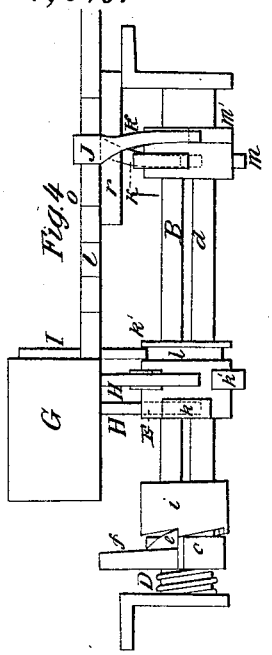
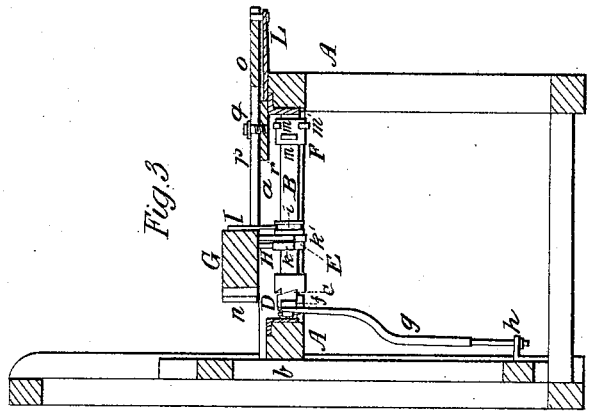
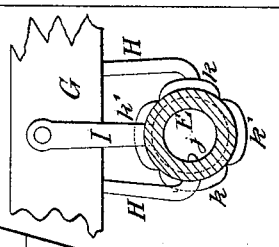
W. Wood,

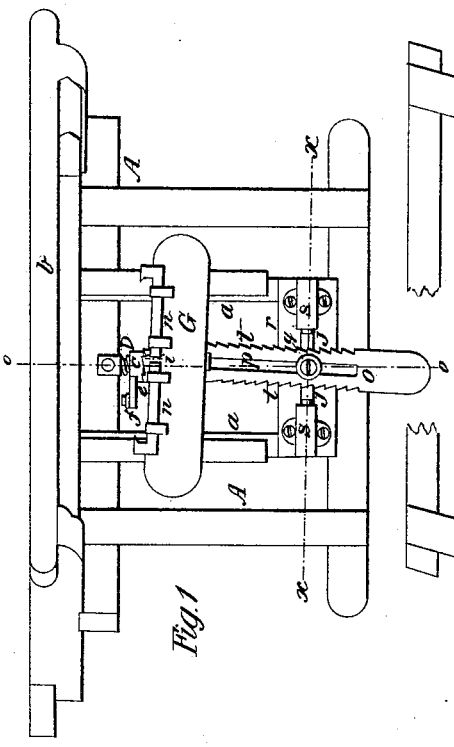
Cutting Shingles.

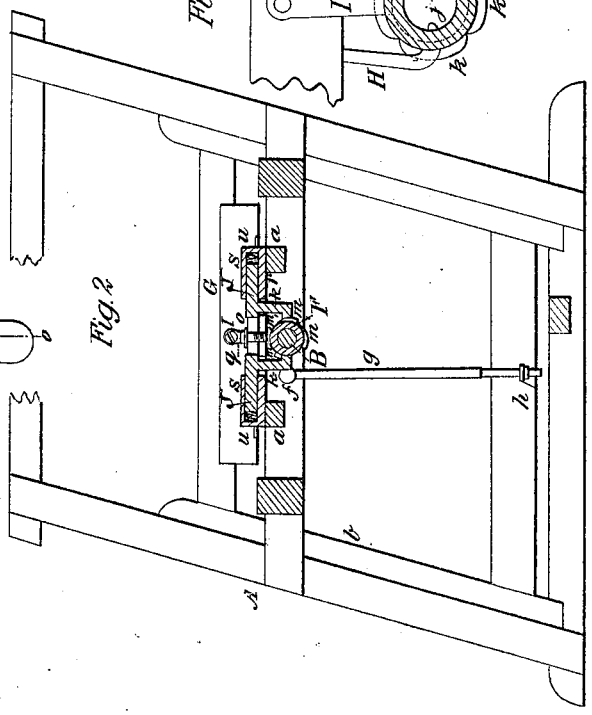
No. 7,010. Patented Jan. 8, 1850.











UNITED STATES PATENT OFFICE.

WILLIAM WOOD, OF WESTPORT, CONNECTICUT.

MACHINE FOR CUTTING SHINGLES.

Specification of Letters Patent No. 7,010, dated January 8, 1850.

To all whom it may concern:

Be it known that I, WILLIAM WOOD, of Westport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Machines for Cutting Shingles, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a top or bird's eye view of the improved machine. Fig. 2, is a longitudinal section of ditto at the line *x x* of Fig. 1. Fig. 3, is a cross section of ditto at the line *o o* of Fig. 1. Fig. 4, is a side view of the horizontal shaft, sliding cam, and other attachments on a larger scale. Fig. 5, is an end view of the sliding cam, on the same scale.

Similar letters in the figures refer to corresponding parts.

The nature of this invention and improvement consists in securing the block of wood, from which the shingles are to be cut, to a vibrating carriage, arranged on suitable ways immediately in front of an inclined sliding frame containing a knife, and causing said carriage with the block, to be drawn toward the knife, and vibrated at each up and down movement of the knife, by means of springs, notched bar, cams and other appendages, in such a manner as to cause the carriage to vibrate and adjust the wood in such relation to the knife to cut a tapered shingle at each downward movement of said knife.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the frame, made of a rectangular form in front, and provided with ways (*a*) bound with iron at its upper part, and with inclined fender posts at its back, grooved on their sides nearest each other to allow of a trapezodial formed frame or gate (*b*), having a knife secured in the same, moving up and down between them.

B is a horizontal transverse shaft, having a groove (*d*) made lengthwise in its periphery, and turning in suitable boxes in the frame, midway between, and a short distance below the upper surface of the ways (*a*).

C is a circular collar or hub inserted loosely on the back end of the horizontal shaft, provided with a notch (*e*) on its periphery, and a radial arm (*f*), having a curved connecting rod (*g*) attached by a pin to its outer extremity, which extends downward and passes through the projecting end of a right angled plate (*h*), secured to the lower timber of the knife frame or gate, and is provided with a nut at its lower end below the right angled plate, and a shoulder above said plate, so as to allow of it moving a short distance loosely in the plate.

D is a spiral spring surrounding the horizontal shaft, between the collar or hub C, and the metallic box in which the back end of the shaft B turns, for pressing said collar or hub in contact with a clutch or notched wheel (*i*), secured permanently to the shaft B so as to cause the notch (*e*), of the hub C, to engage with the notches of said clutch (*i*), when desired.

E is a cam wheel or collar, surrounding the horizontal shaft B, and moving longitudinally on the same, being prevented from revolving on the same by a cog or pin (*j*) on its inner periphery, entering the groove (*d*). The cams on this wheel consist of four protuberances (*k k'*) rising from the periphery of the wheel or collar E the two marked (*k*) at the back part of the collar being formed immediately opposite each other and the remaining two (*k'*) (likewise opposite each other) being formed in advance and midway between the first mentioned, so that the four will be the same distance apart. A circular groove (*l*) is formed in this wheel or collar in advance of these cams.

F is another hub or collar similar in diameter to the last mentioned, secured to the forward end of the horizontal shaft B, and having four cams or teeth (*m m'*) formed on its periphery, in the same relation to each other as the cams (*k k'*). These cams or teeth (*m m'*) somewhat resemble a right angle triangle or a bill hook tooth, and the abrupt edges of the forward ones (*m'*) are on a line with the centers of the forward cams (*k'*) and the abrupt edges of the back ones (*m*) are on a line with the centers of the back cams (*k*).

G is the vibrating carriage, consisting of an ablong timber placed on the ways (*a*), having suitable dogs (*n*) attached in front for holding the timber, from which the shingles are to be cut, and at its center and forward part an oblong bar (*o*) extending beyond the front part of the frame, and having a slot (*p*) lengthwise in its center, through which passes a screw (*q*) having a washer below its head, entering a female

screw in an oblong metallic plate (*r*), secured to the forward part of the ways, for holding said slotted bar and vibrating carriage in a horizontal position.

H are rods extending downward from the vibrating carriage, one on either side of the cam wheel or collar E, curved toward each other at their lower ends, and arranged one in advance of the other, so as to bring the lower end of the right hand one opposite the cams (*k*), as shown in Figs. 4 and 5, and the lower end of the left hand one opposite the cams (*k'*), to cause the carriage to be vibrated alternately during the revolution of said cams.

I is an upright plate secured to the front part of the carriage and extending below the same and entering the groove (*l*), in the cam wheel or collar E, for causing the same to be moved forward and back with the carriage.

J are horizontal bolts, inserted in longitudinal tubes (*s*), arranged on a line with each other at the extremities of the oblong metallic plate (*r*), and closed at their outer ends, and provided with ears on their sides through which pass screws by which they are secured to said plate. These bolts are made square on their sides, outside the tubes, and are made angular at their ends next each other to correspond with notches (*t*) formed in the edges of the slotted bar (*o*) into which they are pressed by small spiral springs (*u*), arranged within the tubes between their closed ends, and the ends of the bolts J. The notches (*t*) in the edges of the slotted bar (*o*) are in the form of a right angle triangle, and those on one side are formed half their length in advance of those on the opposite side, so as only to allow the end of one of the bolts J to be fairly in a notch at a time.

K are inclined bars, extending downward from the angular ends of the bolts J, through slots in the oblong plate (*r*) on either side of the collar or hub F, and bent toward each other at their lower ends so as to bring the end of the right hand one, opposite the back cams or notches (*m*), and the end of the left hand inclined bar opposite the forward cams (*m'*).

L is an india rubber (or other if desired) spring, secured to the top of the forward part of the frame, and attached by a screw, to the forward extremity of the slotted bar (*o*), for pressing the notches in the sides of the bar against the ends of the bolts J.

Operation: The block of wood from which the shingles are to be cut being dogged to the carriage G, an up and down motion is communicated to the sliding frame or gate (*b*), containing the knife, causing the projecting end of the right angled plate (*h*), to strike against the shoulder of the connecting rod (*g*), in its upward movement, and to turn the hub or collar C loosely on the horizontal shaft B, the spiral spring D yielding to allow of this result. When the gate descends the projecting arm of said plate (*h*), will strike the nut on the end of said connecting rod (*g*) and will cause the tooth (*e*), on the hub C, now engaged with the clutch (*i*), to turn the horizontal shaft B, so as to cause one of the back cams (*k*), to strike the end of the right hand bar H, so as to vibrate the wood (the screw (*q*) being the vibrating point) from which the shingles are to be cut to the right, a sufficient distance to give the proper taper to the same, before the knife reaches the wood. The outer surface of the cams (*k k'*) being of the form of a segment of a circle, scribed from the center of the shaft B, as represented in Fig. 5, the carriage G will be held firm in its position by the action of the outer surfaces of the cams (*k*), on the end of the right hand bar H until the knife has cut through the wood and the shingle is cut. At the same time that the back cam (*k*) is performing the office above stated, the back cam or tooth (*m*), is operating on the right hand inclined bar K and forcing it with the right hand bolt J (the spring (*u*) in the tube (*s*) yielding to allow this result) and the instant the shingle is cut, the right hand bolt J is detached entirely from the notches (*t*), in the slotted bar (*o*), and the slotted bar is forced forward with the carriage the required distance for a fresh cut, by the india rubber spring L, the progress of the slotted bar (*o*) being arrested by the left hand bolt J engaging in the next succeeding notch on its side. When the gate (*b*) has descended to its lowest point, the horizontal shaft B has been turned sufficiently to turn the cam (*k*) past the right hand bar H, and the cam or notch (*m*) past the right hand inclined bar K, so as to allow of the left bolt J being pressed against the slotted bar (*o*) to arrest it at the next succeeding notch when disengaged from the right hand bolt at its opposite side. When the gate is again raised and brought down the forward cam (*k'*) of the sliding collar or wheel, will be caused to strike the left hand bar H, so as to vibrate the carriage to the left and the cam or notch (*m'*) to strike the left hand bar K, to release the bolt J from the slotted bar, and the same results will be produced as in the foregoing case, except that the butt and taper of the shingle will be reversed. And so on in this manner the operation is continued, the block being moved right and left alternately, and forced toward the knife until it is entirely cut up.

What I claim as my invention and desire to secure by Letters Patent, is,

The mode of moving the carriage G sidewise, and forcing the same toward the knife,

alternately, by means of the cams (*k k'*), moving over the grooved shaft B, by means of the bar I and groove (*l*), operating on the curved bars H, cams (*m m'*) inclined bars (*k*) bolts J arranged in the tubes (*s*), and pressed against the notches (*t*) of the slotted bars (*o*) by the spiral springs (*u*) spring L the whole arranged and operated substantially in the manner, and for the purpose herein set forth.

WILLIAM WOOD.

Witnesses:
A. J. LLOYD,
JOSEPH WEEKS.