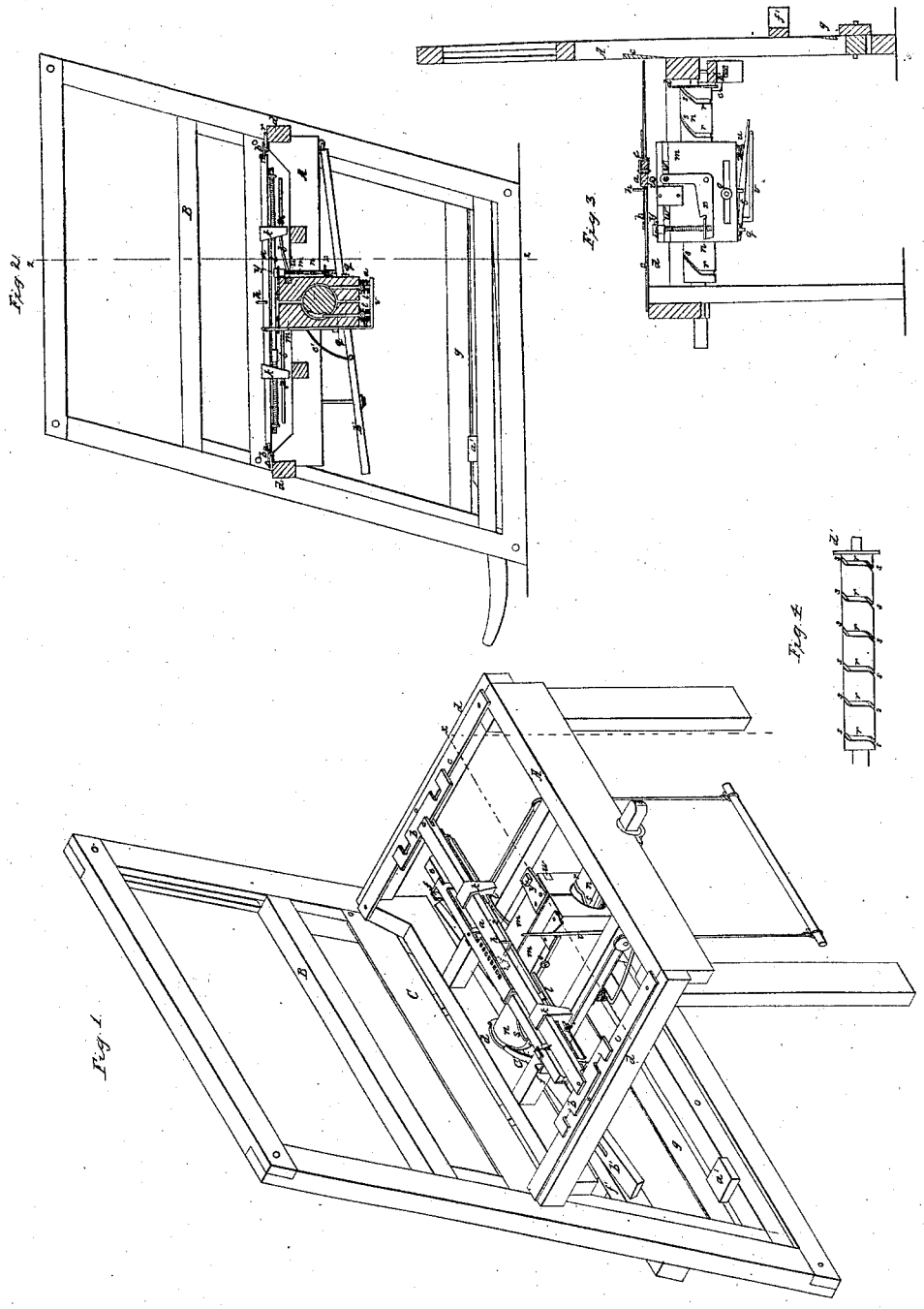
A. P. Pelton,

Cutting Shingles.

No. 4,234. Patented Oct. 16, 1845.



UNITED STATES PATENT OFFICE.

A. S. PELTON, OF CLINTON, CONNECTICUT.

SHINGLE-MACHINE.

Specification of Letters Patent No. 4,234, dated October 16, 1845.

To all whom it may concern:

Be it known that I, A. S. PELTON, of Clinton, in the county of Middlesex and State of Connecticut, have invented new and useful Improvements in Machines for Cutting Shingles, and that the following is a full, clear, and exact description of the principle thereof which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is a perspective view of the entire machine, Fig. 2, a vertical section taken at the line X, X, of Fig. 1. Fig. 3, a cross section taken at the line Z, Z, of Fig. 2, and Fig. 4, a plan of the screw.

The same letters indicate like parts in all the figures.

Shingles have heretofore been cut by machinery of a regular form or taper from butt to point; and the chief object of my invention is to cut them partly tapering from the point toward the butt, and the remaining portion with the two faces parallel, with the view to give greater strength toward the middle with the same expenditure of material that is employed in making them of a regular taper throughout their length. This is effected by the manner of feeding the block or bolt of wood up to the knife at the end of each cut, and preparatory to another, by moving back that end of the block from which the point is to be cut at the same time that the other end from which the butt is to be formed, is moved forward, so that the point of the shingle is made within the end of the block, thus leaving a portion of the block uncut to form one of the parallel faces at that end of the block from which the butt end of the next shingle is to be made, the operation being reversed from one side to the other at each cut. The method of effecting this important end constitutes my first improvement, which consists in connecting each end of the carriage, which carries the block, with the slides that move it forward, at points within the ends of the block, so that by moving one end forward the other must necessarily move back, and thus the point of the shingle will be formed within the end of the block leaving that portion untouched which is to form the parallel face of the next. My next improvement consists in operating the two sides that move the two ends of the carriage alternately by means of a groove in the surface of one cylinder, which groove runs around and from end to end thereof by a series of breaks, the groove first being diagonal around a quarter of the circumference, then at right angles to the axis around the next quarter of the circumference, and then diagonal, and then again at right angles, and so on to the end; slides being placed on opposite sides of the cylinder, and each provided with a pin fitting in the said groove so that one shall be in one of the oblique portions, to move it forward, while the other lies in one of the transverse portions and therefore does not move. And my last improvement consists in connecting one end of the carriage with its slide by means of another slide regulated by a screw to adjust the face of the block for the first cut when it is wedge formed.

In the accompanying drawings A, is the frame adapted to the operative parts, and B a sliding gate with a knife C, made and operated in the usual manner. The carriage *a*, is a metallic bar jointed at each end to metal plates *b*, *b*, that embrace the ways *c*, *c*, on the side pieces *d*, *d*, of the frame. Another metallic bar *e*, is attached to, parallel with, and at a short distance in front of this carriage *a*, and on this bar slide the dogs *f*, *f*, for gripping and holding the block or bolt of wood; one of them extends along the top, and the other along the bottom of the bar, and are provided with rack teeth that take into the teeth of a pinion *g* on an arbor *h*, so that by the turning of this pinion the dogs are made to approach toward, or recede from each other.

Below the carriage and turning in boxes attached thereto, there is a metallic rod *i*, with a right and a left handed screw cut on it, one at each end, that pass through nuts cut in two slides *k*, *k*, that embrace and slide on the carriage; and these slides extend down below the screw rod *i*, and are pierced for the passage of the rods *l*, *l*, that project from two sliding blocks *m*, *m*, so cut out as to embrace the grooved cylinder *n*, by which motion is communicated to the carriage. These two sliding blocks are connected together by screw bolts *o*, *o*, that pass through slots to admit of their sliding freely independent of each other, and each of them is provided with a round pin *q*, the upper end of which takes into the groove *r*, *s*, in

the surface of the cylinder *n*, and the lower end is jointed to a lever *t*, turning on a fulcrum pin, so that by the tension of a spring *u*, the pin is kept in the groove; and when it is desired to draw back the carriage, a lever *v*, that turns on a fulcrum pin on one of the sliding blocks has its lower arm turned at right angles and passes under the two levers *t*, *t*, so that by throwing back the upper arm the pins *q*, *q*, are drawn out of the groove *r*, *s*, and the carriage can be drawn back by the hand of the attendant or by counter weights suspended to cords that are attached to the carriage and pass over rollers at the back of the frame, in manner well known to mechanics.

For the purpose of adjusting the face of a block to the knife when its faces are not parallel, one of the rods *l*, is connected with one of the sliding blocks *m*, by a slide *w*, and the position of this slide is regulated by an elbow lever *x*, and adjusting screw *y*, so that by the turning of this screw the rod *l*, and that end of the carriage with which it is connected can be made to advance or recede from the knife, while the other remains in the same position, thus effecting the end required; viz, the adjusting of the face of the block to the knife.

The groove *r*, *s*, in the face of the cylinder *n*, that operates the two sliding blocks, and through them the carriage, is formed as indicated above and as represented in the drawing (and particularly at Fig. 4), *r* representing those portions of the groove which are at right angles with the axis of the cylinder and so far apart as to move the carriage the required distance for a shingle every time one of the pins *q* is carried from one of them to another by the diagonal portions *s*, which unite them. One set of the portions *p* occupy one quarter of the circumference of the cylinder, these unite with one of the diagonal portions *s*, which occupy the next quarter of the circumference, and then again unite with another portion *p* that occupy another quarter of the circumference and so on. This cylinder is turned one quarter of a revolution at each stroke of the knife by a projection *a'* on the lower part of the gate B, which strikes and forces up the end of an arm *b'* (jointed to the frame) which carries a hand *c'* that takes into the teeth of a ratchet wheel *d'* on the end of the cylinder—the teeth on the ratchet wheel corresponding with the divisions of the groove; and as the pins *q*, *q*, of the sliding blocks are so situated that when one of them is in one of the sections *r* of the groove the other will be in one of the sections *s*, it will be evident that at each upward movement of the gate one end of the carriage, with the block will be moved forward, and at the next stroke, this will stand still and the other end will be moved forward, and so on until the whole of the block is cut up, at which time, the attendant pushes back the lever *v*, which disengages the pins *q*, *q*, from the groove, and either draws back the carriage to receive another block, or permits it to be drawn back by the weights, in which case there should be a catch to hold the lever when thrown back. By the turning of the screw rod *i*, which may be done by a hand wrench, the slides *k*, *k*, are drawn toward or from each other, and as the rods *l*, *l*, that form the connection between the carriage and the sliding blocks *m*, *m*, pass through holes in these slides *k*, *k*, it will be evident that when one end of the carriage is moved forward the center of that motion is at the junction of the rod *l*, and slide *k*, on the other slide, so that if this be within the end of the block, so much of the block as extends beyond it will be carried back, and thus leave so much of the face thereof back of the knife as to form one face of the parallel portion of the next shingle to be cut—so that by the turning of the screw rod *i*, the length of the parallel portion can be regulated at pleasure.

For the purpose of jointing the shingles they are placed against a rest *f'* attached to the back of the machine, and are there acted upon by a knife *g*, attached at the gate below the cutting knife B, and moving with it.

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

1. Connecting the carriage with the slides (or slide) that operate it, at some points between the middle of its length and the ends of the block, so that at each vibration one end shall be moved forward and the other back, as herein described, to form the shingles with that part toward the butt with parallel faces, as specified.

2. I also claim operating the two sliding blocks that carry the carriage by means of a groove formed, as herein described, in the surface of one cylinder, so that one of the slides shall remain still while the other is moved forward, as described.

3. And finally I claim connect the rod that moves one end of the carriage with its appropriate sliding block by means of a slide governed by an adjusting screw, or other analogous device, for the purpose of adjusting the face of the block or bolt of wood to the knife for the cutting of the first shingle, as described.

A. S. PELTON.

Witnesses:
GEORGE CARTER,
RICHARD M. BUELL.