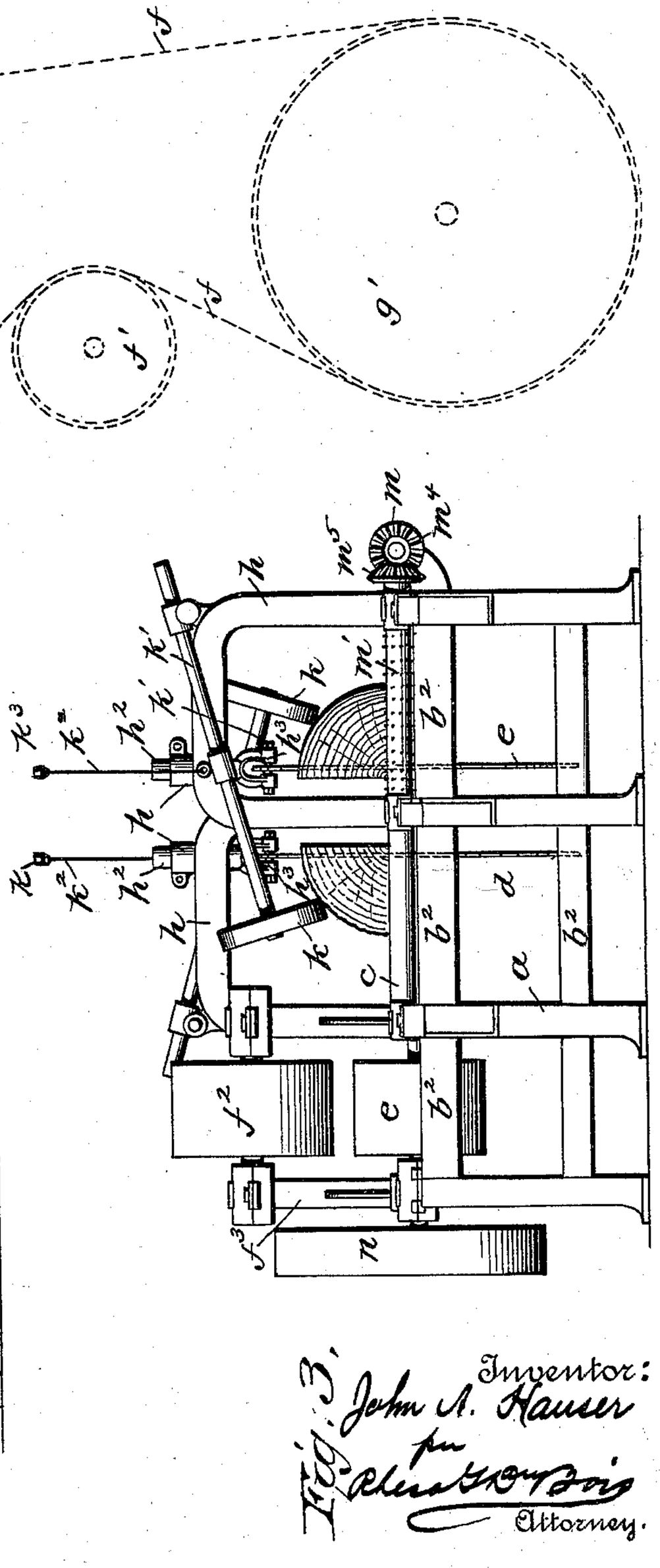

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN A. HAUSER, OF AUGUSTA, GEORGIA.

SAWMILL.

SPECIFICATION forming part of Letters Patent No. 547,432, dated October 8, 1895.

Application filed April 26, 1895. Serial No. 547,285. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. HAUSER, a citizen of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in Sawmills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to a circular-saw mill for manufacturing rift, edge-grain, or quarter-sawed boards. Heretofore in the manufacture of rift flooring it has been necessary to cut the log into square or flat deals or cants on a large circular or band mill before they could be passed to a rift machine for cutting them into rift flooring. In doing this latter work the log has to be turned a number of times, and only certain parts of the log would make rift boards, (about forty per cent.,) the balance of the log making low-grade lumber of but little value. In a large mill the constant handling and turning of the logs on the head-blocks of the carriage consumes valuable time. This, with the waste of lumber, makes the cost of producing rift flooring far in excess of the cost of flat-grain boards, and hence the market value of rift flooring is about thirty-three per cent. higher than flat-grain boards, and most of the large sawmills find it not profitable to make it, even at the advanced price. In making quartered oak it is customary to quarter the log, then place one quarter at a time back on the head-blocks of the carriage with the center of the log toward the saw, and cut one board at a time. In this mode of operation the quarter is hard to dog to head-block knees, so as to be held rigidly in position, and it consumes a great deal of time and the capacity is limited, and when the boards leave the saw both edges are beveled. Now, to overcome the defects mentioned above, I have invented a machine that will manufacture rift, edge-grain, or quarter-sawed boards at a smaller cost and in greater quantity, as my machine requires the material to be handled less than on the large circular or band mill, and every board in the log is rift, edge-grain, or quarter-sawed, and one edge of every board square.

To the above end the invention consists in the novel arrangements and combinations of parts which are recited in the appended claims.

The drawings which accompany and form part of this specification illustrate an embodiment of the invention.

In said drawings, Figure 1 is a top view of my complete device; Fig. 2, a side elevation, and Fig. 3 an end elevation thereof, and Figs. 4, 5, and 6 are detail views of the saw-guide.

In the drawings, the letter *a* designates the supporting framework, which is of any suitable construction and supports a table for the lumber to traverse. As it is the intention that two pieces of lumber shall be under treatment at the same time, but moving in opposite directions, the table may properly be said to be divided longitudinally. It is here shown as composed of two side bars *b*, a central longitudinal bar *b'*, and cross-bars b^2, and loose rollers or idlers *c* and *c'* are arranged between the central longitudinal bar and the side bars, there being one set of such rollers for each longitudinal half of the table, and those of one set being rotatable independently of those of the other set. The two tables may be said to be divided from each other by the central longitudinal bar. I show two circular saws *d* and *e*, mounted upon parallel shafts or arbors *d'* and *e'*, respectively, journaled in bearings on the frame and projecting at the same side of the table, where they carry pulleys d^2 and e^2 for receiving power. The two saws are located near together, one being on one side of the central longitudinal bar of the table and the other being on the opposite side of said bar. Thus the shaft or arbor *d'* extends partially across one half of the table, whereas the shaft or arbor *e'* extends entirely across that half of the table and for a short distance into the other half of the table. This arrangement of the saws brings them near together and reduces the amount of handling or turning of the lumber to the minimum, for after a board has been sawed from a quarter by one saw, the latter has only to be given a quarter-turn and moved slightly to position for treatment by the other saw.

Another advantage of the arrangement is

simplification of driving mechanism, for with the pulleys of both saws at the same side of the table a single belt can be used to drive both saws. The letter *f* designates this driving-belt, which it will be seen by reference to Fig. 2 engages a large driving-pulley *g'*, which may be on a counter-shaft above or below the machine. Said belt passes over the pulley d^2 and under the pulley e^2, so as to impart motion to the saws in opposite directions. It may be here stated that the saws are set reversely—*i. e.*, the teeth of one extend oppositely to the teeth of the other. There are two tightening-pulleys applied to the belt *f*, one of them *f'* pressing against the belt in its stretch between the pulley *g* and the pulley d^2, while the other one f^2 engages the belt above the pulley e^2, and this latter tightening-pulley is hung in a swinging frame f^3. By moving this frame through connections provided for the convenience of the sawyer the tension on the belt can be varied at pleasure and altogether removed when necessary. In the arrangement here shown the counter-shaft is below the mill. When the counter-shaft from which power is derived is above the mill, the tightening-pulleys are simply reversed. Each saw is confined at its margin in guides of special construction. (Best illustrated in Figs. 4, 5, and 6.) Castings *h*, of inverted U shape, are erected on the table, one spanning each half of the table, and each casting is formed with a split-socket *h'*, extending through its upper side and designed to receive and hold the shank h^2 of the bifurcated saw-guide h^3. This shank is formed in one side with a series of teeth or notches h^4 and a clamping-bolt h^5, passed through the ears of the split-socket, and is formed with a tongue h^6 to engage any one of the notches. It will be seen that this construction provides for adjusting the guide up or down, and at the same time there can be no possibility of its dropping upon the saw after being once locked in position. The arms of the bifurcated guide are formed at their lower ends with split-sockets *i*, which receive and hold the screws *i'*, between the squared inner ends of which the saw is confined. These screws are adjusted to the thickness of the saw. Guides *j*, of similar form, embrace the edges of the saws at the front. (See Fig. 1.) There is a weighted roller *k* arranged to bear down and inward against the lumber opposite each saw, so as to hold the lumber in its proper place. Each of these weighted rollers is mounted on the end of a stem or arbor *k'*, which is pivotally supported on one of the castings *h* and connected by a rope k^2 to a lever k^3, swung from an overhead beam and controlled by the sawyer by means of a pendent rope.

It is evident from the nature of the machine that there must be a feed mechanism for each half of the table, but I have arranged to operate both feeds from one belt, the arrangement being of the following description:

A pair of spiked feed-rollers *m m'* is arranged on each table, and the journals of the rollers of one pair *m* are extended at one side of the machine to receive pulleys *n* and the journal *n'* of the left-hand pulley *n* is extended to the opposite side of the machine, where it carries a bevel-gear m^2, in mesh with a similar gear m^3 on a shaft *o*, extending longitudinally of the machine in bearings fastened to the side of the same. The journal *n'* is provided with a loose sleeve, which constitutes one of the series of rollers *c'*. The end spiked roller *m'* is reduced and extended to receive a loose sleeve which forms one of the rollers *c*. This shaft carries two other bevel-gears m^4, which mesh with similar gears m^5 on the journals of the rollers *m'*. A belt *p*, passing around the pulleys *n*, drives them in the same direction, producing corresponding motion in the feed-rollers *m*. The motion transmitted to the other feed-rollers *m'* is the reverse, however, by reason of its transmission through the bevel-gearing above described. The belt *p* in its lower stretch is carried around a small pulley *q* on the saw-arbor *d'*, and a tightening-pulley *q'* is arranged to engage the belt below said pulley *q*. This tightening-pulley is supported in a swinging frame q^2, and connections are made in any suitable manner, whereby the sawyers can operate this frame from either end of the machine, so that the feed-belt can not only have its tension changed at the will of the sawyer, but the feed can be instantly stopped at any time and through the above described means. The connections here shown for adjusting the frame q^2 comprise a bar q^3, extending the length of the table and connected at the center with the frame and having at each end a ratchet-rack q^4 for engagement with a keeper and also provided with a handle q^5.

Along the center-beam of the table I arrange two sets of guiding devices, each composed of a series of bell-crank levers, and each lever composed of a spindle *r*, extending vertically through the beam 9, (see Fig. 2,) an arm *r'*, fastened to the upper end of the said spindle and carrying a roller r^2 to bear against the lumber, and an arm r^3, fastened on the lower end of the spindle. There is a set of these bell-crank levers on each side of the longitudinal center of the table, and in one set the roller-equipped arms project on one side of the center beam, while in the other set the roller-equipped arms extend on the other side of the said beams. There is an operating-rod *s* for each set of bell-cranks, the rod being jointed to the lower arms and extending to the end of the machine, where it passes through a collar *s'* under the table, and is provided beyond this collar with a hand-nut s^2.

The general operation of the machine may be stated as follows: The logs, having first been quartered on a large circular or other sawing-machine, are delivered at one side of my machine and one of the operators passes

one of these quarters through the machine in the direction of the arrow in Fig. 1, the weighted roller *k* having first been raised and then allowed to drop on the quarter. The operator passes the quarter to the feed-rollers at that side of the machine and they feed it to the opposite end of the machine, causing a board to be cut off of the quarter from one square face, while the other square face rests on the table. It is to be noted that the quarter is between the saw and the outer edge of the table and the board is sawed off between the saw and the center of the table. Therefore, but a slight movement of the quarter is necessary to bring it into position for engagement with the other saw. So when the quarter reaches the operator at one end of the table he gives it a quarter-turn and shifts it slightly to bring it in proper relation to the other saw. In the meantime another quarter is placed on the table by the other operator, and thereafter two quarters are kept in the machine and both are sawed at once. The boards are sawed alternately from the two squared faces of the quarter, so that each board will be quarter-sawed.

Those skilled in the art cannot fail to recognize the great saving in time and labor effected by my invention, and also the reduction in width of the machine, allowing for economy of space in the mill.

The guide devices arranged along the center-beam of the table provide for accurate adjustment to the proper thickness of board to be produced. The usual board-splitters *t* are erected behind the saws.

It is obvious that I am not limited to the particular means here shown for embodying my invention, for it might be carried out in other ways.

It should be distinctly understood that I do not herein claim a longitudinally double saw-table having each half provided with an oppositely-driven saw co-operating with feed-rollers and an overhanging guide-roller adapted to rest upon and hold the quarter-log, as herein described; but

What I claim as my invention is as follows:

1. In a saw-mill, the combination of a longitudinally double table, oppositely set circular saws adjacent to the inner margins of the table-halves respectively, means for feeding different pieces of lumber in opposite directions over the table, and means for driving the saws in opposite directions.

2. In a saw-mill, the combination of a longitudinally double table, parallel saw-arbors extending transversely of the table, saws oppositely set on said arbor respectively, and positioned in proximity to the inner margins of the table halves respectively, means for feeding the lumber oppositely over different halves of the table, pulleys on the saw-arbors, a belt passing over one pulley and under the other, a driving pulley engaging said belt, and tightening pulleys applied to the latter.

3. In a saw-mill, the combination of a longitudinally double table, parallel saw-arbors extending transversely of the table, saws oppositely set on said arbors respectively, and positioned in proximity to the inner margins of the table halves respectively, means for feeding the lumber oppositely over different halves of the table, pulleys on the saw-arbors, a belt passing over one pulley and under the other, a driving pulley engaging said belt, and a tightening pulley applied to the latter and carried in a swinging frame.

4. In a circular saw-mill, the combination of a bracket or yoke spanning the table, a weighted roller on a stem pivoted to said bracket, and a saw-guide adjustably fastened in said bracket.

In witness whereof I affix my signature in presence of two witnesses.

JOHN A. HAUSER.

Witnesses:
R. G. DU BOIS,
GEO. R. HAMLIN.