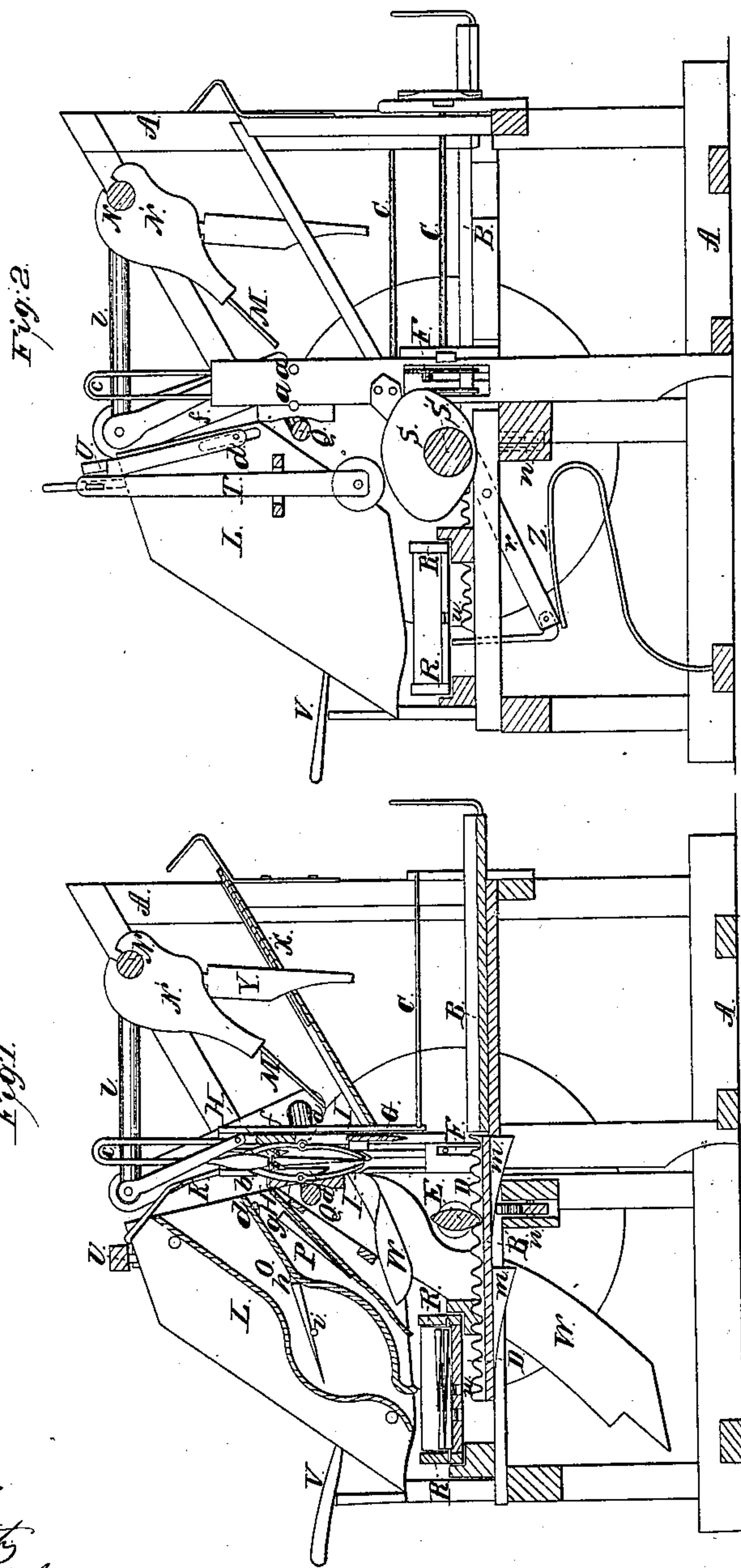


J. P. W. Davis,
Cutting Shingles,

No 76,721,

Patented Apr. 14, 1868.



Witnesses:
Geo. W. Smith,
C. W. Smith.

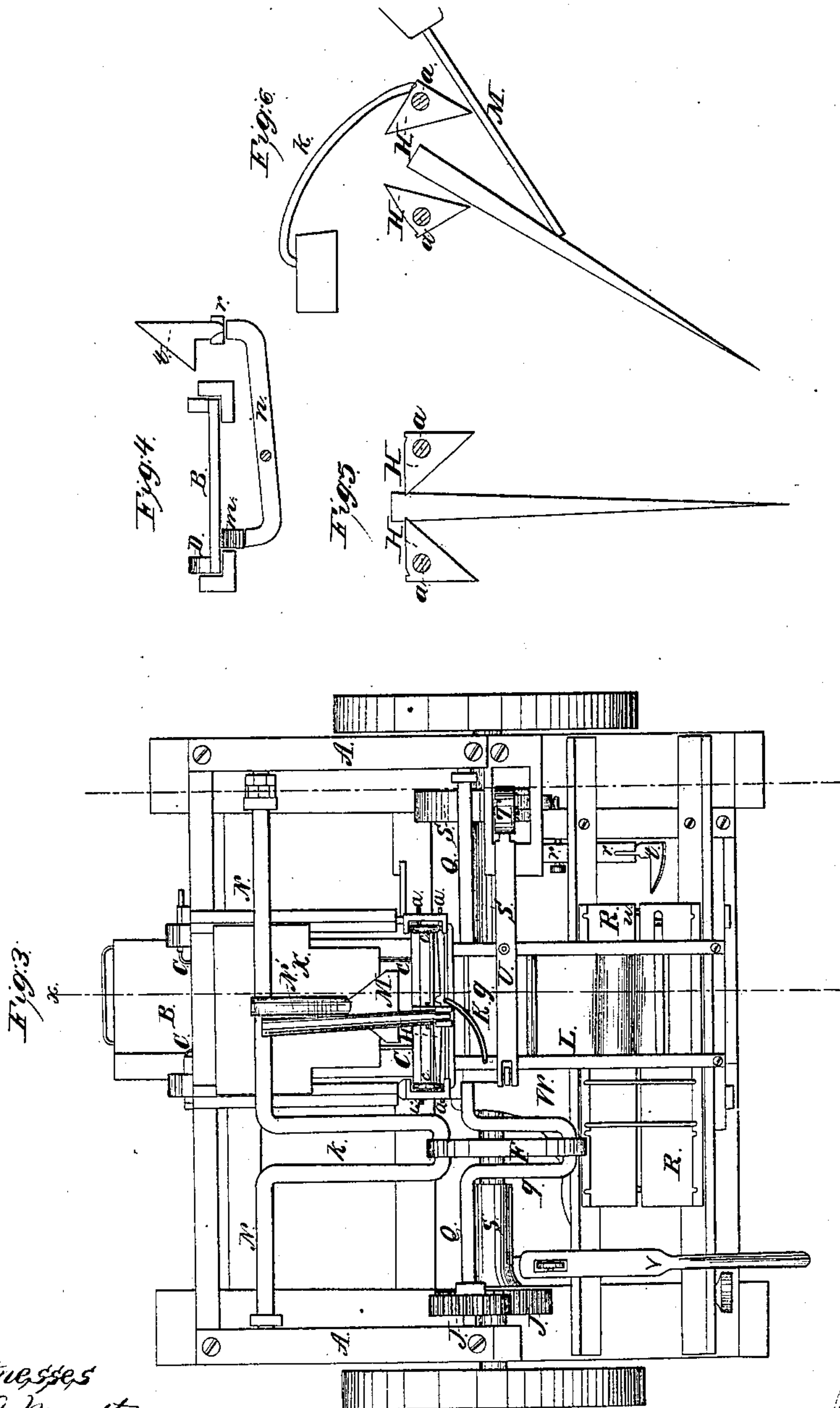
Inventor:
J. P. W. Davis
By his Atty.
Jewey & Co.

2 Sheets-Sheet 2.

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Witnesses
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Inventor:
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United States Patent Office.

JOSIAH P. N. DAVIS, OF POINT ARENA, CALIFORNIA.

Letters Patent No. 76,721, dated April 14, 1868.

IMPROVEMENT IN SHINGLE-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOSIAH P. N. DAVIS, of Point Arena, county of Mendocino, State of California, have invented a new and improved "Shingle-Machine;" and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to that class known as "shingle-machines," and has for its object the construction of a machine which shall be portable, and which may be operated either by hand or other motive-power.

This machine rives the blocks which are fed to it, joints and shaves the shingles, and finally piles them ready for binding or tying.

To accomplish this, the blocks, of the proper length, being placed on the carriage on one end, it is moved forward by a cam on the shaft, operating in a rack on the carriage. This cam moves the carriage and block forward just the thickness of one shingle, when the riving and jointing-knife splits it off, and trims the edge at the same time, so that the shingles in one bunch will all be of the same width. After being split off, the shingle is seized by two clamps, which draw it up between the shaving-knives, these knives being drawn closer together as the shingle passes up, so as to taper and give it the desired shape. After leaving the knives, the shingle is released from the clamps, and at the same moment pushed by a lever into a trough. The first shingle will pass down the incline, point-first, and be deposited in the receiving-box, with the thick end at one side and the thin end in the centre. By means of a cam, a diaphragm or partition in the trough is then lowered so that the next shingle will pass down another incline, above the first, and be turned over during its passage, so that its thick end will be laid against the opposite side of the box from the first one, and its thin end toward the centre, and so on, alternately, till the box is full, when it will be moved along for binding, and another box brought into its place, to receive shingles. By appropriate mechanism, the shavings are all carried away from the machine as fast as made.

To more fully explain my invention, reference is had to the accompanying drawings, forming a part of this specification, of which—

Figure 1, sheet 1, is a side sectional elevation, taken through *x x*.

Figure 2, sheet 1, a side sectional elevation through *y y*.

Figure 3, sheet 2, is a plan.

Figures 4, 5, and 6, sheet 2, are details of parts of the machine.

Similar letters of reference indicate like parts.

A is the frame of the machine. At the proper height are placed supports, upon which the carriage travels. This carriage is divided into the sections B B', so that as one section passes through, another may be introduced. The rods *c c* steady the blocks, and keep them in position, and may be set for any desired width of shingle, or to any size of blocks. D is a rack, attached to one side of the carriage, into the teeth of which the cam E (on the shaft) reaches, so that the carriage with the blocks is fed along, the teeth being of such size that it will be fed just the thickness required for the base of a shingle. A pin, F, operated by a spring, and by the slide which supports the riving-knife, is pressed forward against each shingle as it is split off, thus steadying it till the clamps take hold of it. G is the riving-knife, having its sides bent at right angles, so as to joint the edges at the same time that the shingle is split off. The clamps H H descend at the same time with the knife G, being situated above and forward of it, and attached to the same sliding frame. These clamps, (shown clearly in fig. 5, sheet 2,) pass freely down on each side the shingle, but when drawn up again, are forced into the substance of the shingle by the resistance, so that they draw it up between the shaving-knives I I. These knives are supported by the axes *a a*, being elongated and curved from the edge to the tops, which are near together. The tops or backs of these knives are brought near enough together to be acted upon by the enlargement *b* of the curved sliding rod *c*, this enlargement being proportioned, so as gradually to close the edges of the knives I I, by opening their backs, thus tapering or thinning the shingle towards its edge. As the shingle reaches the

top, and after leaving the knives, a stationary rod, K, or similar device, comes in contact with the clamps H H, and disengages them from the shingle, which is at the same time thrown into the inclined delivery-trough L, by a lever, M, operated by the shaft N, to which it is fastened. The delivery-trough is divided into an upper and lower passage, O and P, so that one shingle is received into the passage P, and passes directly into the receiving-trough R, with its point in the centre and its head at one side. The next shingle is delivered into the passage O, in this manner, viz: A cam, S, is situated on the main driving-shaft, and, as it turns, raises and lowers the arm T, which in turn moves the lever U. This raises and lowers the pin *d*, and, by this means, the diaphragm or partition *g*, which the pin *d* operates, and which is hinged for that purpose at *h*. When lowered, the shingle passes down above it, the passage being so formed that the point of the shingle passes over the bar *i*, and the weight of the butt end revolves it, (or by other equivalent device,) thus depositing it in the receiving-box with its point in the centre. This receiving-box is moved along, when full, by the following device: Below the carriages B B', are the inclined planes *m m*. A lever, *n*, (shown in fig. 4, sheet 2,) has one of its ends operated by these inclined planes. Another lever, *r*, fig. 2, is placed at right angles with the lever *n*, each being suspended in the centre, and attached to each other. At the end of the lever *r* is placed the latch *t*, so arranged as to operate the pins *u* in the bottom of the box R. As the carriage moves along, the inclined plane *m* gradually depresses the levers and the latch *t*, its straight edge being in contact with the pin *u*, till it is depressed below the pin. At the same instant the lever *n* is released and falls between the inclined planes *m*, thus allowing the spring *z* to force the latch up again on the other side of the pin *u*, the angle being sufficient to force the box R along, so as to present a new space to be filled, while the lever V may be used to press the first package for binding.

The shavings from the front of the shingle fall into the discharge-trough W, while those from behind are caught and thrown into the same spout by the sliding-plate X, which moves on an inclined guide, and is operated by the arm Y, attached to the shaft N or the block N', as shown.

When the machine is to be operated, the blocks, sawn to the proper length, are placed endwise upon the carriage B, the rods *c c* being moved so as to accommodate any width of timber which is to be used. The main shaft S' is then revolved in the direction shown by the arrows, turning with it the cam S. By means of the gear-wheels J J, the shaft Q, with its crank *q*, is revolved, and through the connecting-rod F and crank *l*, the rock-shaft N receives motion, which is communicated to the riving-knife and clamps by the arm *l*. As the knife G falls, it splits off a block of the proper thickness, which is immediately seized by the clamps or jaws H H, and drawn up between the knives I I. These knives shave it, as before described, and as it leaves them, the rod *k* disengages it from the clamps, and the lever M pushes it into the discharge-trough L, down which it passes into the receiving-box R, and is laid ready for binding.

The partitions in the receiving-box are movable, so as to accommodate any width of shingles which may come from the machine, it being intended that all in any one bunch shall be of the same width.

As shaved shingles can only be made from clear, straight timber, which can generally be found only in small quantities at any one place, it is impossible to set up a local mill, and this machine has been constructed to obviate the difficulties hitherto encountered, it being portable, and may be operated by two men, or horse-power may be used.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination and arrangement of the clamps H H, for holding the shingle, the curved pivoted knives I I, and the wedge *b*, for graduating the distance between the edges of the same for tapering the shingles, substantially as described.
2. The combination and arrangement of the rod K and lever M, for releasing and delivering the finished shingles, substantially as described.
3. The double delivery-trough L, divided by the vibrating-diaphragm *g*, in combination with the cam S, arms T and U, and pin *d*, for operating the same, substantially as described.
4. The bar or rod *i*, in combination with the vibrating-diaphragm *g*, for reversing every alternate shingle on its way to the packing-box, substantially as described.
5. The sliding packing-box, having movable partitions, in combination with the inclines *m m*, levers *n* and *r*, latch *t*, and spring *z*, for operating the same, substantially as described.

In witness whereof, I have hereunto set my hand and seal.

J. P. N. DAVIS. [L. s.]

Witnesses:

C. W. M. SMITH,
GEO. H. STRONG.