No. 787,135. PATENTED APR. 11, 1905.

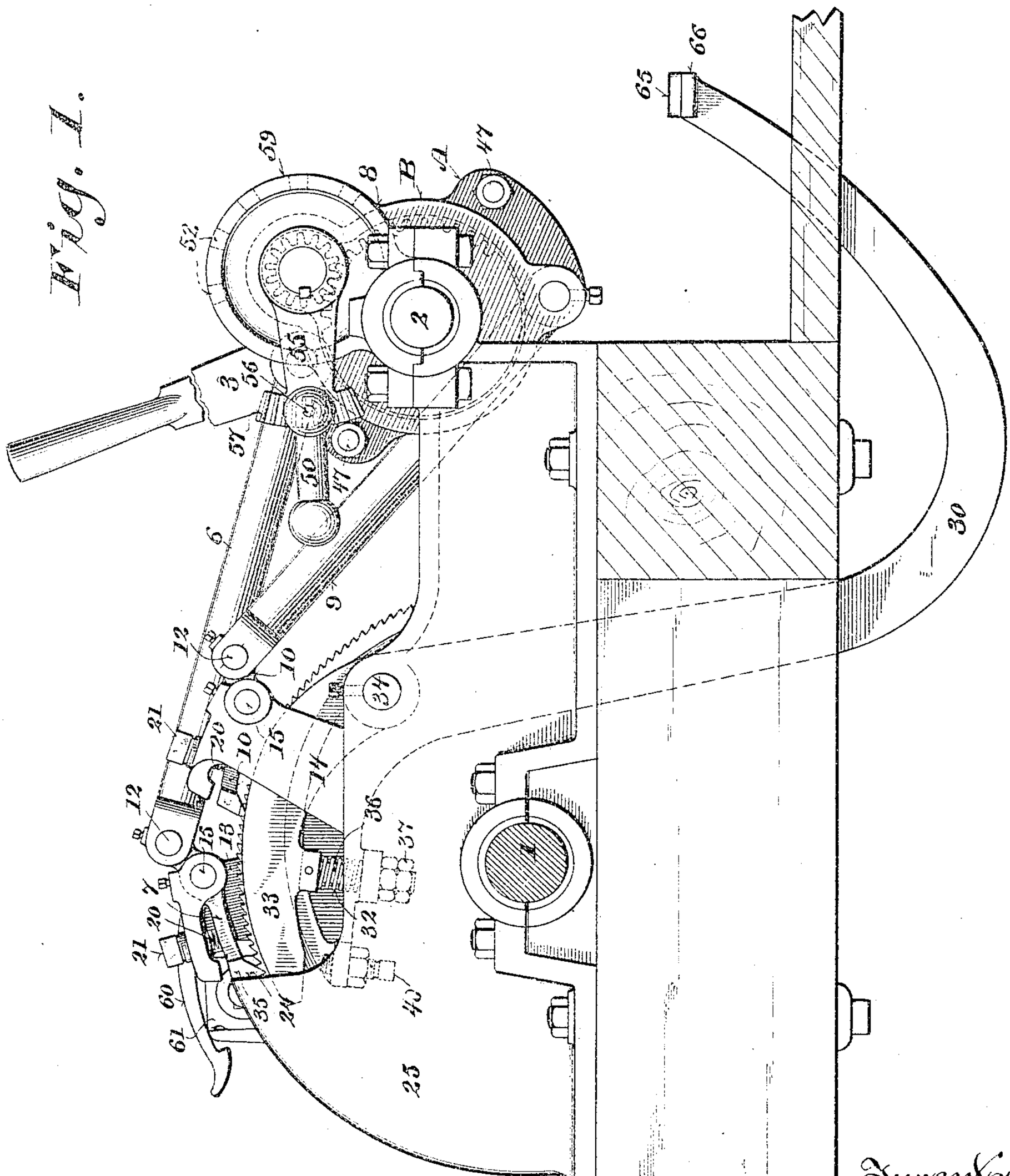
W. H. TROUT.

SAWMILL SET WORKS.

APPLICATION FILED AUG. 27, 1904.

5 SHEETS—SHEET 1.

Fig. 1.



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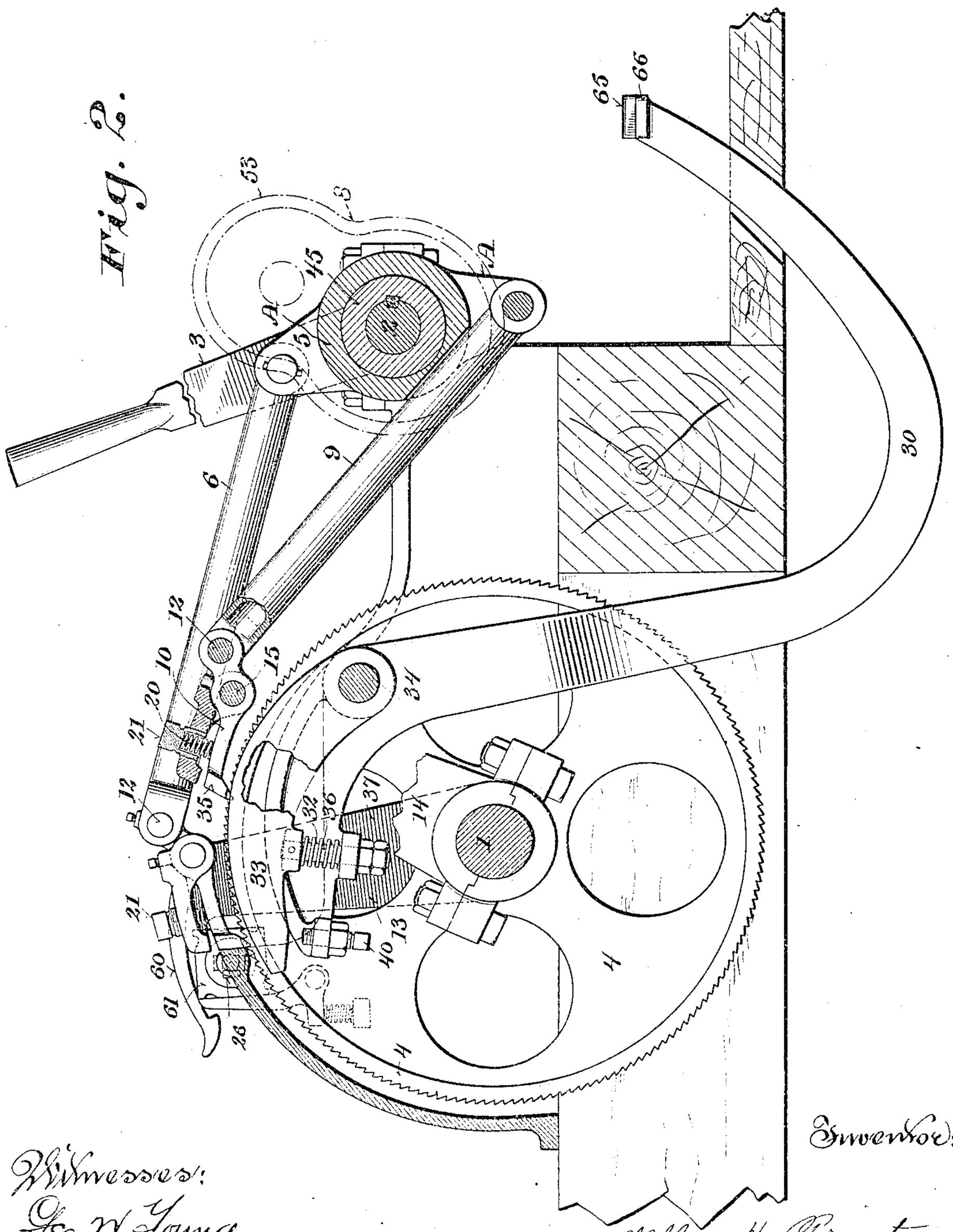
5 SHEETS—SHEET 2.

Fig. 2.



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5 SHEETS—SHEET 3.

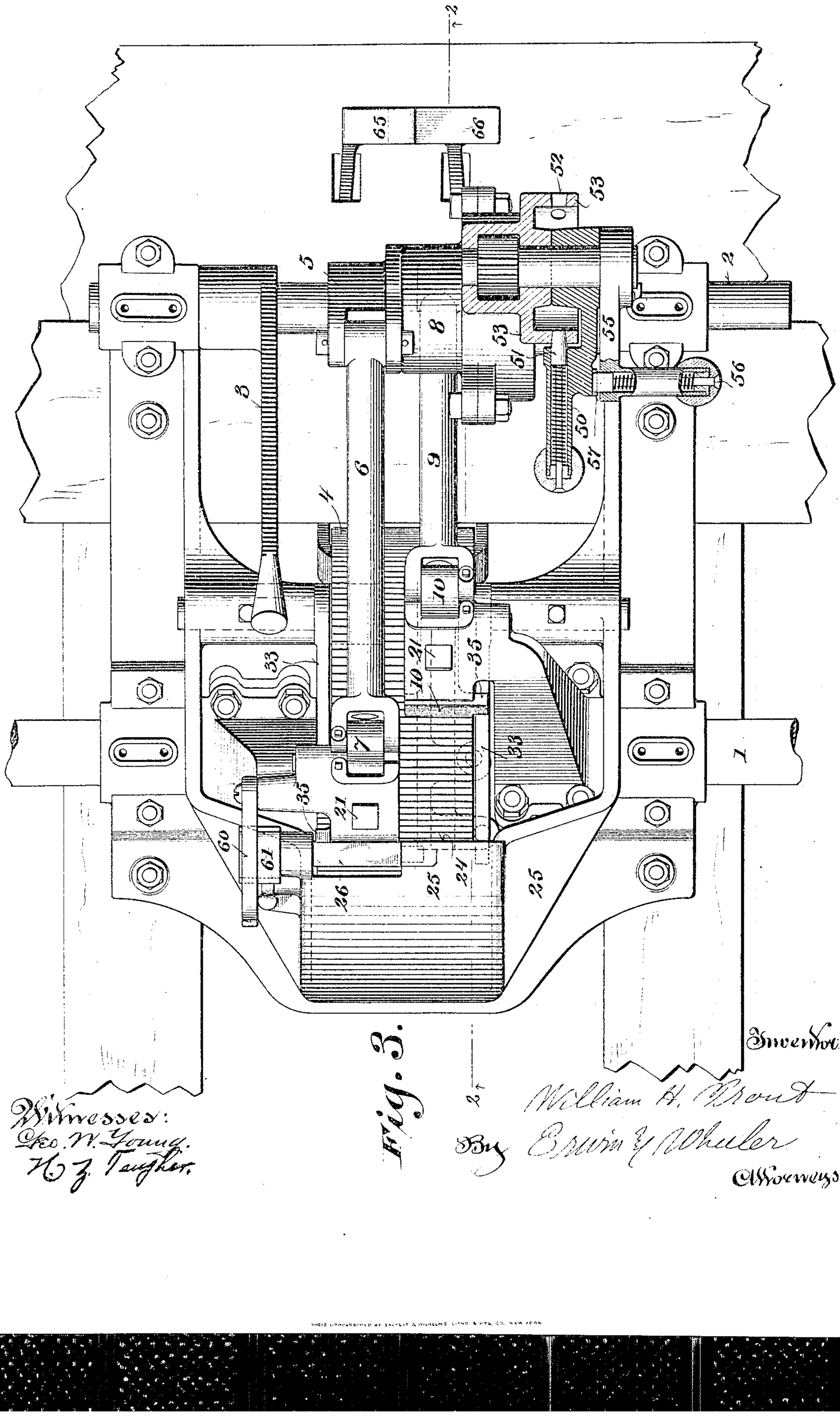

Fig. 3.

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5 SHEETS—SHEET 4.

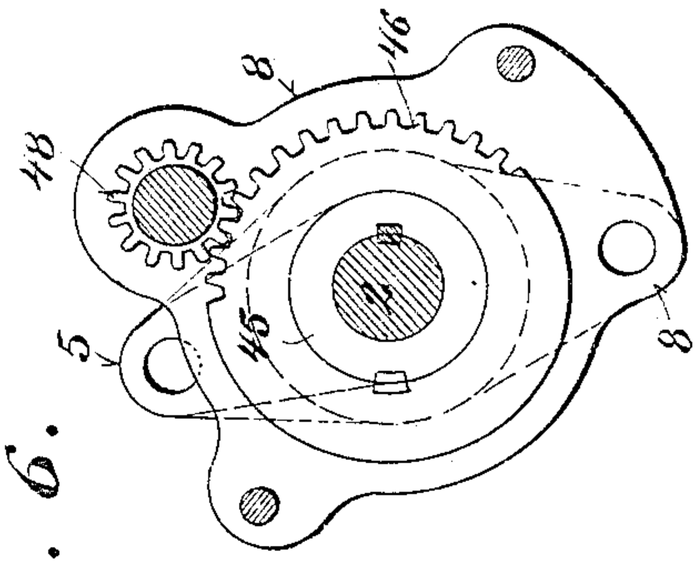

Fig. 6.

Fig. 4.

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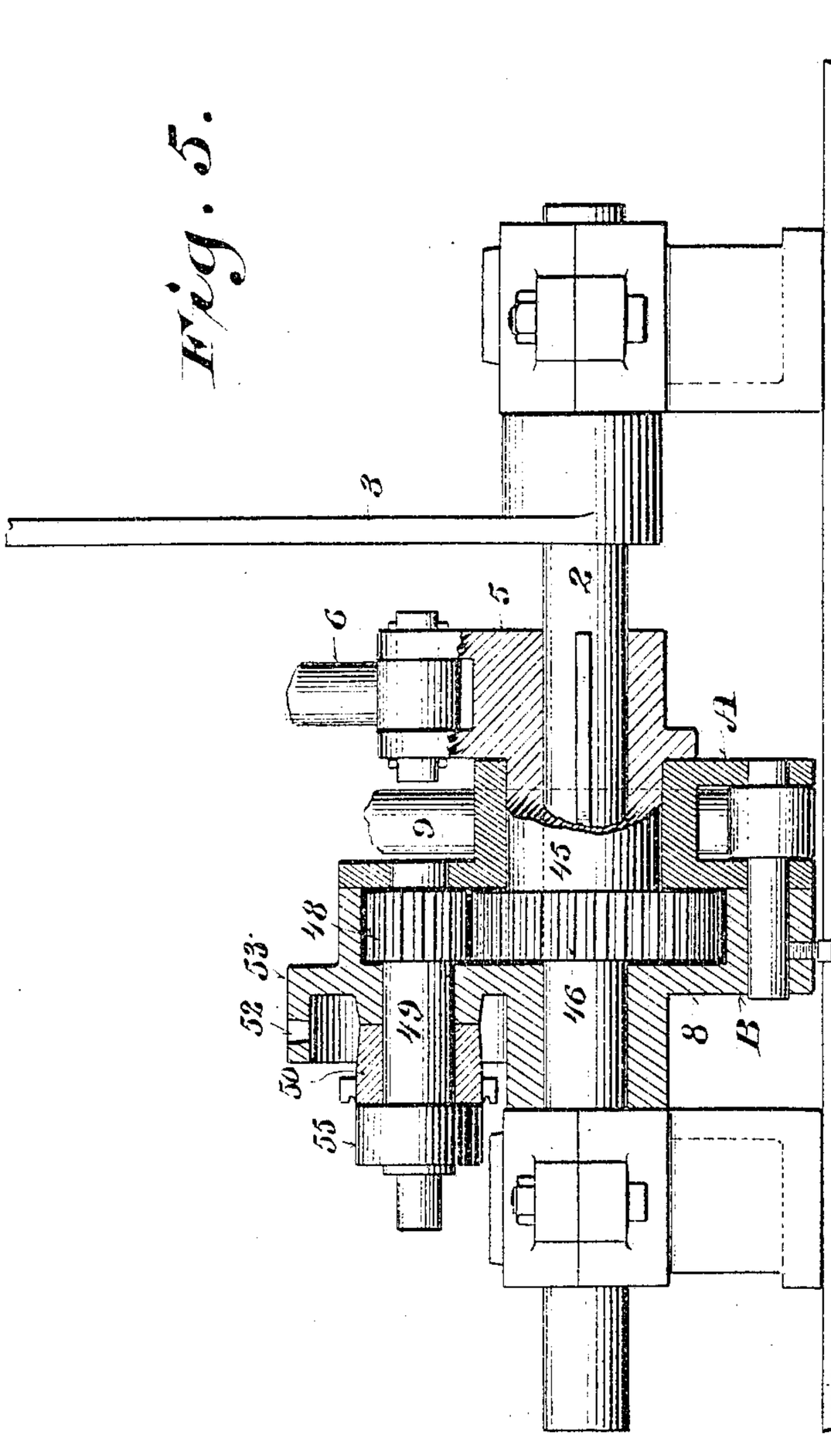
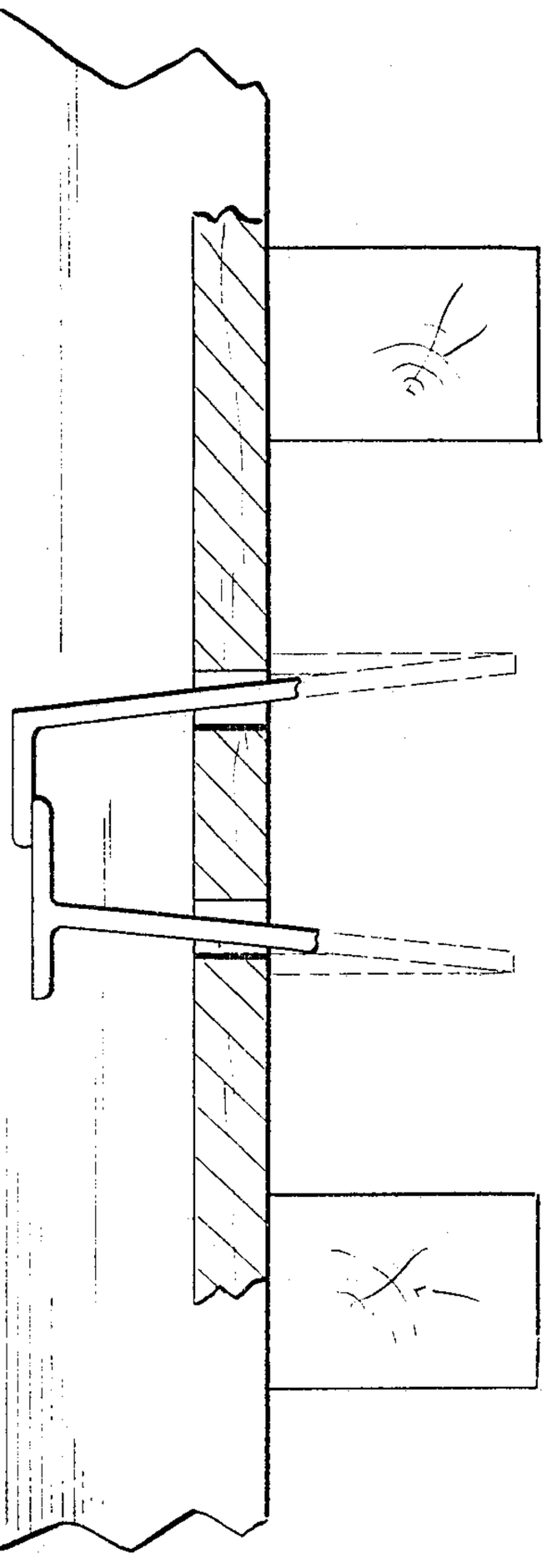
5 SHEETS—SHEET 5.

Fig. 5.





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No. 787,135. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

WILLIAM H. TROUT, OF MILWAUKEE, WISCONSIN.

SAWMILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 787,135, dated April 11, 1905.

Application filed August 27, 1904. Serial No. 222,371.

To all whom it may concern:

Be it known that I, WILLIAM H. TROUT, a citizen of the Dominion of Canada, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Sawmill Set-Works, of which the following is a specification.

My invention relates to improvements in sawmill set-works; and it pertains more especially to certain improvements in the type of set-works now in common use.

The object of my invention is to provide means whereby the apparatus may be more easily and accurately adjusted and controlled by the operator and also rendered more durable by avoiding wear on the parts heretofore most subject thereto.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a side elevation of my invention. Fig. 2 is a vertical sectional view drawn on line 2 2 of Fig. 3 and with a portion of one of the connecting-rods broken away to show its pivotal connection with the setting-pawl. Fig. 3 is a plan view of the invention, showing the mechanism for varying the setting dimensions in horizontal section. Fig. 4 is a vertical sectional view drawn through the ratchet-wheel and its supporting set-shaft. Fig. 5 is a detail view of the crank-arms of the set-lever shaft and the pinion and segment-wheel which determine their relative positions.

Like parts are identified by the same reference characters throughout the several views.

1 is a set-shaft, and 2 is a set-lever shaft, to which a set-lever 3 is rigidly connected.

4 is a ratchet-wheel fixed on the set-shaft 1. The motion of the set-lever 3 in one direction is communicated to the ratchet-wheel 4 through the set-lever shaft 2, crank-arm 5, connecting-rod 6, and ratchet feed-pawl 7. Motion of the set-lever 3 in the other direction is communicated to the ratchet-wheel through the set-lever shaft 2, crank-arm 8, connecting-rod 9, and ratchet feed-pawl 10, the ratchet-wheel being moved in the same direction by both ratchet-pawls, owing to the fact that the crank-arms 5 and 8 project on opposite sides of the center lines of the set-lever shaft, and the pivot-pins 12 connecting the ratchet feed-pawls with the respective connecting-rods.

The pawls 7 and 10 are pivotally supported in operative position by swinging arms 13 and 14, respectively, these arms being loosely mounted on the set-shaft 1 and connected with the pawls at an intermediate point by pivot-pins 15 below the lines of the respective connecting-rods, whereby the forward push of each connecting-rod is made to depress the ratchet-engaging end of the corresponding pawl into forcible engagement with the teeth of the ratchet-wheel 4 preparatory to its forward movement, and the rearward pull of the connecting-rod is equally effective to lift the pawl out of engagement with the ratchet-teeth preparatory to its retraction. The pawls are, however, also normally held in engagement with the ratchet-teeth by means of springs 20, which are seated in suitable sockets in set-screws 21 on the bracket 22.

The movement of the ratchet feed-pawl 10 is limited by a positive stop, comprising a shoulder 24 on the casing 25, against which the pawl abuts. The movement of the pawl 7 is limited by a rotatable eccentric-stop 26, hereinafter described. These stops also prevent overrotation of the ratchet-wheel 4 by holding the abutting pawl from lifting until the wheel is brought to rest.

It will be observed that the abutting faces of the stops 24 and 26 and the feed-pawls 10 and 7 are arranged for contact in a plane substantially at right angles to the line of pawl movement, and the frictional contact of the pawls with the stops is sufficient to prevent them from lifting until the ratchet-wheel is brought to rest. The pawls are, however, instantly released during the retractive movement and lifted out of contact with the teeth of the ratchet by the pull of the connecting-rod, as above explained.

When it is desired to restore the knees to normal position, the ratchet-wheel is permitted to recede or rotate backwardly by lifting both feed-pawls out of engagement with the ratchet-teeth. This is done by means of the foot-levers 30, from which motion is communicated to lift the feed-pawls through the

bracket-arms 31 at the inner ends of the levers, springs 32, and pawl-lifters 33, the latter comprising curved arms pivoted at 34 to the frame or casing and extending along the sides of the ratchet-wheel underneath lateral projections 35, carried by the pawls. The springs 32 are each held in position by a bolt 36, which depends from the corresponding pawl-lifter 33 and extends loosely through a hole in the foot-lever, with a lock-nut 37 at its lower end to prevent separation of the parts. It will be observed, Fig. 2, that the extreme end of the foot-lever is provided with a set-screw 40. This is so adjusted as to engage and lift the pawl-lifter positively if the pawls are not released from the ratchet-teeth after a given compression of the spring 32.

The inner surfaces of the rim of the ratchet-wheel 4 are turned and the inner ends of the foot-levers are curved to fit the rim and serve as a brake to prevent overrotation of the receding ratchet-wheel. To vary the setting dimensions, the crank-arm 8 is swung independently on the set lever-shaft 2 to increase or diminish the distance between the pivot-pins 12 of the connecting-rods 6 and 9, and thus vary the stroke of the feed-pawls. The crank-arm 5 is provided with a sleeve 45, upon which a toothed segment 46 is rigidly mounted. The crank-arm 8 is formed in two sections A and B, secured together by bolts 47 and inclosing the segment 46.

A pinion 48, in mesh with segment 46, is mounted on a shaft 49, which is journaled in the crank-arm 8, and a dimension-lever 50 is used to rotate the shaft 49, thus causing the pinion to travel around the segment 46 and swing the arm 8 on the shaft 2. This lever is provided with a spring-latch 51, adapted to engage in sockets 52 in a bracket-segment 53, whereby the lever may be locked in any desired position for setting standard dimensions. The lever 50 is not connected rigidly to the shaft 49, however, but is loosely hung thereon and locked thereto by means of an auxiliary change-lever 55, having a spring-latch 56, adapted to engage a toothed segment 57 on the lever 50. By moving the change-lever 55 to various positions on the segment 57 intermediate setting dimensions are secured.

Still finer adjustments are secured by means of the rotatable eccentric-stop 26, whereby variations of one thirty-second of an inch may be secured. This stop is provided with suitable trunnions journaled in the casing, and a hook 60, carried by the pawl 7, is adapted to engage a block 61, mounted on the tops, and rotate the block and stop one-quarter of a turn with each backward movement of the pawl to vary the point of contact between the pawl and stop.

It will be observed that the foot-levers are provided with treadles 65 and 66, respectively. The treadle 65 of the right-hand lever overlaps the treadle 66 of the left-hand lever, so that pressure on the treadle 65 depresses both levers to permit recession of the ratchet-wheel. The treadle 66 is depressed separately when adjusting the dimension or change levers, as it is then desired merely to lift pawl 10 to permit the necessary adjustment without permitting the ratchet-wheel to recede.

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

1. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing the ratchet-wheel step by step; an actuating-lever; swinging crank-arms connected with the actuating-lever; connecting-rods connecting the crank-arms and feed-pawls; and means for adjusting said crank-arms to different relative positions, whereby the stroke of the feed-pawls is varied.

2. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing the ratchet-wheel step by step; stops arranged to engage and limit the movement of the ratchet feed-pawls; a shaft provided with suitable cranks; connecting-rods pivoted to the feed-pawls and cranks respectively; means for adjusting the cranks in different relations to each other; and means for oscillating said shaft.

3. The combination with the set-shaft and ratchet-wheel of a sawmill set-works; of a set of ratchet feed-pawls for advancing said wheel; a set of foot-levers arranged to serve as brakes for the ratchet-wheel; and means operated by the foot-levers for lifting the feed-pawls to inoperative position.

4. The combination with the set-shaft and ratchet-wheel of a sawmill set-works; of a set of spring-actuated ratchet feed-pawls for advancing said wheel; a set of foot-levers arranged to serve as brakes for the ratchet-wheel; and means operated by the foot-levers for lifting the feed-pawls to inoperative position.

5. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls and actuating connections for advancing said wheel; a set of pawl-lifters pivoted to suitable supports at the respective sides of said wheel; and a set of foot-levers for actuating the pawl-lifters, said foot-levers being arranged to bear against the rim of the ratchet-wheel when actuated, whereby said levers constitute brakes for the wheel.

6. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls and actuating connections for advancing said wheel; a set of pawl-lifters pivoted to suitable supports at the respective sides of said wheel; and a set of foot-levers for actuating the pawl-lifters, said foot-levers being extended within the rim of the ratchet-wheel and adapted to serve as brakes for said wheel.

7. The combination with the set-shaft and

ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing said wheel; means for actuating the feed-pawls in alternation; and a set of positive stops in position for abutting contact with the pawls at the end of the wheel-advancing stroke; the contacting faces of said stops being disposed in a position to retain the pawls in engagement with the ratchet-teeth until released by backward pawl movement.

8. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing said wheel; means for actuating the feed-pawls in alternation; and a set of positive stops in position for abutting contact with the pawls at the end of the wheel-advancing stroke together with means for varying the contacting position of one of the stops; said stops being arranged with contacting faces in a plane substantially at right angles to the line of pawl movement.

9. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing said wheel; means for actuating the feed-pawls in alternation; and a set of positive stops in position for abutting contact with the pawls at the end of the wheel-advancing stroke, together with means for varying the contacting position of one of the stops and means for varying the distance between the alternately-acting pawls; said stops being formed to lock the pawls against either forward or outward movement at the end of a wheel-advancing stroke.

10. The combination with the set-shaft and ratchet-wheel of a sawmill set-works; of a set of ratchet feed-pawls in operative relation thereto; a set-lever shaft provided with an operating-lever; a crank fixed to the set-lever shaft; and a connecting-rod connecting said crank and one of the feed-pawls; a crank loosely mounted on the set-lever shaft; a connecting-rod connecting the same with another feed-pawl; a dimension-lever for adjusting said crank; and means for locking said dimension-lever to the shaft and crank.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM H. TROUT.

Witnesses:

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N. Z. TAUGHER.