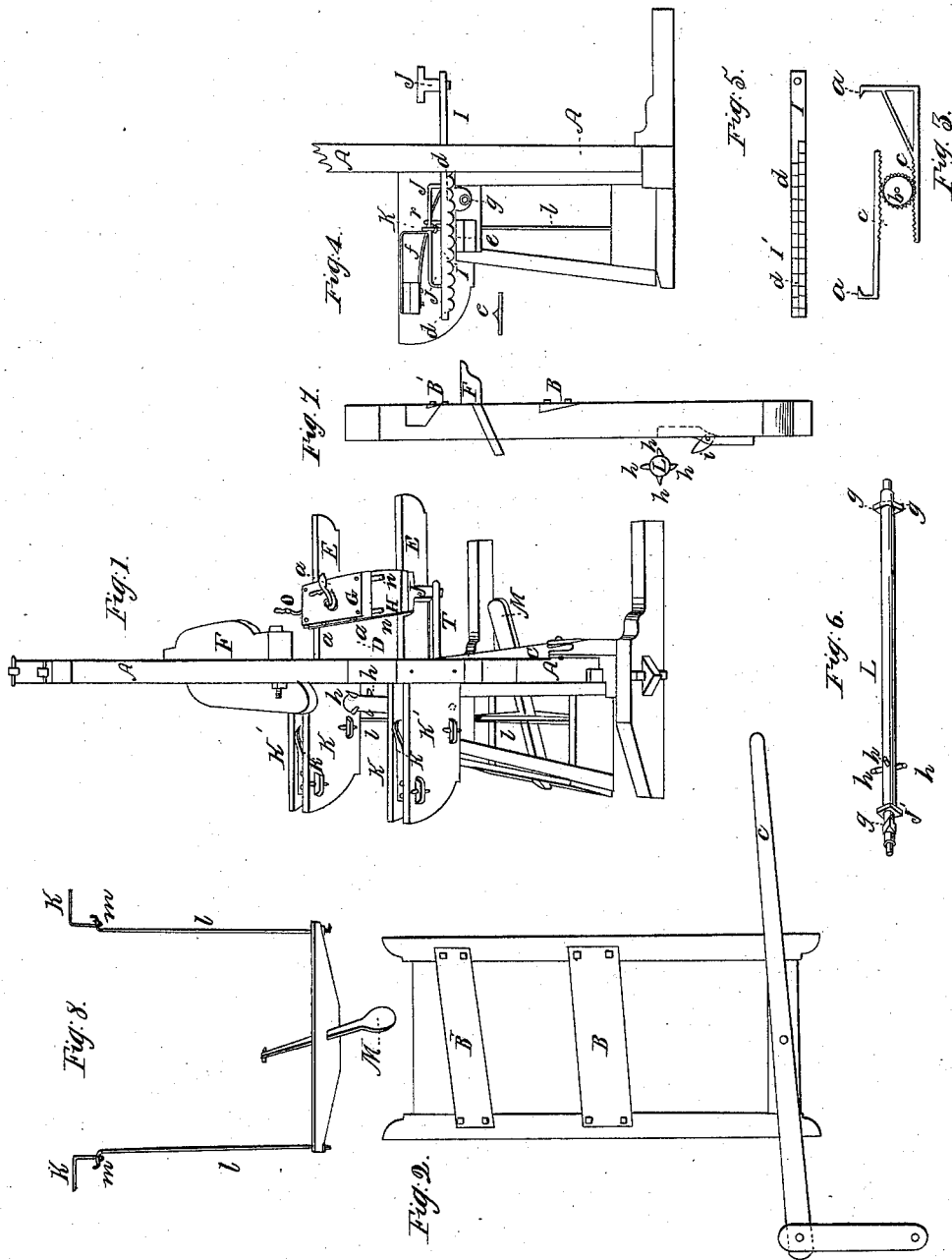


*A. Kinney,
Cutting Shingles.*

Nº 2,457.

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UNITED STATES PATENT OFFICE.

AVERY KINNEY, OF HOMER, NEW YORK.

MACHINE FOR CUTTING SHINGLES.

Specification of Letters Patent No. 2,457, dated February 12, 1842.

To all whom it may concern:

Be it known that I, AVERY KINNEY, of the town of Homer, in the county of Cortland and State of New York, have invented certain Improvements in the Manner of Constructing the Machine for Cutting Shingles; and I do hereby declare that the following is a full and exact description thereof.

In its general construction and manner of operation, my machine resembles some others that have been constructed for the cutting of shingles. Two knives are attached to a sliding frame which works up and down between fender posts, or vertical side timbers, and said knives, being placed obliquely, so as to make a draw cut in their descent. The bolt, or stuff, to be cut is to be prepared therefor by being steamed, or boiled, and is to be placed, and held, upon a suitable bench, or rest, in front of the cutting knives, said knives cutting the timber nearly lengthwise of the grain.

In the foregoing particulars, I do not claim to have invented anything new, my principal improvement being in that part of the machine by which the bolts are held, and fed up to the cutting knife.

In the accompanying drawing, Figure 1, is a side view of the machine, in perspective. A, A, is one of the fender posts, or vertical side timbers, of the frame, within which the knife, or cutter frame, slides up and down, like a saw gate; Fig. 2, is the cutter-frame, carrying two knives, B, and B'. A lever C, is attached to this frame for working it up and down. The bench, or rest, D, is to sustain the bolt, said bench being firmly affixed to the frame-work, and supported by brackets E, E. The bolt is to be trimmed and prepared by holding it against the upper knife B', which knife operates against the upper bench F, on the front of the machine, while the knife B, operates against the lower bench D. The bolt is held firmly by two dogs a, a, Fig. 1, which are made to approach toward, or recede from, each other by turning the handle a', which operates upon a pinion gearing into two racks, which are hidden by the cover G, but are shown in Fig. 3, where b, is the pinion, and c, c, the two racks. The dogs, when made to grip the bolt, are held in place by the ratchet wheel and pall, a', shown on the top of the cover G. The pinion and racks carrying the dogs are contained within this cover, and both rest upon

the sliding table H, which table is firmly attached at each end to a sliding, or feed, arm I, by means of iron, T-formed pieces J, which swivel on the arms I. These arms slide in between the cheek pieces K, K', attached to the fender posts A, A; in Fig. 4, the outermost of these cheek pieces has been omitted for the purpose of showing the inner, or rack-formed, portion of one of the arms I, and its appendages, there being another arm similarly formed and arranged on the opposite side of the machine.

The inner portion of each of the arms I, is formed into a double rack on its under side, one of which racks only is seen in Fig. 4, at I', but they are both shown in Fig. 5, which is a view of the under side of one of the bars, I. One of the sets of teeth in each of these bars is to be acted upon by a pallet on a revolving shaft, which causes each of the bars, alternately, to be drawn in so as to feed the shingle to the knife; the other set of teeth on each arm are semi-circular, as shown at d, d, and are intended to render the distance of feed precisely the same in each movement. An iron tooth e, is affixed under each of the racks with semi-circular teeth, and fits into the spaces between them, and a spring f, bears on the upper side of the bar; and it will be seen that this will regulate the feed, just as the shooting of the bolt is regulated in an ordinary trunk, or drawer, lock. The number of feeding teeth on the inner section of each rack is the same with the number of semi-circular, regulating teeth, and these are operated upon in the following manner.

L, Fig. 6, is a shaft which crosses the back of the machine, and has its bearings in the outer cheek pieces K', K'. There are two pallets, or teeth, g, g, near to each end of the shaft L, the two at one end standing at right angles to the two on the other, and these operate on the inner, or feeding, teeth of the double rack; one of these pallets is seen at g, in Fig. 4. The shaft L, is made to revolve in the following manner. On said shaft there are four pins h, h, and at each rise of the cutter frame, a catch, working on a joint pin, and attached to the back of said cutter frame, is brought, as it rises, into contact with one of the four pins, h, h, and turn the shaft L, one fourth of a revolution.

Fig. 7, shows one of the sides of the cutter frame, and i, the jointed catch which engages with the pins h, h, as it rises, and folds

in as it descends. Upon the shaft L, there is also a square collar at j' , upon which a spring is made to bear, and thus causes the shaft to stop correctly in place at each interval. It will be seen that by this arrangement the bars I, I, will be alternately moved in to the distance of the width of one semi-circular rack tooth at every upward movement of the cutter frame, and that the bolt will consequently be fed up to the knife, or cutter, so as alternately to cut a head and point at each end.

When the shingles are being cut from a bolt, or block, the treadle M, is to be held down, and the spring f , then keeps the semi-circular teeth of the bars I, in contact with the stationary tooth e ; but when it is desired to draw the sliding table H, out, for the purpose of putting on a new bolt to be cut into shingles, the treadle M, is allowed to rise, by an action which throws the bars I, out of gear with the stationary teeth e . The table H, may then be drawn out by hand, and a new bolt, or block, is placed between the dogs. The following is the manner of forming and arranging the parts for this purpose. There are two springs k , k , which are so much stronger than the springs f , which bear upon the bars I, I, that when left free to act they will raise said bars, and throw them out of gear. A long staple j , j , is riveted to each of the sliding arms I, I, at their upper sides, and the rods l l when depressed, or forced down by the treadle, are so connected with the sliding arms as to throw them into gear with the stationary teeth. The two rods l , l , are, at their upper ends, bent out at right angles, as represented at m , m , Fig. 8; and that bent part passes under the staples j , j ; the outer ends of the springs k , k , are bent so as to bend around and clasp the parts m , tending to draw them up, and to keep them in contact with the staples j , j , so as to lift the sliding arms I, by counteracting the force of the springs f . The arms I, are held in gear by a spring catch, or latch r , Fig. 4, of which there is one on each side, which catch on to the upper side of the parts m , and hold the apparatus down, when the treadle is depressed. These catches are liberated by the contact of the outer ends of the long staples j , j , or by any suitable projecting piece, when brought into contact with them, which contact takes place at the moment the bolt is exhausted, and the springs k , k , then throw the arms I, I, out of gear.

In cutting shingles with a machine of this description it is of essential importance that the middle of the bolt should be opposite to the middle of the machine; but in splitting a log which has been crosscut, so as to form it into suitable lengths for bolts, it will frequently happen that the ends and sides of the bolts slit from it will not be at right angles to each other, but will form a rhomboid; and if such a bolt cannot be slid endwise upon the bench, or rest, which supports it, the butts and points of the shingles cut from it will be unequal in thickness. To obviate this difficulty, I make grooves, or slots, n , n , in the sliding table, H, into which are fitted pins, or tongues, on the underside of the cover G, by which it may be slid and guided to a sufficient distance lengthwise of the bolt. A screw shaft, the handle of which is seen at o , passes through a nut on the under side of G, and carries it back and forth at pleasure. As the cutting proceeds with a bolt that is rhomboidal, it may be moved by occasionally turning the winch o , so as to cause the middle of the part of the bolt to be cut, and of the knife, to coincide with each other.

Having thus, fully described the manner in which I construct and use my machine for cutting shingles, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The manner in which I have combined and arranged the apparatus by which the bolt, or block, is fed up to the cutting knife; the said combination consisting of the arms I, I, with their double racks; the shaft L, with its pallets and other appendages, and the jointed catch i , on the back of the cutter frame.

2. I claim, secondly, the arrangement of the parts for throwing the arms I, I, into, and out of, gear, by means of the treadle M, and the springs f , and k , operating upon the arm I, and the long staple j , j , combined and acting as set forth.

3. And, lastly, I claim the combining of the cover G, carrying the dogs, with the sliding table H, in such manner as to allow of the sliding of the bolt, or block, endwise, in the manner, and for the purpose, described.

AVERY KINNEY.

Witnesses:

L. B. CANFIELD,
JOHN A. GOFF.