2 Sheets—Sheet 1.

J. Du BOIS.

Mill for Sawing Shingle-Bolts.

No. 215,898. Patented May 27, 1879.

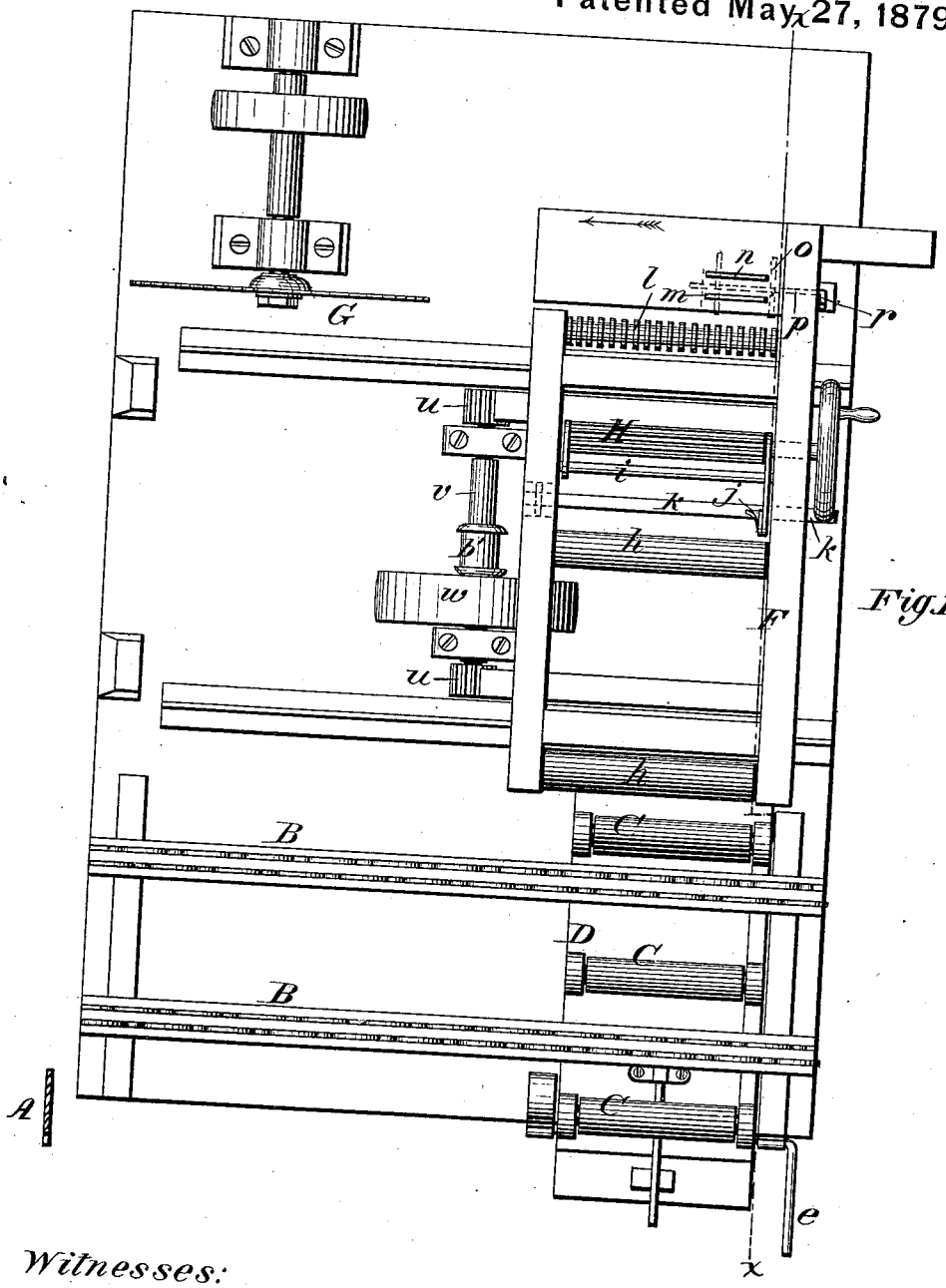

Fig 1.

Witnesses:

Donn P. Twitchell.

William W. Dodge.

Inventor:

John Du Bois.

By his Attys.

Dodge & Son

2 Sheets—Sheet 2.

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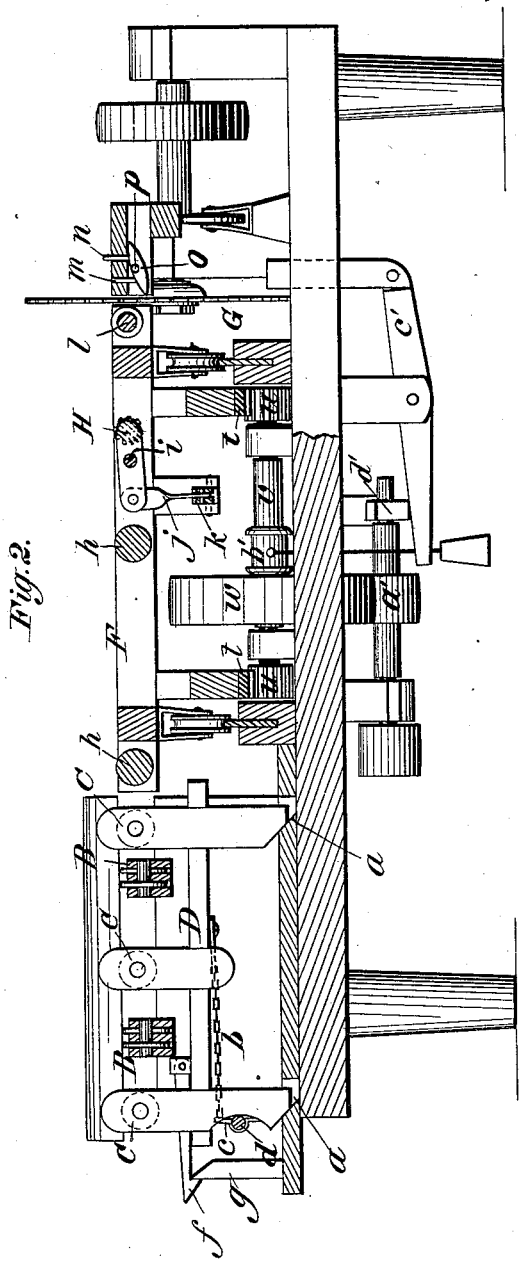

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN DU BOIS, OF WILLIAMSPORT, PENNSYLVANIA.

IMPROVEMENT IN MILLS FOR SAWING SHINGLE-BOLTS.

Specification forming part of Letters Patent No. **215,898**, dated May 27, 1879; application filed March 15, 1879.

To all whom it may concern:

Be it known that I, JOHN DU BOIS, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain Improvements in Methods of, and Mills for, Sawing Shingle-Bolts, &c., of which the following is a specification.

The object of this invention is to facilitate the operation of cutting logs into short lengths or bolts, such as are used in the manufacture of shingles, box-stuff, &c., and to insure the parallelism of the ends of the bolts, so that the material sawed therefrom will be of uniform length; and to this end it consists in mechanism of special construction and arrangement, as hereinafter described, and also in subjecting the log to certain operations in the manner and order hereinafter specified.

In the manufacture of shingles, box-stuff, and other small stuff of similar character, it is the universal custom to saw the logs in the first instance into short lengths, which are technically known as "bolts." The machinery now in use for doing this work consists of a truck or carriage, upon which the round log is placed, and of one or more drag or crosscut saws operated by a crank and pitman, and arranged to move forward and backward across the log until it is cut off. The log, being round, requires to be securely fastened prior to each cut, in order to keep it from rolling under the action of the saws. This operation requires considerable time, labor, and care, and as the logs are crooked and irregular on the outside, they frequently change their positions on the carriage as the sections are removed from the end, the consequence of which is, that the two ends of the bolts are not parallel, and that the shingles and other articles cut therefrom are of unequal length and do not have square ends. This defect renders it necessary to pass the bolts or the articles cut therefrom through a special squaring operation, involving additional time and expense, and the waste of considerable material.

It is to overcome the foregoing difficulties that my invention is designed; and it consists in dividing the logs endwise, passing them laterally over roller-skids, with their flat faces down, to transverse rollers, which are then elevated to facilitate the passage of the material endwise upon a carriage adapted to carry it sidewise against a crosscut-saw, and to feed it endwise as the successive sections are removed; and in the details of construction hereinafter specified.

Figure 1 represents a plan view of my improved mechanism; Fig. 2, a vertical section of the same on the line *x x*.

A represents a vertical saw of any ordinary or suitable construction, arranged in connection with an ordinary carriage for feeding the logs endwise thereto, in order to divide them lengthwise through the middle.

B B represent two roller-skids arranged parallel with each other, at a considerable distance apart and at right angles to the line of the saw A, for the purpose of receiving the ends of the split log and carrying the same laterally away from the saw. These skids, which have a slight downward inclination that the log may slide down them by gravity, consist each of a beam or support provided with rows of upright overlapping rollers arranged as shown, so as to afford a practically-continuous rolling surface to receive the logs, which are placed thereon with their flat faces downward.

At their lower ends the roller-skids extend between, and serve to deliver the split logs across, transverse rollers C, which are mounted in a vertically-adjustable frame, D. As the logs descend upon the skids the frame D stands in its depressed position, and the rollers C are below the level of the skids; but when the log is in position above the rollers they are raised by elevating frame D, so that they lift the log from the skids and support it in such manner that it may be moved endwise with great ease.

The roller-frame may be elevated in any suitable manner; but it is preferred to provide it with legs having their lower ends seated on inclines *a*, and to connect it by a link or chain, *b*, to a crank-arm, *c*, on a rock-shaft, *d*, provided with an operating-lever, *e*, by which arrangement the operation of the lever is caused to raise the frame. A catch, *f*, attached to the frame serves to hold the same in its elevated position by engaging with the fixed stud *g*, as shown.

F represents a laterally-moving saw-car-

riage, sustained by rollers and tracks, and so arranged that it may be brought with its end opposite or in line with the frame D to receive the logs therefrom, and then carried sidewise to present the log to a circular saw, G, arranged at right angles to the carriage and log, as shown. The carriage F is provided with transverse rollers *h*, to facilitate the passage of the logs endwise thereon, and also provided with a transverse vertically-adjustable toothed roller, H, which is provided with a hand-crank, and designed for the purpose of feeding the log endwise on the carriage as the successive lengths are removed from its end.

The manner in which the toothed roller is mounted is shown in Fig. 2, its journals being sustained in the arms of a rock-shaft, *i*, which has a third arm connected by a link, *j*, to a foot-lever, *k*, which extends forward in such position that it may be operated by the attendant while he is turning the roller-crank to advance the log. The carriage has in one end a transverse slit to admit the edge of the saw, and by the side of this slit there is mounted in the carriage a transverse roll, *l*, having circumferential teeth, the purpose of which is to prevent the log from yielding and being crowded back by the action of the saw. In the end of the carriage, beyond or outside of the saw-slit, there are mounted two transverse vertically-adjustable guides or stops, *m* and *n*, against which the end of the log abuts, and which serve to determine the length of the sections or bolts cut off. The two stops are mounted on opposite ends of arms *o*, secured to a rock-shaft, *p*, which is provided with a hand-lever, *r*, so that by moving the lever in the proper direction either stop may be elevated and the other at the same time lowered into the carriage. The first stop, or that nearest the saw, is used mainly when the last end of the log is too short to form a long bolt, but long enough to form a short bolt for match-sticks or similar material.

In order to feed the carriage forward to the saw, it is provided with two racks, *t*, which gear into pinions *u* on a shaft, *v*, which latter is provided with a pulley, *w*, to engage with a frictional driving-pulley, *a'*, and with a drum, *b'*, having a weighted cord attached.

The driving-pulley *a'* is thrown into and out of action by means of a foot-lever, *c'*, and a lever, *d'*, which latter forms a bearing for one end of the pulley-shaft.

When the foot-lever is depressed, the carriage is advanced toward the saw and the weighted cord wound upon the drum, and when the foot-lever is released the cord and weight turn the parts backward and cause the retreat of the carriage.

The operation of the entire apparatus is as follows: The log is first passed endwise to the saw, and either divided through the middle or a slab taken from one side, and then the log or the two halves are passed, with the flat face downward, down the roller-skids B to a point over the rollers C. The operator then depresses the lever *e*, thereby elevating the frame D and rollers C, and causing the latter to lift the log from the skids. The log is next moved endwise over the rollers C and onto the carriage F, the rollers of which admit of the movement being made with ease. The operator, placing his foot upon the foot-lever *k*, causes the toothed roller H to engage with the log, and by turning the crank at the same time he causes the end of the log to move up against one of the stops *m n*. As soon as the log is in this position a pressure on the foot-lever *c'* causes the frictional pulley to engage and carry the carriage toward the saw, which cuts a section or bolt from the log. As soon as the cut is completed the operator removes his foot, and the weight returns the carriage, whereupon the toothed roller is again brought into action, the log again advanced, and the first operation repeated, the log being thus cut into bolts or sections of perfectly uniform length, and with their two ends exactly parallel.

By dividing or slabbing the log in the first instance, and then handling it during all the subsequent steps with the flat face downward to form a bearing, I effectually overcome the difficulties which are usually encountered on account of crookedness and irregularity.

Having described my invention, what I claim is—

1. The combination of the saw A, skids B, vertically-adjustable rollers C, laterally-movable carriage F, and crosscut-saw G, substantially as shown.

2. The combination of the roller-skids B, adapted to carry the log laterally, and the vertically-adjustable rollers C, arranged to lift the log from the skids and facilitate its movement endwise.

3. In combination with the skids, the frame D, having inclined supports, transverse rollers, and a locking device, and the lever arranged to move the frame upward on the inclines.

4. The laterally-moving carriage F, provided with the vertically-adjustable feed-roll and the toothed roll, to prevent lateral movement of the log.

5. In combination with the carriage F and saw G, the two adjustable guides or stops *m n*.

6. In combination with the stops *m n*, the supporting-arms, rock-shaft, and hand-lever, as shown.

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