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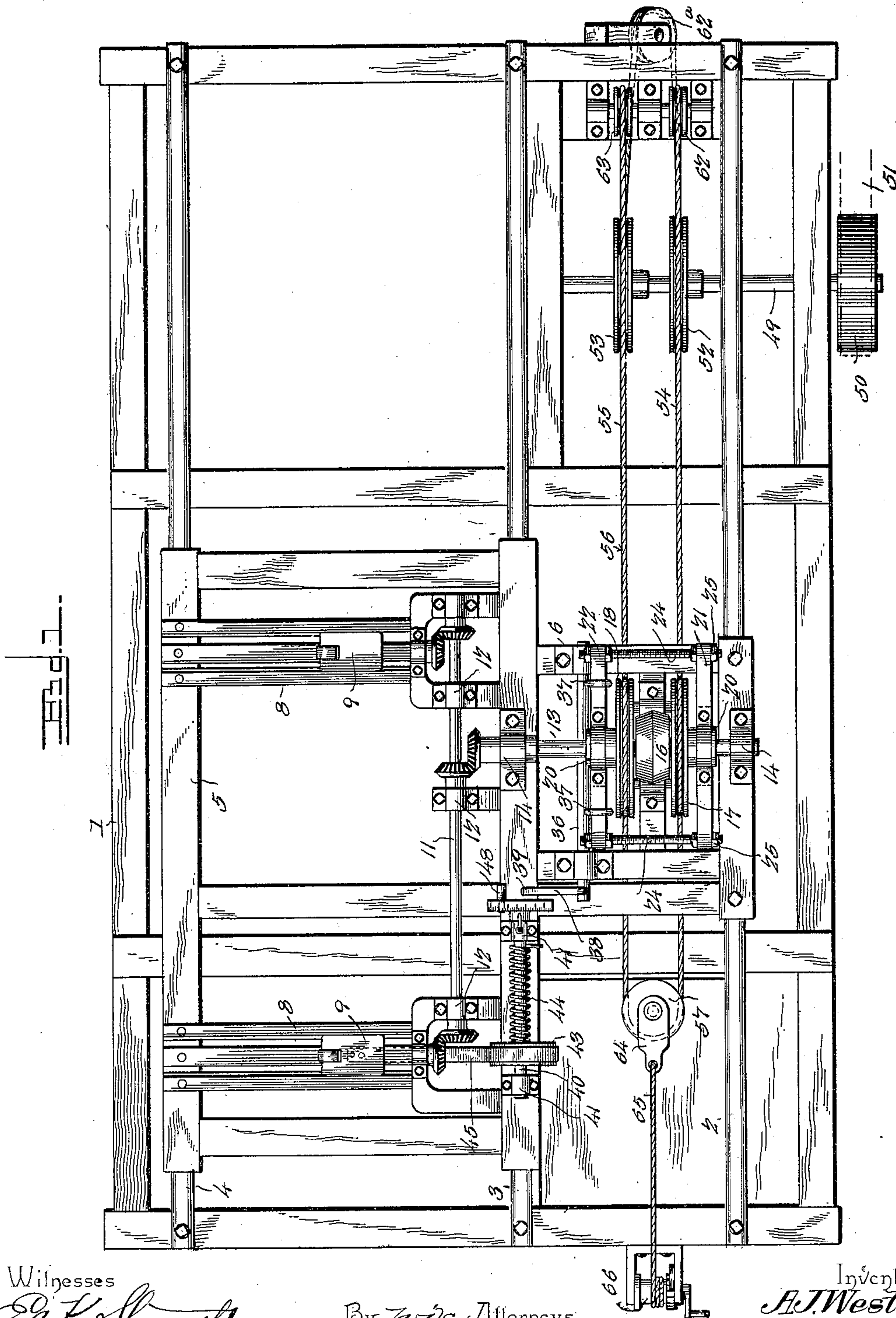
Patented Dec. 26, 1899.

A. J. WEST.  
SAWMILL CARRIAGE.

(Application filed Sept. 5, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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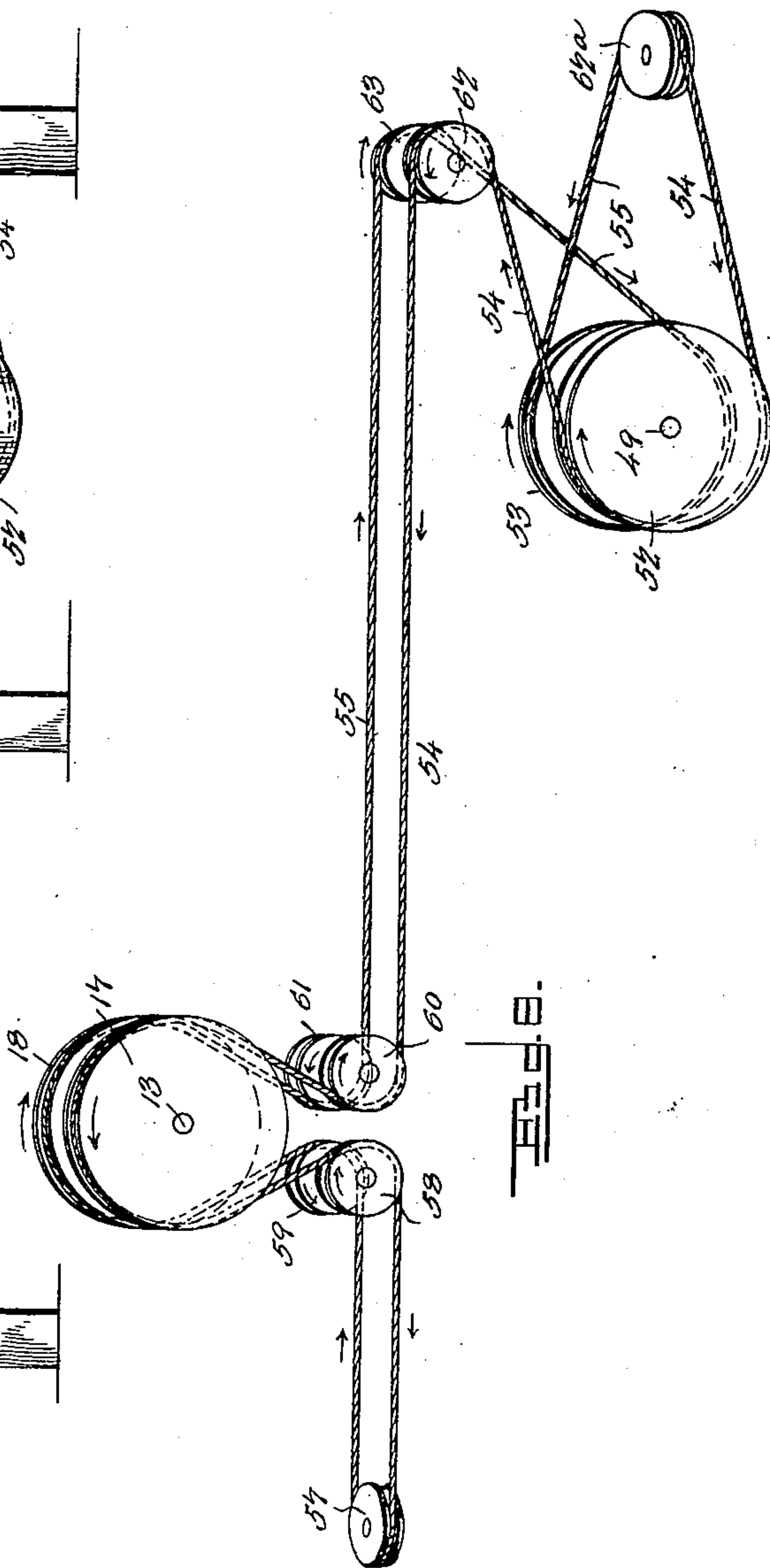
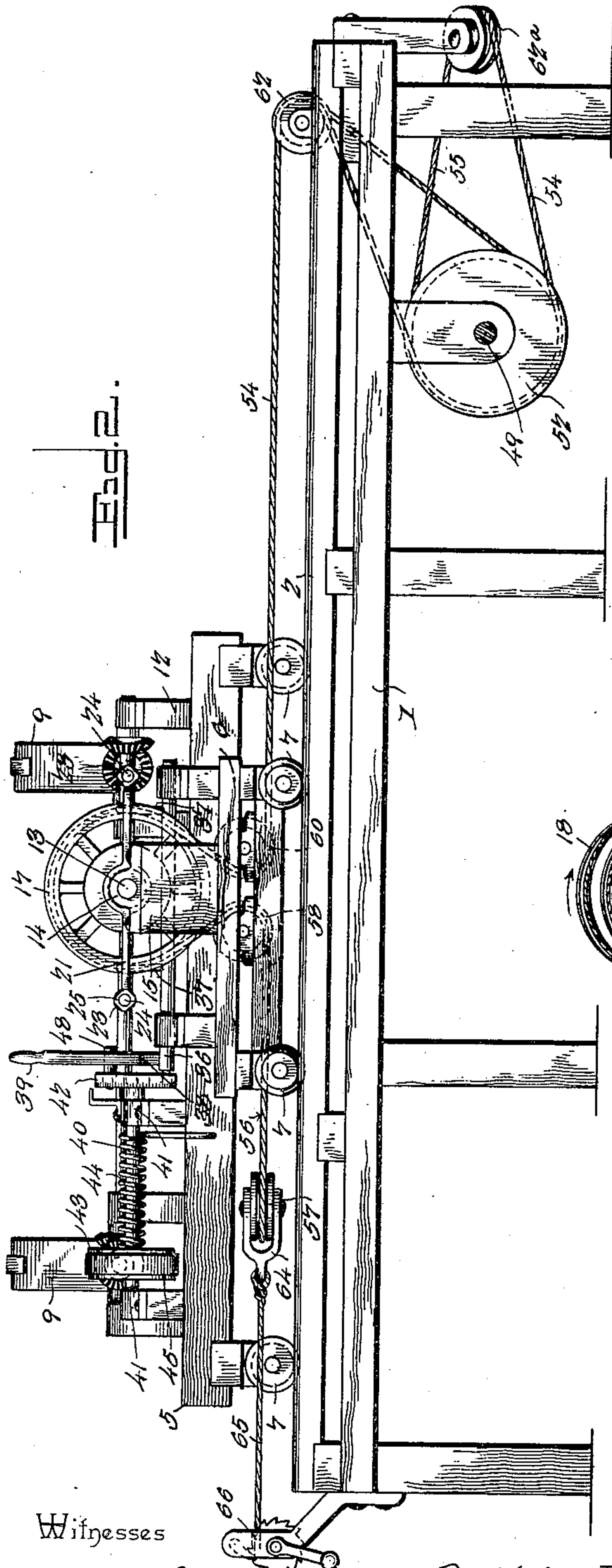
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3 Sheets—Sheet 2.



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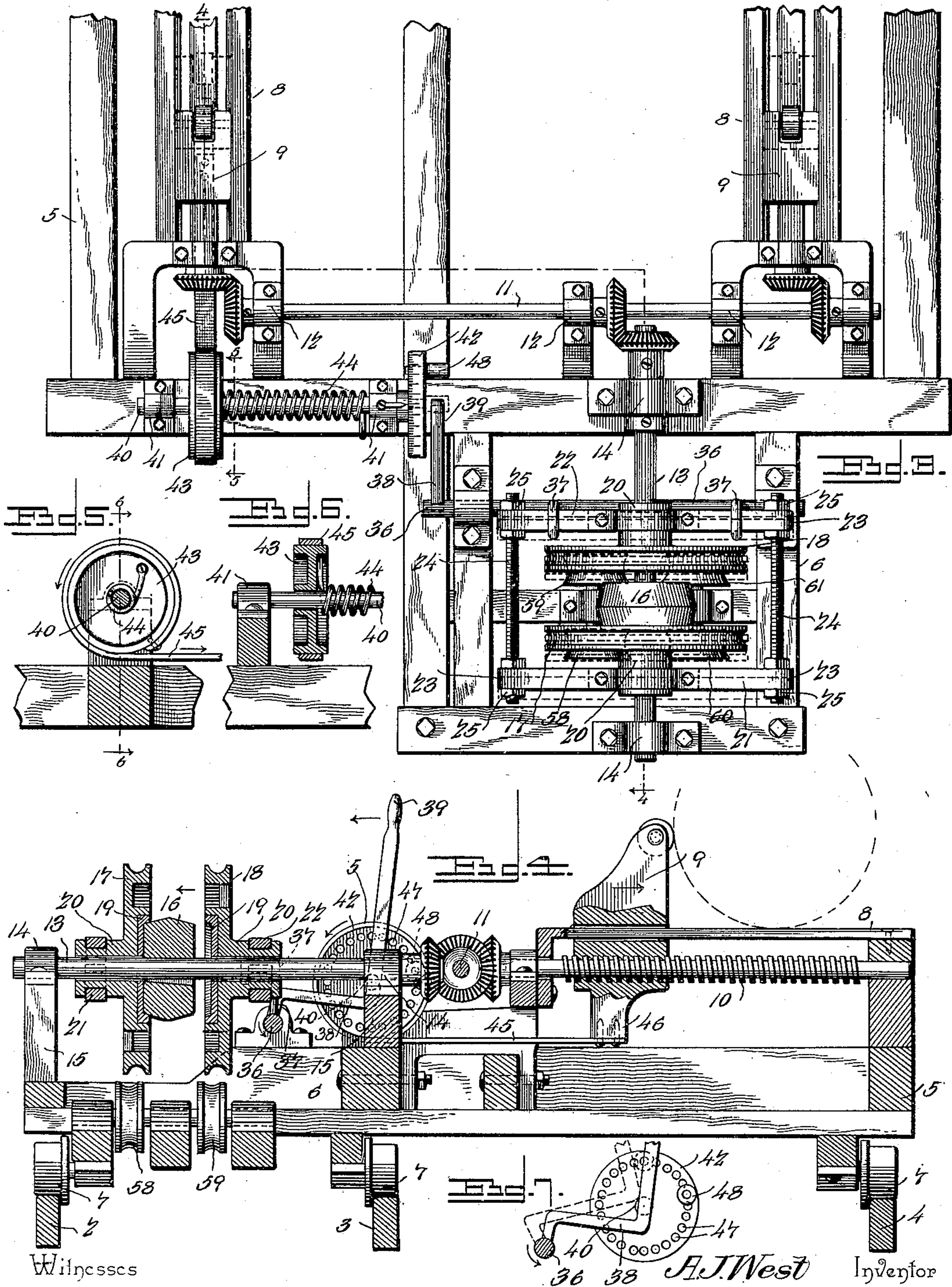
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3 Sheets—Sheet 3.



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# UNITED STATES PATENT OFFICE.

ARNOLD J. WEST, OF ABERDEEN, WASHINGTON.

## SAWMILL-CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 639,835, dated December 26, 1899.

Application filed September 5, 1899. Serial No. 729,533. (No model.)

*To all whom it may concern:*

Be it known that I, ARNOLD J. WEST, a citizen of the United States, residing at Aberdeen, in the county of Chehalis and State of Washington, have invented a new and useful Sawmill-Carriage Set-Works, of which the following is a specification.

My present invention relates to improvements in sawmill set-works, which designation is applied to the mechanism for setting or feeding the log to determine with accuracy the location, direction, and extent of the cut.

The object of the invention is to provide a simple, durable, and highly-efficient means by the initial adjustment of which, in accordance with a scale, the feed of the log toward the saw may be effected and automatically terminated without attention from the operator. Subordinate to this general object is the provision of a novel form of cable-gearing which permits the unrestricted reciprocation of the carriage and actuates sheaves controlling the movement of the set-shaft which actuates the head-blocks, said sheaves being thrown into or out of effective operation by means of a lever, movement of which in a direction to cause the disconnection of both sheaves being effected by a novel head-block stop or automatic gage.

Further and subordinate objects will appear as the necessity for their accomplishment is developed in the succeeding description.

Referring to the drawings, Figure 1 is a top plan view of a gig-table and log-carriage fitted with gearing, set mechanism, &c., constructed in accordance with my invention. Fig. 2 is a side elevation of the subject-matter of Fig. 1. Fig. 3 is a plan view, on an enlarged scale, of the set-work carriage, certain positions of the friction-sheaves and their connected parts being illustrated in dotted lines. Fig. 4 is a detail sectional view of the set-works, taken along one side of the set-works carriage, on the line 4 4 of Fig. 3. Fig. 5 is a vertical sectional view on the line 5 5 of Fig. 3. Fig. 6 is a detail view illustrating the mounting of the drum 43. Fig. 7 is a detail view of the head-block stop, and Fig. 8 is a detail view of the cable-gearing and its immediately cooperating parts on a somewhat-enlarged scale.

Referring to the numerals of the drawings, 1 indicates a gig-table constructed in the ordinary manner and supporting carriage-tracks 2, 3, and 4. 5 indicates the log-carriage, and 6 the set-works carriage, constituting the rearward extension of carriage 5 and, like said carriage, provided with small flange-wheels 7, designed to run upon the tracks to facilitate the reciprocation of the carriage in a manner well understood to the art. 8 indicates the head-blocks of the log-carriage, provided, as usual, with knees 9, operated in any suitable way, but preferably by worm-shafts 10, geared to a longitudinally-disposed shaft 11, journaled to suitable bearings 12 at the rear side of the log-carriage. These several elements, considered broadly, are not novel and are illustrated and described for the purpose of rendering the following description of the novel feature of my invention more intelligible.

13 indicates a driving-shaft geared to the set-shaft 11 and journaled at right angles thereto in bearings 14, carried by uprights 15 upon the set-works carriage 6. Keyed or otherwise secured upon the driving-shaft 13 is mounted intermediate of the uprights 15 a wood or papier-mâché or other suitable friction-collar 16, contiguous to the opposite faces of which are loosely mounted upon the shaft 13 a pair of opposed grooved friction-sheaves 17 and 18. Each of these sheaves is provided upon its inner face, adjacent to the friction-collar, with a friction-cup 19 for engagement with the collar, and upon its outer face extends a grooved hub 20. The sheaves 17 and 18 are adjustably retained in relatively-fixed position by yokes 21 and 22, engaging the grooves in the hubs 20 and having their ends extended diametrically and formed with terminal eyes 23. 24 24 indicate screw-threaded adjusting-bolts passed through the eyes 23 at the contiguous ends of the yokes and secured by adjusting-nuts 25. By means of this simple mounting the sheaves are relatively adjustable to compensate for the wear of the friction-collar and are independently supported in a movable frame, (composed of the yokes 21 and 22 and the adjusting-bolts 24,) the movement of which in a longitudinal direction with respect to the shaft 13 will cause either of the friction-sheaves to be friction-



ally clutched to the contiguous face of the friction-drum or will cause the disconnection of both sheaves and permit them to rotate idly. For the purpose of shifting this sheave-frame I provide a rock-shaft 36, parallel with and located below one of the yokes and operatively connected therewith by arms 37 engaging the yoke upon opposite sides of the driving-shaft. Any suitable means for rocking the shaft 37 to effect the shifting of the sheave-frame may be employed; but I prefer to provide a shaft with a terminal crank-arm 38, extending upwardly to form a shifting lever or handle 39. It will now be seen that if power is applied to cause the sheaves 17 and 18 to rotate continuously in opposite directions the log, supported upon the head-blocks 8 against the knees 9, may be adjusted toward or from the saw by throwing the shifting-lever 39 toward or from the saw-carriage, thereby effecting the engagement of one or the other of the sheaves with the friction-collar and the consequent rotation in the desired direction of the drive-shaft 13, geared, as heretofore stated, to the set-shaft, which in turn effects the actuation of the worm-shaft to set or adjust the knees, and thereby determine the position of the log upon the carriage and its relation to the saw.

The operation for effecting the log-setting now being understood, I will proceed to a description of the novel head-block stop, by means of which the knees of the head-blocks will be stopped in predetermined positions by the automatic operation of the stop coöperating with the shifting-lever and capable of being set to terminate the feed of the knees at predetermined points.

The head-block comprises a stop-shaft 40, journaled in bearings 41 at the rear side of the log-carriage and provided at one end with a graduated pin-disk 42, adjacent to the shifting-lever. At its opposite ends the shaft 40 is provided with a drum 43, mounted upon the shaft and connected to one end of a spiral spring 44, having its other end secured to the carriage.

45 indicates a flexible band wound upon the drum 43 and having its opposite extremity secured to a lug 46 on one side of the knees 9. The pin or stop disk 42 is pierced by a circular series of pin-holes 47, corresponding with the graduations and designed for the reception of a stop-pin 48.

Now supposing it is desired to impart a four-inch feed to the log for the purpose of sawing four-inch lumber, the stop-pin 48 is placed within the proper pin-hole, determined by the graduations upon the pin-disk. The shifting-lever 39 is now moved slightly in the direction of the log-carriage to bring the sheaves 17 into frictional engagement with the collar 16. The driving-shaft 13 will thus be driven in the direction of the arrow, causing the advance of the knees in a manner heretofore described and the consequent rotation of the stop-shaft in the direction indicated by the

arrow in Fig. 5. As soon as the knees reach the predetermined position the stop-pin 48 will strike the shifting-lever, urging it rearwardly and effecting the release or unclutching of the sheaves 17. In this manner the shaft is automatically disconnected from its power and the feed of the log will be automatically stopped. The carriage is then reciprocated by any suitable means, mechanical or otherwise, to present the log to the saw until the log is entirely consumed by successive reciprocations of the carriage. In order to restore the knees to their normal position for the reception of another log, it is simply necessary for the operator to throw the shifting-lever rearwardly until the sheave 18 is operatively connected to the driving-shaft, reversing the direction of rotation of the latter and of the gearing intermediate of the drive-shaft and knees.

We have now ascertained the construction and operation of my invention, with the exception of the novel gearing which I prefer to employ for imparting rotary movement to the sheaves 17 and 18 in opposite directions without interfering with the reciprocation of the carriage upon the gig-table.

49 indicates a power-shaft journaled below the gig-table adjacent to one end and extending parallel to the drive-shaft. Upon the end of this shaft is mounted a belt-pulley 50, designed to receive a belt 51 from any suitable source of power, and also mounted upon this shaft, preferably in alinement with the sheaves 17 and 18, are power-sheaves 52 and 53, designed to communicate motion to the duplicate side strands 54 and 55 of the endless cable 56. The cable 56 is first looped around a tension-pulley 57, and its side strands 54 and 55 are thence passed in a substantially horizontal direction under comparatively small idlers 58 and 59, thence over the sheaves 17 and 18, thence downward under a second pair of idlers 60 and 61, thence again in a substantially horizontal direction, and over the idlers 62 and 63. At this point the arrangement of the side strands 54 and 55 ceases to be identical, for the reason that now the strand 54 passes over the power-sheave 52, and thence to an idler 62<sup>a</sup>, while the strand 55 passes from its idler 63 under the power-sheave 53, around it, and over the idler 62<sup>a</sup>, where it joins and constitutes a continuation of the other side strand. By this arrangement of the cable its opposite side strands move in proper directions to rotate the friction-sheaves 17 and 18 in opposite directions and without interfering with the movement of the carriage, as the idlers 58, 59, 60, and 61, as well as the friction-sheaves, are carried by and movable with the rearward extension thereof.

Any suitable means for maintaining the cable at a proper tension may be provided; but I prefer to employ the tension-pulley 57, carried by a frame 64, to which is connected the rope 65, passed around a drum 66, dogged by a pawl-and-ratchet device, and by means of



which the position of the tension-pulley 57 may be adjusted.

From the foregoing it will be obvious that I have attained the several objects of my invention hereinbefore enumerated and that I have produced a set-work for sawmills of exceedingly simple construction and highly effective to expeditiously feed the log-supporting devices and to automatically interrupt the feed at any predetermined point; but while the present embodiment of my invention is thought to be preferable I do not desire to limit myself to the structural details defined, but reserve the right to change, modify, or vary them at will within the scope of the protection prayed.

What I claim is—

1. The combination with the carriage, of a sawmill, its set-shaft and knees, of a driving-shaft geared to the set-shaft, a pair of oppositely-rotating sheaves upon the driving-shaft and mechanism for operatively connecting the sheaves with the shaft, substantially as specified.

2. The combination with a sawmill-carriage, its set-shaft and knees, of a driving-shaft geared to the set-shaft, a pair of oppositely-rotating sheaves carried by the driving-shaft, and mechanism operated by one of the knees for changing the operative relation of said sheaves with respect to the driving-shaft, substantially as specified.

3. The combination with a sawmill-carriage, its knees, and a set-shaft, of a driving-shaft geared to the set-shaft, oppositely-rotating sheaves, mounted upon the drive-shaft longitudinally movable thereon, means for establishing an operative connection between the sheaves and shaft through the movement of the former, a shifting-lever operatively connected with the sheaves and designed to move them in a direction to effect their alternate operative connection with the shaft, and an adjustable stop operated by one of the knees and arranged to actuate the shifting-lever, substantially as specified.

4. The combination with a sawmill-carriage having knees adjustably mounted thereon, of means for reciprocating the knees, a drive-shaft connected with the reciprocating means for energizing it, a friction-collar secured upon the drive-shaft, a sheave-frame, sheaves carried thereby concentric with the driving-shaft and provided with friction-cups, and means for shifting the sheave-frame, substantially as specified.

5. The combination with a sawmill-carriage having knees adjustably mounted thereon, of means for reciprocating the knees, a drive-shaft connected with the reciprocating means for energizing it, a friction-collar secured thereon, a pair of oppositely-rotating sheaves provided with opposed friction-cups, relatively-adjustable yokes connected respectively with the sheaves and means for effecting the adjustment of the yokes, substantially as specified.

6. The combination with a sawmill-carriage having knees adjustably mounted thereon, of means for reciprocating the knees, a drive-shaft connected with the reciprocating means for energizing it, and a friction-collar upon the shaft, friction-sheaves, provided respectively with friction-cups opposed to the collar, and having grooved hubs, yokes engaging the grooves of the hubs, and adjusting-bolts connecting the contiguous ends of the yokes substantially as specified.

7. The combination with a sawmill-carriage, of knees connected therewith and adapted for reciprocation, a shifting-lever controlling the operation of the knees, an automatic head-block stop comprising a rotary graduated element having an adjustable stop-pin adapted to operate the shifting-lever, a shaft for the head-block stop, a drum upon the shaft, and a strap wound upon the drum and connecting with one of the knees to operate the head-block stop when the knee is moved.

8. The combination with a sawmill-carriage, its knees and power mechanism, of a shifting-lever operatively connected with the power mechanism, a graduated rotary stop provided with a drum, a flexible band wound upon the drum and connected to a knee and an adjustable stop-pin upon the rotary stop and in operative relation with the shifting-lever, substantially as specified.

9. The combination with a sawmill-carriage, of knees mounted thereon and adapted for reciprocation with respect thereto, a power-shaft connected with the knees to operate them, clutch mechanism mounted upon the shaft, a lever adapted to engage and disengage the clutch mechanism, a second shaft, a graduated stop-disk mounted thereon and having a circular series of apertures, a pin adapted for movable connection with the apertures and adapted to engage the lever when the disk is rotated, a drum mounted upon the second shaft, a strap wound upon the drum and connected at its outer end to one of the knees to operate the stop-disk when the knee is moved in one direction, and a spring mounted upon the second shaft and adapted to rotate the shaft in an opposite direction when the direction of movement of the knee is reversed.

10. The combination with a carriage of a sawmill having adjustable knees and a pair of independently-rotary sheaves carried by the carriage, means for operatively connecting the sheaves with the knees to adjust them, of a pair of power-sheaves, an endless cable, passed over the named sheaves and around the power-sheaves in opposite directions, and a tension device for said cable, substantially as specified.

11. The combination with a sawmill-carriage, having adjustable knees and a pair of independently-rotary sheaves, of means for operatively connecting the sheaves with the knees to adjust them, a pair of idlers under each sheave, a tension-pulley adjacent to one



end of the carriage, a power-shaft, power-sheaves carried thereby and another idler, of an endless cable looped around the tension-roller, passed under the adjacent idlers on  
5 the carriage, over the first-named sheaves, under the remaining idlers of the carriage, thence around the idlers at the end of the frame beyond the carriage, thence around the power-sheaves in opposite directions and

finally around the idler last enumerated, substantially as specified. 10

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

ARNOLD J. WEST.

Witnesses:

R. P. CAMPBELL,  
S. W. PEARSON.