No. 781,172. PATENTED JAN. 31, 1905.

J. ANDERSON.

SAWING MACHINE.

APPLICATION FILED FEB. 25, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

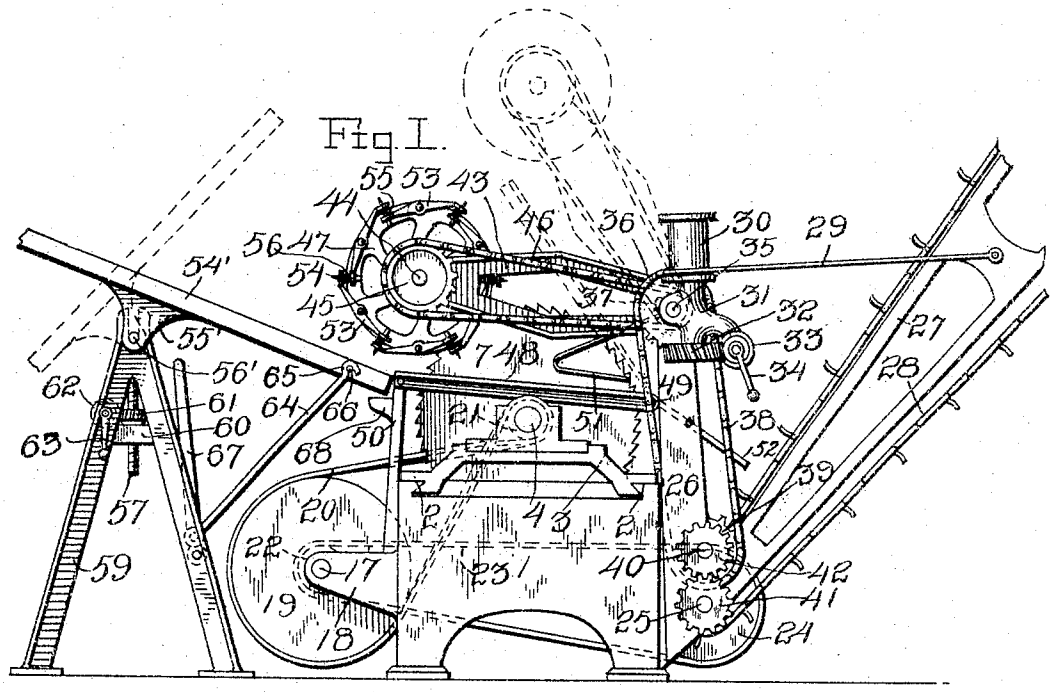
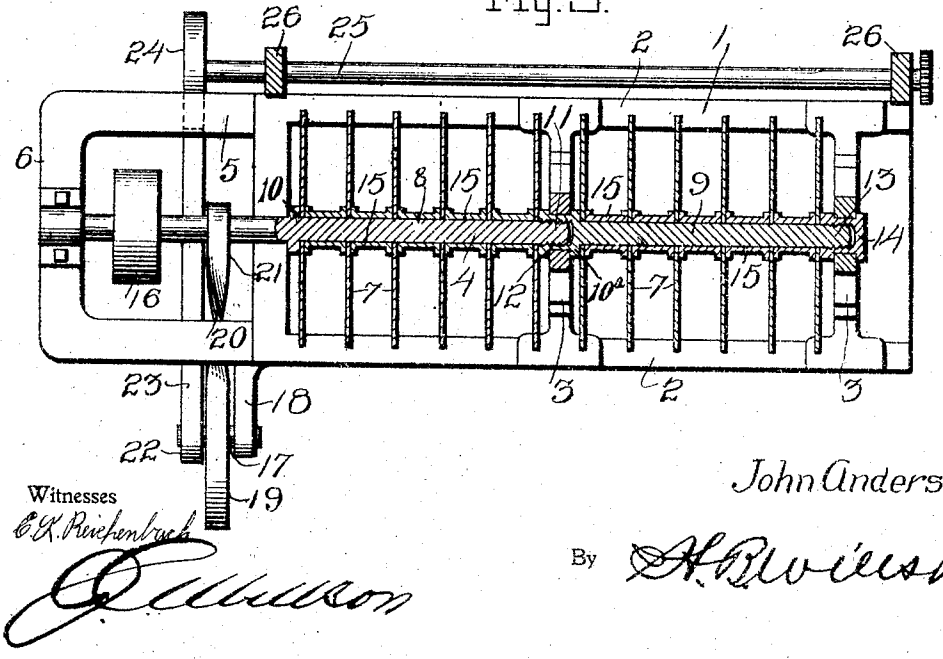


Fig. 3.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

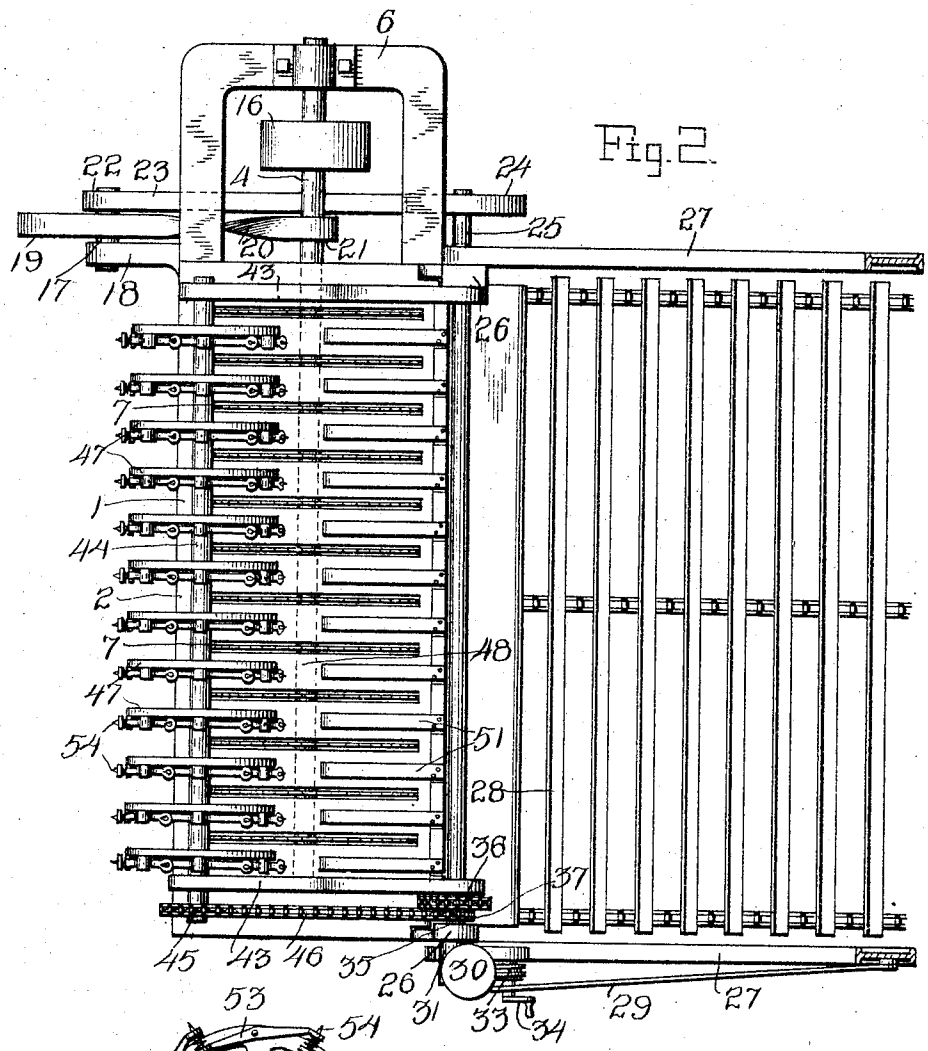
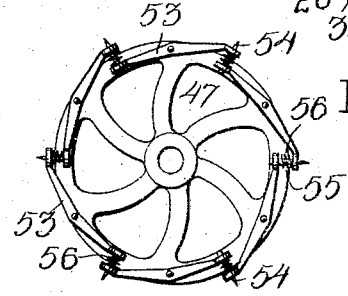


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

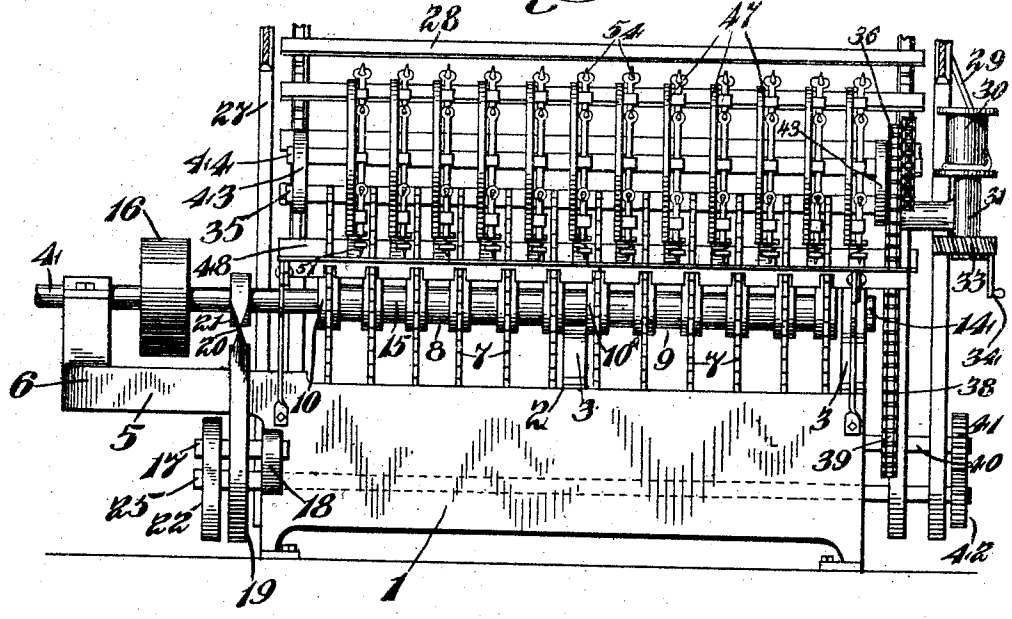
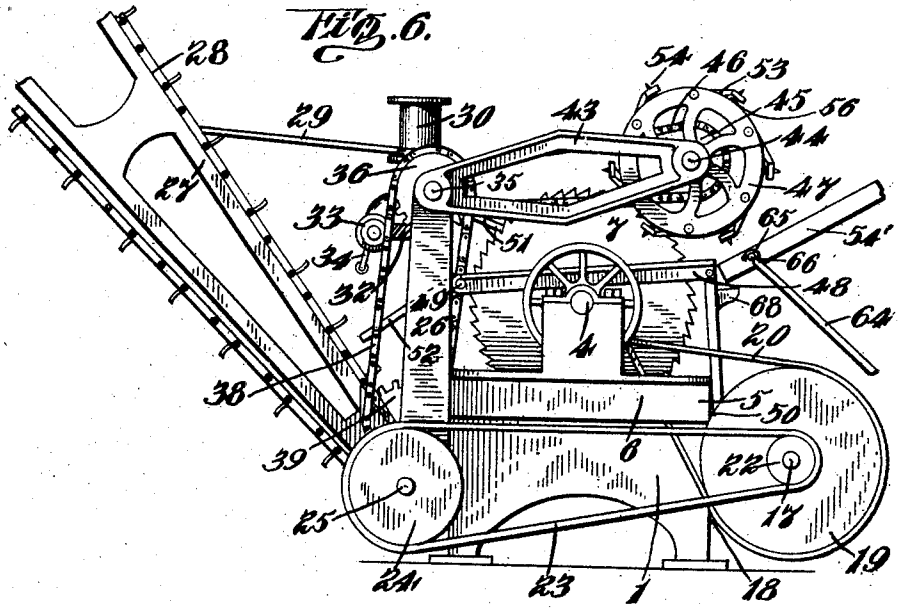


Fig. 6.



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No. 781,172. Patented January 31, 1905.

UNITED STATES PATENT OFFICE.

JOHN ANDERSON, OF NEWCASTLE-UPON-TYNE, ENGLAND.

SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 781,172, dated January 31, 1905.

Application filed February 25, 1904. Serial No. 195,281.

To all whom it may concern:

Be it known that I, JOHN ANDERSON, a subject of the King of Great Britain, residing at Newcastle-upon-Tyne, England, have invented certain new and useful Improvements in Sawing-Machines; and I do 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.

This invention relates to a machine for sawing wooden blocks for street-paving and like work.

The object of the invention is to provide a simple, durable, and efficient construction of machine of this character which possesses superior advantages in ease of assembling, disassembling, and adjusting the parts, effecting a saving of time in these operations and securing a more stable structure, and which is entirely automatic in feeding the lumber through the machine and conveying the resulting blocks to a suitable point of deposit.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is an end elevation of a sawing-machine embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a horizontal section on the line of the saw or power shaft, and Fig. 4 is a detail side view of one of the feed-wheels. Fig. 5 is a front elevation of the machine, omitting the tilting work-table. Fig. 6 is an end elevation showing the end opposite that shown in Fig. 1.

Referring to the drawings, the numeral 1 represents a supporting-frame of approved construction, the same having longitudinal slideways 2 for the reception of longitudinally-sliding bearings 3, in which the saw shaft or arbor 4 is journaled. This shaft also extends through a bearing on a cross-bar 6 of an extension 5 at one end of the frame, and said shaft carries a series of circular saws 7. In order to facilitate the mounting and dismounting of the saws, I construct the said shaft 4 in sections 8 and 9, the section 8 being provided with a collar 10 and with a threaded inner end 11, which enters a threaded socket 12 in the inner end of the other section, 9. The inner end of the section 9 has a collar 10^a, and the outer end of the said section has a similar threaded portion 13 engaging a nut 14, mounted upon the outer bearing 3. By this construction it will be seen that the sections of the shaft may readily and conveniently be connected and disconnected. The saws 7 are mounted upon the shaft-sections and held spaced by spacing-sleeves 15, fitted on said sections between them, the saws being clamped between the collar 10 and socket 12 and also between the collar 10^a and the nut 14, whereby they are rigidly secured to rotate with the shaft. The shaft is provided between the bars 5 and 6 with a drive-pulley 16, keyed or otherwise secured thereto. The shaft, together with bearings 3 and the saw carried by the shaft, may be moved longitudinally to adjust the saws as may be required by the work. By constructing the shaft in sections different sizes of sleeves may be applied to space the saws a greater or less distance apart, as required to suit the size of blocks to be sawed.

Arranged at the front of the machine is a short shaft 17, suitably journaled in brackets or extensions 18 and carrying a pulley 19, which is connected by a belt 20 with a pulley 21 on the shaft 4. Also mounted on the shaft 17 is a pulley 22, which is connected by a belt 23 and a pulley 24 to the shaft 25, journaled in the lower end of standards 26, arranged at the rear of the frame. On this shaft 25 are pivoted the side pieces of a swinging conveyer-frame 27, carrying an endless conveyer 28 of approved construction to receive the blocks cut by the saws and convey the same to a wagon or other receptacle or to a suitable point or place of deposit. The conveyer-frame is adjustable to any desired angle of inclination by means of a rope, cable, or other connection 29, connecting the same with a drum 30, journaled upon a bracket 31, carried by one of the said standards 26, said drum or pulley being connected by a stem or shaft to a worm 32, in gear with a pinion 33,

adapted to be operated by a crank-handle 34 to wind up or pay out the connection 29, as will be readily understood. Of course more than one of these devices for adjusting the conveyer may be employed, if desired.

Arranged above the shaft 25 is a shaft 35, on which are mounted sprocket-wheels 36 and 37, the former being connected by a chain 38 with a sprocket-wheel 39 on a stub-shaft 40, which receives motion from the shaft 25 through intermeshing spur-gears 41 and 42. Mounted on said shaft 35 are swinging arms 43, in the forward ends of which a feed-shaft 44 is journaled, said shaft having fixed thereto a sprocket-wheel 45, which is connected by a chain 46 with the sprocket-wheel 37 on the shaft 35, whereby the shaft 44 is driven from the shaft 25. The shaft 44 connects the outer ends of the arms 43, and thus forms therewith a swinging frame.

On the shaft 44 a series of feed-wheels 47, equal in number to and arranged on lines between the saws 7, are mounted and are adapted to engage the board or piece of lumber being fed up to the machine and force the same rearwardly through the machine over the table 48, which is provided with a series of slots through which the saws project and in which they rotate. This table 48 is hinged at 49 to the frame and rests at its forward end upon the front portion 50 of the frame, so that it, as well as the swinging frame carrying the feed-wheel 47, may be elevated to the dotted-line position shown in Fig. 1 to admit ready access to the saws for cleaning, sharpening, and removing the same, thus obviating the necessity of detaching a number of parts to reach the saws. At the rear side of and above the table are secured a series of presser-springs 51, which are in rear of the feed-wheels and between the saws. These springs serve to prevent the blocks from being forced up by the action of the saws and guide the same to a chute or conductor 52, whereby said blocks are conducted to the conveyer 28.

In order to secure the effective feed of the boards and blocks to the machine, each feed-wheel 47 is provided with a peripheral series of spring-actuated dogs comprising a series of pivoted levers 53, each having its ends respectively over and under lapping the contiguous ends of adjacent levers, one end of each lever carrying a spur 54, having a stem 55 sliding in an opening in the underlapping end of the adjoining lever and normally projected by a coil-spring 56. In the operation of the machine the wheels 47 are rotated forwardly and the spurs 54 engage the board or piece of work fed up and force the same rearwardly, the movable motion of the spurs allowing them to yield to compensate for variation between the peripheries of the feed-wheels and the boards in the path of movement of the former and to enter the boards and secure a firm grip thereon to force the same through the machine. This construction of the feeding devices prevents injury to the feed mechanism when obstructions are encountered and enables a firm action of the material to be obtained without injury thereto to any material extent.

The boards or pieces of work to be sawed into blocks are fed to the machine from a tilting work-table 54′, which is pivoted by a bracket 55′ upon a cross-head 56′, carried by a screw shaft or stem 57, the said cross-head occupying slots or bifurcations in the upper portion of a supporting-frame 59 and the screw or stem 57 passing downward through a guide 60 in said frame and acted upon by an adjusting-nut 61 to raise and lower the said cross-head in the said slots, and thereby vertically adjust the table 54′. In order to adjust the screw 57, the nut 61 is formed with a worm-thread and is operated through the medium of a pinion 62, turned by means of a crank 63. The table 54′ is normally held in the full-line position shown in Fig. 1 by a link 64, which is provided at one end with a hook 65, engaging a pin or rod 66 at the inner end of said table and operatively connected at its lower end to a pivoted lever 67 or close to the frame 59. By means of this lever the inner end of the table 54′ may be swung downward into contact with stops 68 on the front portion 50 of the frame 1 to allow the board or piece of work sliding down said table to abut against the upper part of said portion 50 and square itself, then to be raised to be engaged by the feed-wheels 47 and forced through the machine. By disconnecting the hook 65 from the pin 66 the table 54 may be turned back to the broken-line position shown in Fig. 1 after the feeder-frame has been elevated to allow complete access to the saws and other parts of the machine.

From the foregoing description, taken in connection with the accompanying drawings, the construction and mode of operation of my improved sawing-machine will be readily understood and its advantages will be readily perceived by those versed in the art.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. The combination of a sawing-machine having an inclined table, a tilting feed-table on the front side thereof, and a downwardly-inclined discharge-chute at the rear side of the inclined saw-table, substantially as described.

2. In combination with a sawing-machine, a pivotally-mounted, vertically-adjustable feed-table, having means to vertically adjust it, and means to tilt it as desired, substantially as described.

3. In combination with a sawing-machine, a pivotally-mounted feed-table, a lever to operate the feed-table, and a detachable connection between said lever and said feed-table to enable the latter to be reversely inclined, to clear the sawing-machine, substantially as described.

4. In combination with a sawing-machine, a revoluble feed device above and extending in front of the same, a swinging support for the feed device, revoluble in a vertical plane, and a tilting feed-table in front of the sawing-machine, and when in operative relation thereto, disposed with its rear, lower side below the revoluble feed device, substantially as described.

5. The combination of a sawing-machine having an inclined table, an inclined feed-table on the front side thereof, and a downwardly-inclined discharge-chute at the rear side of the inclined saw-table, substantially as described.

6. The combination of a sawing-machine having an inclined table, an inclined feed-table, on the front side thereof, a downwardly-inclined discharge-chute at the rear side of the inclined feed-table, and an endless traveling delivery-conveyer fed by the chute, substantially as described.

7. In a sawing-machine, the combination of a frame having an abutting portion and a stop, and feeding and sawing mechanism on said frame, of a tilting feed-table adapted to move downward in contact with said stop to allow the work to engage said abutting portion and be squared thereby, and then elevated to be engaged by said feeding mechanism, and means for tilting said table.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN ANDERSON.

Witnesses:
H. NIXON,
JOHN JAMES BRITTAIN.