No. 751,060. PATENTED FEB. 2, 1904.

J. T. DAVIS, DEC'D.

W. M. DAVIS, ADMINISTRATOR.

SAWING MACHINE.

APPLICATION FILED JULY 13, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

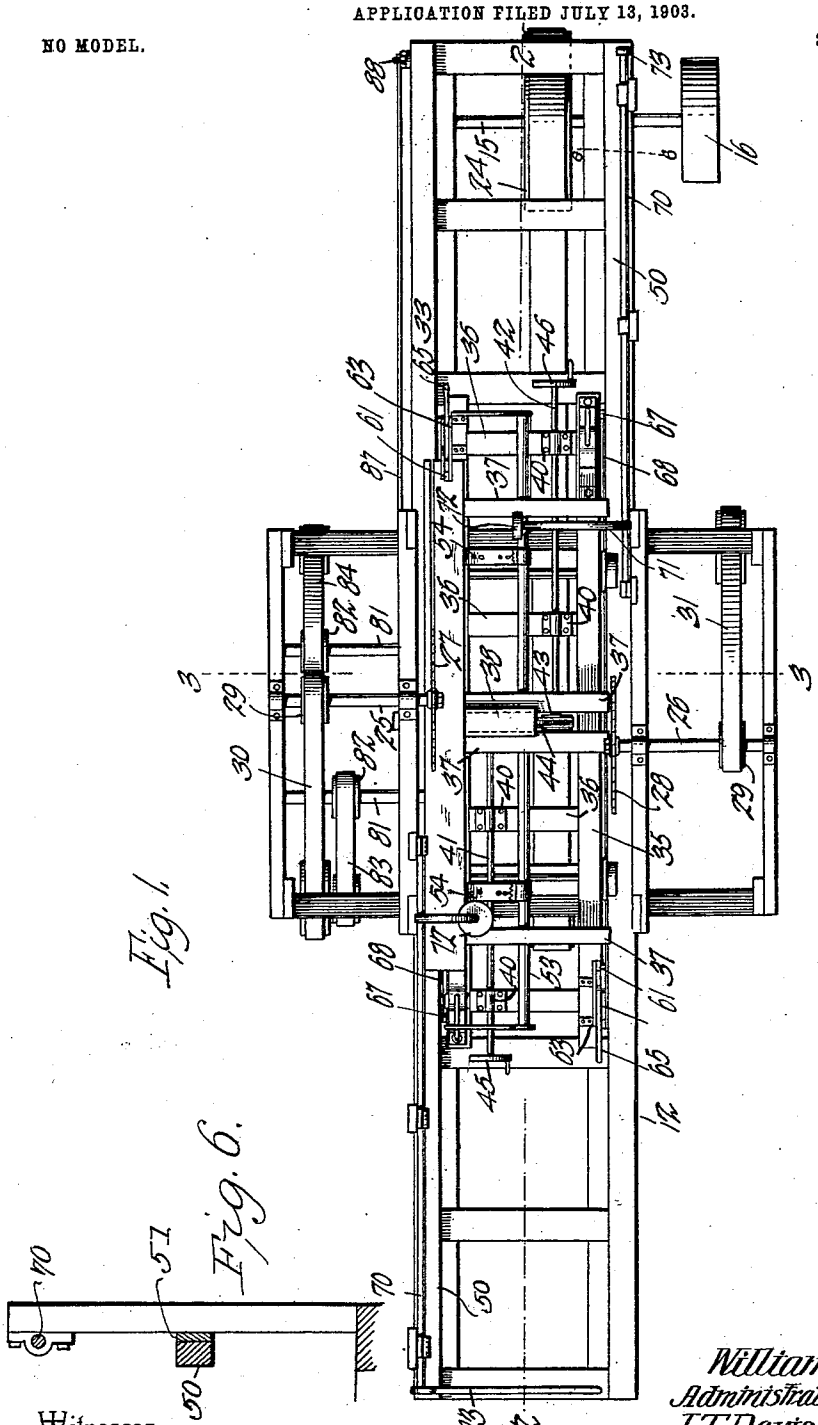


Fig. 1.

Fig. 6.

Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 3 SHEETS—SHEET 2.

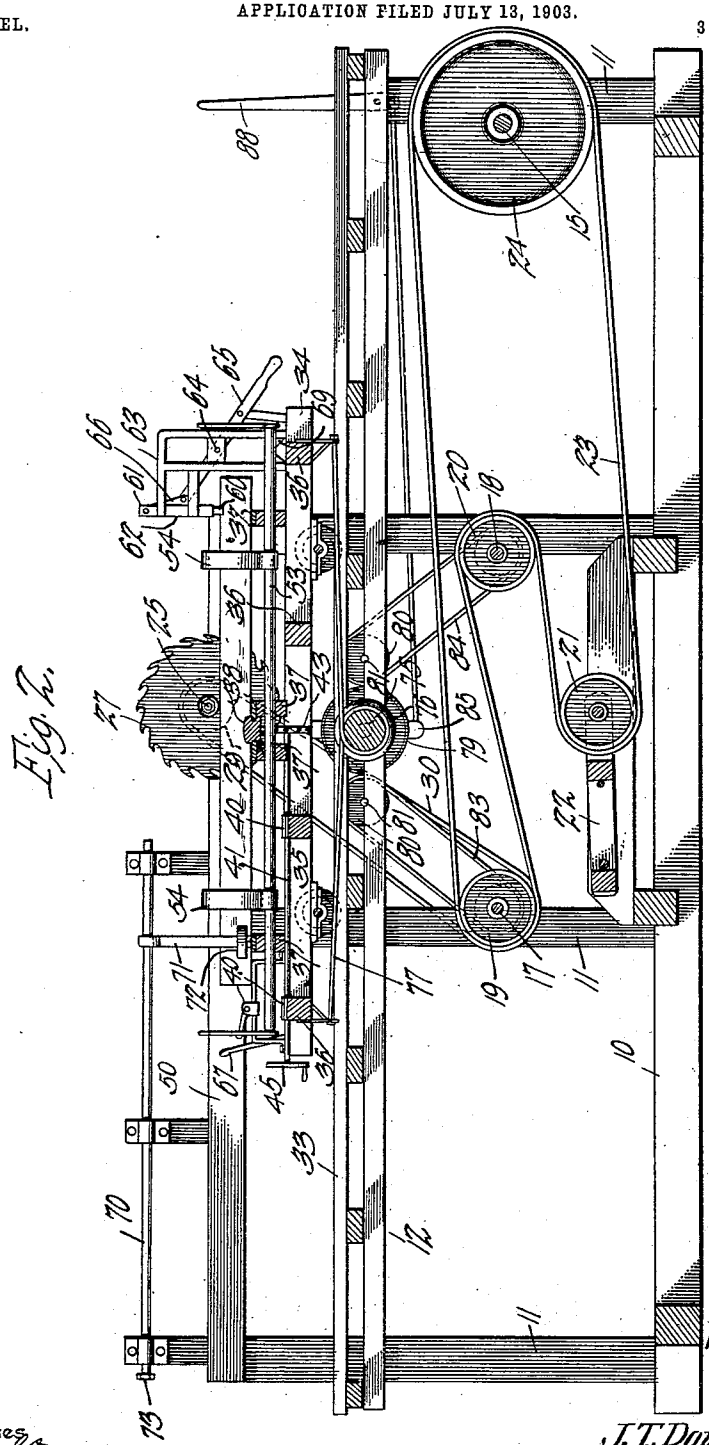


Fig. 2.

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APPLICATION FILED JULY 13, 1903.

NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.

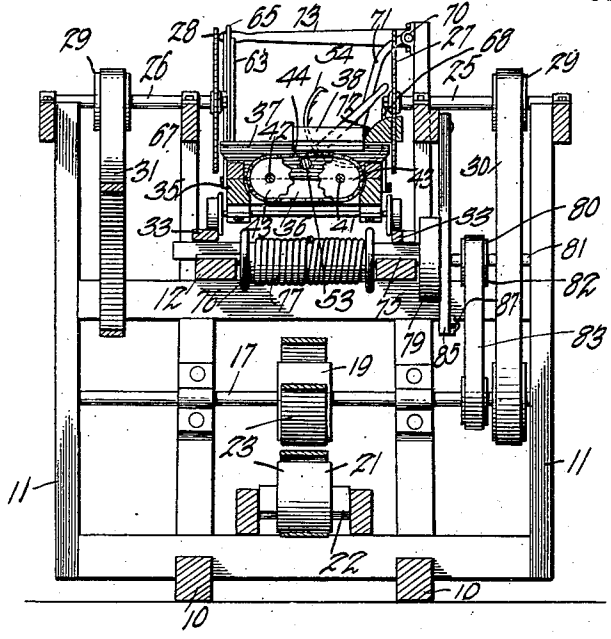


Fig. 4

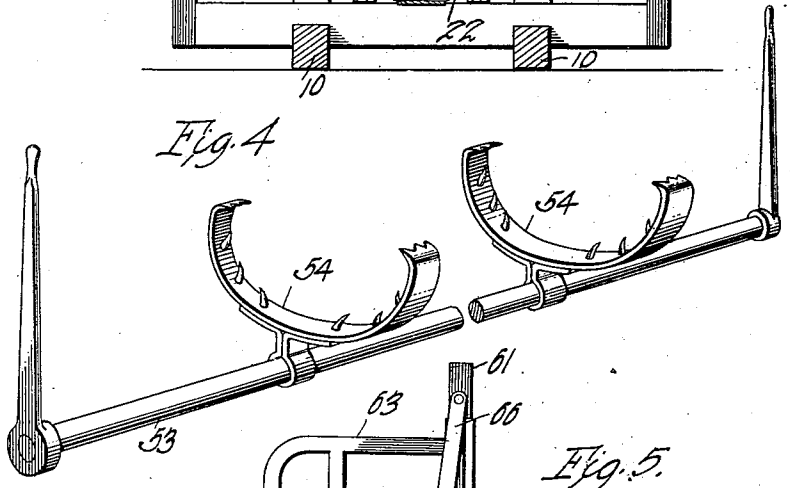
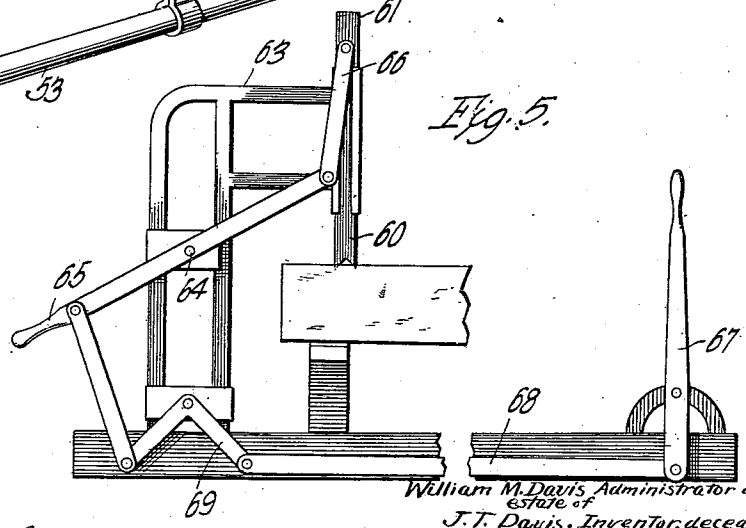


Fig. 5.



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 751,060. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM M. DAVIS, OF HATTIESBURG, MISSISSIPPI, ADMINISTRATOR OF JAMES T. DAVIS, DECEASED, ASSIGNOR TO ALBERT A. VOSS AND ALLISON D. BENNETT, OF MOBILE, ALABAMA.

SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 751,060, dated February 2, 1904.

Application filed July 13, 1903. Serial No. 165,289. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. DAVIS, a citizen of the United States, residing at Hattiesburg, in the county of Perry and State of Mississippi, administrator of the estate of JAMES T. DAVIS, deceased, late a citizen of the United States, and a resident of Hattiesburg, in the county of Perry and State of Mississippi, (as by reference to the duly certified copy of letters of administration hereto annexed will more fully appear,) do hereby declare that JAMES T. DAVIS invented a new and useful Sawing-Machine, of which the following is a specification.

The invention relates to certain improvements in sawing-machines of that class used in the production of rift or quarter-sawed timber, and has for its principal object to provide a mechanism of simple and economical construction in which the timber may be readily reduced to rift without any waste of material.

A further object of the invention is to provide an improved form of carriage for changing the position of the quartered log from which the rifts are cut, so as to present its two flat faces alternately to a pair of saws revolving in opposite directions and in this connection to save time in the sawing operation by cutting a rift from the log at each movement of the carriage, it being unnecessary to return the carriage to an initial position before each operation.

A further object of the invention is to provide improved means for adjusting the timber against the guides and to provide means for holding a piece of sprung or warped timber in proper position for the cutting of a rift of uniform thickness.

A still further object of the invention is to provide locking-dogs capable of engaging and holding the timber at opposite ends of the carriage and operable by workmen from either end of the carriage.

A still further object of the invention is to provide an improved form of mechanism for operating the several moving parts and for controlling the operation of said mechanism.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a plan view of the sawing-machine constructed in accordance with this invention. Fig. 2 is a longitudinal sectional elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a transverse sectional elevation of the machine on the line 3 3 of Fig. 1. Fig. 4 is a detail perspective view of the mechanism employed for turning the log to present its flat faces alternately to the saws. Fig. 5 is a detail view of one of the locking-dogs. Fig. 6 is a detail sectional view, on an enlarged scale, on the line 6 6 of Fig. 1.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The main frame of the machine, which may be of either wooden or iron beams, comprises a pair of sills 10, from which rise standards 11, carrying an upper frame 12, the several parts of the frame being provided with journal-boxes, brackets, and other supports for the movable members of the machine. The uprights near one end of the main frame support a transversely-disposed shaft 15, on which is mounted a belt-wheel 16, moving from any suitable source of power. The uprights near the central portion of the frame form supports for a pair of transversely-disposed countershafts 17 and 18, on which are mounted pulleys 19 and 20, respectively, and at a point below these pulleys is an idler-pulley 21, mounted in a rocking frame 22, which may be adjusted in order to tighten a belt 23, which passes around the several pulleys and over a belt-wheel 24 on the main shaft.

At opposite sides of the upper frame are journals for the support of saw-arbors 25 and 26, carrying circular saws 27 and 28, and these

arbors are further provided with pulleys 29, one of which is connected by a driving-belt 30 to a pulley on the shaft 17 and the other by a similar belt 31 to a pulley on the shaft 18, the connections being such as to revolve the two saws at the same speed, but in opposite directions. On the upper portion of the frame are guides 33 in the form of parallel tracks, on which are mounted the supporting-wheels of a saw-carriage 34, the frame of the carriage being of the usual construction and comprising longitudinal timbers 35 and transverse bars 36. Secured to the carriage are a number of transversely-disposed head-blocks 37, two of which are arranged at about the center of the carriage and form a guide for a timber-adjusting knee 38 in the form of a block having grooves in its opposite sides for the reception of the edges of the wear-plates usually found on the upper faces of the head-blocks. The carriage is provided with bearings 40 for the reception of longitudinally-disposed shafts 41 and 42, each of which carries a sprocket-wheel 43 at a point between the two centrally-disposed head-blocks, and around these sprocket-wheels extends a link belt 44, the ends of which are connected to the transversely-adjustable knee, so that by revolving the sprocket-wheels in one direction or the other the knee may be forced into engagement with the timber in order to adjust the same laterally of the carriage. For this purpose the shaft 41 is provided with a hand-wheel 45 at one end of the carriage, and the shaft 42 has a similar hand-wheel 46 at the opposite end of the carriage. The function of the adjusting-knee is to move the quarter-sawed section of timber first to one side and then to the opposite side of the carriage after the timber has been turned in the manner hereinafter described, the vertically-disposed flat face of the timber being forced into engagement with one or other of the guides 50. The guides are in the form of planks or metallic strips or bars which may be adjusted in a direction transversely of the frame in order to permit the sawing of planks or rifts of different thicknesses, and for this purpose filling-blocks 51 of different size may be inserted between the rear faces of the guides and the adjacent sides of the supporting-frame, as shown in Fig. 6.

The several head-blocks are provided with bearings for the reception and support of a longitudinally-disposed shaft 53, to which are secured two sets of oppositely-disposed curved arms 54, having teeth for engagement with the timber and forming, in effect, a cradle, which may engage the timber to roll the same from one side of the carriage to the other, the weight of the timber forcing the teeth or pins into engagement in order to insure the turning of the log. At the opposite ends of the shaft are hand-levers, so that the shaft may be rocked from either end of the machine. In operating this portion of the mechanism the levers are moved from one side to the other immediately after each sawing operation and throw the quartered section of timber from one side of the carriage to the other, after which the adjusting-knee is moved by turning one or other of the hand-wheels, and the timber is forced laterally until its vertically-disposed flat surface comes into engagement with the timber-guide.

In order to firmly lock the timber in position during the sawing operation timber-engaging dogs 60 are arranged near each end of the carriage and so disposed that they may be operated by a workman from either end of the machine. Each toothed dog is secured to the lower end of a vertically-disposed bar 61, adapted to guides 62, which are supported by a bracket 63. The bracket is provided with a projecting stud 64, on which is mounted a handled lever 65, connected by a link 66 to the upper end of the bar 61, so that by raising the handled end of the lever the dog may be forced down into locking engagement with the timber. To provide for a similar operation from the opposite end of the machine, a handled lever 67 is mounted at the opposite end of the carriage and is connected by a link 68 and a bell-crank lever 69 to the handled lever 65. One of these dogs is disposed at each side of the carriage in such position as to engage the forward end of the timber or that end nearest the saw in order to steady the timber during the sawing operation.

In some cases where sprung or warped timber is being cut it becomes necessary to provide means for properly holding the timber against the guide in order that the planks or rifts shall be of uniform thickness, and for this purpose the upper ends of the standards 11 are provided with bearings for the support of a rock-shaft 70, one of said rock-shafts being mounted immediately above each of the guides 50. The rock-shafts 70 are each provided with a curved and depending arm 71, provided at its lower end with a roller 72, adapted to engage with the timber at a point adjacent to that end of the guide nearest the saw, and to hold said roller in proper position the rock-shaft is further provided with an operating-lever 73, which may be counterweighted, if desired, in order that, when once adjusted, the weight may hold the roller against the timber or the roller-carrying arm may be weighted for a similar purpose.

At the central portion of the upper frame is mounted a shaft 75, carrying a drum 76, and around said drum passes a flexible connection 77, such as a chain or strap, the opposite ends of which are connected to the opposite ends of the saw-carriage. On one end of the shaft is secured a friction-disk 79, which may be moved into engagement with one or other of a pair of small friction-rollers 80, mounted on shafts 81, journaled in the upper

portion of the frame. The shafts 81 are each provided with small pulleys 82, around which extend driving-belts, one of the belts, 83, receiving motion from a small pulley on the shaft 17 and the other belt, 84, receiving motion in the opposite direction from a pulley mounted on the shaft 18. The friction-disk end of the shaft 75 extends through an opening in a link 85, the upper end of which is pivoted to the frame. The lower end of said link is connected by a rod 87 to a handled lever 88, mounted at one side of the frame and so arranged as to permit of the necessary sliding movement of the shaft 75 to move the friction-disk into contact with one or other of the friction-rollers, and thus impart movement to the saw-carriage in the desired direction.

In operation a workman is stationed at each end of the machine, and the quarter-sawed section of timber being adjusted to the position shown in Fig. 3 is traveled with the carriage past the saw 27. When the opposite end of the frame is reached, the operating-lever is adjusted to stop the movement of the carriage, after which the timber-turning arms are thrown to the opposite side to roll the timber over against the opposite guide 50, the adjustable knee being forced against the outer edge of the timber in order to properly move the same into contact with the guide. The locking-dog at that end of the timber next to the saw is then forced into engagement with the timber, and, if necessary, the roller 72 is also forced against the outer curved surface of the timber. The operating-lever is then adjusted to permit the travel of the carriage in the opposite direction and present the timber to the saw 28. This operation is kept up until the quartered section of timber is exhausted, the rifts or planks being sawed alternately from the opposite flat faces of the timber by the saws 27 and 28.

In carrying out the invention saws of comparatively small gage may be employed in order to avoid the waste of material from large saw-kerfs, and in some cases band-saws may be employed facing in opposite directions in place of the circular saws herein described.

Having thus described the invention, what is claimed is—

1. The combination with a pair of saws, of a carriage adapted to reciprocate between the saws, means supported by the carriage for turning a piece of timber from one side of the carriage to the other to present a timber alternately to the saws, and means for adjusting the piece of timber.

2. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, and means supported by the carriage for turning a quarter-sawed section of timber to present the flat faces thereof alternately to the saws.

3. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, and a timber-turning device supported by the carriage and adapted to turn a quarter-sawed piece of timber from side to side of the carriage to present the two flat faces thereof alternately to opposite saws.

4. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, and means supported by the carriage for shifting a piece of timber from side to side of the carriage, thereby to present one face of the timber to one saw while the carriage is traveling in one direction and to present the opposite face of the timber to the other saw while the carriage is traveling in the reverse direction.

5. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, guides arranged one in parallel relation with each of the saws, means supported by the carriage for turning a piece of timber from one side of the carriage to the other, and adjusting means also supported by the carriage and adapted to force the timber laterally of the carriage in either direction to present the face of the timber to the adjacent guide.

6. In a sawing-machine, the combination with a pair of saws, of a carriage, a rock-shaft mounted on the carriage, toothed arms carried by the rock-shaft and adapted to engage a piece of timber to roll the same from side to side of the carriage, and an operating means connected to the rock-shaft.

7. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between said saws, a rock-shaft mounted on the carriage, a plurality of sets of curved arms secured to the rock-shaft and having teeth for engaging a piece of timber, and operating-levers connected to said rock-shaft.

8. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between said saws, a timber-adjusting means supported by the carriage for moving a piece of timber from side to side of the carriage, and a laterally-adjustable knee adapted to engage the timber and force the same in either direction.

9. The combination in a sawing-machine, a pair of saws, a carriage adapted to reciprocate between said saws, a timber-turning means, a laterally-guided knee adapted to engage a piece of timber, a pair of sprocket-wheels arranged on the carriage, a link belt extending around the sprocket-wheels and connected to the knee, shafts carrying the sprocket-wheels, and means for adjusting the shafts.

10. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, a timber-turning means mounted on the carriage, a laterally-guided knee for engaging and adjusting a piece of timber, a pair of sprocket-wheels, a

link belt extending around said sprocket-wheels and connected to the knee, a pair of shafts connected one to each of the sprocket-wheels and extending respectively to opposite ends of the carriage, and hand-wheels secured to said shafts.

11. The combination in a sawing-machine, of a saw, a carriage, a timber-engaging dog, a guide for said dog, an operating-lever pivoted at a point intermediate of its length and disposed at one end of the carriage, a link connecting one end of the lever to the dog, a bell-crank lever arranged below said operating-lever, a link connecting one arm of the bell-crank lever to the operating-lever, a second operating-lever pivoted at the opposite end of the carriage, and a link connecting the second operating-lever to the second arm of the bell-crank lever.

12. The combination in a sawing-machine, of a saw, a guide, a reciprocating carriage, a rock-shaft, an arm carried by the rock-shaft, a timber-engaging roller mounted on said rock-shaft, an operating-lever connected to the rock-shaft for forcing the roller into engagement with the timber.

13. The combination in a sawing-machine, of a saw, a carriage, a timber-holding means, a roller for engaging and guiding a piece of timber, an arm carrying said roller, a rock-shaft supporting the arm, supporting-bearings for the shaft, and a lever secured to the shaft and serving as a means for operating the arm and roller.

In testimony that I claim the foregoing as the invention of JAMES T. DAVIS I have hereto affixed my signature in the presence of two witnesses.

WILLIAM M. DAVIS,
Administrator of the estate of James T. Davis, deceased.

Witnesses:
ROSA WATTS,
W. J. FOWLER.