(No Model.) 3 Sheets—Sheet 1.

J. LUGER.

CIRCULAR SAWING MACHINE.

No. 456,364. Patented July 21, 1891.

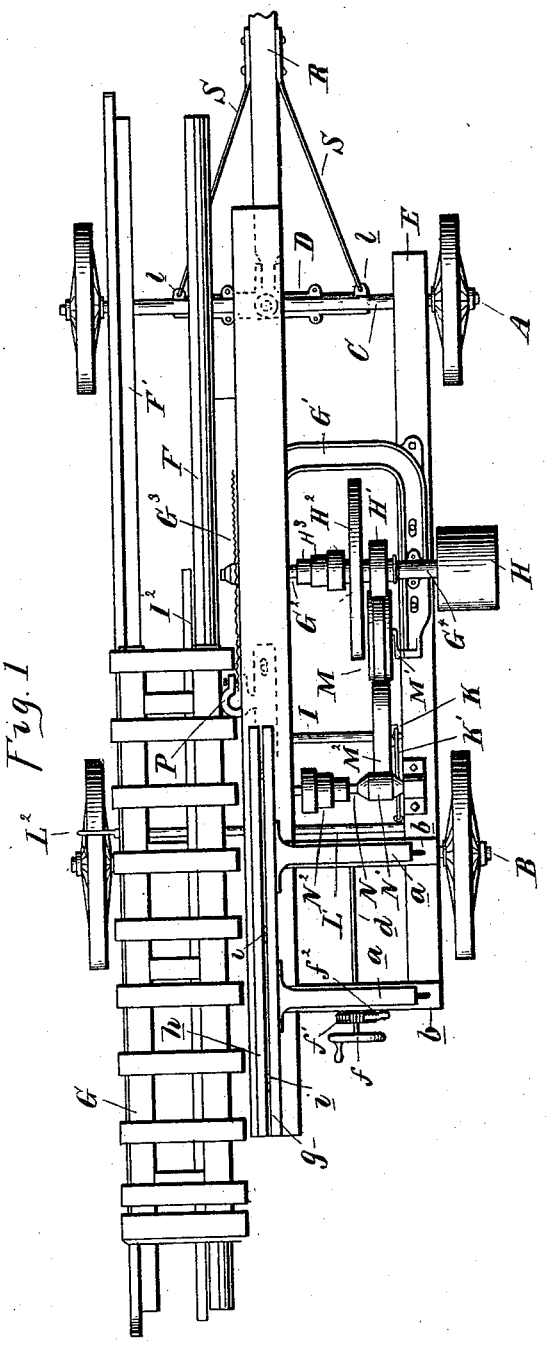

Fig. 1

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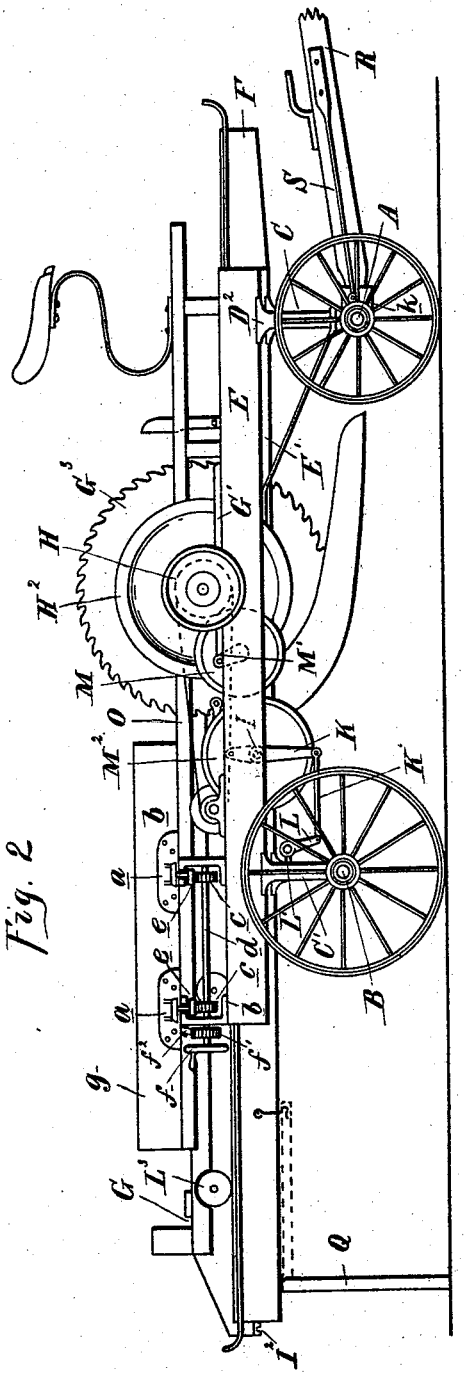

Fig. 2

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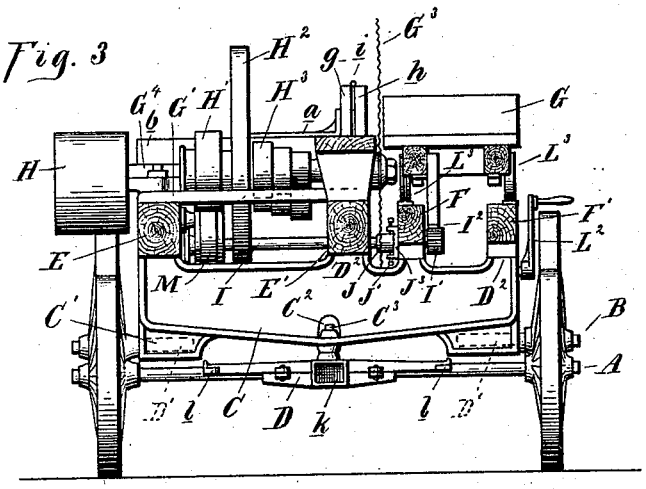
Fig. 3



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UNITED STATES PATENT OFFICE.

JOSEPH LUGER, OF LANSING, MICHIGAN.

CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 456,364, dated July 21, 1891.

Application filed September 25, 1890. Serial No. 366,155. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LUGER, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Circular Sawing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in picket-mills; and the invention especially relates to that class of picket-mills known as "portable"—that is, supported upon trucks.

The invention consists in the peculiar construction of the supporting-frame; further, in the novel construction of the driving mechanism and the mechanism for reversing the feed-carriage, and, further, in the construction of the feed-gage, and in the construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a plan view of my improved mill. Fig. 2 is a side elevation thereof. Fig. 3 is a front elevation of the same.

A is the front axle, and B B are stub-axles on the rear, which are supported upon suitable ground-wheels, and upon which are supported in any suitable manner the front and rear bolsters C C'. The front bolster is provided with a suitable socket C^2, through which the king-bolt C^3 engages, the king-bolt being secured to the upper half of a central box or bearing D secured to the forward axle. The rear bolster is provided with the sockets D', in which the stub-axles B engage. These bolsters are provided on their upper surface with suitable bearing-surfaces D'', of which there are four, two of said bearing-surfaces supporting the longitudinal timbers E E', which form the saw-supporting frame, the other two of these surfaces or bearings supporting the longitudinal timbers F F', which form the frame for the feed-carriage G. Upon the top of the saw-supporting frame is secured the U-frame G', the parallel portions of which are secured, respectively, upon each of the horizontal timbers, while the connecting portion spans the space between the two timbers and connects the parallel portions.

G^2 is the saw-arbor carrying the saw G^3. This arbor is journaled in suitable boxes G^4 upon the U-frame G', and at its outer end it carries a suitable drive-pulley H. Between the parallel portions of the U-frame this arbor is provided with a pulley H', fly-wheel H^2, and the cone-pulleys H^3.

I is the shaft secured to the under side of the saw-supporting frame in the rear of the arbor and parallel therewith, carrying at one end the pinions I', which engage with the rack-bar I^2 upon the under side of the feed-carriage G and forming the feed mechanism for said carriage. This shaft is journaled in a suitable box J, which is swiveled by means of the set-screws J' to the supporting-bracket J^3, which is secured to the longitudinal timber F. At the other end this shaft is journaled in the lever K, which is pivoted to the upper end of the carriage-supporting frame and extends downward, being connected at its lower end by means of the connecting-bar K' to the arm L upon the shaft L', which extends across the supporting-frame to the opposite side thereof and is provided with the crank-handle L^2. The carriage G is provided with suitable wheels L^3, one set of said wheels being grooved and adapted to engage with a T-rail. The other rail may be a flat one.

Motion is imparted to the shaft I to feed the carriage forward and reverse its movement by the following mechanism: M is a friction-pulley journaled to the inclined link M', so arranged that the weight of the pulley bears at all times upon the face of the pulley M^2, which is upon the shaft I. N is a third shaft journaled in suitable boxes upon the saw-supporting frame and parallel with the saw-arbor and the shaft I. This shaft carries the friction-pulley N' and the cone-pulleys N^2. The cone-pulleys N^2 are connected with the cone-pulleys H^3 by means of a suitable belt O. The carriage being in position to be fed forward to bring the work to the saw, motion being imparted to the saw-arbor from the pulley H, the belt O will revolve the shaft N in the same direction as the saw-arbor. The pulley M^2 being moved by means of the crank-lever and the connections described into engagement with the friction-pulley N' upon the shaft N, motion will be communicated thereto and to the shaft I and

pinion I′, by means of which the carriage will be fed forward past the saw. When it is desired to reverse the movement of the carriage, the crank-lever L^2 is turned in the opposite direction, thereby swinging the pulley M^2 out of engagement with the friction-pulley N′ and moving the pulley M into engagement with the pulley H′ upon the saw-arbor, thereby giving the reverse movement to the shaft I, which in turn, through the medium of the pinion and rack, returns the carriage to its initial position. The saw-gage, by means of which I gage the width of the pickets to be sawed, is especially designed for this use, as but two cuts are usually required in making the pickets—one to saw the blank to the proper width and the other to the proper thickness. To this end I construct my saw-gage in the following manner: *a* are two heads secured upon cross-bars *b*, preferably made of channel-bars, of the saw-supporting frame, and adjustable to and from the carriage by means of the pinions *c* upon the shaft *d*, which engage with suitable rack-bars *e* upon the under side of the heads *a*, a hand-wheel *f* upon the end of the shaft affording the proper means of turning the shaft forward or backward, and a ratchet-wheel *f′* and pawl f^2 serving to hold it in adjusted position. These heads are connected together by means of a bar *g* parallel with the carriage. To the upper end of this bar is hinged a second bar *h* by means of the hinges *i*. The bar *g* forms a gage for cutting the blanks to the proper width. When this is done, I turn down the bar *h* to the position shown in Figs. 1 and 3, which then forms the bearing for the work and gives the proper thickness of the pickets without the necessity of adjusting the head back or forward by means of the mechanism described. P is a suitable saw-guide slidingly secured in the top of the saw-supporting frame in any suitable manner. Q is a brace hinged to the under side of the rearward extension of the feed-carriage frame, adapted to support the same when the mill is at work and to be hooked up out of the way, as shown in dotted lines in Fig. 2, when the mill is to be transported from place to place. Any suitable draft mechanism may be attached to my mill, such as shown in the drawings, in which I provide the two-part box D, secured to the front axle, having a socket *k*, in which the tongue R is adapted to engage. S are draft-irons attached to each side of the tongue, the hooked ends of which are secured in apertures in the ears *l*, formed on the upper half of the box D.

What I claim as my invention is—

In a portable picket-machine, the combination, with the wheels, of bolsters having a series of four separate bearings on their upper edges and one provided with stub-axles, longitudinal timbers on the bolsters, a saw-supporting frame on two timbers, a feed-carriage on the other timbers, a U-shaped frame G′, connecting the saw-supporting timbers, a saw-arbor journaled in boxes on the U-shaped frame and carrying a driving-pulley H, a pulley H′ between the frames, a fly-wheel H^2, and a cone-pulley H^3, a shaft I, having a friction-gear M^2 thereon in the rear of the saw and carrying a pinion on its inner end, a swiveled journal-box for the inner end of the shaft I, a lever in which the opposite end of the shaft I is journaled, a connecting-bar K′ on the end of the lever, a shaft L″ in the rear of the shaft I, an arm in the shaft with which the bar K′ is connected, a crank-handle on the opposite end of the shaft L″, a rack on the under side of the carriage with which the pinion engages, a reversing mechanism consisting of a friction-pulley M, an inclined link M′, journaled in the frame and adapted to hold the pulley in contact with the pulley M^2, a shaft N, a friction-pulley N′, a cone-pulley N^2, and a belt between the same and the arbor, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 23d day of August, 1890.

JOSEPH LUGER.

Witnesses:
H. A. FRENCH,
C. A. MEAD.