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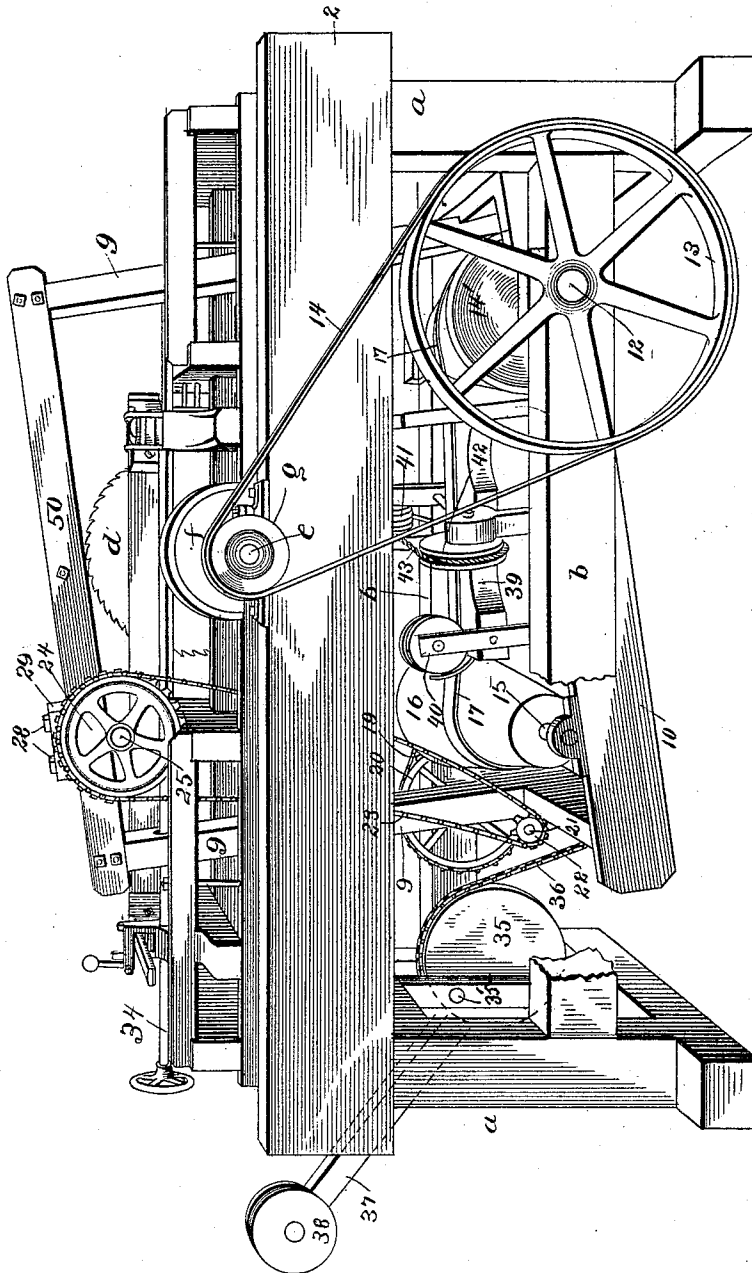
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F. M. TEEGUARDEN.
SAWING MACHINE.

No. 477,972.

Patented June 28, 1892.

Fig 1



Witnesses
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H. E. Peck

Inventor
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per O. E. Duff
Attorney

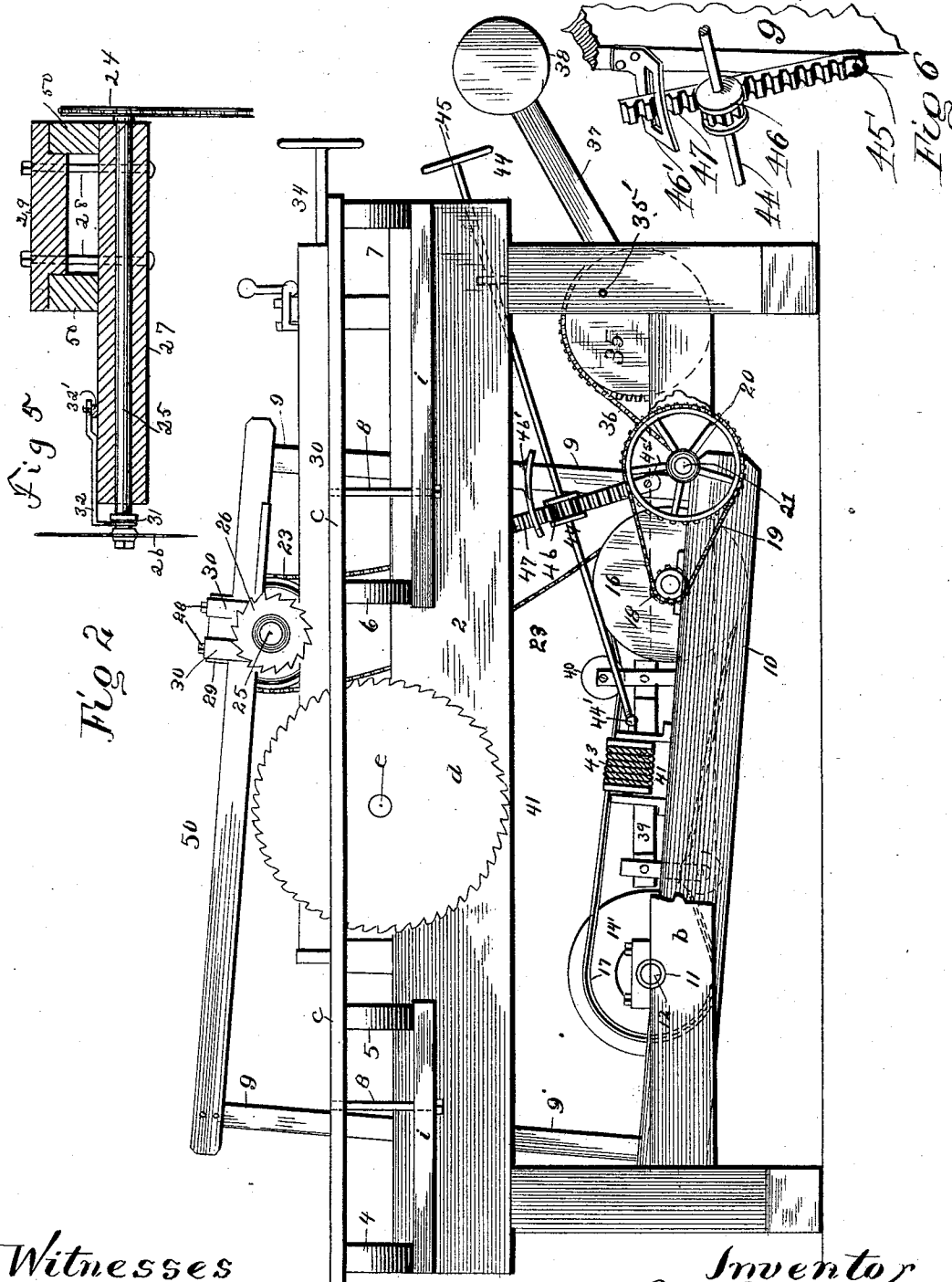
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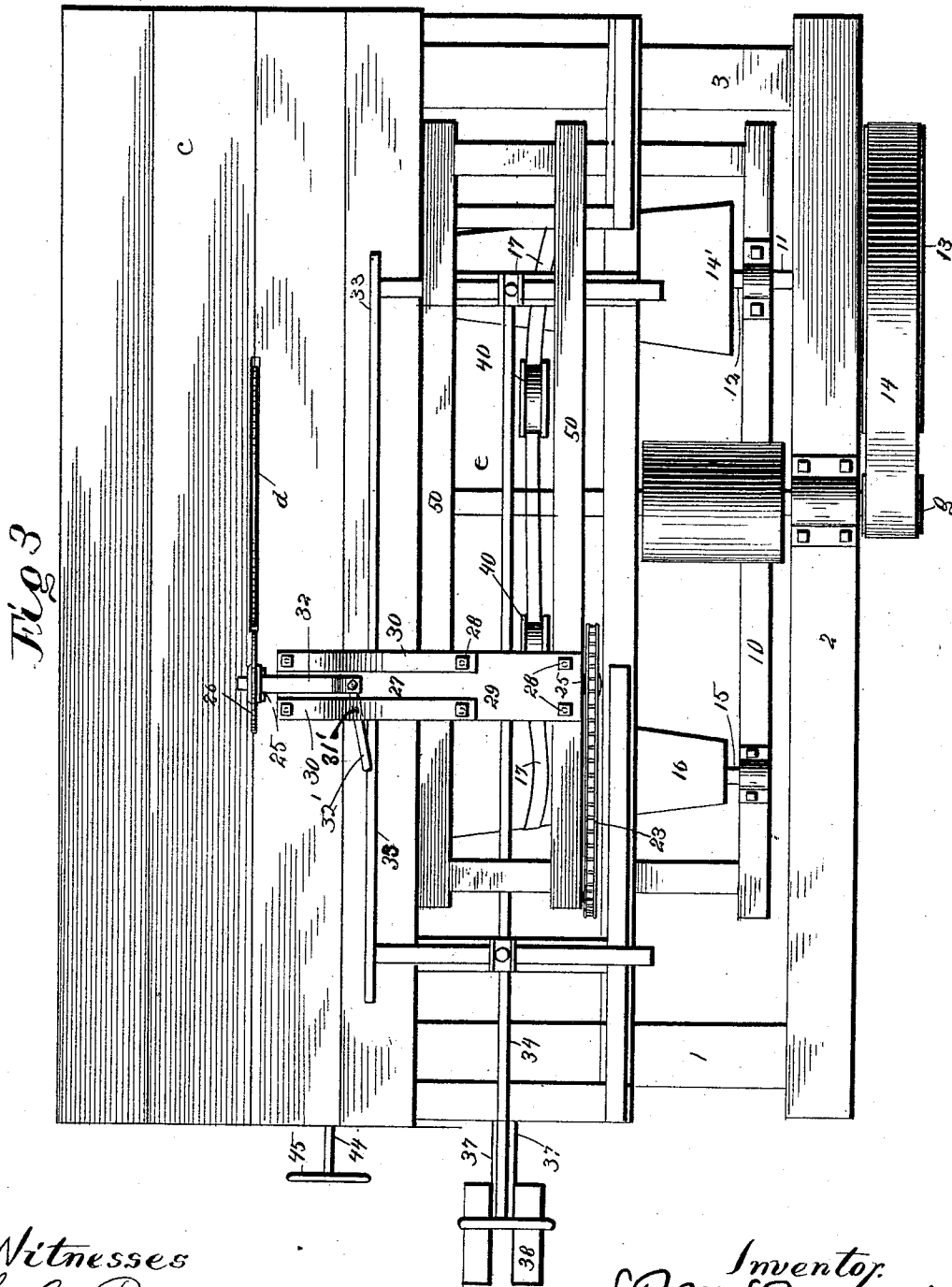
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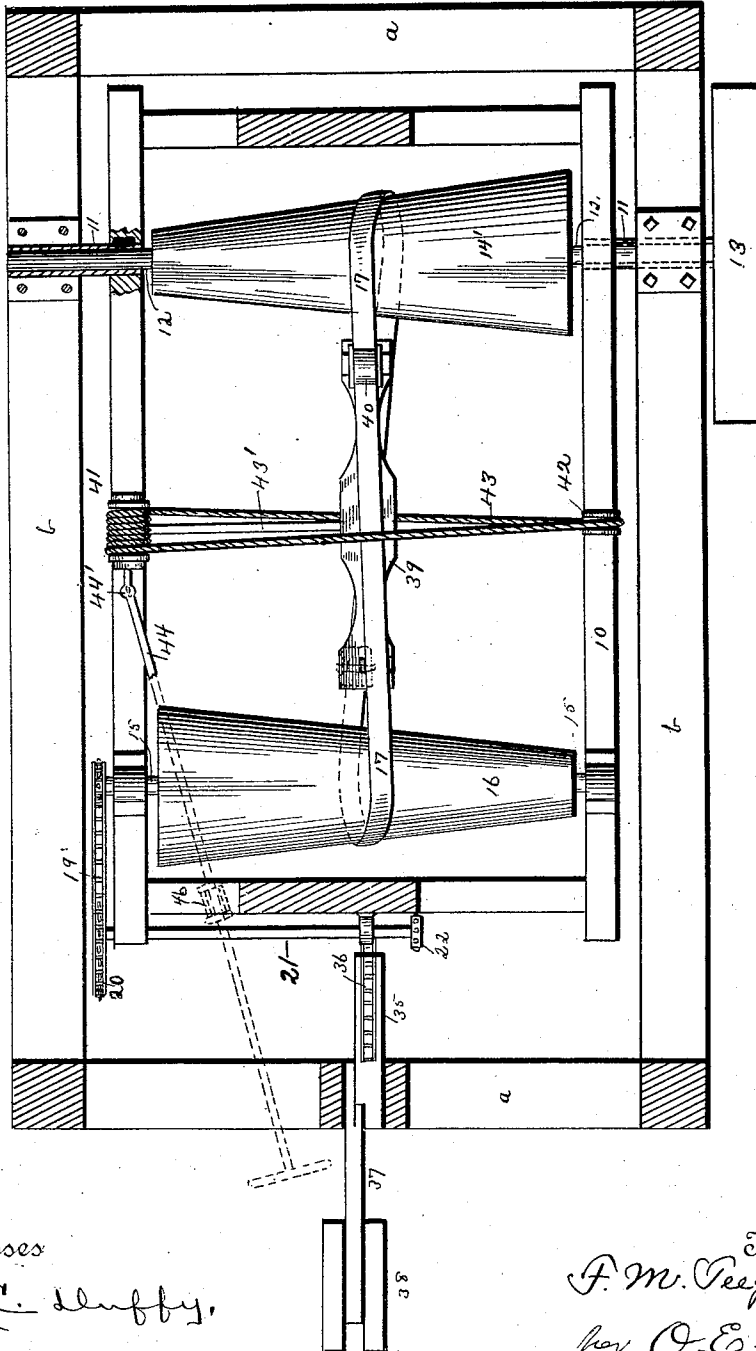
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Fig. 4.



Witnesses

E. C. Duffy,
H. E. Peck.

Inventor
F. M. Teegarden
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UNITED STATES PATENT OFFICE.

FREEMAN M. TEEGUARDEN, OF COLFAX, INDIANA, ASSIGNOR TO THE
CHIEF MANUFACTURING COMPANY, OF SAME PLACE.

SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,972, dated June 28, 1892.

Application filed May 7, 1891. Serial No. 391,896. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN M. TEEGUARDEN, of Colfax, in the county of Clinton and State of Indiana, have invented certain new and useful Improvements in 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in sawing-machines.

The object of the invention is to provide an improved sawing-machine having an automatic feeding device capable of feeding planks or logs of various thicknesses and dimensions to the saw.

A further object is to provide a feeding device capable of receiving and feeding planks, logs, or timber of different dimensions, and which is automatically varied in speed according to thickness of material operated upon; and a further object is to provide certain improvements in constructions and details, whereby a greatly improved and highly efficient machine is produced.

These objects are accomplished by and my invention consists in certain novel features of construction and in combinations of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a perspective of the machine, portions being broken away. Fig. 2 is an elevation from opposite side to that of Fig. 1, parts being broken away. Fig. 3 is a top plan. Fig. 4 is a horizontal section taken in a plane just above lower horizontal sills of main and movable feed-frame. Fig. 5 is a detail view of feed-saw and its supporting and adjusting means. Fig. 6 is a detail view illustrating the connecting and controlling mechanism between the movable feed-frame and the belt-shifter.

Referring to the accompanying drawings, *a* indicates the main frame of the machine, comprising suitable vertical posts, end sills

and horizontal bottom side sills *b b*, and upper horizontal sills 1 2 3.

c is the saw platform or table. *d* is a rip-saw extending up therethrough and mounted on horizontal mandrel *e* in suitable boxes and provided with drive-pulley *f* and on outer end with small drive-pulley *g*. The outer portion of the table, both in front and in rear of the saw, is removable from under horizontal supporting-beams 4 5 6 7, extending laterally from the main frame so that the saw can be removed from its mandrel. Two clamping-bars *i i* are beneath this movable portion of table and pivoted thereto between their ends by vertical bolts 8, so that the clamping-bars *i i* can swing beneath and engage lower edges of beams 4 5 6 7 and thereby lock the table down in position. To release the table, one end of each clamping-bar should be swung in and the other end out, thereby freeing the bars from said transverse supporting-beams. A vertically-movable swinging frame is pivoted within the main frame and consists of the lower rectangular frame 10, composed of end and side sills located within the lower portion of the main frame, so that its front end can swing vertically. A vertical frame is carried by said lower movable frame and consists of two uprights 9 9, secured to end sills of said movable frame and extending up substantially at right angles thereto and at their upper ends a suitable distance above said main frame connected by upper horizontal beams or frame 50, the frame 10 and upright frame 9 and beams 50, carried thereby, swinging together vertically as one frame. This swinging feed-frame at the lower portion of one end is mounted in suitable bearings to allow vertical swing of the front portion thereof by means of tubes or pipes 11, rigidly secured at their inner ends upon the lower side sills 10 of the swinging frame and at their outer ends journaled in horizontal boxes upon the lower side sills of the main frame, so that said movable frame can swing vertically on said tubes. The shaft or mandrel 12 extends across the main and movable frames and is journaled in said tubular bearings 11, so as to freely rotate and not carry the weight of the swinging

frame. A large pulley 13 is mounted on the outer end of said shaft, and the driving-belt 14 connects said pulley 13 with pulley *g* on the rip-saw mandrel. Between the lower side
 5 sills of the swinging frame the shaft 12 is provided with a cone-pulley 14'. Another shaft 15 is journaled in the forward part of the swinging frame only and is provided with the cone-pulley 16, oppositely arranged to
 10 cone-pulley 14', the shafts 12 and 15 being parallel and belt 17 connecting said two pulleys. Shaft 15 is provided with a small sprocket-wheel 18 at its outer end, connected by drive-chain 19 with large sprocket-wheel
 15 20, carried by counter-shaft 21, journaled on a movable frame and provided with small sprocket-wheel 22, connected by sprocket-chain 23 with sprocket-wheel 24 on the end of the mandrel 25 of the feed saw or wheel.
 20 This mandrel 25 is horizontally carried by the top beams 50 of the swinging frame, so as to extend horizontally from the working table and carry the feed saw or wheel 26 in advance of the rip-saw. This feed-saw
 25 mandrel is journaled in an elongated box 27, adjustably clamped to the under sides of horizontal beams 50 by means of bolts 28, rigid with said box and extending up to the clamping-block 29 upon the upper edges
 30 of said beams 50 and through which said bolts pass and are provided with nuts upon the upper side of said clamping-block. (See Fig. 5.) By this means the box carrying the feed-saw mandrel can be rigidly and ad-
 35 justably clamped to the movable frame and can be adjusted so that the feed-saw will move toward and from the rip-saw by loosening the nuts of said clamping-bolts and then moving the box 27 and clamping-block lon-
 40 gitudinally of said beams 50, so that the feed-saw can be adjusted to any desired distance from the rip-saw. Hence when rip-saws of different diameters are used in the same machine the feed-saw can be always kept the de-
 45 sired distance from the rip-saw. Braces 30 are secured to block 29 and to the box 27.

The hub of the feed-wheel is provided with annular groove 31, into which the arms of forked piece 32 loosely fit to allow free rota-
 50 tion of said hub, so that the hub can be moved longitudinally with said forked piece. The horizontal lever 32' is pivoted to the outer end of the forked piece and fulcrumed at 31' to the feed-saw mandrel-box, the handle of
 55 the lever preferably extending toward the front end of the machine. By means of this lever and by having the feed-saw movable longitudinally on the mandrel or having the mandrel and feed-wheel moving longitudinal-
 60 ly together the feed-wheel can be shifted transversely of the saw-table for various purposes. For instance, the operator when wishing to square an inch piece from a piece an inch by
 65 an inch and one-eighth moves the feed-saw to the center of the piece and then moves a suitable gage to one inch, then feeding the piece through, sawing off one-eighth-inch edge,

leaving feed-saw in the center of the inch piece and holding it and feeding it forward, preventing variations.

A suitable gage is provided—such as movable bar 33—on the saw-table, having rearwardly-extending rack-bars meshing with gearing on shaft 34, which is provided with suitable hand-wheel, suitable clamps being
 75 also provided to hold the gage in proper position. The present invention, however, has no bearing on this gage.

The front end of the movable feed-frame is counterbalanced by means of eccentrically-
 80 mounted vertical wheel or pulley 35, journaled at 35' in the front lower portion of the main frame and provided with a strong flexible connection 36, secured at one end to the periphery of said wheel, so as to lie on its periphery, and
 85 at its opposite end secured to the lower side of the movable front end of said eccentric wheel. The radial arm 37 is rigid with and extends outwardly from the wheel 35 and is weighted at its outer end by weights—such as
 90 38—which constantly tend to rotate the eccentric wheel, so as to raise the movable frame, the weights being of such size and so arranged that the movable frame is counterbalanced, so as to easily rise and fall and cause the
 95 feed-wheel to engage wood operated upon with the proper amount of pressure. By reason of this construction the feed-wheel is rotated from the saw-mandrel through the cone-pulley, shafts, and gearing before described, so that
 100 the end edge of the toothed feed-wheel will move toward the saw, and the feed-wheel will press down upon and engage and feed forward timber, logs, or planks of greatly-varied dimensions easily and quickly, rising and fall-
 105 ing to accommodate uneven surfaces or knots in the wood, the counterbalanced swinging frame always holding the feed-saw against the wood, no matter what kind of surface the wood may have or what its thickness, if not
 110 greater than the capacity of the machine.

Any suitable belt-shifting device is provided for belt 17. Preferably a combined belt shifter and tightener is used, consisting of the main frame or body 39, having arms carry-
 115 ing flanged pulleys 40, which rest on the upper length of the belt 17, the frame by reason of its weight holding the belt tight upon the cone-pulleys. A spool 41 is mounted on one bottom sill of the inner frame opposite
 120 said body 39, and the grooved pulley 42 is mounted on the opposite sill of the inner frame opposite said spool 41. A cord or connection 43 is wound on said spool, passes around said pulley 42, and at its opposite ends
 125 is secured to opposite sides of the central portion of said body 39, so that the said spool is rotated in opposite directions. The belt-shifter will be thrown toward and from the spool through the medium of the connection 43 and
 130 pulley 42, thereby shifting the belt on said cone-pulleys and varying the speed of rotation of cone-pulley 16 and consequently of the feed-wheel. The belt-shifter slides back and

forth on a rigid rod 43'. The spool 41 is mounted on shaft 44, extending to the front end of the machine and provided with hand-wheel 45, whereby the spool 41 can be turned in either direction to operate the belt-shifter to cause the feed-wheel to rotate fast or slow. The shaft is provided with joint 44' to allow the shaft to extend upwardly and to swing laterally independently of the spool 41 and to allow the feed-frame to swing independently of the upper portion of said shaft. A flanged gear-wheel 46 is secured on a shaft 44 and meshes with rack 47, pivoted at its lower end at 45' to upright 9 of the feed-frame, so that its upper end can swing laterally within yoke 46'. By this means the up-and-down swing of the feed-frame does not affect the operation of gearing 46 and 47, and the flanges of the gearing hold it on the rack. The gear 46 is thrown out of gear with the rack by lifting the upper end of the shaft 44 out of one notch, holding said gearing in engagement into another notch, which will hold the gears apart, said gearing 46 and 47 being so arranged in connection with the belt-shifter that when the movable feed-frame swings up to receive a large piece of timber the controlling-gearing of the feed-saw is connected to feed slowly and when the feed-frame drops to feed forward a small piece of timber the speed of the feed-saw is proportionately increased. This mode of operating the shaft 44 is not absolutely necessary, as the said shaft can be operated by hand-wheel 45. Consequently the gear 46 is longitudinally movable on shaft 44, so that it can be thrown out of gear with rack-bar 47.

The many advantages and automatic action of this machine are obvious and of great utility.

It is evident that various changes might be made in the form, arrangement, and constructions of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the constructions herein set forth.

What I claim is—

1. In a sawing-machine, a main frame and saw, in combination with a vertically-swinging counterweighted frame, and the feed-wheel, and the driving and speed-regulating mechanism carried thereby, substantially as described.

2. In a sawing-machine, in combination, the rotary saw and its frame and driving mechanism, the vertically-movable feed-wheel for said saw and its driving and speed-regulating mechanism, and a vertically-swinging frame carrying the feed-wheel and its driving and speed-regulating mechanism, as and for the purposes set forth.

3. In a sawing-machine, the combination of the main frame, the rotary saw, the vertically-swinging frame near one end pivoted to the main frame, a counter-weight for the opposite end thereof, a rotary feed-wheel carried by said movable frame so as to freely rise

and fall above the saw-table in advance of said saw, and variable speed-gearing carried by such swinging frame for rotating such feed-wheel, whereby the speed of the feed-wheel can be varied, as and for the purpose substantially as set forth.

4. In combination, the main frame and saw-table, a saw and its driving mechanism, a frame mounted in the main frame at or near one end to swing vertically and counterweighted at its opposite end, a feed-wheel over the saw-table and carried by such movable frame to swing therewith, and a variable speed-gear carried by the movable frame to vary the speed of the feed-wheel.

5. In combination, the main frame, the saw, a counterweighted swinging frame carried by the main frame, a feed-wheel carried by and moving with said frame, variable gearing driving said feed-wheel, and means, such as described, controlling said gearing and controlled by the vertical swing of said movable frame, substantially as set forth.

6. In combination, the main frame, saw-table, saw, and its driving mechanism, a vertically-swinging frame and feed-wheel carried thereby, variable and driving gearing for said feed-wheel comprising a pair of opposite cone-pulleys carried by said movable frame, a belt for connecting said pulleys, a belt-shifter for said belt, and a shaft for controlling the belt shifter, substantially as and for the purpose set forth.

7. The main frame having a saw-table and the rotary saw and its driving mechanism, in combination with the swinging frame at one end pivoted in the main frame, an eccentric wheel in the main frame provided with a weighted arm and connected with the free end of said movable frame to counterweight the same, the feed-wheel carried by said movable frame, and driving mechanism therefor.

8. In combination, the main frame and the saw, the swinging feed-frame mounted in the main frame, the feed-wheel carried thereby, tubular journals forming the pivot of said swinging frame, a drive-shaft extending through said journals and provided with a cone-pulley within the swinging frame, another and opposite cone-pulley mounted in the swinging frame, gearing therefrom to rotate the feed-wheel, a belt connecting said two cone-pulleys, and a belt-shifter therefor.

9. In combination, the main frame, the saw, the vertical movable swinging feed-frame mounted in the main frame, the feed-wheel carried thereby, variable gearing to rotate the feed-wheel, and a belt-shifter controlling said gearing, a shaft controlling said belt-shifter, and gearing on said shaft, and a vertical rack meshing with said gear and located on the upright at the movable end of said movable frame.

10. In combination, the main frame, the saw, adjustable feed-wheel, variable gearing therefor comprising opposite cone-pulleys, a belt connecting the same, a belt-shifter on

said belt, a rope having its opposite ends secured to said shifter and passing around a pulley secured at one side of the shifter and wound on the spool at the opposite side thereof, and means for rotating the spool.

11. In a sawing-machine, the combination of the main frame, the saw-mandrel and its saw, the transverse horizontal beams of the main frame, and the saw-table carried thereby, the outer portion of the saw-table beyond the saw being removable and provided with swinging clamp-arms pivoted to said removable portion of the saw-table to swing under or from said transverse beams of the main frame, substantially as described.

12. In combination, a main frame carrying the sawing mechanism, a vertically-swinging frame pivoted in the main frame and having the rectangular lower portion, the feed-wheel and its shaft carried by said swinging frame above the main frame, and the gearing for driving and regulating the speed of said feed-wheel mounted in and carried by the rectangular lower portion of said swinging frame, substantially as described.

13. The combination, with the main frame and sawing mechanism, of the vertically-swinging frame mounted in the main frame, the feed-wheel and its shaft carried by said swinging frame above the main frame, the two cone-pulleys connected by a belt and carried by said swinging frame and connected to drive and vary the speed of the feed-wheel, means to drive said pulleys, and a belt-shifter for said belt carried by said swinging frame, and means, substantially as described, controlling said shifter.

14. The combination, with a main frame and the sawing mechanism, of a vertically and freely swinging frame pivoted in the main frame, the feed-wheel and its shaft carried by said swinging frame over the main frame so as to rise and fall to accommodate various-sized pieces of wood, driving and speed-regulating gearing for said feed-wheel, and controlling mechanism therefor connected by gearing with said swinging frame so that the speed of the feed-wheel will be controlled by the vertical movement of said swinging frame, as and for the purpose set forth.

15. The combination, with a main frame and the sawing mechanism, of the vertically-swinging frame pivoted in the main frame, the feed-wheel carried thereby, the driving and speed-regulating gearing for said wheel carried by the swinging frame and comprising opposite cone-pulleys and a belt, a belt-shifter therefor, a shaft extending forwardly and upwardly for operating the belt-shifter, having the joint and at one end mounted on the swinging frame, the rack pivotally secured to an upright of the swinging frame, and the gear on said shaft meshing with said

rack, whereby the vertical swing of said frame controls the speed of the feed-wheel, as set forth.

16. The combination, with a main frame and the sawing mechanism, of the vertically-swinging frame pivoted in the main frame and having parallel separated top beams located above the plane of the saw-table, the feed-wheel shaft extending horizontally over the saw-table and carrying the feed-wheel, a bearing-box for said shaft extending across said beams, a clamping block extending across the opposite sides of said beams, and bolts removably securing said block and box together, whereby said box can be moved longitudinally of said beams to adjust the feed-wheel toward or from the saw, and movable driving mechanism for rotating said shaft, substantially as set forth.

17. In a sawing-machine, the combination of the main frame and the saw, the vertically-swinging frame, the feed-wheel and its shaft carried by the movable frame and extending over the saw-table, the grooved hub or sleeve of the feed-wheel, the forked rod engaging said grooved hub to move the feed-wheel laterally, as set forth, the lever for operating said forked rod, and operating means to drive the feed-wheel, as described.

18. In combination, the main frame, the saw and its mandrel, the vertically-swinging frame at the lower corner of one end pivoted in the main frame, the vertically-swinging weighted arm having the wheel at its inner end pivoted in the frame and loosely connected to the free end of said swinging frame to counterweight the same, the feed-wheel and its shaft carried by the swinging frame, and the driving and speed-regulating gearing for said wheel carried by said swinging frame, substantially as set forth.

19. In combination, a main frame, a saw-table, the circular saw, the vertically-swinging frame pivoted at its lower portion in the lower part of the main frame beneath the plane of the saw-table and provided with the top beams above the plane of the saw-table, the shaft extending from said top beams over the saw-table and provided with the feed-wheel, the bearing-box for said shaft clamped adjustably to said top beams so as to be adjustable longitudinally thereof for the purpose described, driving means in the lower portion of the swinging frame, and a loose driving-chain therefrom to said shaft.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

FREEMAN M. TEEGUARDEN.

Witnesses:

BEN F. HAYDEN,
DAVID LAUUM.