

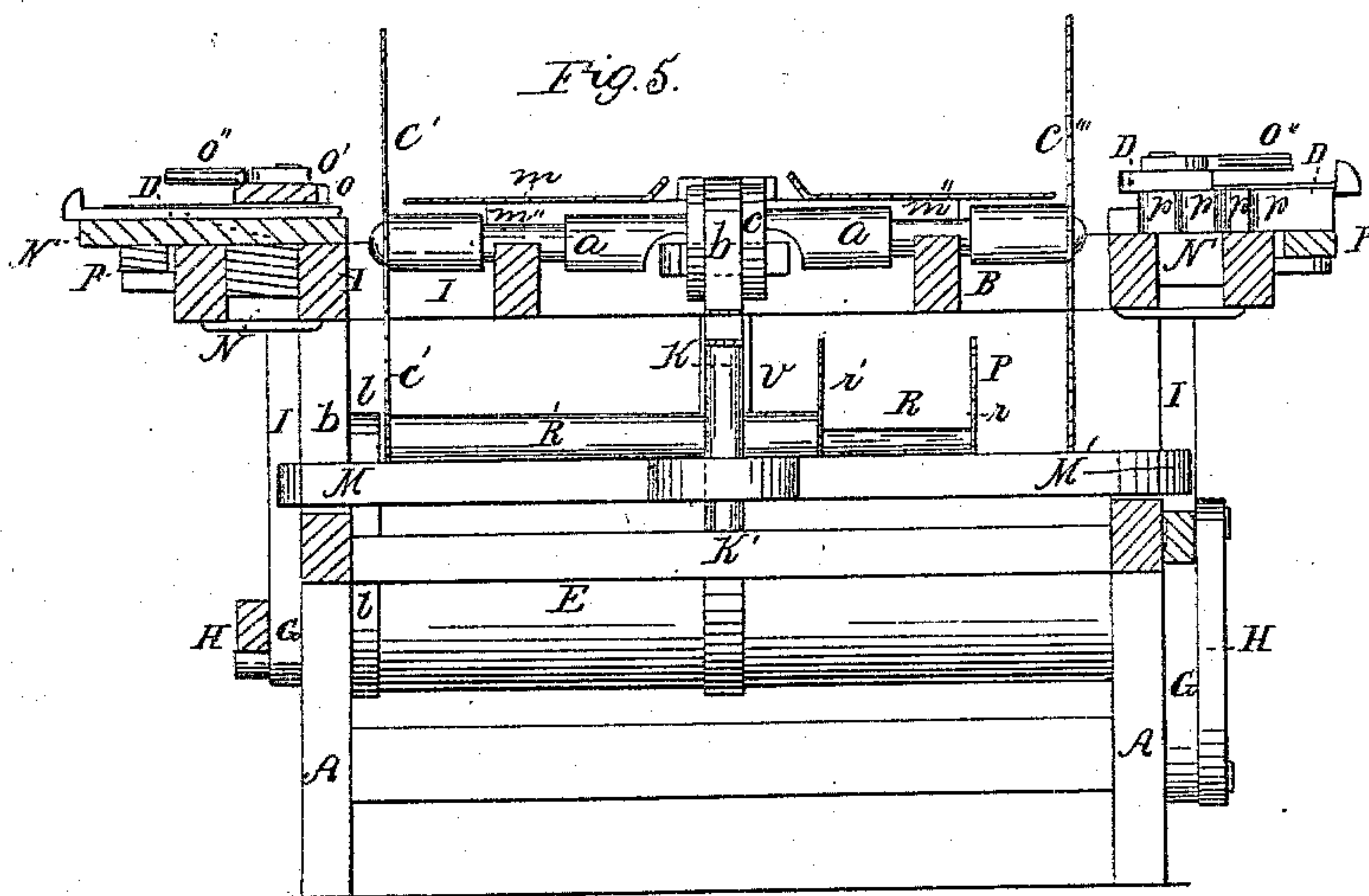
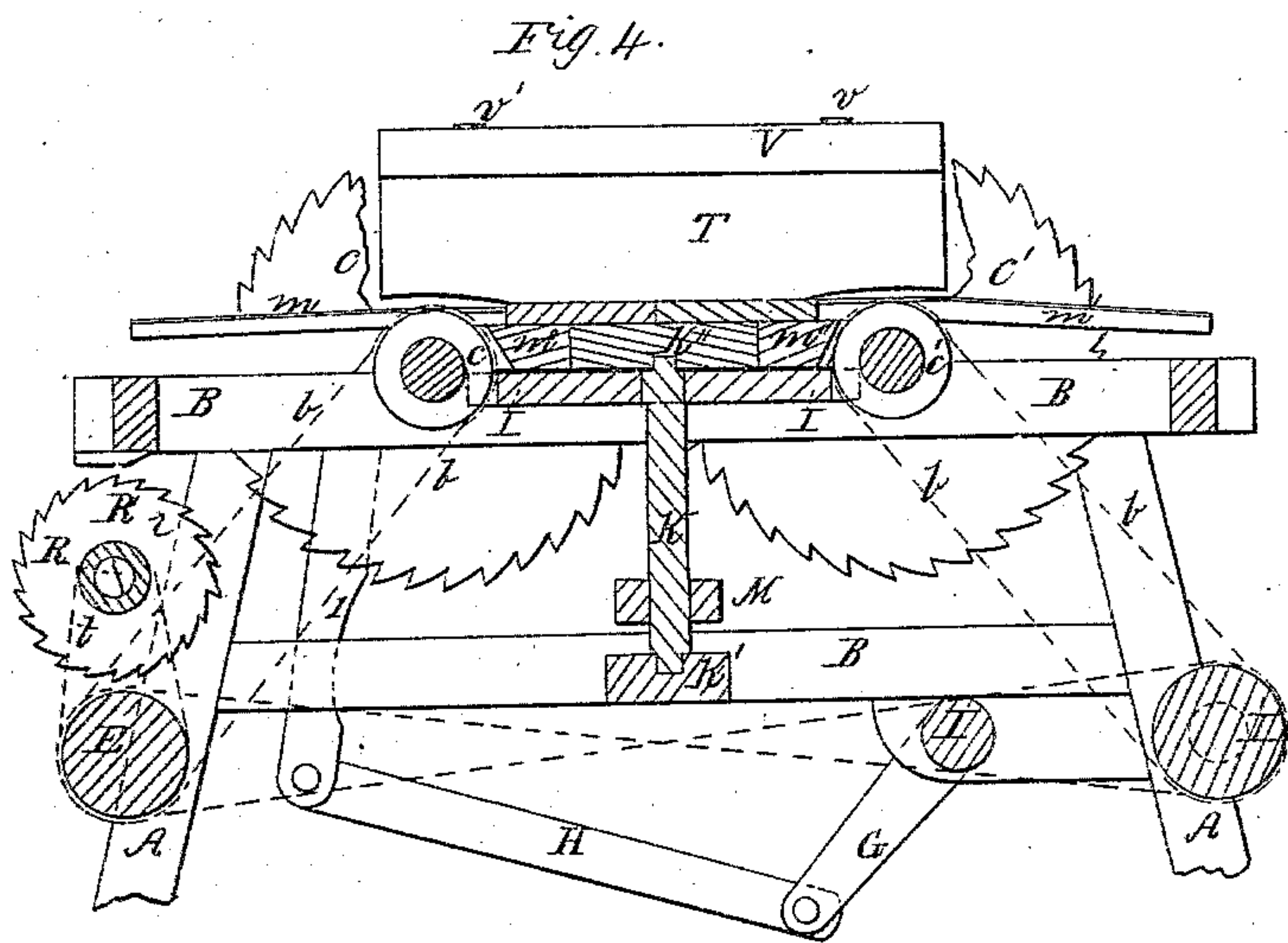
2 Sheets-Sheet 2.

S. Head,

Sawing Shingles.

Patented Apr. 28, 1868.

No 77,283.



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SMITH HEAD, OF HALIFAX, PENNSYLVANIA.

Letters Patent No. 77,283, dated April 28, 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, SMITH HEAD, of Halifax, in the county of Dauphin, and State of Pennsylvania, have invented a new and improved Shingle-Machine; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a top view of my invention.

Figure 2 is a side elevation of the same.

Figure 3 represents the auxiliary apparatus S.

Figure 4 represents a longitudinal vertical section of my machine, and

Figure 5 a cross-section of the same.

Similar letters of reference indicate corresponding parts.

This machine has two carriages and two sets of saws, and cuts a shingle at each forward or backward motion of either carriage. It has a new apparatus for adjusting the bolts to the saws, and a new edging-apparatus.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will proceed to describe it in detail.

In the drawings—

A A represent the legs of the machine, supporting the frame, B B. C C¹ C² C³ are the saws, and D D' are the carriages. E E' are the shafts, by which the power is applied to the machine, they receiving it from the main driving-shaft of the mill. F is a shaft, bearing in boxes in the lower side beams of the frame B, receiving its motion by a belt, f, working on the shaft E and the drum f'. At each extremity it is provided with cranks, G G, working in directions opposite to one another, and operating the pitmen H H'. The latter are hinged to the lower end of the fixed arms I I, attached firmly to the under side of the carriages D D'. By this means, as the shaft F revolves, the carriages D D' move back and forth, alternating with each other.

An upright shaft, K, stands in the centre of the machine, supported in boxes in the cross-beams K' K'', and bearing two stout arms, M M', firmly fixed to it, and extending across the machine, so that their extremities come in contact with the arms I I of the carriages, as they move back and forth, by which means the shaft K is alternately turned partially round in one direction, and then in the opposite direction. The shaft K, being thus turned back and forth, carries with it two stout arms, L L', fixed at its upper end, and extending longitudinally with the machine. At their extremities, the arms L L' have notches, into which fit the drums c c' upon the saw-mandrels. The saw-mandrels a a' are formed with bearings longer than the boxes in which they work, so as to allow the mandrels to be moved back and forth longitudinally. Being thus formed, they yield readily to the oscillating motion of the arms L L', and thus, while one saw, C, is sawing the bolt, the other saw, C', on the same side of the machine, is held out of the way of the bolt till the carriage reaches the end of its journey in that direction, when its arm I strikes and turns the arm M, which reverses the position of the arms L L', and, thereby, of the saws, shifting each set on both sides of the machine at once.

The aprons m m', fixed to sliding pieces, m'' m'', and held between the saws that run on the same mandrel, are slid back and forth with the saws, always maintaining their relative position with the latter.

b b are belts, operating the saw-mandrels from the shafts E E'. There are but two saw-mandrels, each one carrying a saw on each of its extremities. Whatever motions are produced in the saws of one set, will, therefore, be produced in the saws of the set on the opposite side of the machine, and two shingles can be cut at the same time.

My carriages are of peculiar construction. A plate, N, slides back and forth in the bed N' on the side of the machine. A sliding frame, O, works across this plate, having dogs, o o', on its side towards the saws, to hold the bolts, the dogs being operated by the lever o''. The extremities of the sliding frame O are provided with cams or steps, p p, in shape like ratchet-teeth. A long beam, P, is hinged to the side of the carriage-bed,

N', by short arms, so as to have a parallel-ruler motion. Upon its ends are bevelled blocks, $p' p'$, which, at every movement of the carriage towards them, catch in the cams $p p$, and force that end of the sliding frame O in one notch towards the saw. When not at the point where the blocks $p' p'$ operate upon them, the sliding frames O O' are held firmly to the under plate, N, by the operation of pins, not necessary to be shown. This completes the description of the apparatus for sawing the shingle.

The part of the machine used for edging it is of peculiar construction. An auxiliary saw-mandrel, R, works in a sleeve, R', the latter itself acting as another saw-mandrel, the former bearing the secondary saw r , and the latter the saw r' . The mandrel R slides longitudinally in the sleeve R', and can be fixed in any position in it by means of the stout set-screw s working in the slot s' . The same set-screw forces the inner mandrel to turn with the sleeve. From a drum on the latter, a belt, t , passes to the driving-shaft E.

U U are the bearings of the sleeve-mandrel R'.

By this means the shingle can be edged on both sides at the same instant. The saws $r r'$ can be adjusted to different widths of shingle in an instant, by simply sliding the mandrel R into or out of the sleeve R', an operation which can be performed by striking or shoving the saw r on one side or the other with the shingle in hand, as well as by any other means. By filing the teeth of these saws properly, they will catch the shingle and carry it through in the proper manner, with no other assistance than that of simply presenting the end of the shingle till the teeth take hold of it. The shingle, when thus edged, will drop between the belts into a box provided for their reception.

The mandrel R may be square, fitting into a square aperture in the sleeve, and a set-screw used to confine it, instead of the above-described method, if desired.

As a great deal of timber is wasted in every machine when sawing from square bolts, in consequence of not being able to hold the bolt to the saw when it has become very thin, I have prepared the auxiliary apparatus S, shown in fig. 3. It consists of a plate, T, having pins fixed to one of its edges, which operate in slots, $v v'$, in another piece, V, extending along the edge of the plate T, and carrying two arms, $w w$. One of the slots, v , is straight with the piece V; the other, v' , is situated diagonally across it. The arms $w w$ carry dogs, which hold the thin bolt. Now, by pushing the piece V back and forth, the bolt will be adjusted for having the shingle properly cut. The whole apparatus S can then be presented to the saw by the hand of the operator, or it may be attached to the carriage D D', and propelled by its means. It will enable the thinnest bolt to be entirely used up, the last shingle being as perfect as any other.

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

1. I claim the arrangement, in a sawing-machine, of the four saws, C C¹ C² C³, the two mandrels $a a'$, each bearing two of the four saws, and the oscillating-arms L L', for the purpose of communicating a reciprocating motion to the mandrels, when used in connection with two bolt-carriages D D', one on each side of the machine, and the whole being constructed and operating substantially in the manner and for the purposes specified.

2. I claim the combination of the shaft F, the cranks G G, the pitmen H H', the arms I I', moving the carriages D D', and the oscillating-post or shaft K, having the lateral arms M M', and the longitudinal arms L L', all the parts being constructed, combined, and operating together substantially as and for the purposes set forth.

3. The edging-apparatus above described, consisting of the mandrel R, working in the sleeve-mandrel R', and adjusted therein by the set-screw s , the mandrels bearing the auxiliary saws r and r' , when constructed and operated substantially as and for the purpose described.

To the above specification of my improvement, I have signed my hand, this 16th day of May, 1867.

SMITH HEAD.

Witnesses:

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