A. Kendall,

Cutting Shingles.

No. 11,649. Patented Sep. 5, 1854.

Fig. 3.

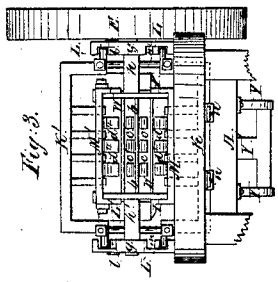


Fig. 4.

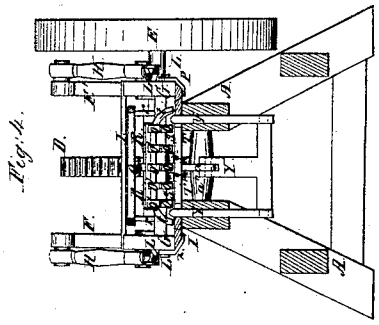


Fig. 5

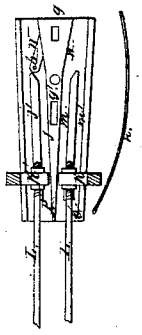
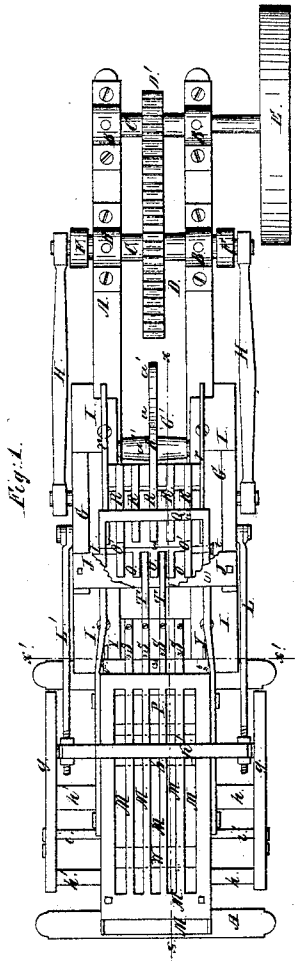


Fig. 1.



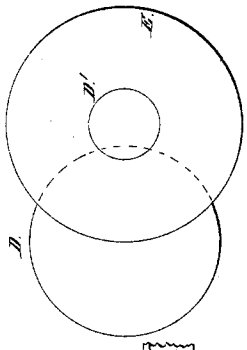


Fig. 2.

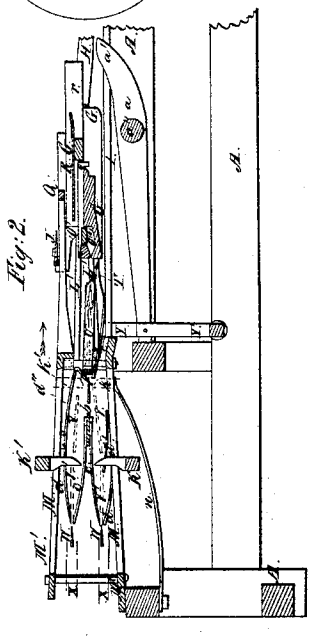
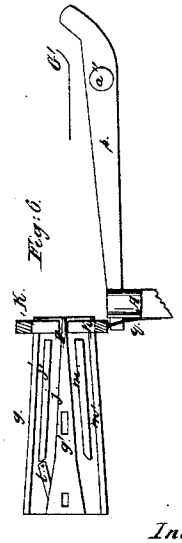


Fig. 6.



Inventor:
A. Kendall

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

A. KENDALL, OF CLEVELAND, OHIO.

RIVING-MACHINE.

Specification of Letters Patent No. 11,649, dated September 5, 1854.

To all whom it may concern:

Be it known that I, A. KENDALL, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in a Machine for Riving Timber for Shingles, Staves, Barrel-Heads, and other Similar Purposes; and I do hereby declare that the following is an exact and full description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 in the drawings, is a plan view of my improved machine, Fig. 2 a longitudinal section in the direction of the line X X, in Fig. 1, Fig. 3, a front end view, and Fig. 4 a transverse section in the direction of the lines X′ X′ in Fig. 1. Figs. 5 and 6, will hereafter be referred to.

Similar letters in the several figures, represent the same parts.

A A, represent a framework of wood, constructed in any suitable manner, for the purpose of securing in place by suitable devices, the several parts composing the machine.

B B B B are boxes bolted to the top plate of the frame, in which revolve the shafts C C′; to the shafts C C′, are keyed the gear and pinion, D D′. To the shaft C′, is attached the driving wheel E, Figs. 1 and 2; and to the shaft C, are secured the cranks F F′; these cranks are connected to the carriage G by the connecting rods H H, Figs. 1 and 4. The carriage G, has a reciprocating motion on the slide I I, which are bolted to the frame. To the top of the carriage is bolted the knife J. The carriage is connected to the drivers K K′, by connecting rods L L, and L′ L′. The rods are attached to the carriage by a wrist, and to the drivers by jam nuts, as seen in Figs. 1 and 2. The drivers are provided with arms as seen in Figs. 2 and 3, which slide in the openings M, of the grate plates M′ M′, which are placed one above the other, and secured by bolts and nuts with the side pieces of the frame.

By means of the cranks, a reciprocating motion is given to the carriage, which is connected to the drivers by the connecting rods L L and L′ L′. When the cranks are in the forward centers, the driving arms O, attached to the carriage, are at the knife P, Figs. 1 and 2, which allows sufficient space between the knife J, and the brace Q, for the bolt, which rests upon the springs R, which are secured in the middle part of the carriage. The back end of the middle spring, is curved up above the other, for the purpose of allowing the uneven or winding face of the bolt to be parallel, as near as possible, to the plane of the knife, which causes the blocks to have parallel faces. When the bolt is thus in place, upon the springs, by one half revolution of the cranks, the carriage returns, which brings the knife J, over the brace Q, which is stationary, thereby severing from the bolt a block sufficient for four shingles. On the instant that the block is severed from the bolt, it drops upon the table springs S, and ribs T, and assumes the position indicated by the rod lines U, Fig. 2; at another half revolution of the crank, it is forced by the driving arms O, against the knife P, by which it is divided into two blocks as seen at V V Fig. 2. As soon as the block U, is divided into the blocks V V, the drivers K K′ are in the place *k k′*, as seen at K K′ Fig. 6, by which the blocks V V are conveyed to the knives W W, as seen at V′ V′, by which means the knives W W, again divided the two blocks into four as seen at X X. At every revolution of the crank, four blocks are rived and discharged, ready for further finishing according to the purpose for which the blocks may be required.

As the drivers K K′ have a reciprocating motion, corresponding to that of the carriage, the drivers are always ready at *k k′*, to convey the blocks from the knife P, to the knives W W the driving arms O, force the block U as soon as cut, from the bolt, against the knife P, which divides it as seen at V V, to be again divided, as before described. The block U is rived off from the bolt by the knife J, as the carriage G, and drivers return. Thus alternately, as the carriage drivers return in the direction of the arrow, the block is rived from the bolt, and instantly falls upon the spring *s*, and rib T, and as the carriage returns in a reverse direction of the arrow, the block is halved and quartered as set forth, which accomplishes the desired object, that of first riving from the bolt, a block, which will be divided, first into two, and then into four blocks.

For the purpose of keeping the block in place, as it falls upon the springs *s*, and rib T, the guides Y Y, are raised by the lever *a*, as the projecting end G′, of the carriage, passes over the end of the lever; in riding

the belt, as the end at a', is depressed, the end attached to the arm Y′, is raised, but as soon as the carriage leaves the lever, the guides fall allowing the carriage to pass over them. a'', is the shaft of the lever. The lever O, is secured by bolts to the grate plate M′.

b, is a cross plate attached to the sides, to which are secured the springs c c'. The springs d d' are secured to the lower grate plate, and the springs d'' are secured to a projection on the underside of the top grate plate M, Figs. 2 and 3. I use these springs in preference to any inflexible device, because the springs by their yielding nature readily adjust blocks to the knives, then yield to accommodate winding and uneven thicknesses to the knives. The upper driving arms O′, are separate from the lower, and from the carriage, but extend back over the carriage to O″ Fig. 2, and to prevent the driving arms O′, from striking the knife P, it is raised by the planes e e at each side of the grate plates as seen in Figs. 1 and 2.

The arms t t, being attached to the driving arms, slide upon the faces e e, and open the driving arms as they reach the knife P, so that the blocks are forced over the edge of the knife, so as to be taken by the drivers K K′ to the knives W W. The side plates g g, Figs. 1, 3, 5, and 6, are secured to the side pieces of the grate plates by two braces k k, and h' h' and the bolts i' i'. In the side plates g g, are grooves or channels for giving the proper direction to the drivers K K′, and the ends, which are of an oval form, are so fitted to the channel as to have an easy action.

The driver K′ takes the channel j, and the driver K takes the channel m, in conveying the block from the knife P, to the knives W W, and as the drivers approach the knives W W, they gradually separate by the inclination, or wedge shape, of the center piece o'. The driver K′, as it nears the knife W, ascends the plane, and passes over the knife, in ascending the plane, the tumbler l, is raised which drops as soon as the driver has passed it, by the reaction of the driver it ascends the plane caused by the tumbler, and returns through the upper channel j', at the end of which it drops down to the center piece g', by the knife P, as seen at K′ Figs. 5 and 6.

The driver K, in conveying the block, from the knife P, to W, takes the channel m, and as soon as it reaches the end of the channel, drops down and passes under the knife W, and returns in the lower channel, m', until it arrives at the end, when it is thrown up to the knife P, as seen at k K, Figs. 2 and 6, by the springs n, n, which are bolted to the frame, as seen in Figs. 2 and 3. The lower driver K, may be raised without the springs n n, by means of the tumbler o'' Fig. 5, operating substantially the same as the tumbler l, as described, for retarding the driver in the upper channel.

Another device, for raising the driver K, is seen in Fig. 6, and consists of the lever p, attached to the same shaft as the lever a, and operated in similar manner by a projection of the carriage on the lever, which will act when the driver is raised in place, where it is caught by the springs q, one or more, which hold it so as to slide into the upper channel m. The spring is forced back by the driver until it is raised by the lever, when it springs out as seen at q, and the lever drops.

r r, are bars or slides on the carriage, upon which rests the brace Q; these bars or slides aid in support of the brace, when the bolt is being rived. S S, are the jaws of the carriage by which it is attached to the slides II, Fig. 4.

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

1. The sliding knife J, brace Q, springs S, driving arms O O′, the upper arm being separated from the lower and the planes e e, for raising the upper arm from the knife P, while the lower arm passes under. The several parts named I claim, in combination, for the purpose of cutting a block from a bolt, and conveying it to the knife P, to be divided into two blocks, ready to be carried forward by the drivers K K′, to be again divided by the knives W W.

2. The combination of the upper springs a'' and c', the lower springs c, d d', knives W W, and the reciprocating drivers K K′, for the purpose of conveying the blocks divided by the knife P, from it to the knives W W, by which they are again divided.

3. The two side pieces g g, provided with grooves or channels m, m, and j j, with the tumbler b, the middle channels m, and j', being of such inclination that the drivers K, ascend in passing from the knife P, to W W, and return by means of the tumbler, in the channel j'. The driver K, descends in passing from the knife P, to W, and returns in the channel m', and is thrown up in place by the springs n n.

4. I claim also, the combination of the grate plates, with the tumblers l l, and springs n n, or other equivalent devices, for the purpose of giving the proper direction to the reciprocating drivers, in the manner, and for the purpose set forth.

ADONIRAM KENDALL.

Witnesses:
JAS L. GREGORY,
JOHN B. LUCAS.