October 25, 1913.

DRAWING

2,481

A careful search has been made this day for the original drawing or a photolithographic copy of the same, for the purpose of reproducing the said drawing to form a part of this book, but at this time nothing can be found from which a reproduction can be made.

Finis D. Morris,

Chief of Division E.

AWK

# UNITED STATES PATENT OFFICE.

HIRAM H. HERRICK, OF BOSTON, MASSACHUSETTS.

## MACHINE FOR CUTTING SHINGLES.

Specification of Letters Patent No. 2,481, dated March 9, 1842.

*To all whom it may concern:*

Be it known that I, HIRAM H. HERRICK, of Boston, in the county of Suffolk, in the State of Massachusetts, have invented new and useful improvements in machinery for cutting and forming shingles or such other articles from blocks of wood as may be successfully produced by the same, and that the following is a full and exact description of the construction and operation of said improvements, which description, taken in connection with the accompanying drawings hereinafter referred to, forms my specification, wherein I have set forth the principles of my improvements by which they may be distinguished from others of a like character and such parts or combinations as I claim to be my invention and for which I solicit Letters Patent.

Of the drawings above referred to Figure 1, represents a top view of a shingle machine constructed with my improvements. Fig. 2 is a front elevation and Fig. 3, is a right hand side elevation of the same.

The power which drives the machinery is applied by means of a belt to a drum or pulley A, Figs. 1, 3, fixed on the rear extremity or end of a horizontal shaft B; the journals of which shaft are supported and revolve in proper bearings or boxes C, C, arranged upon a metallic frame D Figs. 1, 2; the said frame being suitably shaped and formed to sustain the operative parts which are attached to it, and is bolted and rests upon the top or upper surface of another frame or wooden table E, as seen in the drawings.

A fly wheel F, to regulate the movements of the machinery, is placed upon the shaft B at about the middle or any other convenient part thereof, and between said fly wheel and the pulley A, a cogged pinion G, Fig. 1, is also fixed on the shaft B; the teeth of said cogged pinion engaging with those of two geared wheels H, I, each of which is arranged on one of two horizontal shafts K, L, which are parallel to the shaft B and whose respective journals rest and revolve in boxes M, M, M, M, Figs. 1, 3, secured upon the frame D.

A crank N is secured on the front extremity of each of the shafts K, L, or that part of each of the shafts which projects front of the frame D; one of the said cranks being connected or jointed to one end of a steel knife O, while the other crank is similarly attached to the opposite end of the knife as seen in the drawings. Therefore as the shafts K, L, are revolved, the cranks N, N (turning with the same) will alternately elevate and depress the knife O, and will also give to said knife a reciprocating lateral movement, the knife passing sidewise toward the left as it descends through the block of wood from which the shingles are cleft, and until the cranks are horizontal, when as it descends further it is moved laterally in the opposite direction while the cranks are performing a half revolution. By this arrangement of the knife upon the cranks a "drawing" stroke is effected as they pass through the block of wood; by which the knife is made to operate with great facility and perfection upon the wood, and separates the fibers so easily as to produce very smooth surfaces upon the pieces removed.

The block of wood having first undergone the process of "steaming" is placed on the upper surface of a table P, arranged upon the framework E in front and extending partly under the knife O. It (the block) is represented in Fig. 1, by red dotted lines and is supported between two suitable dogs Q, R, which extend from a long bar S, which latter rests as seen in the drawings upon or directly over the table P and extends over the top of the table in a direction nearly parallel with the knife O. One end of the bar S is connected or jointed to one end of a toothed rack T; which rack extends on the side of the frame D horizontally and at right angles from the bar and has its teeth or cogs upon its upper surface. The opposite end of the bar is similarly connected with a similar rack U. A cogged pinion V, arranged upon a short horizontal shaft W Fig. 2, engages with the rack T, and a ratchet wheel X is fixed on the shaft W, which ratchet wheel is operated upon by a pawl Y, whose other end is connected or jointed with the outer end of an arm Z extending from a vertical shaft *a* Figs. 1, 3. Another arm *b* Fig. 1, projects back from the shaft *a* at right angles or thereabouts to the arm Z, from which arm *b*, a rod or bar *c* extends to an eccentric *d* arranged on the side of a cogged wheel *e*, which together with the eccentric is placed and turns loosely upon the shaft B in the position seen in the drawings. The cogged wheel *e* is put in revolution by a cogged

pinion *f* fixed upon the shaft L. A rod *k* is jointed at one end to the arm *b*. and extends horizontally and is similarly connected to another arm *g* on the opposite side of the apparatus. The machinery (consisting of arms *g*, *h*, extending from a shaft *l*, pawl *i*, ratchet wheel *m*, shaft *n*, cogged wheel O and rack U) intervening between the end, of the bar *k*, which is connected with the arm *g*, and the left extremity of the bar S, is similar to that before described, which intervenes between the opposite extremities of the bars S and *k*. Each ratchet wheel *m*, X has a spring retaining pawl *o*, Figs. 1, 3, arranged on its opposite side to that on which the pawl, which turns said ratchet, is situated, as particularly seen in Fig. 3. The ends, of the pawls *o*, *o*, which are in contact with the teeth of the ratchet are bent downward at a right angle so as to enter between the teeth, and prevent any return movement of the ratchet wheel during the operation of the pawls Y, *i* thereon.

From the above it will be seen that the pinion *f*, when it revolves, gives motion to the toothed wheel *e* and eccentric *d*, which, while the latter performs a half revolution, presses the arm *b* toward the right (at the same time drawing the arm *g* in the same direction) and thus turns the ratchet wheel X and moves the rack T or right hand end of the bar S a short distance inward. The knife O then passes downward through the block of wood and separates a portion therefrom. During the next half revolution of the eccentric, the opposite or left hand end of the bar S is retracted, the right hand end being stationary, so that when the knife O descends it shall separate a wedge or shingle from the block. And so on each end of the bar S is alternately drawn forward and remains stationary while the opposite end is being retracted, until the whole block of wood is cut into shingles.

Having thus described my improvements I shall claim—

Arranging the ends of the knife, which separates the shingles from the block of wood, on cranks N, N, which are fixed on horizontal shafts K, L, so, that when said shafts are revolved, the knife will descend through the block of wood, with a lateral or drawing motion; the same being constructed and operating substantially as above described.

In testimony that the foregoing is a true description of my said invention and improvements I have hereto set my signature this fourth day of January in the year eighteen hundred and forty two.

HIRAM H. HERRICK.

Witnesses:

R. H. Eddy,

Ezra Lincoln, Jr.