

N^o 2,903.

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UNITED STATES PATENT OFFICE.

ELNATHAN SAMPSON, OF PIERMONT, NEW HAMPSHIRE.

IMPROVEMENT IN MACHINES FOR SAWING SHINGLES.

Specification forming part of Letters Patent No. 2,903, dated January 10, 1843.

To all whom it may concern:

Be it known that I, ELNATHAN SAMPSON, of Piermont, in the county of Grafton and State of New Hampshire, have invented a new and useful Improvement in Machines for Sawing Shingles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top plan; Fig. 2, a side elevation; Fig. 3, a cross-section; Fig. 4, parts detached.

The frame is composed of three sill-pieces connected by cross-ties and supported on posts, all of suitable dimensions for the purpose intended. Two of the sills form the supports for the ways *a*, on which the carriage runs. The other sill forms, together with the middle one, bearings for the shaft of the circular saw *b* and the shaft *c*, on which a spur-wheel is fixed that meshes into a rack (not shown in the drawings) on the bottom of the carriage to move it lengthwise of the frame. This apparatus is like that in common use for similar purposes, and needs no description.

The carriage is an oblong rectangular frame supported on the ways on which it moves by rollers let into the side pieces of the carriage, those next the saw being grooved in the usual way. The end pieces and two cross-braces equidistant from them project above the side pieces. On the end pieces the racks (hereinafter described) rest, and in the side of each cross-brace *d* nearest the center are grooves running their whole length on a level with the side pieces, in which grooves projections from the clamp *e*, Fig. 2, (shown in dotted lines,) slide. This clamp is attached to the head-block. The head-block *A* is formed of two string-pieces, one above the other, connected by four small posts. The string-pieces have a groove near their front edge for the dogs *f* to slide in and hold them steady. To each of these dogs a horizontal rack is fixed, one above and the other below a pinion *h*, situated in the center of the block, just behind the above-named groove. As this pinion is revolved the dogs recede from or approach each other. The head-block is somewhat longer than the carriage, and on each

end a plate of metal *k* is fastened on the under side, extending from the end piece of the carriage to the end of the block. The edge of this plate projects back beyond the side of the block, and is there perforated with a row of holes. Along the end pieces, on the top, a rack *l*, having teeth on the under side, rests. This rack has an arm projecting at right angles from it on the end next the block, which extends out underneath the plate *k* its whole length and is pierced with holes corresponding to those in plate *k*. A pin put into either of these holes forms the connection between the racks and head-block. A shaft *m* extends from one end piece of the carriage to the other on the side farthest from the saw. At the left-hand end in Fig. 2 it extends beyond the end of the carriage. On the right-hand end of this shaft *m* a pinion is fixed, (shown by dotted lines at *l'* in Fig. 2,) which meshes into the rack *l* on top of the end piece. Upon the other end of the shaft a spur-wheel *n* is put, which turns independent of the shaft. This is connected by a tube with the pinion *l''*, (shown, Fig. 2, in dotted lines,) the spur-wheel *n* being outside of the end piece and the pinion *l''* let into its center and meshing into the left-hand rack *l*. On the extreme end of the shaft *m*, outside the wheel *n*, another and smaller wheel *o* is affixed, which serves to turn the shaft in the way hereinafter described. The wheels *n* and *o* are prevented from turning by a check *p*, that slides in a mortise horizontally in the end piece of the carriage. The projections on this check are made to engage with the teeth of the wheels *n* and *o* by means of a lever *q*, Fig. 1, which passes through the side piece of the carriage, in which it has its fulcrum. The outer end is attached to the check. The inner end is borne forward by a spring *s*. At this end a rod *r* is fixed, which runs parallel with the check through the end piece and projects out beyond.

In the left-hand end piece of the frame of the machine there is a mortise through which the horizontal board *t* slides. This board extends nearly the whole length of the frame, passing through suitable mortises in the cross-braces of the frame, and extends out beyond it at the left hand. At the outer end of this board is a short upright *u*, which forms a ful-

crum for the arm v , the end of which is attached to it by a pin. The other end of the arm rests on the board t and an inclined plane t' attached thereto. From the arm v , near the end that rests on the board, is an iron strap attached, extending down below the board and sustaining a large weight w . From the lower end of the strap an arm extends out horizontally, having two leather straps affixed to it, which pass up over two pulleys supported by uprights z , placed on the board beside the arm v . The straps, after passing over the pulleys z , extend down to two weights w' , each of which is less than half the size of the weight w . To each of the pulleys z spur-wheels y y' are attached, and between the two spur-wheels is a ratchet-wheel a' , on the face of which is a projection. (Shown in the detached view, Fig. 4.) This plays in the grooves in the face of spur-wheel represented in the same figure. A dog b' holds the ratchet-wheel in any desired position, allowing the wheels y a sufficient motion, there being a break in the groove around the wheels y , which, as the wheel y turns by means of the weight w' , strikes against the stud on a' at any point it is held by the dog b' . Two horizontal rods c' pass through holes in the uprights, parallel to each other, just below the spur-wheels y , on each of which there is a projection (shown in Fig. 4) c' . The projection on one of these rods catches into one of the wheels y , the other into the other wheel, when the rods are borne toward the right, by means of a bent lever x' , the upright arms of which rest against the rods c' , the horizontal arms being weighted. Two arms e' are attached to the carriage underneath by one end. The other end rests on the board t , on which is a guide f' , similar in construction to that used in the machine before patented by me, and which is there fully described. When this guide is parallel with the course of the carriage, it parts the arms e' at their lower ends, so that they will push back both rods c'

and release the spur-wheels y . When it is borne to one side, it casts the ends of both the arms to one side only, striking back but one of the rods c' . On one side of the arms e' above named is another arm e'' , similarly attached, and on a line with the arm v the arm e'' is chamfered off wedge form on the upper side at the lower end, and as the carriage moves toward the left runs under the arm v and raises it and the large weight w attached thereto, so that the smaller weights, which it counterbalances, will cause the wheels y to revolve as soon as they are freed from the rods c' . Just as that takes place the wheels n and o on the carriage come into gear with the wheels y , and the check p is disconnected with the wheels n and o by the rod r striking against the end of the arm v , thus allowing the weights w' , through the gearing above described and racks l , to communicate motion to the head-block.

When shingles are sawed, one only of the weights is allowed to run down at a time, moving but one end of the block; but when staves are to be cut they both move equally. As the carriage runs back the great weight w falls and draws up the small ones for the next operation. The spur-wheels n , o , y , and y' and the pinions l' and l'' are so proportioned as to move the racks l at each end of the head-block equally.

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

The combination of the spur-wheels y y' , lever v , weights w and w' , check-rods c' , and ratchet-wheels a' , as herein described, and in combination therewith the spur-wheels n o on the carriage, (for the purpose of moving up the head-block,) constructed and arranged substantially as herein set forth.

ELNATHAN SAMPSON.

Witnesses:

J. J. GREENOUGH,
GEORGE R. WEST.