No. 656,168. Patented Aug. 21, 1900.

T. S. CARROLL.

WOOD SAWING MACHINE.

(Application filed Oct. 6, 1899.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.

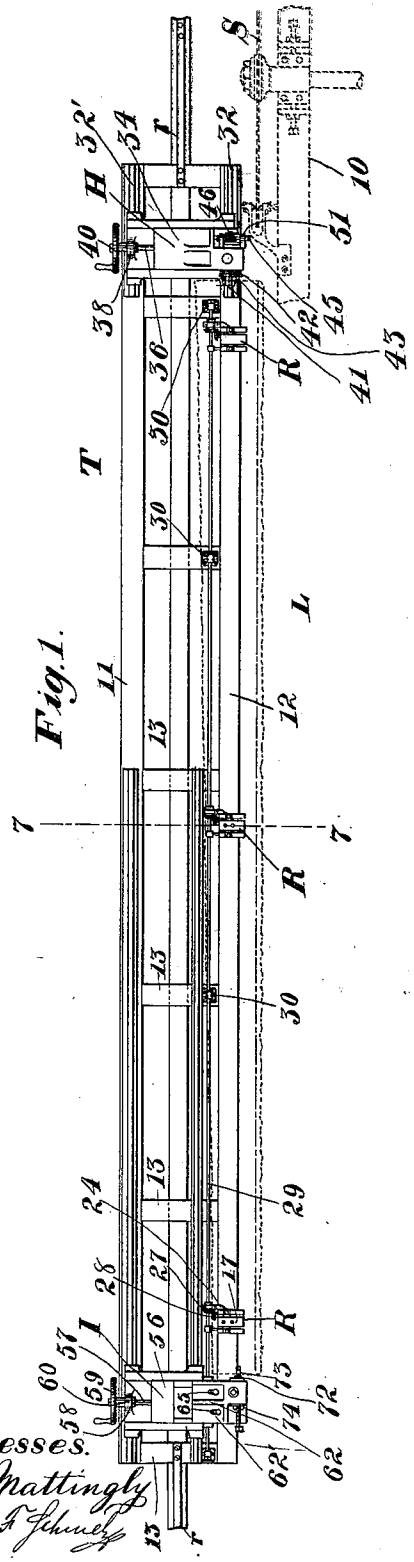
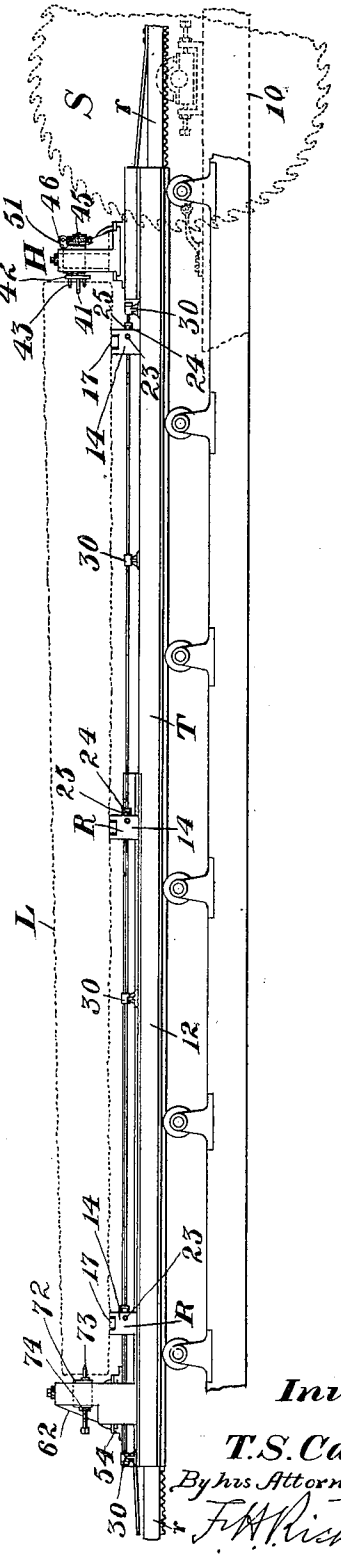


Fig. 2.



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Fig. 3.

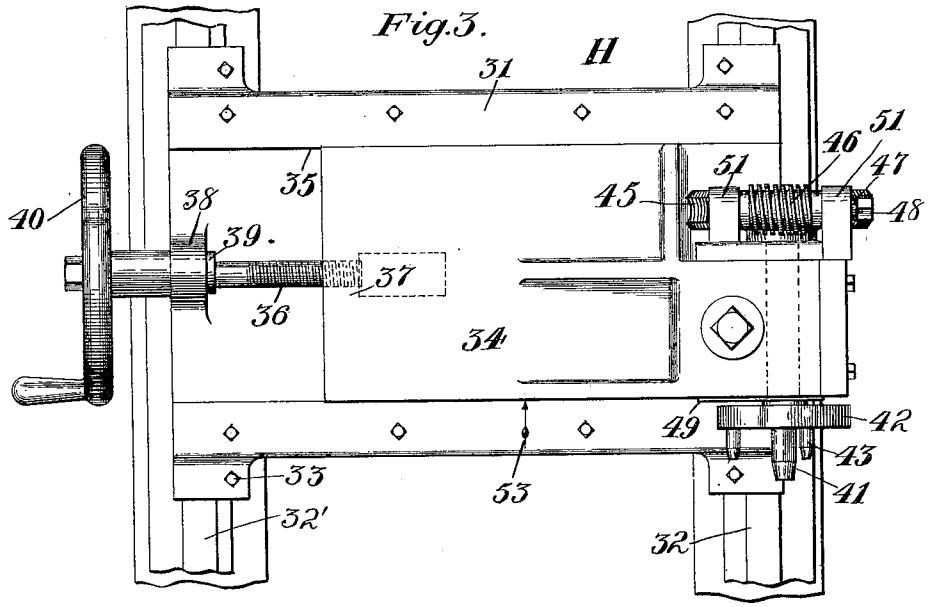
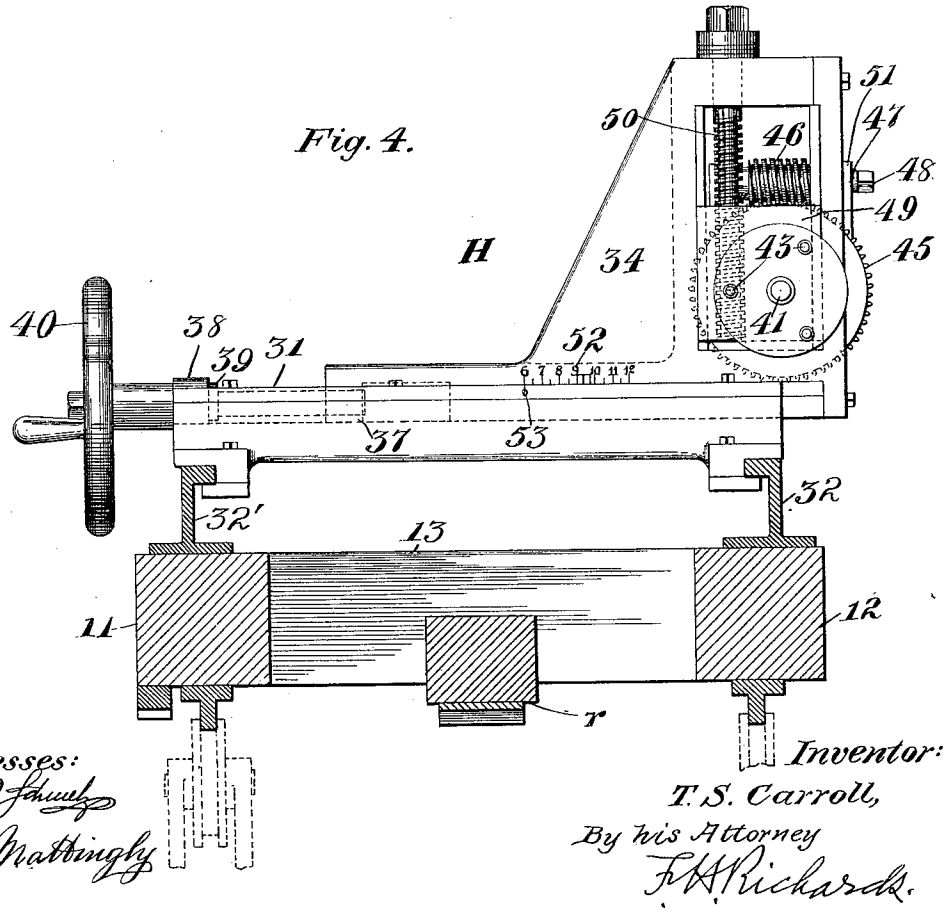


Fig. 4.



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(No Model.) 4 Sheets—Sheet 3.

Fig. 5.

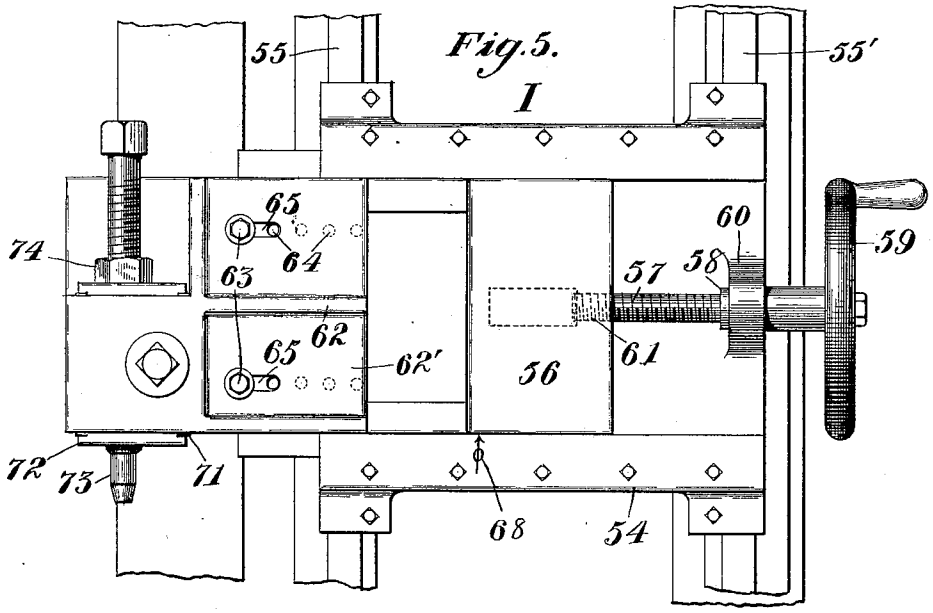
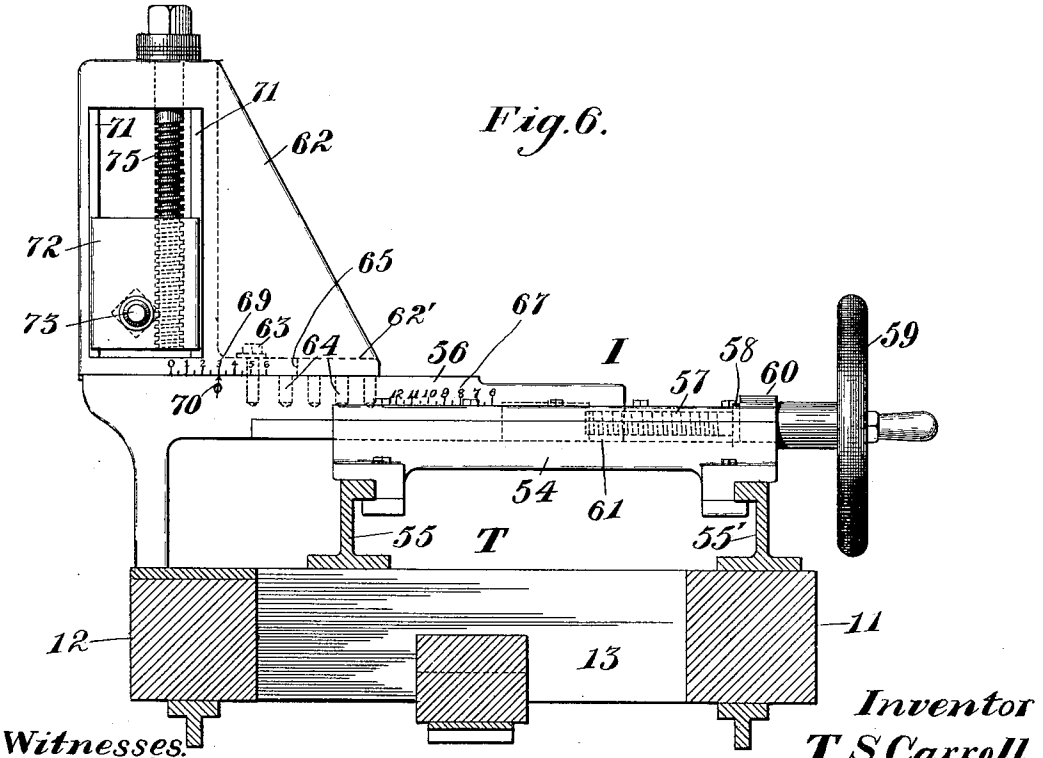


Fig. 6.



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(No Model.) (Application filed Oct. 6, 1899.)

4 Sheets—Sheet 4.

Fig. 7.

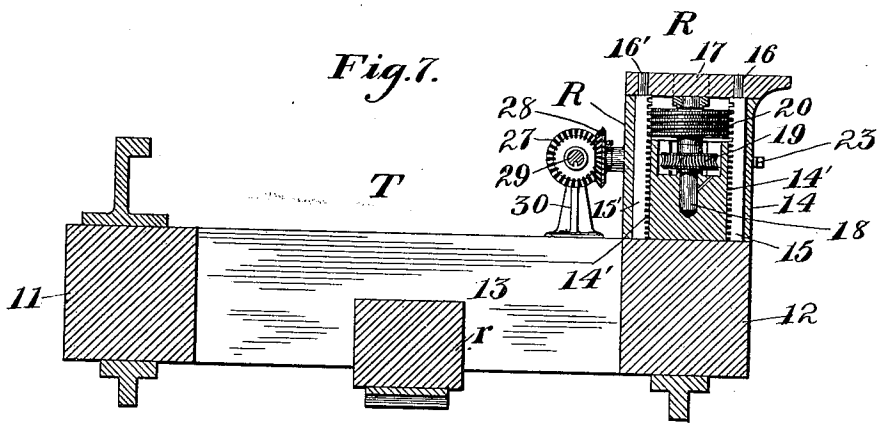


Fig. 8.

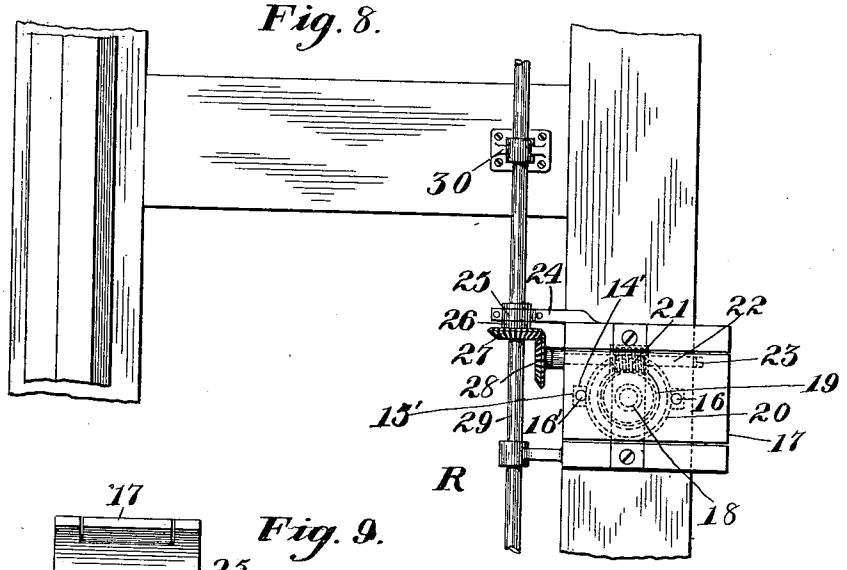
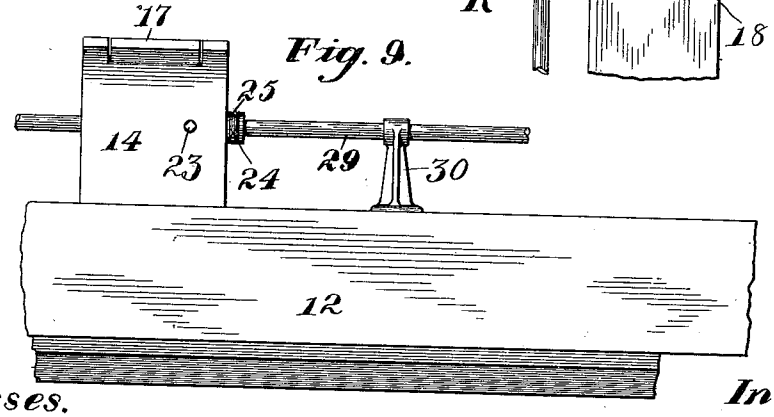


Fig. 9.



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UNITED STATES PATENT OFFICE.

THERON S. CARROLL, OF WINSTED, CONNECTICUT.

WOOD-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 656,168, dated August 21, 1900.

Application filed October 6, 1899. Serial No. 732,749. (No model.)

To all whom it may concern:

Be it known that I, THERON S. CARROLL, a citizen of the United States, residing in Winsted, in the county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Wood-Sawing Machines, of which the following is a specification.

This invention relates to machines for sawing wood, and has for one object a machine of the class specified embodying novel features and which is especially adapted for sawing logs or other work on a taper, but with a minimum loss of stock, to produce, for instance, flagstaffs, masts for vessels, &c., of proper form.

Other objects of my invention are to provide means whereby the machine may be adjusted to stock of different sizes and also to provide means for adapting the machine for cutting objects of different tapers, as may be required; and a further object is to provide an improved construction of work-sustaining devices, as will be hereinafter described and as illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a machine constructed in accordance with my invention. Fig. 2 is a side view of the same. Fig. 3 is a top view of the head-stock employed in connection with the table and adapted for holding the logs, and Fig. 4 is a side view thereof. Fig. 5 is a top view of the tail-stock cooperating with the head-stock, and Fig. 6 is a side view of the same. Fig. 7 is a transverse section of the table on line 7 7, Fig. 1, on an enlarged scale. Fig. 8 represents a plan view of a rest for sustaining the log, and Fig. 9 is a partial front view of the table and rest.

Similar characters of reference designate like parts in all the figures of the drawings.

In the drawings, S designates a saw, preferably of the "circular" type, mounted in bearings of a suitable fixed framing 10 and driven from any suitable source of power.

T designates a reciprocatory table having a rack *r*, whereby proper motion may be imparted thereto by mechanism not shown, said table having a traversing movement relatively to the saw S to bring the log L into engagement therewith. Suitable means are provided on the table T for securely holding the log during the sawing operation, such means consisting, substantially, of a head-stock H and a tail-stock I, the former of which is preferably adjustable at the right-hand end of the table T, while the tail-stock may have considerable longitudinal adjustment adjacent the left-hand end of the table, as clearly shown in Fig. 1. The table T is preferably formed of a framework consisting of the side pieces 11 and 12, joined at their ends and at intermediate points by ties 13 to form a rigid structure.

Located adjacent to the head and tail stocks and also at a point intermediate the same are rests R, upon which the log L may be placed and supported preparatory to its engagement with the centers or spindles carried by the head and tail stocks. The construction of the rests R is clearly shown in Figs. 7 to 9, inclusive, in which 14 designates a block supported on the upper side of the table T, said block being provided with apertures 14′, adapted to receive racks, such as 15 15′, the upper ends of which are reduced, as at 16 16′, to support a platen 17. Centrally journaled in the block 14 and between said racks 15 15′ is a shaft 18, having a worm-gear 19 fixed thereon and also carrying a worm 20, adapted to engage the racks above mentioned. It will therefore be seen that when the spindle 18 is rotated both racks 15 15′ will be either raised or lowered simultaneously, and in this manner they will elevate or depress the platen 17, upon which the log rests. The worm-gear 19 is engaged by a worm, as indicated by 21, Fig. 8, mounted upon a spindle 22, having a squared portion 23, to which a wrench may be applied for imparting rotary motion to the same, and in order to cause all of the platens 17 to be adjusted simultaneously I preferably provide each of the blocks 14 with a projection 24, having a bearing 25, in which is journaled the hub 26 of a bevel-gear 27, which is in mesh with a similar bevel-gear 28, mounted upon the above-mentioned spindle 22 and secured thereto by a set-screw, (see Fig. 7,) so that when any one of the spindles 22 is rotated rotary movement will be imparted to the bevel-gear 27, which in turn will actuate the shaft 29, to which similar gears are secured for the purpose of operat-

ing the platens of the entire series of rests R, as will be readily understood, said shaft 29 being suitably supported on the table T—as, for instance, by means of bearings 30.

The head-stock H is shown in Figs. 3 and 4 of the drawings and embodies a plate 31, supported on suitable guides or ways 32 and 32′, secured upon the upper side of the table-frame and on which said plate 31 may be held—as, for instance, by clamp-screws 33. The head-stock further comprises a slide member 34, which is mounted in ways 35 of plate 31, in which ways said slide may be moved laterally of the table and plate 31 by means of a screw 36, in threaded engagement with a nut 37 at the under side of the slide 34, such screw being rotatively supported in a lug 38, projecting from the upper side of the plate 31, and having a collar 39 and hand-wheel 40, by the hub of which and said collar 39 said screw 36 is prevented from longitudinal movement in said lug 38. When hand-wheel 40 is rotated, the slide 34 is moved laterally of the table to increase or decrease the distance between a center or spindle 41, carried in such slide, and the face of the saw S. This spindle 41 constitutes a centering device for one end of the log to be sawed and may be provided with a disk 42, having a series of pins 43, which when the work is centered on said spindle 41 will enter the end of the log and cause the same to turn with said spindle when the latter is rotated, while, on the other hand, the pins 43 also constitute means for preventing the rotation of the log when spindle 41 is at rest.

Secured to the outer end of spindle 41 is a worm-gear 45, in engagement with a worm 46, mounted on a suitable spindle 47, which has a squared end 48, adapted to receive a wrench for imparting rotary movement thereto, and which movement will result in rotating said spindle 41, the disk 42, and pins 43. The spindle 41 is preferably mounted in a block 49, which may be vertically adjusted by a screw 50, said block being provided with ears 51, serving as bearings for the above-mentioned spindle 47, so that when said block 49 is adjusted the worm 46 and other parts carried by the block will be bodily moved therewith.

When it is remembered that the saw S is mounted in a fixed frame and that the line of travel of table T is at a predetermined distance from said saw, it will be seen that when the slide 34 is moved laterally to the table in a rearward direction the distance between the axis of the center-spindle 41 and the face of the saw will be increased and that consequently the thickness of the slab removed from the log or other work may be controlled as desired, and in order to aid the operator in setting the slide 34 to produce a log of the desired size at that end an index 52 is provided on said slide, the points of which may be made to register with a zero-mark 53 on the bed-plate 31.

Referring to Figs. 5 and 6, in which the tail-stock I is illustrated in detail, it will be seen that the construction of the latter is very similar to that of the head-stock H and that it embodies a bed-plate 54, movable longitudinally on ways 55 and 55′ of table T and has mounted thereon a slide 56, to which a reciprocatory motion laterally of the table may be imparted by means of a screw 57, provided with a collar 58 and a hand-wheel 59, said screw being journaled in a lug 60, which will serve to prevent longitudinal movement of the screw 57 while it is in threaded engagement with a nut 61, provided on the under side of the slide 56. Adjustably mounted on this slide 56 is a post 62, which may be secured to said slide by bolts 63, adapted to enter a series of screw-threaded apertures 64, and the foot portion 62′ of said post 62 is provided with slots 65 to permit a limited adjustment of said post relative to the slide 56. An index 67 is provided on the slide 56 and registers with the zero-mark 68 on the bed-plate 54, serving as a means for adjusting the slide 56 to correspond with the position of the slide 34 of the head-stock.

In Figs. 5 and 6 of the drawings the post 62 is shown provided with an index 69, to be read in conjunction with the zero-mark 70 on the slide 56 for the purpose of determining the line of taper or cut in a log, as will hereinafter appear. The post 62 is provided with vertical guides 71, which engage a block 72, carrying a center-spindle 73, in screw-threaded engagement therewith and adapted to be adjusted longitudinally therein, while a check-nut 74 may serve to retain said center-spindle 73 in adjusted position.

It should be noted that when the indexes 67 and 52 on the slides 56 and 34, respectively, correspond and when the zero-marks 69 and 70 are in alinement the axes of the spindles 73 and 41 are in alinement with each other and in parallelism with the movement of the table, and hence it will be understood that when the post 62 is shifted on the slide 56 and toward the saw the distance between the center line of the spindle 73 and the side of the saw S will be decreased and that therefore the log will be cut on a taper, since the distance from the center line of the spindle 41 is greater than the distance between the center line of the tail-stock spindle 73 and the face of said saw.

The block 72 may be vertically adjusted on the ways 71, above mentioned, by means of a screw 75, in threaded engagement therewith, the vertical adjustments of said blocks 72 and 49 being provided to permit the log after it has once been cut by the saw and its cut face brought lowermost to rest on all of the rests R during the succeeding cutting operations. Said rests R R serve as "steady-rests" to sustain the log or other work and prevent the same from sagging, and while said rests are preferably shown as simultaneously adjustable, yet each may have an independent

adjustment without departing from my invention, and this could readily be accomplished in the construction shown by loosening the restraining set-screw of the particular gear 28 and then adjusting the rest independently to fit an inequality in the work by applying a wrench to the squared portion 23 and subsequently turning the spindle in proper direction.

It is distinctly to be understood that any kind of saw suitable for the purpose may be employed and that the invention is not limited to the circular saw shown and described.

Having described my invention, I claim—

1. In a machine of the class specified, the combination, with a saw, of a table for supporting the work; a laterally-adjustable head-stock embodying a spindle upon which one end of the work is sustained; means carried by the spindle for engaging the work and for preventing the movement thereof relatively to said spindle during the sawing operation; a slide carried by the head-stock in which slide said spindle is mounted; means for independently adjusting said slide; means for rotating the spindle to adjust the work; a laterally-adjustable tail-stock adapted to sustain the other end of the work; and a laterally-adjustable slide on which said tail-stock is mounted.

2. The combination, with a saw, of a table for supporting the work; a head-stock adjustable laterally of the table and adapted to sustain one end of the work; a laterally-adjustable tail-stock; a block on said tail-stock, carrying a center adapted to sustain the other end of the work; an independent laterally-adjustable slide, having a series of recesses, for supporting said tail-stock; and a pin for securing the independent slide in its adjusted position.

3. The combination, with a saw, of a table for sustaining the work; a head-stock adjustable laterally of the table; an index between the head-stock and table, for determining the position of the work near the head end thereof; a laterally-adjustable tail-stock having a center adapted to sustain the other end of the work; a slide supporting said tail-stock; an index for positioning the tail-stock to correspond to the head-stock; and an index for positioning said tail-stock to determine the line of taper upon which the work shall be sawed.

4. The combination, with a saw, of a table for sustaining the work; a laterally-adjustable head-stock having ways; an independent slide located in the ways of said head-stock and carrying a center and holding devices for supporting one end of the work; means for adjusting said slide; means for adjusting the center in a rotary direction thereby to turn the work to the desired position; a tail-stock for sustaining the other end of the work; a transversely-movable slide on which said tail-stock is adjustably held; and means for adjusting said slide laterally of the table.

5. The combination, with a saw, of a table for sustaining the work; a laterally-adjustable head-stock having ways; a slide mounted in said ways; a center mounted for rotary adjustment in the slide and carrying a face-plate equipped with devices for engaging one end of the work and preventing the movement of the same on said center; means for imparting a rotary adjustment to said center and face-plate; a laterally-adjustable tail-stock adapted to hold the other end of the work; a series of rests; and means for independently or simultaneously adjusting said rests in a vertical direction.

6. The combination, with a saw, of a table for sustaining the work; a head-stock adapted to hold one end of the work; a tail-stock adapted to hold the other end of the work and adjustably held on the tail-slide; a tail-slide adjustable laterally of the table; a rest for the work, shiftable longitudinally of the table; and means for vertically adjusting said rest.

7. The combination, with a saw, of a table for receiving the work; a laterally-adjustable head-stock adapted to hold one end of the work; a laterally-adjustable tail-stock adapted to hold the other end of the work; a series of individual work-supporting rests separately shiftable longitudinally of the table; means for simultaneously adjusting said rests; and means whereby the rests may be independently adjusted.

8. The combination, with a saw, of a table for sustaining the work; a head-stock adapted to hold one end of the work; a tail-stock adapted to hold the other end of the work; a series of individual, separated work-supporting rests separately shiftable longitudinally of the table; and means including rack and worm-wheel mechanisms for vertically adjusting each individual rest.

9. The combination, with a saw, of means for supporting the work; a table; a series of rests for sustaining the work, shiftably mounted on said table, and means whereby said rests may be either simultaneously or individually adjusted.

10. The combination, with means for cutting the work, of a table; a rest mounted thereon and comprising a block, a rack adapted for movement in said block, a worm meshing with said rack, and a platen supported by the rack.

11. The combination, with means for sawing the work, of a table; a rest mounted thereon and comprising a recessed block; racks mounted in the recesses of said block; means for simultaneously adjusting said racks and platens supported by the racks.

12. The combination, with a saw, of means for supporting the work; a table; a rest mounted thereon and comprising a block; racks mounted in recesses of said block; a worm engaging the racks for adjusting the same; and a platen supported by the racks.

13. The combination, with a saw, and with

means for supporting the work, of a table; a rest mounted thereon and comprising a block; racks mounted in recesses of said block; a worm engaging the racks for adjusting the same; platens supported by the racks; and means for operating the worm.

14. The combination, with a saw, of a table for sustaining the work; a head-stock for holding one end of the work; a tail-stock for holding the other end of the work; a slide on which said tail-stock is adjustably held; means for laterally adjusting said slide; a rest for the work, having a platen, said rest being shiftable longitudinally of the table; and worm-and-rack mechanism for adjusting said rest.

15. The combination, with a saw, of a table for sustaining the work; a laterally-adjustable head-stock mounted on one end of the table and having ways; a slide vertically adjustable in said ways; a center-spindle mounted for rotary adjustment in said slide; a worm and worm-gear for adjusting said spindle; a tail-stock mounted on the other extremity of the table; a slide adjustable laterally of the table; an independently-adjustable slide carrying the tail-stock; a series of separated rests for supporting the work intermediate its ends; and means for simultaneously or individually adjusting said rests.

16. The combination, with a saw, of a table for sustaining the work; a laterally and longitudinally adjustable head-stock mounted on ways at one end of said table; a laterally and longitudinally adjustable tail-stock mounted at the other end of said table; an adjustable slide carried by the head-stock; a center-spindle mounted in said slide; means for adjusting said spindle in a rotary direction; an independent slide mounted in ways on the tail-stock; means for adjusting said slide; and a series of separated, adjustable rests located between said head and tail stocks for sustaining the work.

17. In a machine for sawing logs to taper form, the combination, with a table for sustaining the work, of a head-stock located at one end of said table and adjustable on ways thereof; a laterally-adjustable slide constituting a part of the head-stock; an independent slide vertically adjustable on ways of the first-named slide; a center-spindle mounted for rotary adjustment in said independent slide; a tail-stock mounted for adjustment longitudinally of the table-ways; a slide constituting a part of said tail-stock; means for laterally adjusting said slide; a block carrying a tail-center mounted in ways carried by the tail-stock; means for vertically adjusting said block; a series of rests each carrying a platen; and mechanisms for simultaneously adjusting said rests.

18. In a machine of the class specified, the combination, with a table, of a head-stock mounted near one end thereof; a slide constituting a part of the head-stock and having a projecting portion carrying ways; an independent slide fitted on said ways; a rotary center-spindle mounted in the independent slide; a laterally-adjustable tail-stock; a center carried by the tail-stock; means for vertically adjusting said center; a series of separated rests; and means for adjusting said rests.

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