

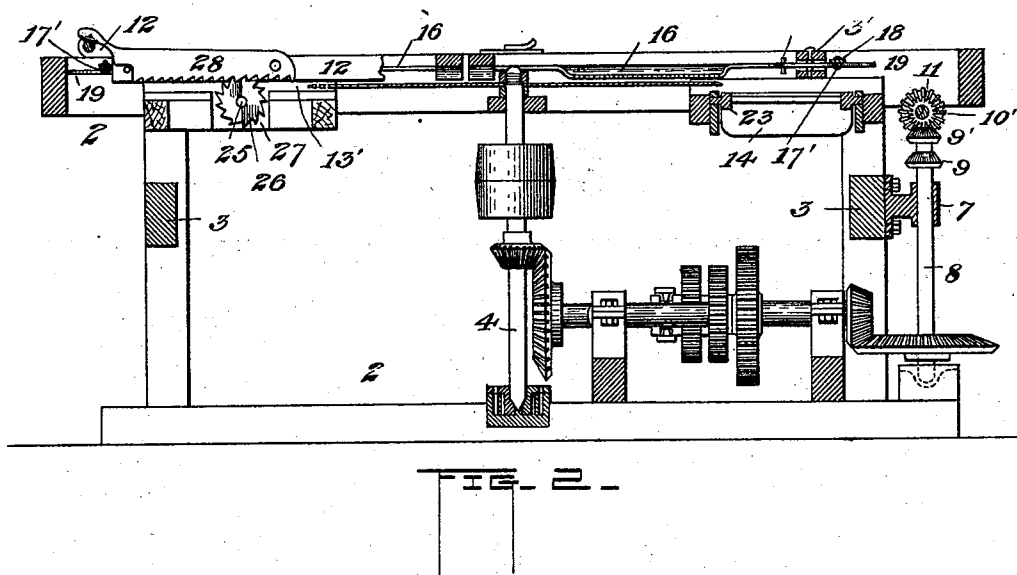
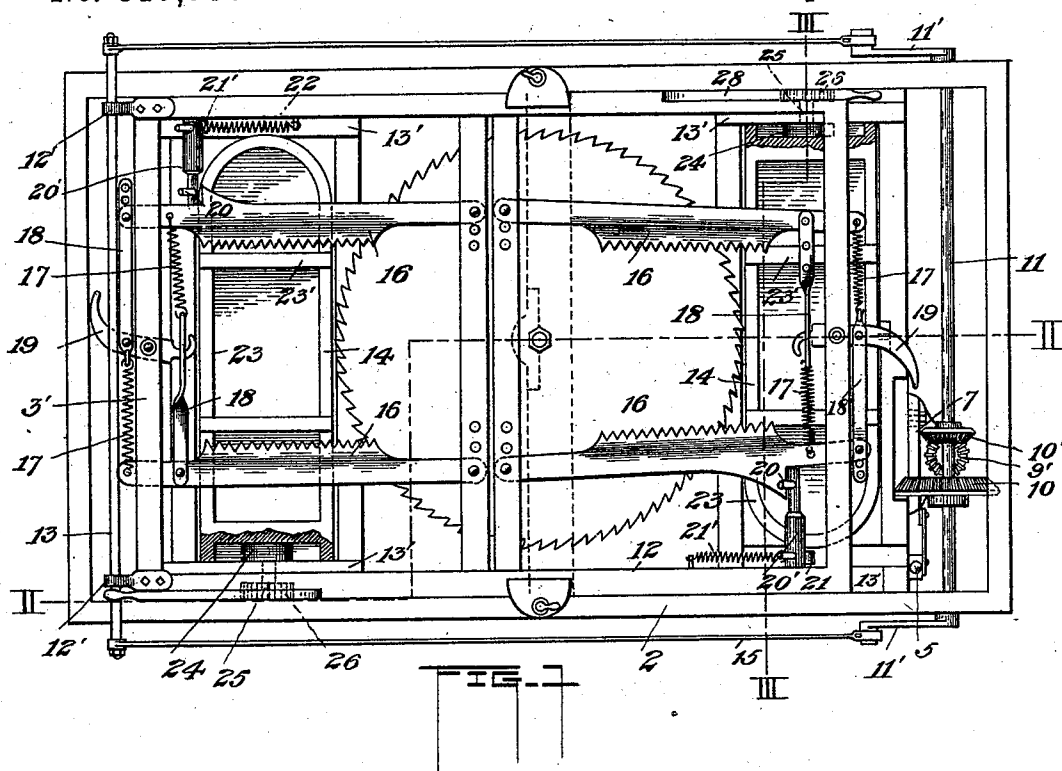
(No Model.)

2 Sheets—Sheet 1.

T. C. DAVIS.
SHINGLE MACHINE.

No. 517,795.

Patented Apr. 3, 1894.



Witnesses
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(No Model.)

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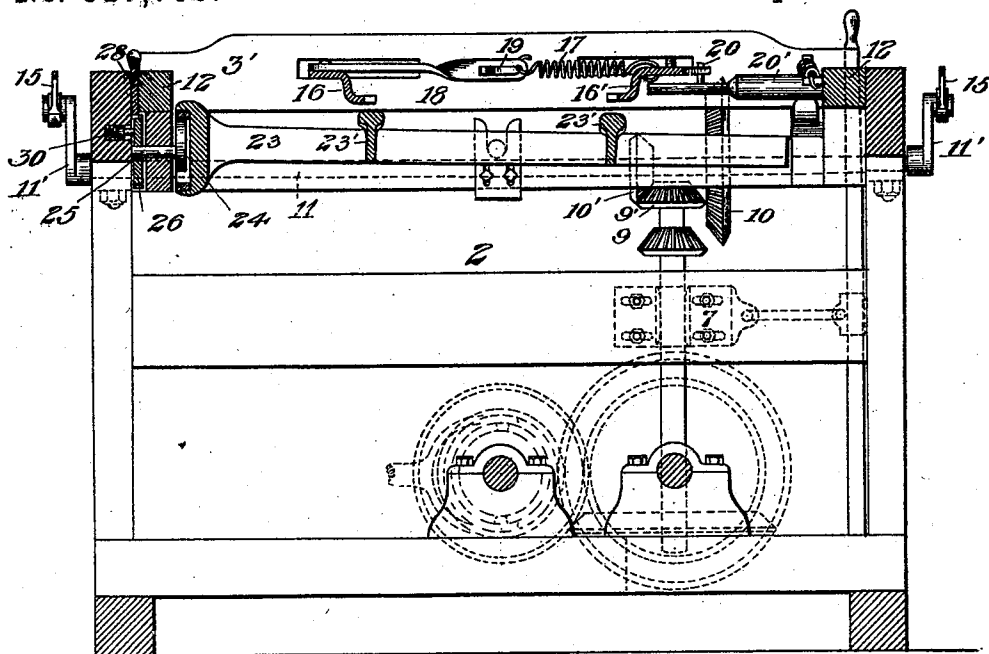


FIG. 3.

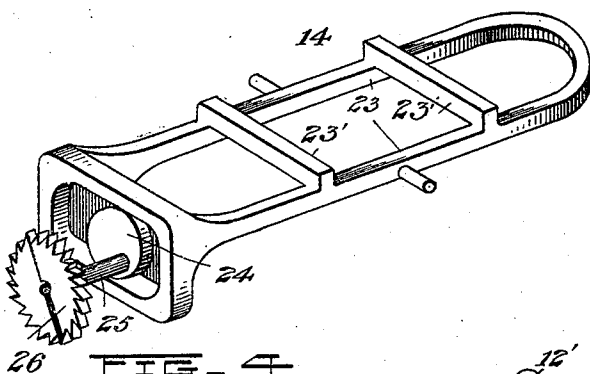


FIG. 4.

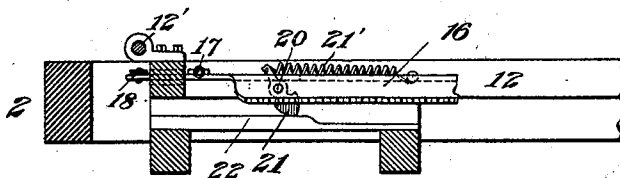


FIG. 5.

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UNITED STATES PATENT OFFICE.

THOMAS C. DAVIS, OF BRADENBAUGH, MARYLAND.

SHINGLE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 517,795, dated April 3, 1894.

Application filed January 19, 1893. Serial No. 458,932. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. DAVIS, a citizen of the United States, residing at Bradenbaugh, in the county of Harford and State of Maryland, have invented certain new and useful Improvements in Shingle-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in shingle-machines, and has for its object the production of a machine that will be effective, durable, and economical in construction.

This invention relates more particularly to that class of machines which cut a shingle at each end of movement of the carriage, and mechanism for automatically releasing the bolt, for the next cut.

A further object which I desire to attain is a simple mode of operating the tilting table, and at the same time positively lock the clamping jaws that hold the bolt while the shingle is being cut.

With these ends in view, my invention consists in certain features of construction and combination of parts, as will be hereinafter described and pointed out in the claims.

In the accompanying drawings,—Figure 1 is a plan view showing the carriage near the extreme end of its movement in one direction. Fig. 2 is a longitudinal section. Fig. 3 is a cross section on the line 3—3, Fig. 1. Fig. 4 is a detail of the tilting table, and means for operating it. Fig. 5 is a detail sectional view of the cam which locks the gripping jaws.

The numerals indicate like parts wherever they occur.

The frame of the machine consists of the rectangular portion 2, provided with suitable cross-bars 3, which brace the frame, and form the supports of the bearing boxes for the shafts upon which the gearing is mounted.

The arbor 4 to which the saw is secured is stepped in an adjustable bearing upon one of the cross-pieces 3 of the frame, and has a bearing just beneath the saw. The gearing is arranged so that the speed may be varied at the will of the operator. The train of gearing is of usual construction, and is controlled by the operator, by means of the hand-lever

5, which is connected to a sliding bearing 7, which rocks the vertical shaft 8, so that the small gears 9, 9' are caused to mesh with either the large gear 10 or smaller gear 10', as the shaft may cause one or the other to be brought into engagement with said gears, which are keyed upon the shaft 11. The ends of the shaft 11 terminate with crank arms 11' upon either end, and preferably just outside the frame of the machine.

It will be observed that while the carriage is of the general construction, the mechanism by which the bolt is properly secured, is designed to be as compact as possible and easily repaired, if necessary. The carriage consists of a rectangular frame 12, which is provided with the necessary cross-pieces, which brace the frame, and at the same time support the clamp jaws, and their operating mechanism. The carriage 12 is given a reciprocating movement by means of connecting rods 15, which are attached to the crank arms 11', of the shaft 11, and to a rod or bar 13 which passes through lugs or bearings 12', upon the carriage. The rotation of shaft 11 causes the carriage 12 to slide on the ways 13'. These ways 13' may be made integral with the top side bars of the main frame, or may be otherwise suitably secured to the said bars.

The saw may be of the usual type, which is bolted to a flange on the upper end of the arbor. The carriage is placed in the same relative position to the saw as is common in shingle machines of this type.

The means which I have devised for holding the block or bolt consists of a pair of jaws 16, which are pivoted at one end to the central cross-piece of the carriage, and the pivotal point is made adjustable in said cross-piece, in order that different lengths of shingles may be provided for, as occasion requires. The jaws are provided with serrations which prevent the bolt from slipping, when the springs 17, exert their power on the ends of the lever. At a point centrally located on the end-bars 3' is pivoted a tripping lever or cam lever, 19, which, through the medium of the links, 18, as the carriage nears the end of its stroke, opens the jaws 16.

While the same general arrangement of saw, with relation to the carriage, has been preserved, and the location of the tilting ta-

bles at the ends of the machine, I have aimed to simplify the construction and operation of the same, and that of the clamping jaws, which hold the "bolts" in place.

5 On either side of a central cross-piece of the reciprocating carriage 12, I pivot the ends of the clamping lever or jaws 16. This cross-bar is provided with perforations or slots, so that the distance between the jaws may be
10 varied as the various lengths of shingles require. The clamping jaws 16 are serrated so as to prevent the "bolt" from slipping, and securely hold it in place while it is being sawed. The clamping jaws are normally held closed
15 by means of the coiled springs 17, which are secured to them at one end, and to a tripping cam lever 19 at the other, through the medium of links 18. The clamping jaws 16 are opened by the cam lever 19, which is pivoted in a slot in
20 the end of carriage frame 12, operating the links 18, and overcoming the tension of the springs 17, thus releasing the bolt, which, if carriage is at the end of the stroke, is done automatically and at the proper time to deposit
25 the bolt upon the tilting table 14, ready for the return movement of the carriage and new cut of the bolt. The shingles are discharged in the usual way. The links 18, are situate on either side of the pivotal point of the cam lever 19, the springs 17, exerting a direct pull
30 upon said lever and links, as soon as the end of the cam lever passes out of engagement with the end cross-piece of the main frame, thus gripping the bolt in the proper position
35 for the next cut. The links 18, are provided with perforations so that the clamping jaws 16, are adjustable at their free ends. In order to prevent the jaws 16, from becoming disengaged accidentally, a shoulder in the
40 outside thereof is engaged by a pin 20 which passes through a shaft 20', which is journaled in the carriage frame at one end and loosely in the clamping jaw at the other. This pin 20 rests against said shoulder, and is automatically released at the time the clamping jaws
45 16, are opened, by means of the cam 21 also upon the shaft 20'. The pin 20 is normally held by a spring 21' so as to cause it to lock the clamping jaws. The cam 21, as the carriage
50 nears the end of its stroke, passes over a cam surface 22 located in the path of the cam 21 as the carriage is reciprocated, and thereby the shaft 20' is rocked so as to permit the jaws to be opened as hereinbefore described.
55

Both ends of the machine are the same, the carriage being moved so that a shingle is cut on each alternate movement of the carriage.

60 The tilting tables 14 are located at either end of the machine. The frame of the tilting table consists of the rim 23 and the cross-bars 23', which serve to strengthen the frame. In the drawings, I have shown one end as being round, and the other end as square, this end
65 being wider and thicker than the remainder of the table has an eccentric strap formed either integrally therein, or suitably secured

thereto. This eccentric strap is engaged by the eccentric 24, which is secured to a shaft 25, journaled in the ways, upon which the carriage 12 slides. A ratchet wheel 26 is secured
70 to the opposite end and is confined in a recess 27. That portion of the way which is adjacent to the end of the tilting table is grooved so as to permit the ratchet bar or lever 28
75 which is pivoted to the side of carriage 12 to engage the ratchet wheel 26, as the carriage nears the end of its movement and rotates the eccentric 24, and thus elevate or depress the ends of tilting tables 14. The bearing in
80 which the tilting tables are trunnioned is made adjustable within certain limits, and thus the distance between the carriage and the tilting table may be varied to cut a thinner or thicker shingle as may be desired.
85

In order to prevent the weight of the end of the table moving from the adjustment given by the eccentric, 24, which is one-half revolution, I form in the rear face of the ratchet wheel 26, depressions or notches which
90 are engaged by a spring detent 30. As the ratchet bar engages the eccentric and turns it one-half revolution each time, it will be seen that the tilting table will cut one shingle, the butt of which is formed first on one end,
95 and then on the other of the bolt alternately, and the adjustment will always be positive, as the spring detent prevents the eccentric from moving except in one direction. When
100 it is desired to cut box stuff, veneers and the like, the operator merely throws the ratchet bars out of the path of the ratchet wheel, and thereby a piece of the desired and uniform thickness will be cut from the "bolt." The
105 carriage 12 is readily removed by simply turning the securing devices 30, which consist of plates so pivoted that when turned as shown in the drawings, extend over the side rails of the carriage, but when turned in the
110 opposite direction the distance from the pivotal point to the edge of the plate is such that it clears the frame of the carriage. When this has been done, the reciprocating carriage can be tilted up or taken off, and the saw
115 readily removed for any purpose desired.

The frame of the machine may be covered if desired, but for clearness of illustration such covering is omitted.

The operation in brief is as follows: The power being applied to the saw arbor pulley
120 from any suitable power medium, the operator having first secured the bolts in the gripping jaws and regulated the height of the tilting tables, starts the machine in motion by rocking the hand-lever in either direction
125 he chooses, according as a fast or slow movement of the carriage is desired. When the gearing is thrown into operation, the driving shaft which reciprocates the carriage is started, and starting one extreme of the
130 stroke a single revolution of said shaft will cause the carriage to travel to the other extreme and return; during which time two shingles have been cut, and the bolt at the

end of the machine from which the next shingle is to be cut properly adjusted by means of the action of the tilting table. This operation will continue until it is necessary to put in new bolts, which can be done without stopping the machine.

It is obvious that slight changes in construction may be made without departing from the spirit and scope of my invention, such, for instance, as driving the machine by a horizontal shaft connected to the said arbor by bevel gearing, when found desirable.

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

1. In a shingle machine, the combination with the main frame, and driving mechanism, a saw, a saw-arbor, a carriage mounted on said frame, a crank-shaft, connecting devices adapted to reciprocate said carriage, clamping jaws located at either end of the carriage, a central cross-bar, said clamping jaws being pivotally connected thereto at one end, and having their free ends supported in the slotted end bars of the carriage, tension springs whereby the jaws are normally closed, and a pivoted cam lever adapted to open said jaws, substantially as described.

2. In a shingle machine, the combination with the main frame, and driving mechanism, a saw, a saw-arbor, a carriage mounted on said frame, a crank-shaft, connecting devices adapted to reciprocate said carriage, clamping jaws located at either end of the carriage, a central cross-bar, said clamping jaws being pivotally connected thereto at one end, and

having their free ends supported in the slotted end bars of the carriage, tension springs whereby the jaws are normally closed, a cam surface beneath the carriage secured to the machine frame, a rock-shaft, a pin secured therein, a cam carried thereby, whereby the clamping jaws are locked until said cam engages the cam surface, and a pivoted cam lever carried by the carriage, adapted to release the jaws, substantially as described.

3. In a shingle machine, a saw, a saw-arbor stepped in an adjustable bearing at its lower end, a gear secured thereon, a train of variable speed gears driven thereby, an upright shaft located at one end of the machine, having its lower end stepped so as to permit said shaft to be rocked, a sliding bearing adapted to receive the upper end of the shaft, bevel gears mounted thereon, a hand-lever attached to said bearing, whereby the shaft is rocked, a horizontal shaft having crank arms on the ends thereof, a reciprocating carriage, clamping jaws carried thereby, and devices connecting said horizontal shaft and the reciprocating carriage gears of different diameters mounted on said horizontal shaft, adapted to be engaged by the gears mounted on the upright shaft so as to change the speed of the reciprocating carriage, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS C. DAVIS.

Witnesses:

WM. M. BARTON,
JOHN W. BARTON.