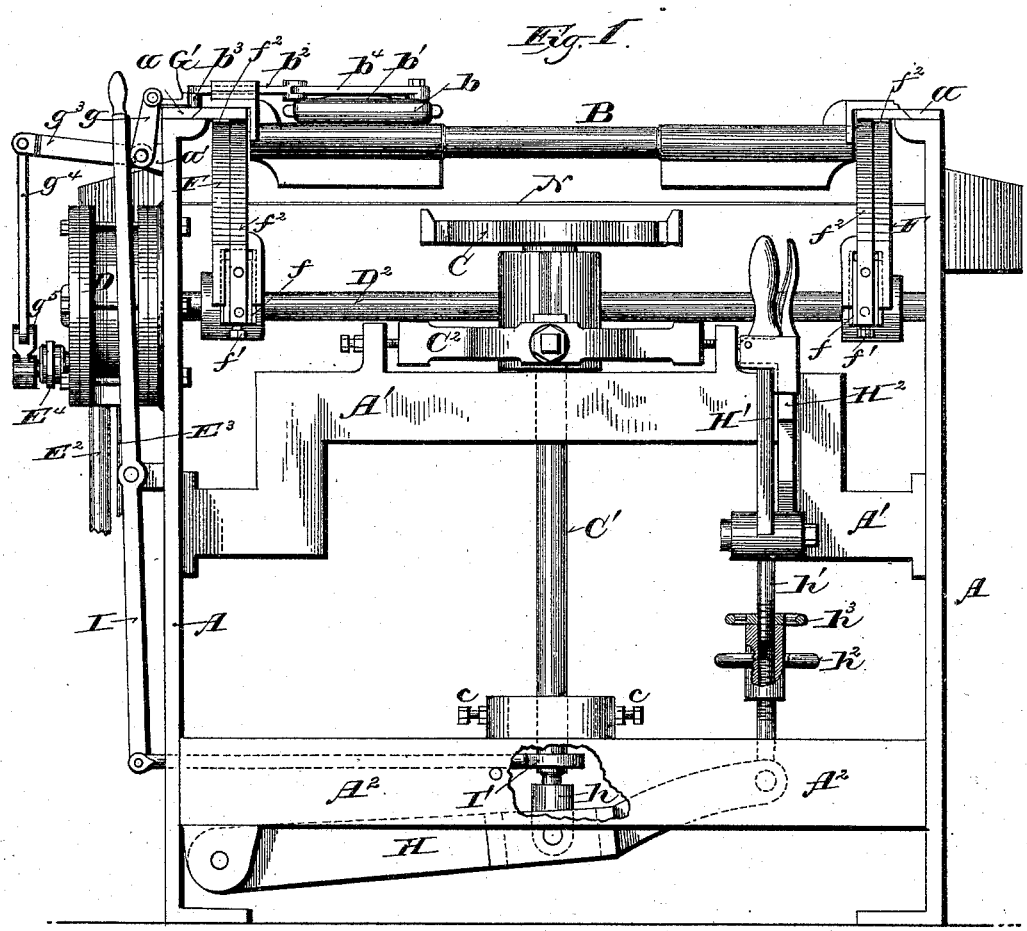
(No Model.) 3 Sheets—Sheet 1.

F. CHALLONER.

SHINGLE SAWING MACHINE.

No. 493,682. Patented Mar. 21, 1893.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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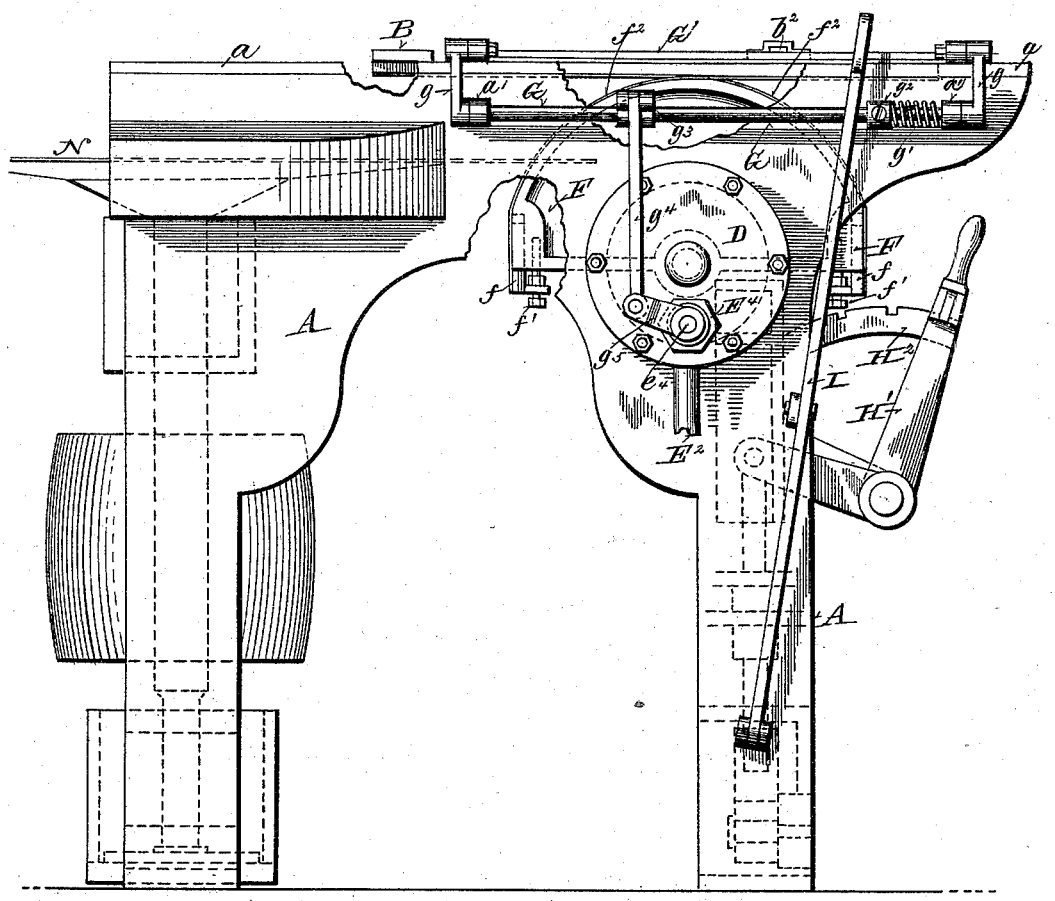
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

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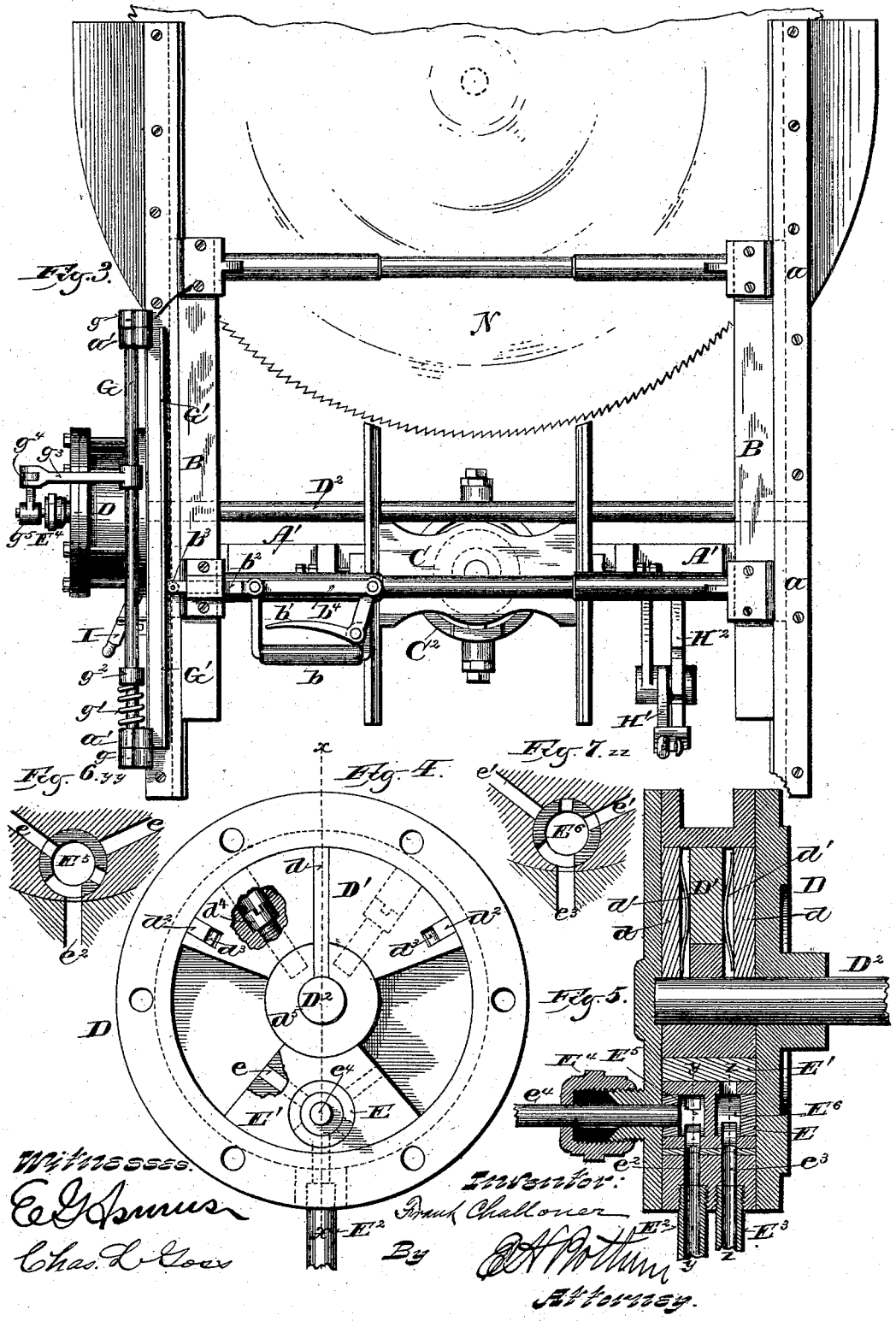

UNITED STATES PATENT OFFICE.

FRANK CHALLONER, OF OMRO, WISCONSIN.

SHINGLE-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 493,682, dated March 21, 1893.

Application filed March 23, 1887. Serial No. 232,196. (No model.)

To all whom it may concern:

Be it known that I, FRANK CHALLONER, of Omro, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Shingle-Sawing Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The main objects of my invention are, first, the application of steam, compressed air or other suitable actuating medium to the operation of the carriage, and second, the adjustment of the tilting table; besides certain others of minor importance hereinafter set forth.

It consists essentially of a cylinder, a piston working therein and connected with the carriage, together with a valve and its actuating mechanism arranged under the control of the operator to admit the actuating medium into the cylinder on either side of the piston and of other features hereinafter specifically set forth.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a front elevation of a shingle sawing machine to which my feeding engine and other improvements are applied. Fig. 2 is a side view of the same. Fig. 3 is a plan view. Fig. 4 is a view of the engine with the outer cylinder head removed. Fig. 5 is a transverse vertical section on the line *x x*, Fig. 4. Fig. 6 is a cross section of the engine valve on the line *y y*, Fig. 5, and Fig. 7 is a like section on the line *z z*, Fig. 5.

A represents the frame of a shingle machine of the same general construction as that shown and described in United States Letters Patent No. 318,956, issued to me June 2, 1885.

B is the carriage, provided in the usual manner with dogs (not shown) for holding the shingle block, and movable horizontally in ways *a a*, over the saw N.

C is the tilting table or rest upon which the shingle block is placed to be dogged in the carriage. It is secured to the upper end of the shaft C′ which rests at its lower end in a step *h* hinged in or to the lever H. The lever H, fulcrumed at one end to a cross girt A^2 of the frame of the machine, is attached at the other end to an adjustable rod *h′*, connecting it with the bell crank lever H′, which is provided with a spring catch working with the notched arc H^2. By this means the tilting table C may be readily raised or lowered by the operator for the purpose of sawing out imperfect portions of the shingle block at a single operation and for sawing different thicknesses of stuff for various uses.

The connecting rod *h′* is formed in two parts, right and left screw threaded at their adjacent ends to engage the right and left threaded adjusting nut h^2, by which said rod may be lengthened or shortened and very nicely adjusted.

h^3 is a jam nut to prevent the nut h^2 from turning when properly set. The shaft C′ is adjustably connected with a cross girt A′ and thus supported at or near its upper end by the yoke C^2 through which it is free to move vertically upon V-shaped guides, as described in the Letters Patent previously referred to, except that in the machine herein shown I make the grooves in which the V-guides work longer to allow greater vertical adjustment of the tilting table. The lateral movement of the shaft C′ is limited and the tilting of the table C is adjusted by stop bolts *c c* inserted in a flange or ring on the cross girt A^2 on opposite sides of said shaft C′.

I is a hand tilting lever fulcrumed to the side of the machine and connected at the lower end by a rod I′ with the lower end of the shaft C′ just above the hinged step *h*.

D is a short cylinder bolted to one side of the machine and provided inside with a sector shaped piston D′ fixed upon the shaft D^2 which passes through the inner head of the cylinder and transversely across the machine, and with a sector shaped valve case E′ transversely bored to receive the cylindrical rock valve E. The piston D′ is transversely grooved near each end of its convex face to receive the metallic packing d^2 d^2, which is forced outwardly by springs d^3 d^3 snugly against the cylinder, as shown in Fig. 4, while it is radially grooved on each side, as shown in Figs. 4 and 5, to receive the packing strips

d d forced outwardly against the cylinder heads by springs d' d'. I prefer to form the piston D′ separate from its hub d^5 and secure it thereto by screws d^4, as seen in Fig. 4.

The valve E is divided vertically into two chambers E^5 E^6 communicating respectively with the induction and eduction pipes E^2 and E^3 through passages e^2 e^3 in the valve case and cylinder, and with opposite ends of the piston D′ through passages e e and e' e' in the valve case. The chambers E^5 E^6 each have three ports, one elongated in constant communication with the induction or eduction passage e^2 or e^3, while the other two register alternately with the passages e e or e' e' leading to the opposite ends of the cylinder, as illustrated in Figs. 4 to 7 inclusive, so as to bring the opposite ends of the cylinder alternately into communication with the induction and eduction passages. The valve case E is turned out to fit and form a bearing for the hub d^5 of the piston. The valve stem e^4, passing through a stuffing box E^4 on the outer cylinder head, is provided with a crank g^5.

G is a rock shaft supported horizontally near the top of the machine and parallel with the carriage ways a a in bearings a' a' provided therefor. It is provided at the ends with cranks g g connected with the transversely movable guide G′ which rests upon the adjacent way a, parallel therewith. It is also provided at an intermediate point with a crank g^3 connected by a rod g^4 with the crank g^5 on the valve stem.

Upon the side rail of the carriage B, adjacent to the movable guide G′, is secured the transverse slide b^2 carrying at its outer end a friction roller b^3, which traverses the inner face of the guide as the carriage moves forward and back.

To the handle b by which the carriage is usually operated by hand is fulcrumed the bell crank lever b' in convenient position to be grasped by the hand of the operator holding said handle, and connected by the rod b^4 with the slide b^2.

Upon the rock shaft G is coiled the spiral spring g' secured at one end in the adjacent bearing a' and at the other in a collar g^2 fixed upon said shaft, and arranged to return and hold the valve E when released in the position shown in Figs. 6 and 7, by which the carriage is returned and held at the front of the machine, as seen in Figs. 2 and 3.

Upon the engine shaft D^2 are mounted at each side of the machine sector-wheels or drums F F grooved on opposite sides to receive the dove-tailed slides f f which are retained and adjusted therein by adjusting bolts and jam nuts f' f', as seen in Figs. 1 and 2.

f^2 f^2 are straps of metal or other suitable material secured at one end to the slides f f and at the other end to the opposite ends of the carriage, as shown in Fig. 2, the two straps on each side of the machine passing in opposite directions over the face of the adjacent sector wheel, or drum and leading to the opposite ends of the side rails of the carriage, to which they are attached at f^3 f^3 as shown in Fig. 2.

My improved machine operates as follows:—A block having been "dogged" in the carriage B in the usual manner, the operator holding the handle b with one hand, grasps the bell crank lever b' and drawing it to said handle moves the slide b^2 and guide G′ outwardly thereby turning the rock shaft G and, through their connections, the valve E till steam is admitted from the induction pipe E^2 through chamber E^5 into the right hand side of cylinder D, as seen in Fig. 4, and exhausted through chamber E^6 from the opposite side of said cylinder into the eduction pipe E^3. The piston D′ and sector wheels F F thus turned to the left acting upon the carriage B through the straps f^2 f^2 attached to its front end, feed the same forward over the saw N. As soon as the lever b' is released the spring g' previously strained by the oscillation of the rock shaft G, reverses the valve E and returns the carriage B to the front of the machine where its movement is arrested by the piston D′ meeting the fixed valve case E′.

Various changes may be made in the details of construction and arrangement of the devices constituting the improvements hereinbefore described without departure from the spirit of my invention.

I claim—

1. The combination in a shingle sawing machine of a suitable frame, a reciprocating carriage supported in ways on said frame, a cross shaft having bearings in said frame and connected with the source of power, drums fixed on said shaft at each side of the machine, and flexible connections passing in opposite directions around the drums to which they are attached, to opposite ends of the carriage to which they are attached, said connections having adjustable attachments for taking up slack and adjusting the travel of the carriage, substantially as and for the purposes set forth.

2. The combination in a shingle sawing machine of a suitable frame provided with ways, a reciprocating carriage supported in said ways, a rock shaft having bearings in said frame and set transversely to the travel of the carriage, segment shaped drums fixed on said shaft at each side of the machine, and cross straps adjustably attached to opposite sides of each drum and leading therefrom to opposite ends of the carriage to which they are attached, substantially as and for the purposes set forth.

3. The combination in a shingle sawing machine of a reciprocating block carriage, an engine connected therewith and arranged to move the same back and forth over the saw, a valve controlling the ingress and egress of steam or the like to and from said engine and a valve operating lever applied to the carriage and having operative connections with said valve, substantially as and for the purposes set forth.

4. The combination in a shingle sawing machine of a reciprocating block carriage, an engine connected therewith and arranged to operate the same, a valve controlling the ingress and egress of steam or the like to and from said engine, a lateral sliding guide set parallel with the side of the carriage and connected with said valve, a transverse slide applied to the adjacent side rail of the carriage and working with said lateral sliding guide and a lever connected with said slide and arranged to operate the valve in whatever position the carriage may be, substantially as and for the purposes set forth.

5. The combination in a shingle sawing machine of a reciprocating carriage, an engine having an oscillatory piston, drums mounted upon the engine shaft and connected by cross straps with the front and rear ends of the carriage and a valve controlling the ingress and egress of steam or the like to and from said engine, substantially as and for the purposes set forth.

6. The combination in a shingle sawing machine of a reciprocating block carriage, an engine having an oscillating piston and drums mounted upon the engine shaft at each side of the machine and provided on opposite sides with adjustable slides, straps attached to the opposite ends of said carriage and to said slides in said drums and a valve controlling the ingress or egress of steam or the like to and from said engine and a lever applied to said carriage and connected with said valve, substantially as and for the purposes set forth.

7. The combination in a shingle sawing machine of a reciprocating carriage, an engine having an oscillatory piston connected with said carriage, a cylinder divided by a transverse partition opposite said piston, a rock valve controlling the ingress or egress of steam or the like to and from the cylinder on each side of said partition, a rock shaft having a crank arm connected with a similar arm on the valve stem, a sliding guide set parallel with the carriage side and connected with crank arms on said rock shaft, a transverse slide mounted upon the adjacent side rail of the carriage and working with said laterally sliding guide and arranged to operate said valve when the carriage is in any position, substantially as and for the purposes set forth.

8. The combination in a shingle sawing machine with the carriage of a vertically adjustable tilting table, a step lever supporting said tilting table, an adjusting lever connected with said step lever and a locking device for securing the adjusting lever in position when adjusted, whereby the tilting table is raised or lowered and set at the desired elevation with reference to the saw, substantially as and for the purposes set forth.

9. The combination in a shingle sawing machine of a reciprocating carriage, a tilting table supported in a step hinged in a lever and a bell crank lever connected with said step lever and provided with a spring catch working with a notched arc, substantially as and for the purposes set forth.

10. The combination in a shingle sawing machine of a reciprocating carriage, a vertically adjustable table resting in a step which is hinged in a lever fulcrumed to the frame of the machine at one end and connected at the other end by an adjustable rod with a lever arranged to raise or lower said table as desired, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

FRANK CHALLONER.

Witnesses:
CHAS. L. GOSS,
E. H. BOTTUM.