(No Model.)

F. CHALLONER.

SHINGLE SAWING MACHINE.

No. 442,170. Patented Dec. 9, 1890.

Fig. 1.

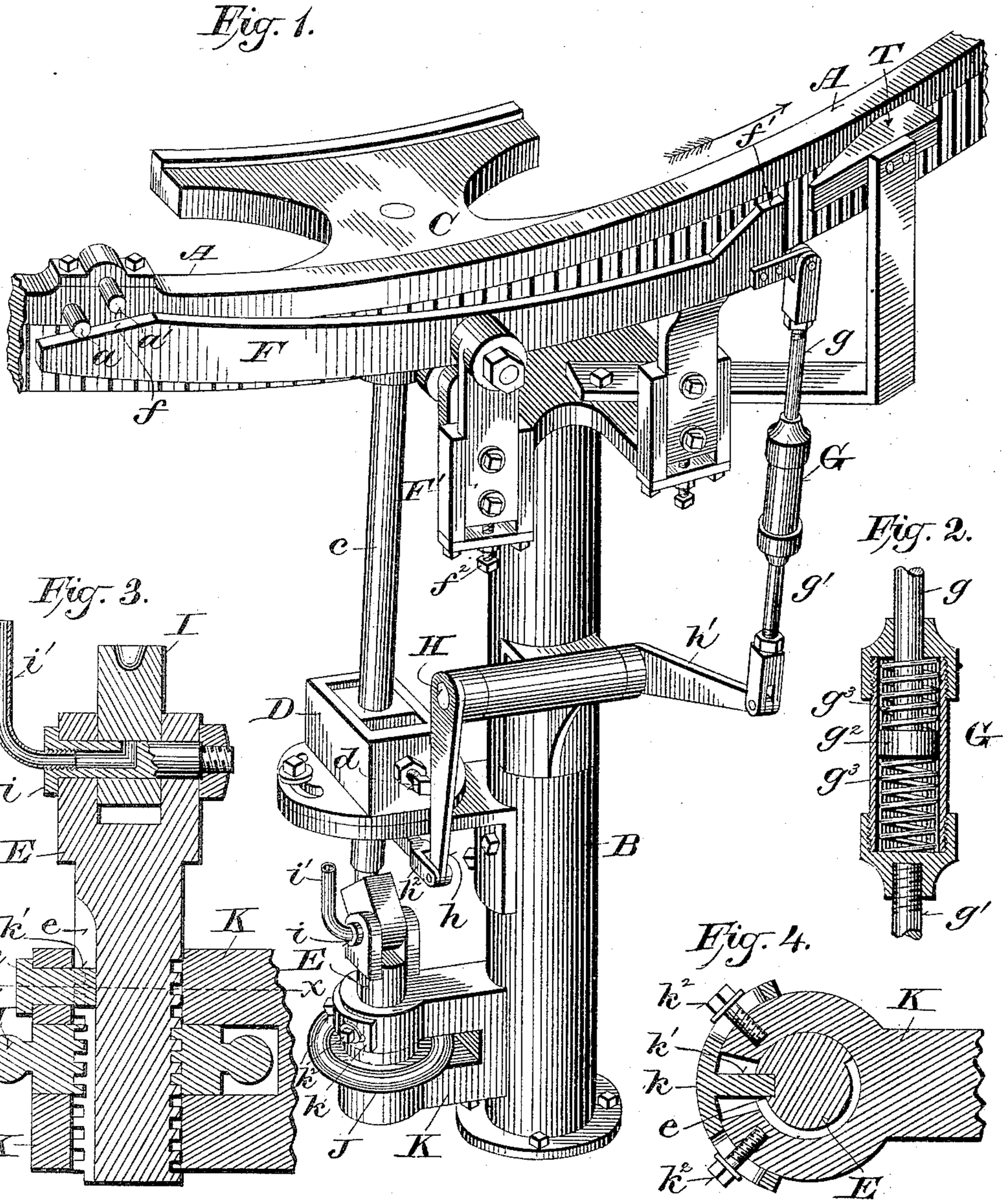

Fig. 2.

Fig. 3.

Fig. 4.

Witnesses:
Chas. L. Gous.
H. E. Benson

Inventor:
Frank Challoner,
By Winkler, Flanders, Smith, Bottum & Vilas
Attorneys.

UNITED STATES PATENT OFFICE.

FRANK CHALLONER, OF OMRO, WISCONSIN.

SHINGLE-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 442,170, dated December 9, 1890.

Application filed October 1, 1888. Serial No. 286,912. (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.

My invention relates to that class of shingle-machines in which a rotary bolt-carriage, a circular track with movable sections for dropping the residuum of the shingle-bolts, commonly called "spalts," two saws, and two tilting tables on opposite sides of the machine are employed.

Its main object is to facilitate "graining" the bolts or maintaining the direction of the grain as nearly as practicable parallel with the plane of the saws.

It consists, essentially, of mechanism under the control of the operator for effecting that end, hereinafter specifically set forth, and pointed out in the claims.

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

Figure 1 is a perspective view of a portion of a shingle-machine to which my improved tilting mechanism is applied. Figs. 2, 3, and 4 are detail views of portions of the same on an enlarged scale, Fig. 2 being a longitudinal section of a yielding coupling in the connecting-rod, Fig. 3 a similar view of the vibrating step in which the tilting bar rests and of its adjustable support, and Fig. 4 a horizontal section on the line $x\ x$, Fig. 3.

Referring to Fig. 1, A represents a portion of a rotary carriage; B, one of the supporting-columns belonging to the frame-work of the machine; C, the tilting table, which is supported on the upper end of a tilting bar c, passing near its lower end through a slotted block D, attached to and capable of angular adjustment on a bracket projecting from the adjacent column. The tilting bar c is free to vibrate in said slotted block, and its vibratory movement is adjustably limited by stop-bolts d.

The constrution and operation of the foregoing parts are like or similar to those in like or similar machines of the class hereinbefore referred to. At its lower end the tilting bar c rests in a vibrating step I, which is hinged on the pin i in the upper bifurcated end of the screw E, as shown most clearly in Fig. 3.

K is a bracket attached to and projecting horizontally from the adjacent column B, and formed with a vertical perforation for the reception of the screw E, and with a horizontal slot for the reception of a nut J, by means of which said screw is secured in said bracket and the tilting table is raised or lowered for the purpose of varying the thickness of the shingles.

To turn the screw slightly in bracket K for the purpose of adjusting the plane of vibration of the tilting bar and table and to prevent said screw from turning when so adjusted, I provide a segmental plate k, fitted and adjustably attached to the face of bracket K, as shown in Fig. 4, by means of bolts $k^2\ k^2$ passing through horizontal slots in said plate. Upon its inner face the plate k is provided with a tongue k', which passes through a vertical opening formed therefor in bracket K and engages with a vertical groove e in said screw E, as shown in Figs. 3 and 4. The pin i, on which the step turns, is formed with a passage, as shown in Fig. 3, extending from one end thereof to its bearing-face, and in its outer end is secured an upwardly-bent tube i', by means of which the bearing of said step is supplied with oil.

H is a short horizontal rock-shaft supported and bearing in a sleeve attached to the column B or any other convenient part of the frame of the machine. It is provided at one end with a crank-arm h, which is connected by the link h^2 with the lower end of the tilting bar c. It is provided at the other end with a crank-arm h', set at right angles to the arm h and connected by a rod $g\ g'$ with one end of a tripping-lever F, which is fulcrumed to a vertically-adjustable block F′ adjacent to the periphery of the carriage A. The tripping-lever F has a vertical incline f at one end, and at the opposite end next to its connection with the rod $g\ g'$ it is formed with an upwardly-projecting inclined extension f'. The block F′ is adjusted vertically by means

of bolt f^2. The sections of the connecting-rod $g\ g'$ have a yielding or elastic coupling, which consists of the barrel G, in one end of which the section g' is screwed and through the opposite end of which the section g passes loosely, being provided at the end inside of said barrel with a head g^2, and of spiral springs $g^3\ g^3$, inserted between the ends of said barrel and the opposite faces of said head g^2, as shown in Fig. 2. The purpose of the elastic connection is to prevent injury to the tilting mechanism described or disturbance of its adjustment by any inaccuracy or variation in the throw of the tripping-lever F and of the tilting bar *c*.

The machine to which my improvements are applied is provided on the opposite side (not shown) with the counterpart of the tilting table and mechanism just described, one tilting table being inclined inwardly and the other outwardly, so as to reverse the inclination of the blocks as they are dropped alternately thereon. The machine is also provided with two saws. (Not shown.)

The rim of the carriage A is provided adjacent to each bolt-receptacle with two sliding pins $a\ a'$, placed near together, one a little above the other, so that the lower pin a, when moved outwardly, will engage with the tripping-lever F on one side of the machine, and the upper pin a', when moved outwardly, will clear said tripping-lever F and engage with the other tripping-lever, which is set a little higher on the opposite side of the machine.

It is obvious that any suitable device movable into and out of range with the tripping-lever F may be employed in place of the pins $a\ a'$, and that various changes in the details of my improvements may be made within the spirit of my invention.

My improvements operate as follows: Whenever the saw-cuts are oblique to the grain of the shingle-bolt and it is desired to bring such cuts as nearly as practicable parallel with the grain, so as to produce straight-grained shingles, the operator thrusts one or both of the pins $a\ a'$ outwardly as they pass him. The lower pin a, engaging the incline f of the tripping-lever F, elevates the opposite end of said lever, and through the connecting-rod $g\ g'$, arm h', rock-shaft H, and arm h throws the lower end of the tilting bar *c* outwardly and reverses the inclination of the tilting table C as the shingle-block is dropped thereon. The block or bolt is then "dogged" in the usual manner in the position it assumes on said tilting tables, and is carried to the saw, which cuts from the under side thereof a shingle with the butt at the same end from which the butt of the preceding shingle was taken. As the pin a passes the inclined projection f' on the other end of the tilting-lever it throws the lower end of the tilting bar *c* inwardly and returns the tilting table C to its first position. After passing said tilting-lever the pin a engages an inwardly-inclined guide T, fixed to a bracket or suitable support projecting from the frame of the machine, and is forced by said guide inwardly out of range of said tilting-lever, which it clears in the next and succeeding revolutions of the carriage until again thrown outwardly by the operator. If necessary, another butt may be cut from the same end of the same block by moving the upper pin a' outwardly into position to engage and operate the tripping-lever on the opposite side of the machine, in which case the operation just described is repeated, when the bolt passes the other tilting table and saw. A similar inclined guide (not shown) on the opposite side of the machine automatically returns the upper pin a' to its first position out of range with the tilting-lever which it is designed to operate. This operation, called "graining," may be repeated in like manner until the cut made by the saws is as nearly parallel as practicable with the grain of the block, and there being a set of pins for each block-receptacle in the carriage any or all of the blocks contained in the machine may be "grained" in the manner described.

I claim—

1. The combination, in a shingle-machine having a rotary carriage, with the tilting table, of a movable part located adjacent to said carriage and having suitable connections with said tilting table, and a trip carried by said carriage and movable by the operator into position to engage said movable part, substantially as and for the purposes set forth.

2. The combination, in a shingle-machine having a rotary carriage and tilting table, of a tripping-lever having inclines on opposite sides of its fulcrum and connected by suitable mechanism with said tilting table, and a pin carried by said carriage and movable by the operator into position to engage the inclines on said lever, whereby the inclination of the tilting table is temporarily reversed and automatically returned to its first position, substantially as and for the purposes set forth.

3. The combination, in a shingle-machine having a rotary carriage and tilting table, of a tripping-lever connected by suitable mechanism with said tilting table, a pin carried by said carriage and movable by the operator into position to engage said tripping-lever, and a fixed guide inclined toward the carriage in the path of said pin, which is returned to its normal position after passing said tripping-lever, substantially as and for the purposes set forth.

4. The combination, in a shingle-machine having a rotary carriage and a tilting table, of a tripping-lever connected by suitable mechanism having an elastic coupling with said tilting table, and a pin carried by said carriage and movable into position to engage said tripping-lever, substantially as and for the purposes set forth.

5. The combination, in a shingle-machine, having a rotary carriage and a tilting table,

of a tripping-lever having a vertically-adjustable fulcrum and connected by suitable mechanism with said tilting table, and a pin carried by said carriage and movable into position to engage said lever, substantially as and for the purposes set forth.

6. The combination, in a shingle-machine, with the tilting table, of a vibrating step supporting the tilting table at its lower end and hinged in a screw, a fixed support having a vertical perforation for the reception of said screw, a key engaging with said screw and preventing the same from turning, and an adjusting-nut having a bearing in said support and engaging with said screw, substantially as and for the purposes set forth.

7. The combination, in a shingle-machine, with the tilting table mounted upon the upper end of a vibrating bar, of a vibrating step supporting the vibrating bar at its lower end and hinged to a screw, a fixed support having a vertical perforation for the reception of said screw, an adjusting-nut bearing in said support and engaging said screw, and a key engaging a vertical groove in said screw and attached to said support so as to be capable of angular adjustment about the axis of said screw, 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:
JOHN CHALLONER,
CHAS. E. WHITEMARSH.