W. Wood,

Cutting Shingles.

No. 3,495. Patented Mar. 20, 1844.

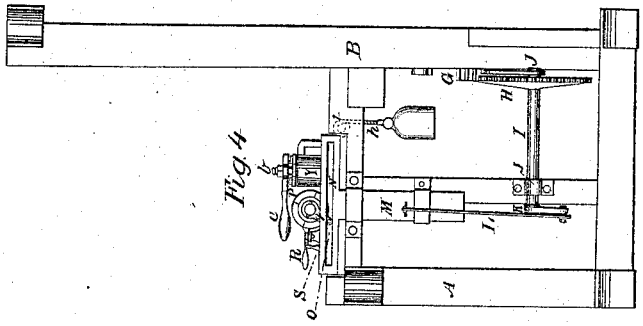

Fig. 4

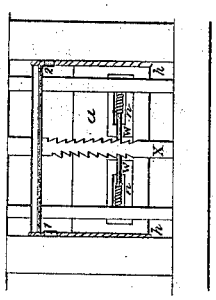

Fig. 3

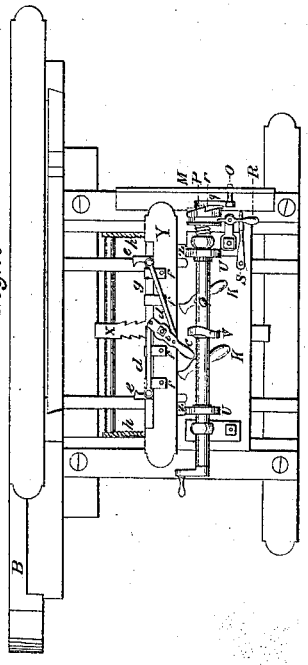

Fig. 2

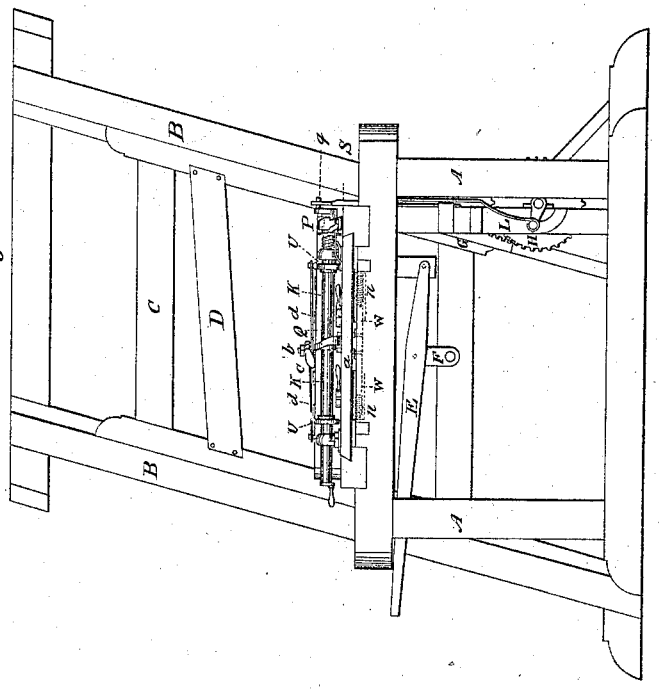

Fig. 1

UNITED STATES PATENT OFFICE.

WM. WOOD, OF WEST PORT, CONNECTICUT.

MACHINE FOR CUTTING SHINGLES.

Specification of Letters Patent No. 3,495, dated March 20, 1844.

To all whom it may concern:

Be it known that I, WILLIAM WOOD, of West Port, Connecticut, have made certain new and useful Improvements in Machines for Cutting Shingles, Laths, Staves, Slats for Window-Blinds, &c., and that the following schedule contains a full and accurate description of said improved machine and the operation of the same as invented by me.

Similar parts of said machine as given in the annexed drawings are represented by the same letters of reference.

Figure 1 exhibits a vertical, or elevated side view, of said machine, the frame of which is similar in parts, to Walcotts and other machines for like purposes. Fig. 2 exhibits the top view, Fig. 3 the bottom, and 4, the end view.

The horizontal bed, or carriage, being supported by four parts, two upright A A, and two inclined B B. The latter are rabbeted out, in the opposite inside corners, for the admission of the knife-gate C, in which the knife D is set in a horizontally inclined position, edge downward. Said gate and knife are operated by means of the lever E, which is connected to the bottom rail of the gate by the stirrup F, or otherwise. To one of the said rails of C, is laterally secured the rack G which gears into the pinion H; said pinion is supported upon one end of the horizontal shaft I, which has bearings in the boxes J, J, upon the posts of the frame aforesaid. At the opposite end of I is attached the crank K, upon the outer end of which extends a vertical pitman L, (see side views, Figs. 1 and 4,) to a T shaped cross head M, which is moved up and down by the motion of the gate C, and the intermediates G, H, I, K, and L aforesaid. The horizontal portion of the cross-head M, has a mortise or gain N, extending its whole length in which the pin O, (projecting from the ratchet lever *q*) is made to traverse, while the machine is in operation. Said ratchet-lever *q*, is formed with a flange or tooth *r*, projecting from one side, which catches successively into four notches or teeth, projected from the side of the spring-clutch P, which is situated upon and near the end of the horizontal cam-shaft Q, the extreme outer end of which shaft passes through and forms a fulcrum for the end of the ratchet-lever *q*. Around the periphery of the clutch P, a groove is turned out, into which is inserted the end of the disengaging lever R, by means of which said clutch is forced in and out, to and from, the ratchet lever *q*, and which lever R is held by the spring-latch S, in any required position.

Upon the shaft Q, are three cams, one central, V, and two outside, U, U. The latter are oval, with their elipses at right angles with each other and equidistant from the cam V. Said cam V, is a perfect circle upon its periphery, but has four serpentine side windings or inflections, right and left, the projecting angles or curves of which operate as side-cams alternately, in throwing out two bolts W, W, from the side teeth of the double rack X. Said bolts being placed horizontally underneath the carriage *a*, and at right angles with the said rack X, one on each side of the same, and in a line with each other, the same being pressed into the teeth of said rack by the spiral springs *n n*, Fig. 3, which exhibits said bolts with said springs coiled around the same. Opposite to the cams U, U, is placed two fenders *z*, *z*, secured to the side of the head-block Y, by hinge-joints at their outer ends, and supported in a horizontal position by check-pins in said head-block at their opposite ends. The cam-shaft Q and head-block Y are placed laterally in a horizontal position upon the carriage *a*, to which said head-block is attached by the king-bolt *b*, which passes vertically through its center, and upon which bolt said head-block has a horizontal vibrating motion. The upper end of the said king-bolt *b*, forms a fulcrum for the compound grappling-lever *c*, from which, near said fulcrum, extends two straps, or contracting rods *d d*, to the outer ends of which are attached the grappling hooks *e*, *e*, which hooks are formed upon the outer ends of the slides *g*, *g*, which slides move in a recess made in the upper corner of the head-block Y, where they are secured by the straps *f*, *f*, *f*, *f*. Near each end of the carriage *a*, is attached two cords *h*, *h*, which extend horizontally to and pass down over pulleys 1, 2, near the gate G, having a weight suspended to the ends of the same. Upon the upper surface of the carriage *a*, is secured two set-levers *k*, *k*, which are made to sweep horizontally upon fulcrum-pins, near their centers, and their imping-

ing ends to bear equally against the side of the head-block Y, when placed at right angles with the same.

Having given a full description of the form of the parts and arrangement thereof, in my said improved machine, I now proceed to describe the operation of the same.

First, I place the bolt or block of wood, (to be cut into shingles, &c.,) against the face of the head-block Y, and by a horizontal movement of the lever *c*, secure said block, by the grappling hooks *e*, *e*, the knife-gate C, being now set in motion by the lever E, (or otherwise). The rack G, now gives motion to the cam-shaft Q through the pinion H, shaft I, crank K, cross-head M, pawl-lever O, and spring-clutch P, which produces one quarter revolution of said shaft at each ascent of the knife-gate aforesaid; and thereby brings the elliptical projections of the cams U, U, alternately against the fenders Z, Z, thereby producing the requisite vibrating motion of the head-block Y, and the consequent wedge, or taper to the shingles, &c., cut from the bolt, or block, as before described at each descent of the knife D, the carriage being gradually brought up to the said knife, by the weights upon the cords *h*, *h*, and regulated by the spring bolts W, W, which bolts are alternately disengaged from the teeth of the double rack X by the central cam V as before described.

Said machine is furnished with various racks made with graduated teeth for the different thicknesses of shingles, &c., to be cut, the taper or wedge of which is varied by setting the elliptical cams U, U, nearer to or farther from the central cam V, which is a convenient and expeditious plan of adjustment. When staves, slats for window-blinds, &c., are to be cut, the change and adjustment of this machine is effected by raising the ends of the fenders Z, Z, to a vertical position, and thereby preventing the impingment of the cams U, U. The set-levers K, K, are next brought at right angles with the head-block Y, their ends bearing against the side of and securing the same in a fixed position, parallel to the shaft Q and the knife D, as before described.

The expeditious mode of adjustment and adaptation of this improved arrangement for cutting both tapering and parallel sided slats, as above described, I have not found equaled by any other machine for like purposes.

What I claim as my invention and desire to secure by Letters Patent as an improvement in the above described machine, is

The combination and arrangement of the head-block Y with the shaft Q, cams U, U, and V, carriage *a*, and cross-head M, rack G, and pinion H, arranged in the manner (or that which is substantially the same), and for the purposes set forth and described in the above specification.

New York, February 29th, 1844.

WILLIAM WOOD.

Witnesses:

EDMD. ELMENDORF, JR.,

WALTER HAND.