(No Model.) 2 Sheets—Sheet 1.

J. W. FRANK.

CIRCULAR SAWING MACHINE.

No. 382,081. Patented May 1, 1888.

Fig: 1.

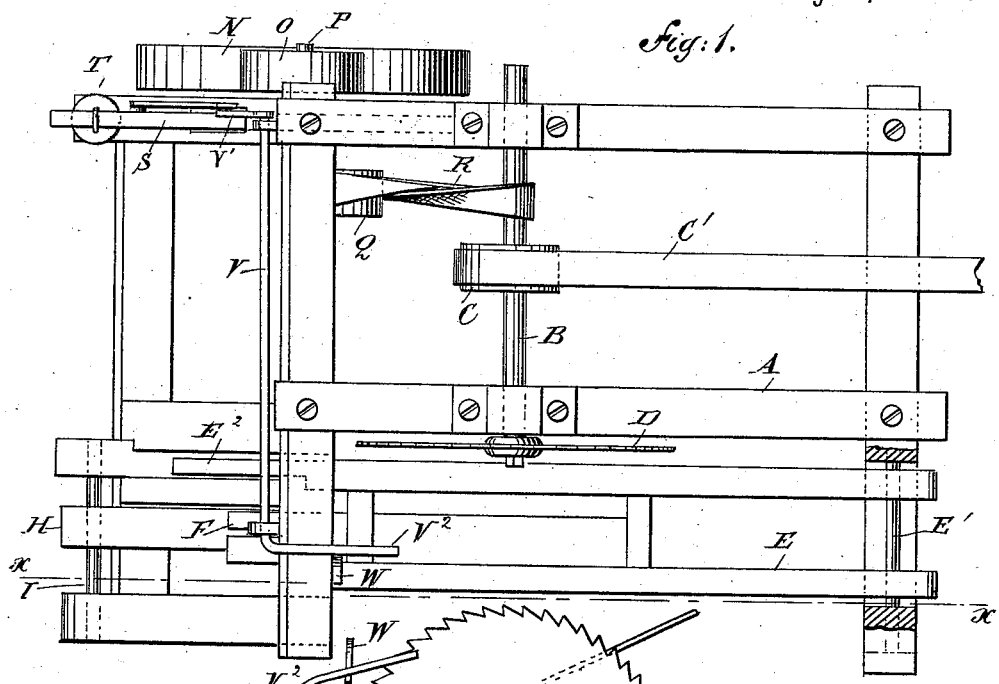
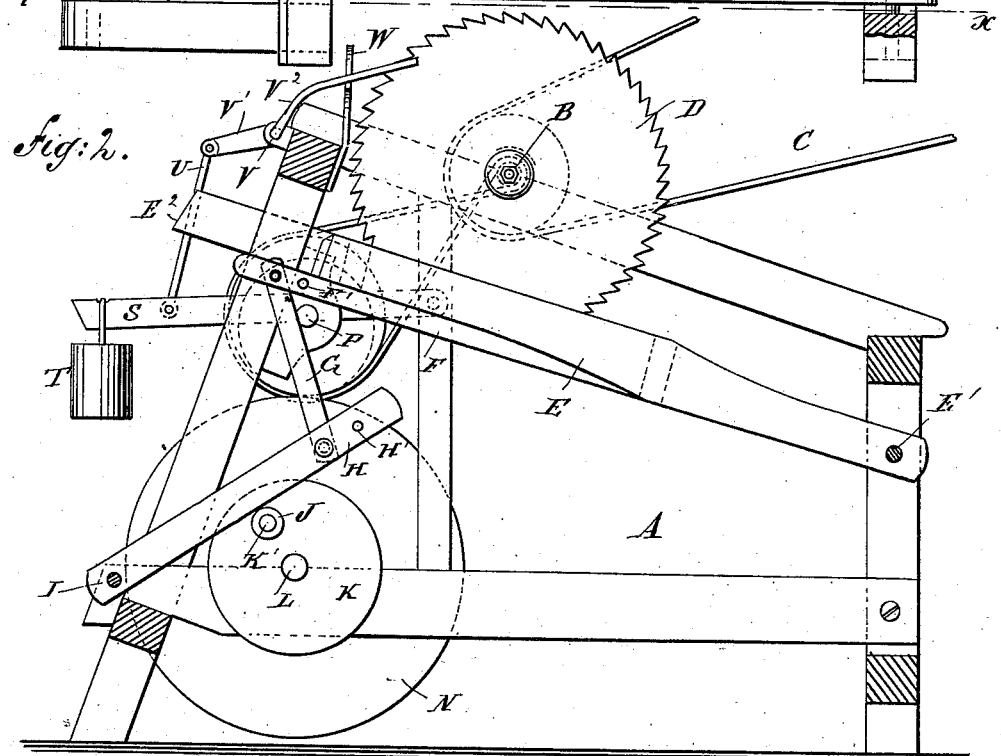


Fig: 2.



WITNESSES:

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(No Model.) 2 Sheets—Sheet 2.

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No. 382,081. Patented May 1, 1888.

Fig. 3.

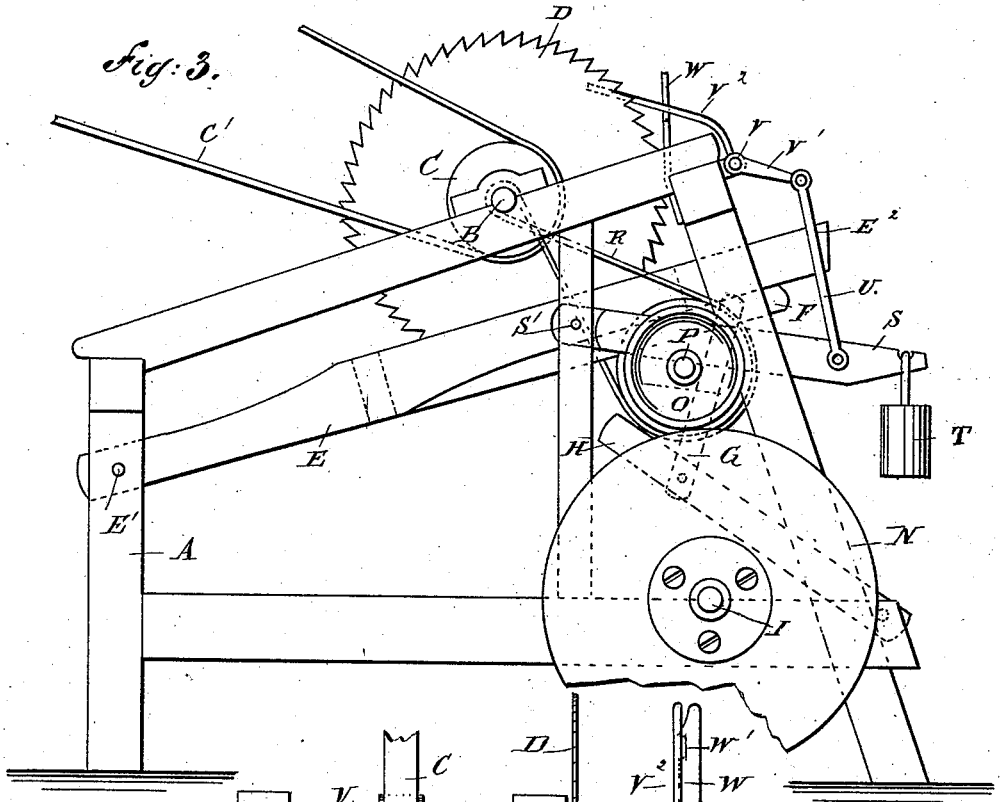
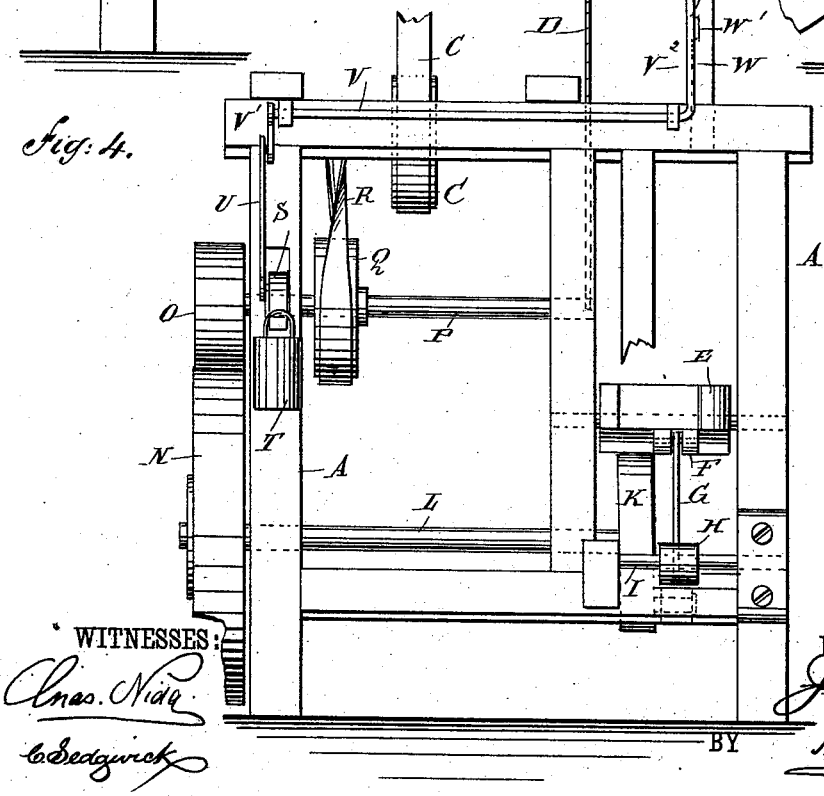


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH WARREN FRANK, OF EMPORIA, FLORIDA.

CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,081, dated May 1, 1888.

Application filed October 1, 1887. Serial No. 251,206. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WARREN FRANK, of Emporia, in the county of Volusia and State of Florida, have invented a new and Improved Feed Mechanism for Sawing-Machines, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved feed mechanism specially adapted for shingle or box sawing machines.

The invention consists of a pivoted frame supporting the block-carriage, of a crank-wheel connected with said carriage for imparting a swinging motion to it, and a friction-wheel for rotating said crank-wheel.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improvement with parts broken out. Fig. 2 is a sectional side elevation of the same on the line *x x* of Fig. 1. Fig. 3 is a rear side elevation of the same; and Fig. 4 is a front elevation of the same.

On a suitably-constructed frame, A, is mounted to rotate an arbor or spindle, B, carrying the usual driving-wheel, C, connected by a belt, C', with a suitable mechanism for imparting a rotary motion to the said arbor or spindle B. On the front end of the arbor B is fastened the saw D, in front of which operates the frame E, pivoted at its rear end at E' to the main frame A. The frame E supports the block-carriage, of any approved construction and not shown in the drawings.

On the free front end of the frame E is formed an extension, E^2, which passes between two guides formed in the front part of the main frame A, so as to prevent said frame E from wabbling in its up-and-down movement. On the under side of the frame E is secured a slotted arm, F, pivotally connected by a link, G, with an arm, H, fulcrumed at I on the main frame A. The arm H and the arm F are provided with a series of apertures, H' and F', respectively, for the purpose of adjusting the respective pivoted ends of the link G, so as to increase or diminish the amount of throw given to the frame E. The bottom edge of the pivoted arm H is engaged by a friction-roller, J, mounted on a crank-pin, K', held on the crank-wheel K, secured to the transverse shaft L, mounted in suitable bearings in the lower front part of the main frame A.

On one outer end of the shaft L is secured a friction-wheel, N, the rim of which is engaged by a friction-pinion, O, fastened on the shaft P, carrying the pulley Q, over which passes a crossed belt, R, also passing over the arbor B, so that when the latter is rotated said belt R imparts a rotary motion to said shaft P and its friction-pinion O. The inner end of the shaft P is held in a bearing secured to the frame A; but the outer end of the said shaft is mounted to rotate in a bearing formed on the arm S, pivoted at S' to the main frame A and carrying at its outer free end a weight, T. The outer free end of said pivoted arm S is also pivotally connected by a link, U, with an arm, V', secured to the transverse shaft V, mounted in suitable bearings on the top and front of the main frame A. The arm V^2 extends from the said shaft V and is adapted to engage a notch, W', formed in a rod, W, secured to the top of the main frame A.

The operation is as follows: The block of wood to be sawed into shingles or boards is placed on the block-carriage in the usual manner and said block-carriage is supported on the frame E. The saw-arbor B is rotated, as above described, thus setting the saw D in motion, and also imparting a rotary motion, by means of the belt R and pulley Q, to the transverse shaft P, which, when the arm V^2 is disengaged from its notch W', is held in its lowermost position by the weight T, acting on the pivoted arm S, so that the friction-pinion O engages the friction-wheel N, thus imparting a rotary motion to the transverse shaft L. The latter imparts, by means of its crank-wheel K and friction-wheel J, a swinging motion to the pivoted arm H, and the latter, by its link G, imparts a similar up-and-down motion to the frame E carrying the block to be sawed. When the arm H is in its upward stroke, the frame E makes a similar motion, whereby the block which it supports is brought in contact with

the lower part of the rotating saw D, which thus cuts into the said block as the frame E feeds it upward on the saw. The block is of such a length that when the frame E is in its uppermost position the saw D has cut a shingle or board off of the block on the block-carriage supported by said frame E. If shingles are to be sawed from the block, then the latter is tipped by suitable mechanism so as to cut a shingle with any suitable taper from said block. This tipping motion, of course, takes place when the frame E is in its lowermost position—that is, a suitable distance below the lower end of the circular saw D. It will be seen that the downward motion of the frame E is caused by its weight, and the upward motion is caused by the friction-roller J engaging the arm H, as before described. When the operator desires to stop the motion of the feed-frame E, he swings the arm V^2 downward until it engages the notch W', whereby the other arm V^2 raises the pivoted arm S, and thus lifts the outer end of the shaft P, so that the friction-pinion O, supported on said shaft, is thrown out of contact with the friction-wheel N, whereby the rotary motion of the latter ceases.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a sawing-machine, the combination, with the main frame and a feed-frame for carrying the block-carriage pivoted to the main frame, of a crank-wheel journaled in the main frame below the free end of the feed-frame, an arm pivoted to the main frame and engaging the crank of the said wheel, and a link pivoted to the free end of the said arm and to the under side of the feed-frame, substantially as herein shown and described.

2. In a sawing-machine, the combination, with the main frame and a saw-arbor journaled therein, of a feed-frame pivoted to the main frame, a crank-wheel journaled in the main frame below the free end of the feed-frame, an arm pivoted to the main frame and engaging the crank of the crank-wheel, a link pivoted to the free end of the said arm and to the under side of the feed-frame, and intermediate mechanism for operating the crank-wheel from the saw-arbor, substantially as herein shown and described.

3. In a sawing-machine, the combination, with a saw-spindle and a saw, of a shaft operated from said saw-spindle, means, substantially as described, for raising and lowering said shaft, a friction-pinion secured on said shaft and engaging a friction-wheel, a shaft carrying said friction-wheel and also provided with a crank-disk, a pivoted arm operated by the crank-pin of said crank-wheel, a link pivotally connected with said pivoted arm, and a feed-carriage pivotally connected with said link and moving in front of said saw, substantially as shown and described.

4. In a sawing-machine, the combination, with the saw-arbor and a transverse shaft operated from the saw arbor, of a weighted pivoted arm in which one end of said shaft is mounted, a link connected with the free end of said pivoted arm, an arm connected with said link and secured to a shaft, and a second arm fastened on said shaft and adapted to be held in a locked position, and means for locking the same in position, substantially as shown and described.

JOSEPH WARREN FRANK.

Witnesses:
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