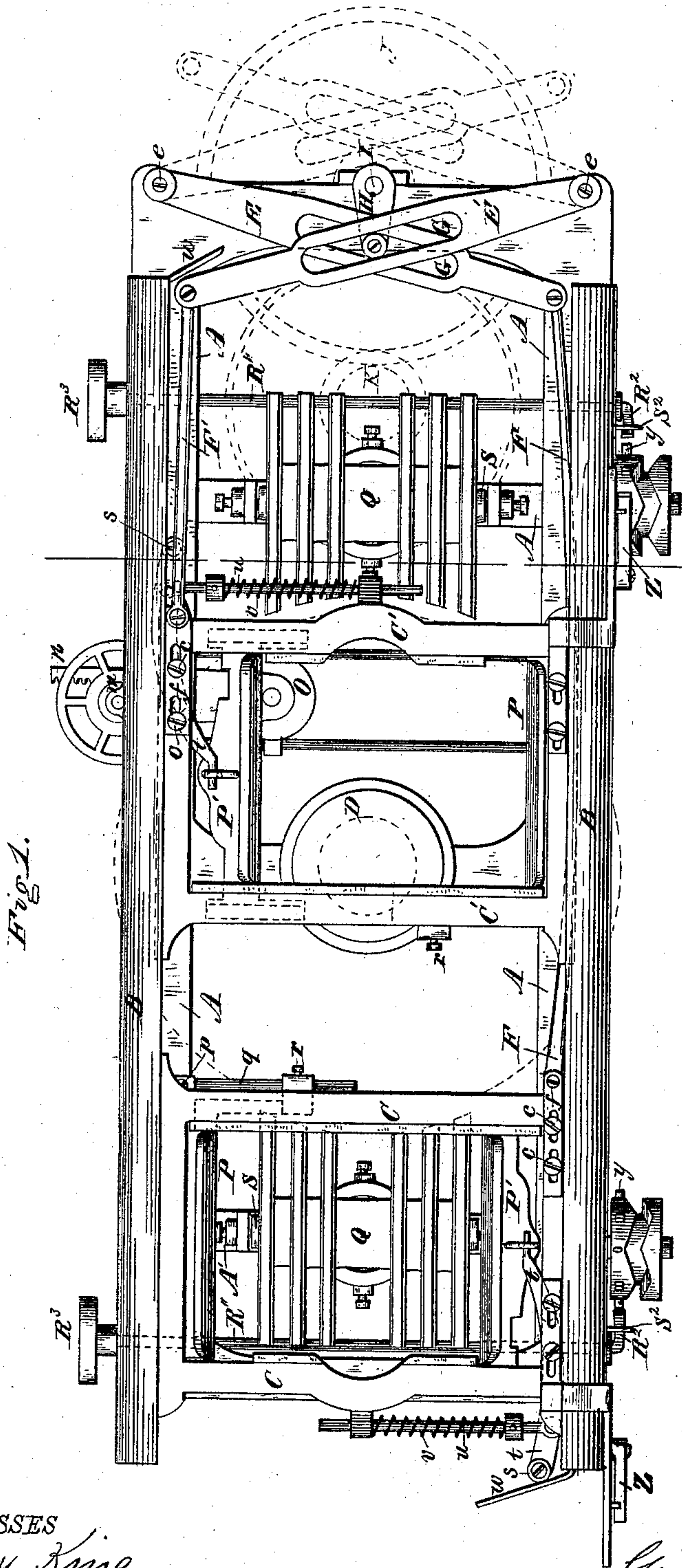


G. CHALLONER.
Shingle-Sawing Machine.
No. 214,490. Patented April 22, 1879.



WITNESSES
Harry King
William Blackstock.

By His Attorney

INVENTOR
George Challoner,
L. Hice

3 Sheets—Sheet 2



WITNESSES

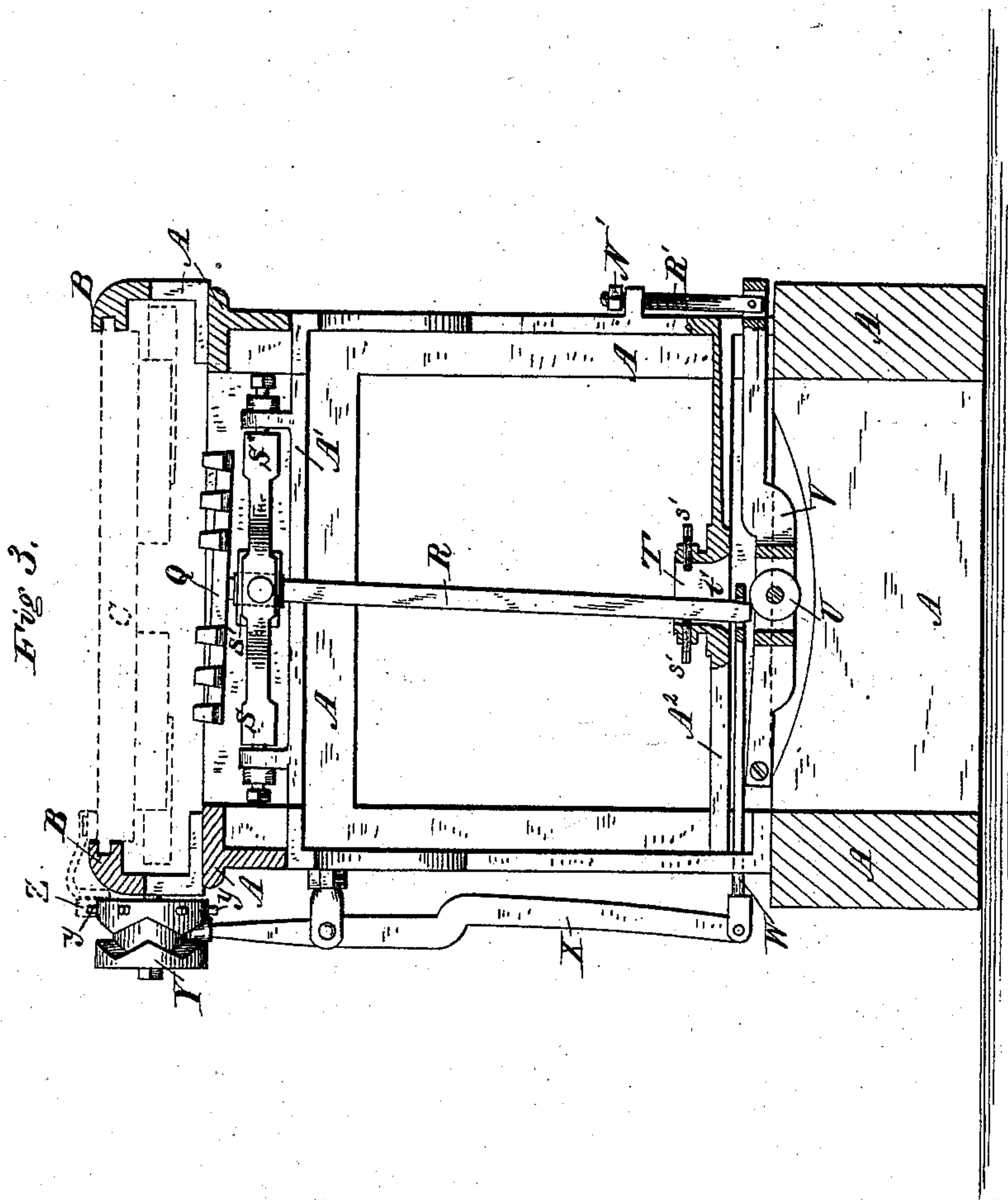
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UNITED STATES PATENT OFFICE.

GEORGE CHALLONER, OF OMRO, WISCONSIN.

IMPROVEMENT IN SHINGLE-SAWING MACHINES.

Specification forming part of Letters Patent No. **214,490**, dated April 22, 1879; application filed November 21, 1878.

To all whom it may concern:

Be it known that I, GEORGE CHALLONER, of Omro, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Machines for Sawing Shingles; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top or plan view of my improved machine. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse section, showing the mechanism for adjusting the inclination of the bolts with respect to the saw, and also the means for regulating the thickness of the shingles.

Similar letters of reference in the accompanying drawings denote the same parts.

My invention relates to improvements in that class of machines for sawing shingles in which two reciprocating carriages are employed in connection with a common saw located between them; and it consists, primarily, in mechanism for imparting a variable speed to the reciprocating carriages, whereby they are alternately slowly fed or advanced to the saw and quickly returned therefrom; and, secondly, in certain improved means for holding and adjusting the bolts so as to impart to the shingles any desired thickness or bevel, all as I will now proceed to describe.

In the accompanying drawings, A represents the frame of the machine, constructed preferably of metal; B B, the guides or ways for the carriages; C C', the carriages, and D the saw. E E' are yokes or levers, fulcrumed at opposite sides of the frame of the machine at *e*, and connected to the carriages C C', respectively, by means of rods F F'. These levers are each provided with a longitudinal slot, G, in which works a crank, H, secured to a vertical shaft, I. When the crank is rotated it plays back and forth in the slots, imparting to the levers a vibrating motion, which, in turn, is communicated to the carriages by the rods before mentioned.

It will be observed that as the carriages are alternately fed forward to the saw the crank H travels toward the outer end of the slots in their respective operating-levers and away

from the fulcrums *e e*, and consequently the leverage or power exerted upon said levers is increased and the speed correspondingly lessened, while on the return movement the crank travels in the slots toward the fulcrums, and thereby exerts a shorter leverage, and causes the carriages to move faster. A slow feed and rapid return are thus effected.

The operating-rods F F' are adjustably connected to the carriages by means of slotted plates *f f* and set-screws *c c*. The lower end of the shaft I is provided with a gear-wheel, J, which meshes with a pinion, K, on the pulley-shaft L.

A belt is passed loosely around the pulley M on the shaft L and around a pulley, N, on the saw-arbor. This belt is tightened or loosened, to throw the machine into or out of operation, by means of a tightening-pulley, O, mounted in suitable guides and adapted to be adjusted back and forth by means of a rack and pinion, *m n*, or by any other suitable means. Each carriage is provided with jaws P P' for holding the bolts, the former of which are adapted to be set at any desired point by means of a lever, *p*, rod *q*, and screw *r*, while the latter are arranged to clamp the bolt by spring-pressure in the following manner: A lever, *t*, pivoted to the carriage, is articulated at its inner end to the rear of the jaw P', and provided at its outer end with a friction-roller, *s*, rod *u*, and spring *v*. The tension of the spring *v* keeps the outer end of the lever forced back, and causes the jaw P' to tightly grasp the bolt. As the carriage returns from the saw the roller *s* engages with a cam-arm, *w*, and causes the outer end of the lever to be moved inward and the clamp P' to be removed from the bolt, the latter dropping on a grated bed or support, Q, in position for being again clamped.

For the purpose of adjusting the bolt so that it shall be presented to the saw at any desired angle, the support Q is provided with a depending shank, R, which passes through a universal-joint support, S S', arranged on the cross-piece A' of the frame, thence through a slotted box, T, located on a hollow cross-piece, A², its extreme lower end resting on a grooved roller, U, having its bearings in a cross-lever, V, as shown. Within the hollow cross-piece

A² is arranged a rod or bar, W, having a flat end, which rests upon the roller U, and is provided with an oblong slot for the passage of the end of the shank R. This rod, in turn, is jointed to one end of a lever, X, fulcrumed on the side of the frame of the machine. The opposite end of said lever is provided with a friction-roll, and works in a cam-wheel, Y, mounted on a stud on the guideway.

A series of studs or teeth, y, are arranged on the periphery of the cam-wheel, with which a gravitating pawl, Z, located on an arm projecting from the carriage, is adapted to engage. By this arrangement the forward movement of the carriage causes the pawl to turn the cam-wheel the distance of one tooth and the lever X to vibrate the rod W, and thus move the lower end of the shank R and tilt the support Q to the right or left. The box T on the cross-piece A² is provided with an oblong opening, t', to allow of the proper play to the shank, and with adjusting-screws s' s', to limit the extent of such play.

To regulate the thickness of shingles cut from the bolt, the lever V, which supports the lower end of the shank, is made vertically adjustable by means of a screw-rod and nut, R¹ N', or other equivalent means.

The operation of the machine is as follows: A bolt of timber is placed upon each of the supports Q, between the jaws P P'. Motion is then imparted to the saw by means of a belt applied to a pulley, H', on its arbor. The belt-tightening pulley is next adjusted up, so as to tighten the belt which passes around the lower pulley on the arbor and the large pulley M, and, through the medium of the before-described gearing, the crank H is rotated, thus causing the vibration of the levers E E' and the consequent reciprocation of the carriages. From the peculiar arrangement of the crank, slotted levers, and connecting-rods, the carriages are alternately fed forward at a moderate speed, the saw each time severing a section from the bolt. In said forward movement the gravitating pawls engage with the cam-wheels, causing the latter to vibrate the levers X and the rods W, and thus move the shanks R, so as to tilt the beds or supports in a direction opposite to that previously occupied by them. After the cuts are made the carriages return quickly to their first positions. When near the limit of their backward movement the spring-levers t strike the cam-plates on the guides and release the bolts from the jaws P P', thus allowing them to drop back again upon the supports Q to adjust themselves in position for being again clamped and carried forward to the saws for the next operation.

In order that the attendant may cause the machine to cut a succession of spindles from

the bolts with their butts all one way, I provide two cross shafts or rods, R'' R'', having their bearings in the main frame, as shown, and each having a right-angular arm, R², at one end, and a hand wheel or crank, R³, at the other end.

The point of the arm R² is adapted to engage with the teeth on the cam-wheels to turn the latter, as I will now proceed to explain.

After the carriage has moved up to the saw, and is returning, the hand-wheel R³ is turned, so that the arm on the end of the shaft bears upon one of the teeth of the cam-wheel, causing the latter to be turned backward one tooth, so that when the carriage is again fed forward the pawl thereon will simply act upon the same tooth previously moved by it, and maintain the same relative position of the bed carrying the bolt. Stops S² S² are arranged on opposite sides of the arm R², for the purpose of limiting the degree of movement of said arm.

The object of this mode of cutting is to maintain the proper run of the grain in the article severed, and also to produce as little waste as possible.

Having thus described my invention, I claim as new—

1. The combination of the slotted levers or yokes E E', pivoted at opposite sides of the frame, and connected by rods F F' to the reciprocating carriages C C', with the single crank H working in the slots of both of the levers, whereby the carriages are alternately fed slowly forward to the saw and quickly returned therefrom, substantially as described.

2. The beds or supports Q Q, having the shank R, combined with the universal-joint support S S', the reciprocating bar W, and the roller U, substantially as described.

3. The box T, arranged upon the cross-piece A², having the oblong opening t and adjusting-screws s' s', for the purpose of limiting the play of the shank and giving the desired inclination to the bed, substantially as described.

4. The beds or supports Q Q, rendered vertically adjustable to regulate the thickness of the shingles by means of the levers V and screw rods and nut R¹ N', substantially as described.

5. The combination of the pawls Z, cam-wheels Y, levers X, and bar W with the shank of the bed, substantially as described.

6. The shafts R'' R'', having the arms R² and wheels or cranks R³, in combination with the toothed cam-wheels, substantially as described, for the purpose specified.

GEORGE CHALLONER.

Witnesses:

JOHN CHALLONER,
GEO. H. HOLMES.