

No. 883,333.

PATENTED MAR. 31, 1908.

W. W. McKEE.
SEGMENT SAWING MACHINE.

APPLICATION FILED JUNE 17, 1907.

3 SHEETS—SHEET 1.

FIG. 1.

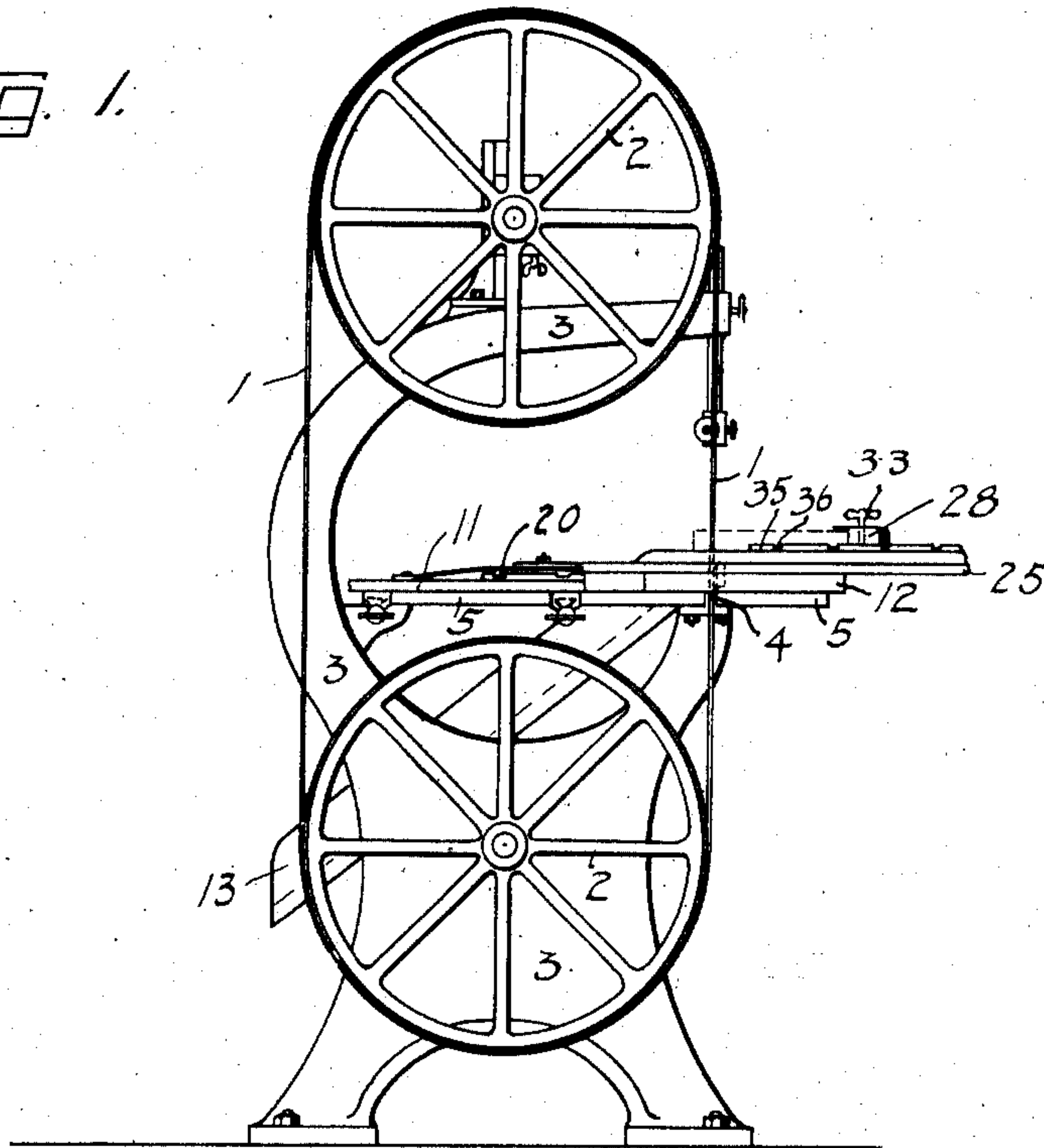


FIG. 2.

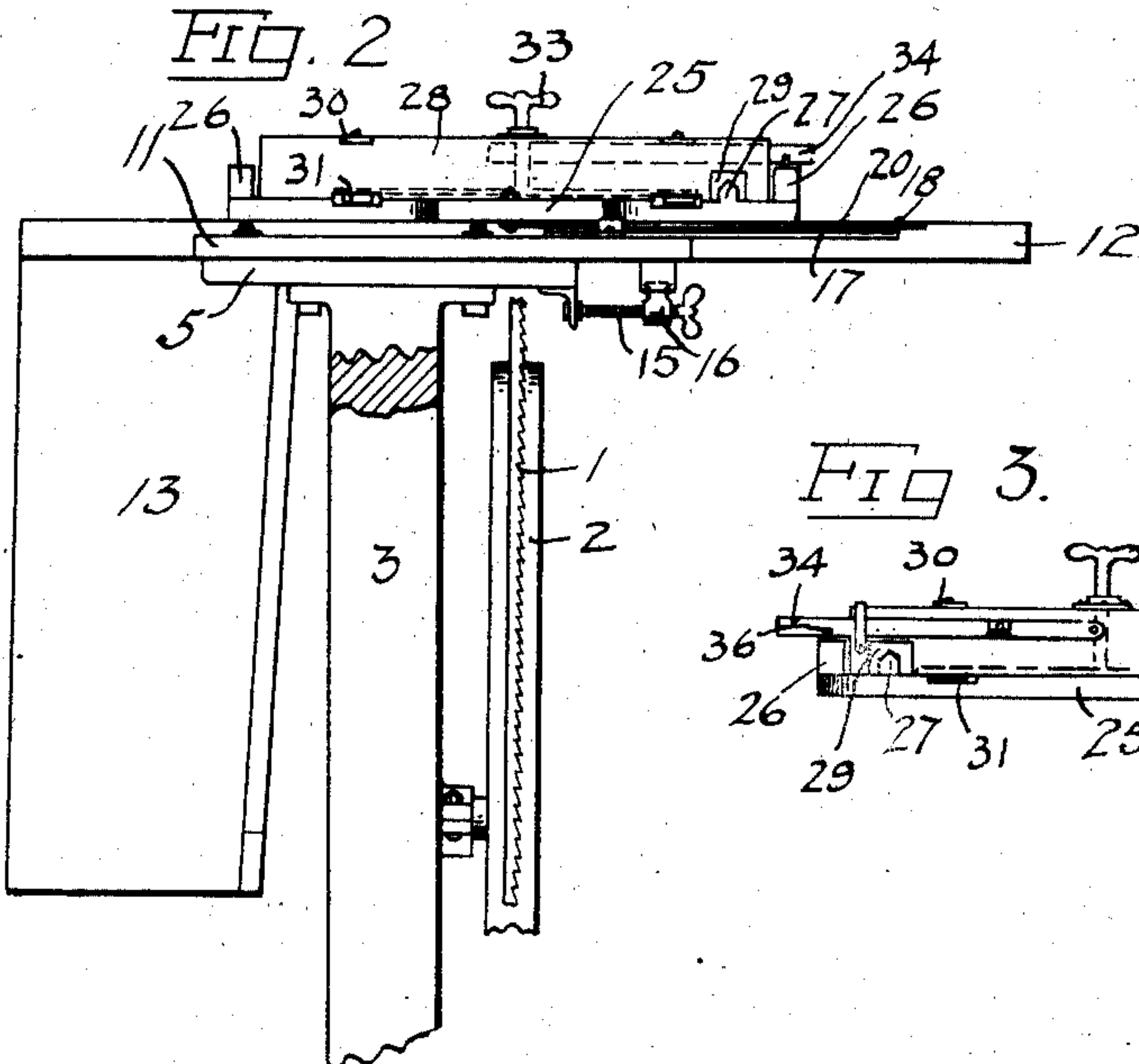
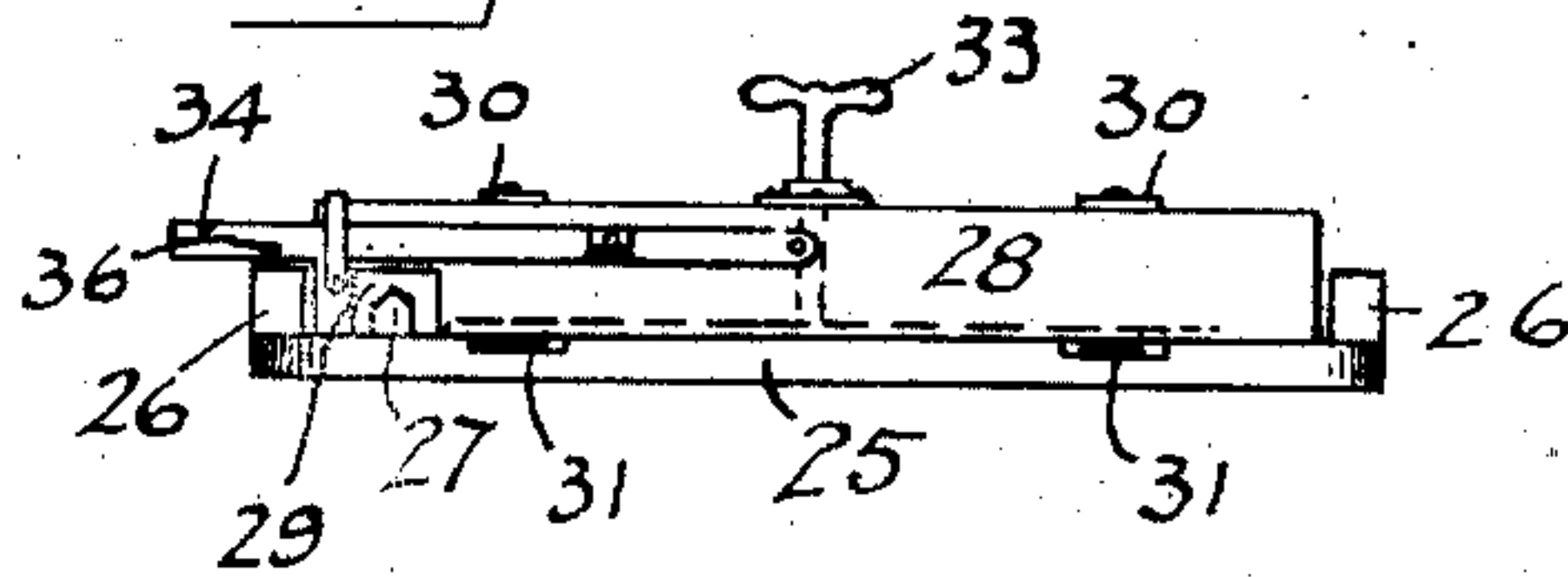


FIG. 3.



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3 SHEETS—SHEET 2.

FIG. 4.

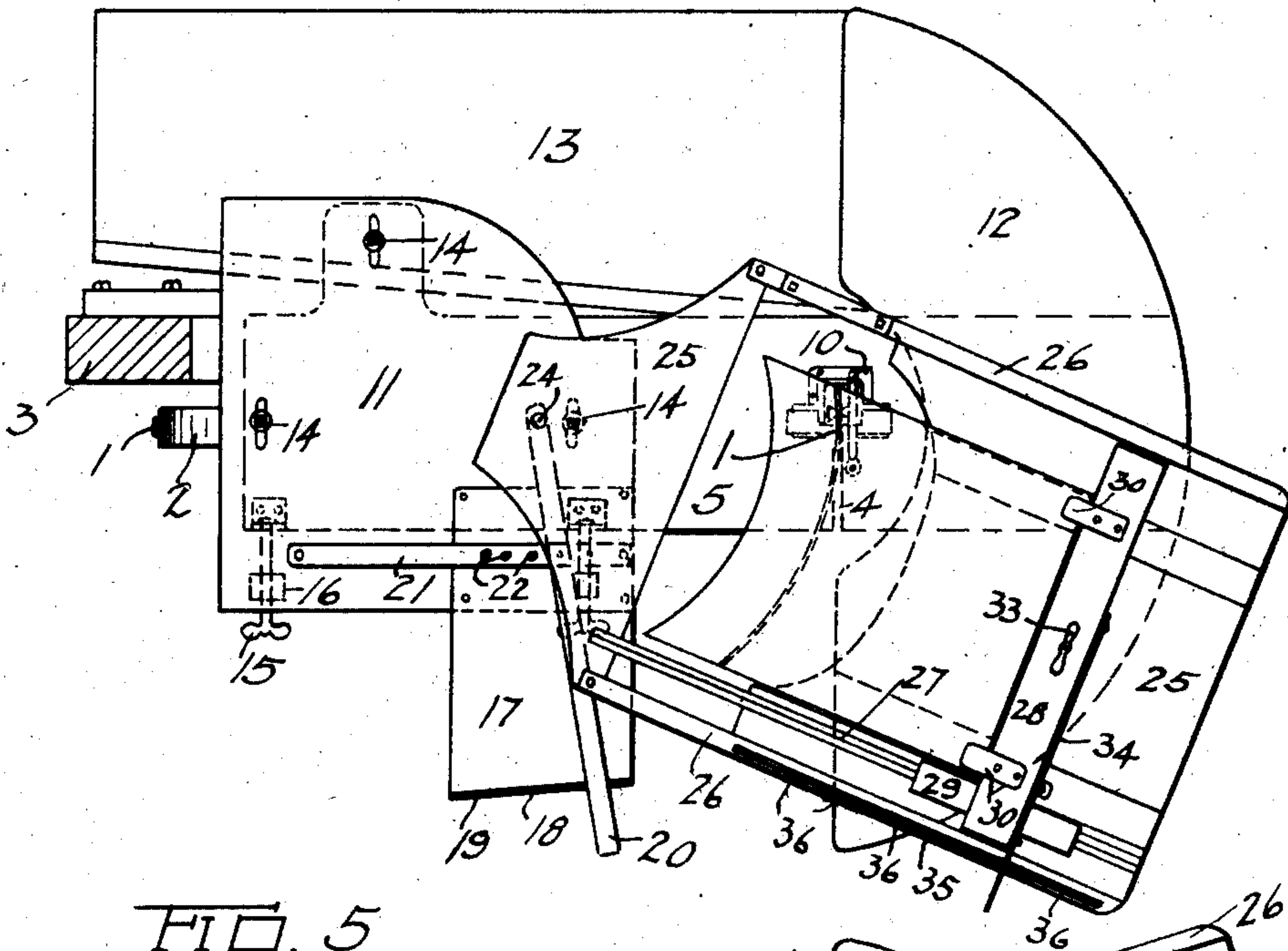
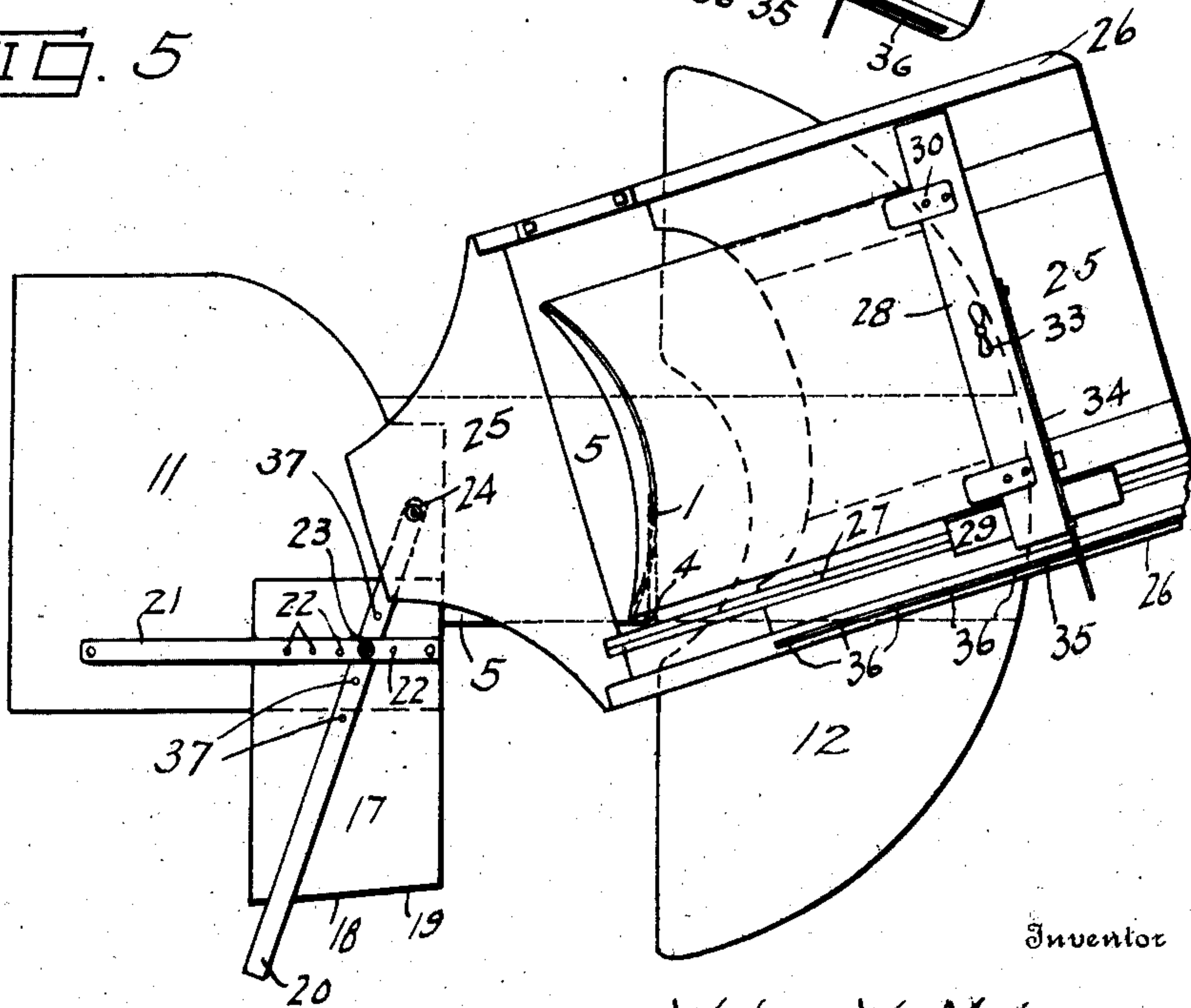


FIG. 5.



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3 SHEETS—SHEET 3.

FIG. 6.

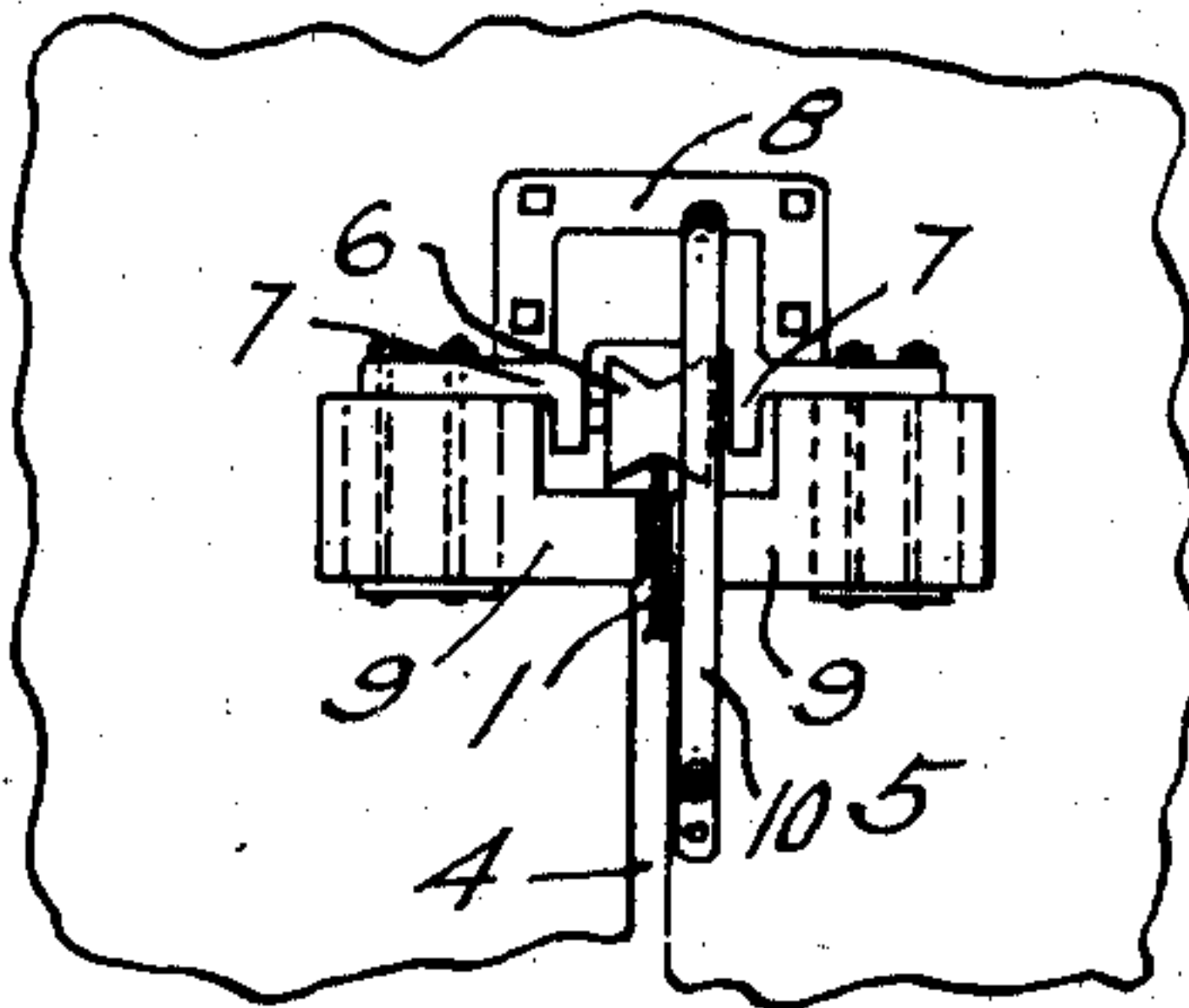


FIG. 7.

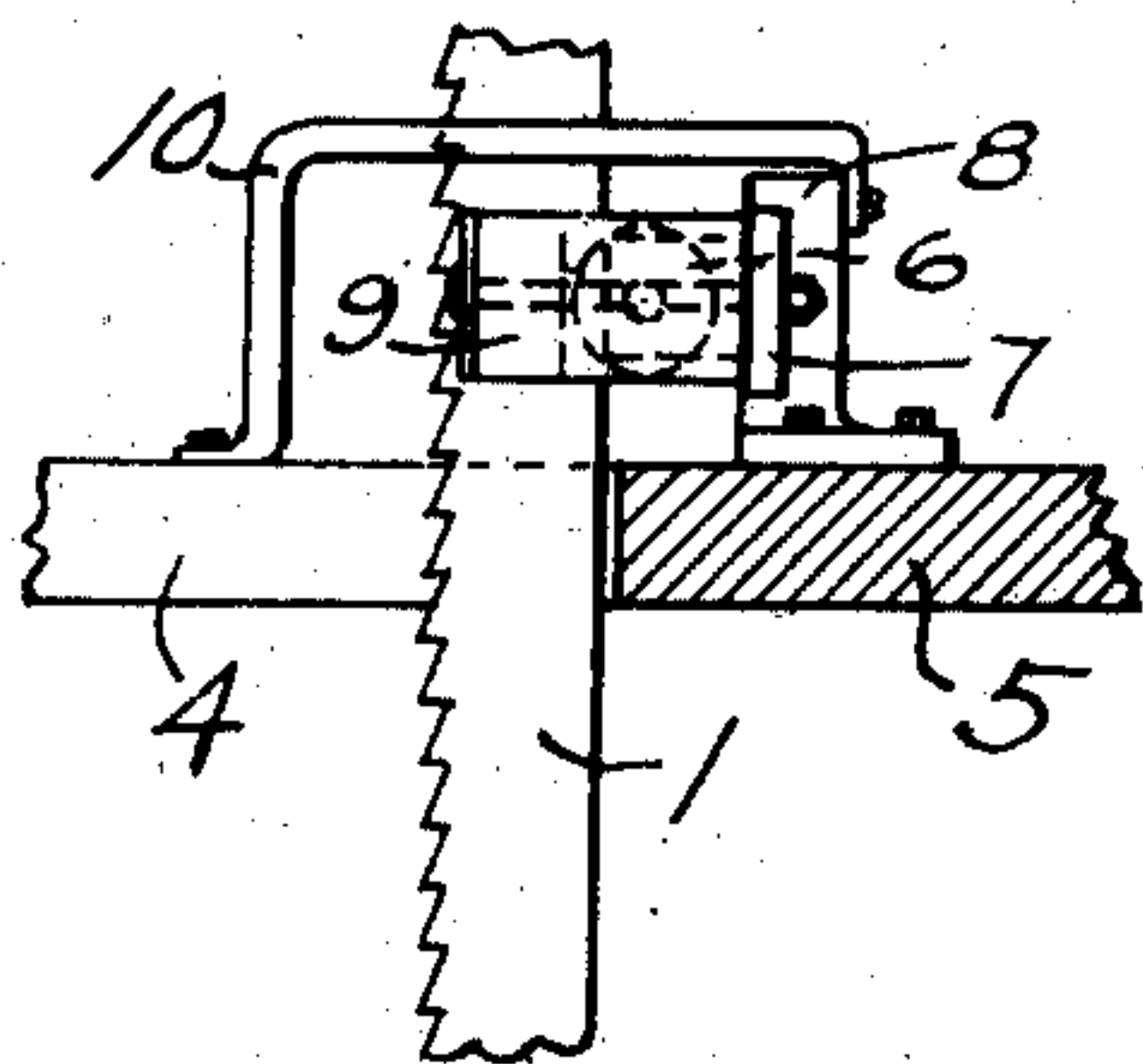


FIG. 8.

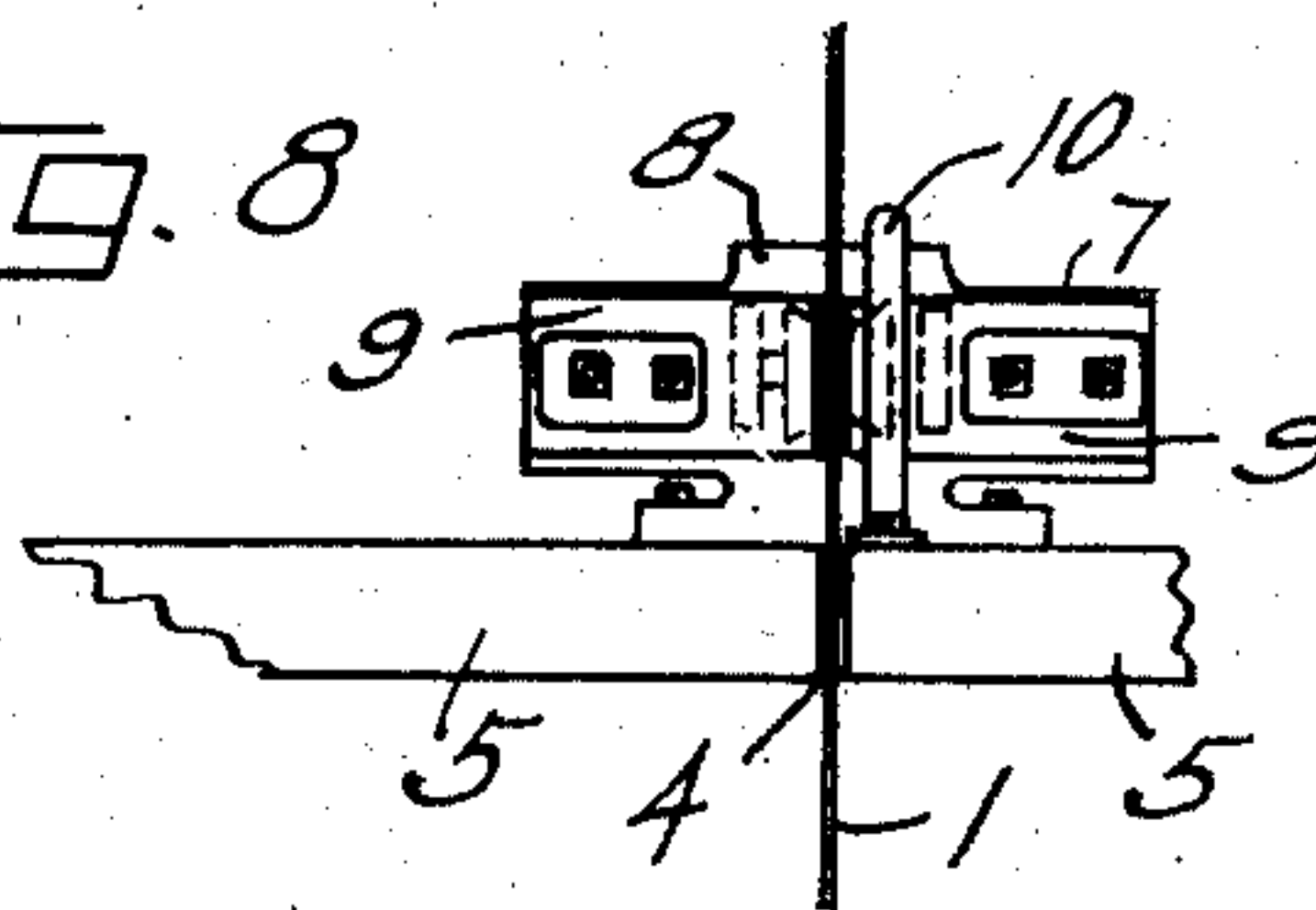


FIG. 9.

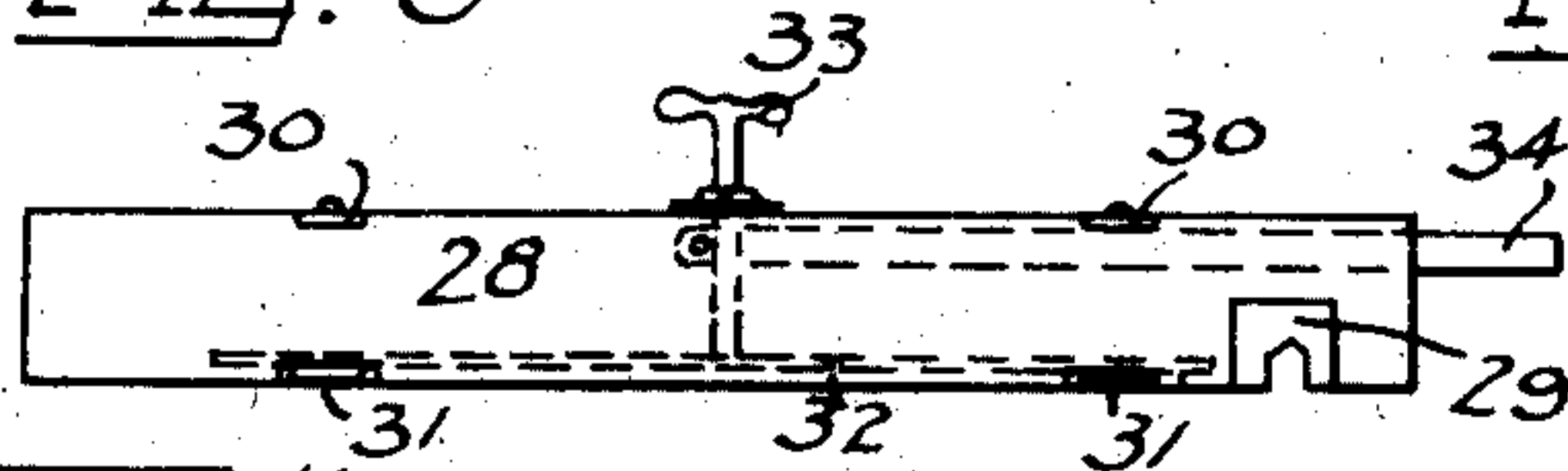


FIG. 10.

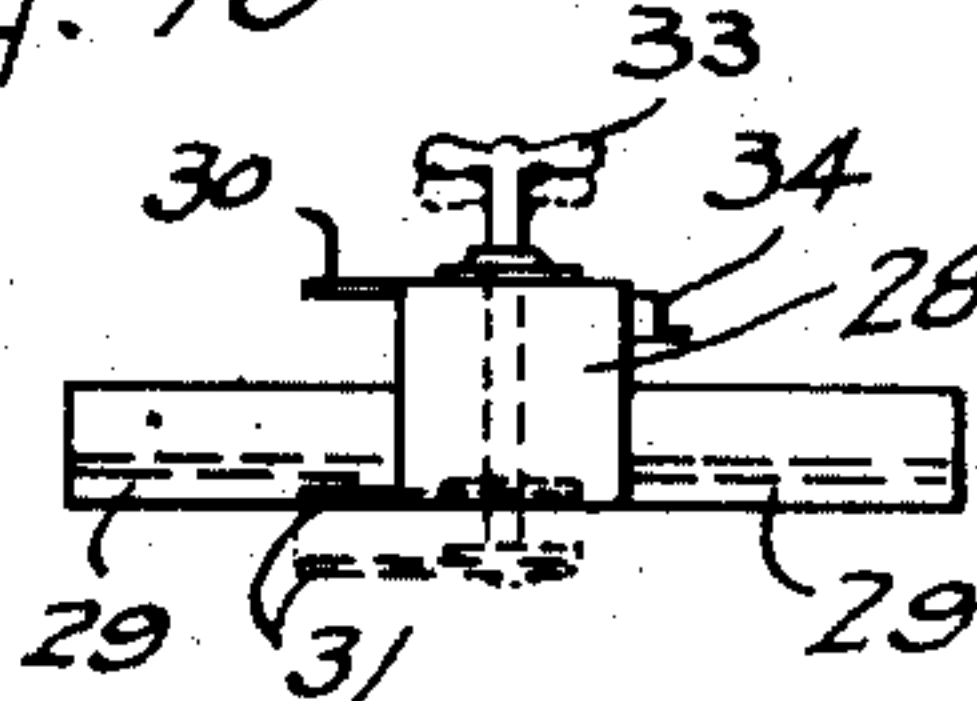
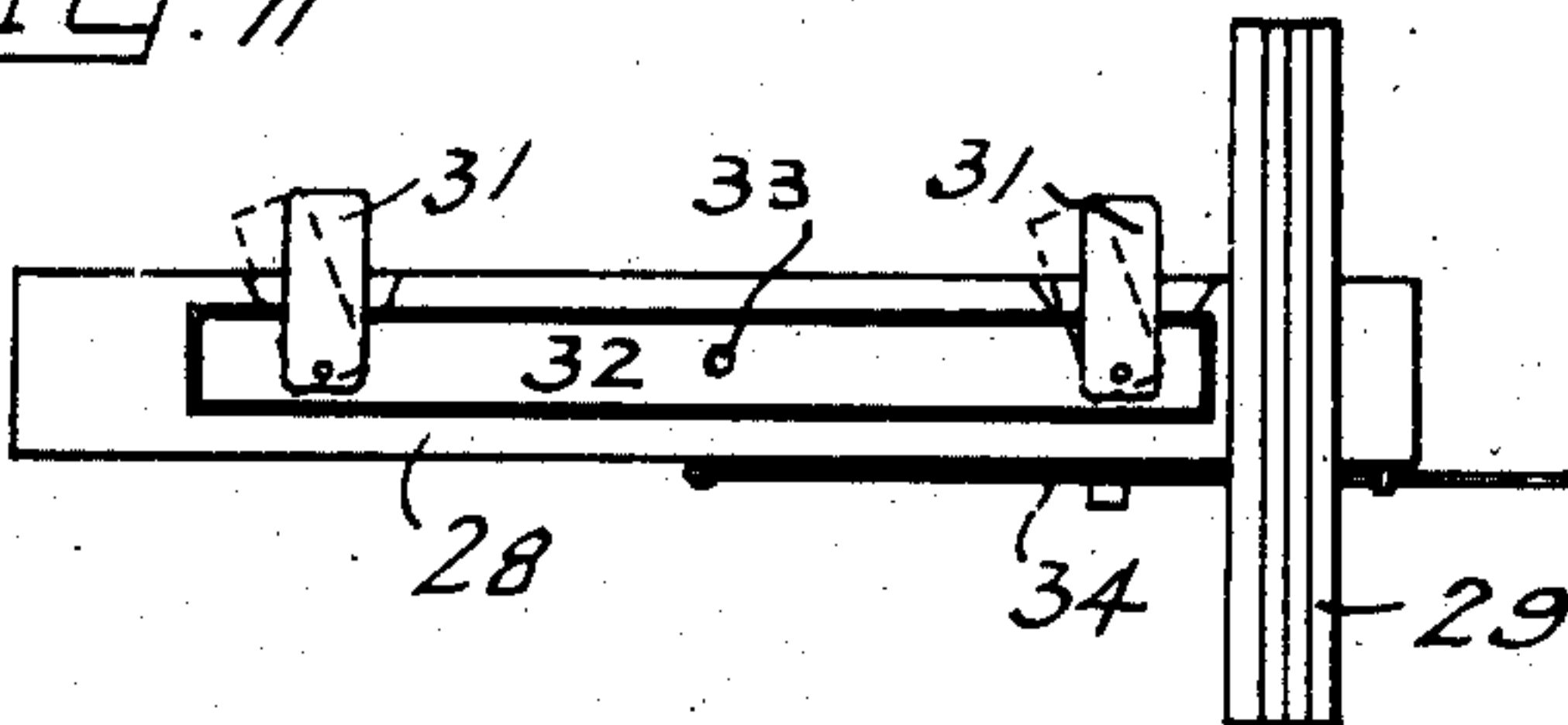


FIG. 11.



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UNITED STATES PATENT OFFICE.

WATSON W. McKEE, OF TACOMA, WASHINGTON.

SEGMENT-SAWING MACHINE.

No. 883,333.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed June 17, 1907. Serial No. 379,411.

To all whom it may concern:

Be it known that I, WATSON W. McKEE, a citizen of the United States of America, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Segment-Sawing Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to sawing machines and especially to the work table thereof, and consists of a swinging saw table with a changeable and adjustable radius, and a sliding carrier on the swinging table and adapted to hold the wood in sawing position; the object of the invention being that the two said parts will co-act in such a way that segments will be cut from the wood, said segments being shaped to form an annular body and being especially adapted for the construction of built-up wood pulleys and similar articles.

My invention is illustrated in the accompanying drawings in which

Figure 1 is a side elevation of the sawing machine; Fig. 2 is a rear elevation of a portion thereof; Fig. 3 is a front elevation of the sliding carrier; Fig. 4 is a plan of the tables showing the machine starting to cut the outer periphery of a segment; Fig. 5 is a similar view showing the machine finishing the cut of the inner periphery of a segment; Figs. 6, 7, and 8 are respectively a plan, side elevation and front elevation of the saw guides; and Figs. 9, 10 and 11 are respectively a rear elevation, side elevation and bottom view of the sliding carrier.

Similar numerals of reference refer to similar parts throughout the several views.

My invention can be applied to a number of different styles of sawing machines, but is especially designed for use with a band saw and I have so illustrated it. The saw 1 is mounted on the rotating wheels 2, which are mounted in the frame 3 of the sawing machine, the saw being guided or braced above and below the wood on which it is acting so that it will be kept from vibration or twisting out of the prescribed path on which it is intended that it should saw.

In Figs. 6, 7 and 8 are illustrated my improved saw guide below the wood on which it is working. The saw 1 passes through a slot 4 in the main or fixed table 5 and immediately back of the saw is mounted the double conical bearing or pressure wheel 6.

This wheel 6 has its smallest diameter at its center and is itself free to move sidewise between the supporting arms 7 of the casting 8 which is secured to the fixed table 5. The side guide blocks 9 are mounted on the arms or lugs 7, being adjustably secured thereto by bolts passing through elongated holes in the blocks 9. The blocks 9 are preferably made of hard wood. A metal bearing rail or bar 10 is secured to the table 5 and the casting 8 in a horizontal position and elevated so that it will engage and support the lower surface of the wood which is being cut, keeping it firmly in place. The bar 10 is mounted in place parallel with and close to the saw 1.

The main table 5 is fixed in a horizontal position and extends from the rear to the front of the machine. To this table 5 are secured the two special tables 11 and 12. The table 11 is secured to the rear part of the table 5 and is adjustable in a horizontal plane thereon. The table 12 is secured to the front of the table 5 and is semicircular in general shape and is adapted to support the swinging table in a horizontal position at every angle which said swinging table can make. The chute 13 is secured to the table 12 and is adapted to allow the cuttings to slide away from the machine. The table 11 is secured to the table 5 by means of the bolts 14 which pass through elongated holes in the table 11 and which clamp said table down on the table 5 so that when it has been placed in the desired position it is fixed therein. The adjustment of the table 11 on the table 5 is accomplished by the two screws 15 which are loosely secured to the table 5 and which pass through swivel nuts 16 secured to the underside of the table 11. By means of these screws the table 11 may be shifted and turned slightly on the table 5. The object of this adjustment of the table 11 is to shift the centers about which the swinging table turns to adjust it for varying sizes of saws, as I have found that if the center of the swinging table is at a point in the line at right angles to the face of the saw, the saw will not cut true on the desired circle and that if it is offset toward the back of the saw that it will cut true, and I have further found that the required amount of offset of the center point will differ with different saws and with different radial lengths from the saw. The table 11 carries a side extension 17 to the outer edge of which is secured a strip 18 extending

upwards therefrom and having two notches 19 in its upper edge, said notches being adapted to receive the shifting lever 20 by means of which the distance from the center pin to the saw 1 is changed to cut the outer or the inner curve of the segment. A strap 21 is secured to the top of the table 11 and passes over the shifting lever 20. The strap 21 is provided with a series of holes 22 through any one of which the pivot pin 23 passes, said pin also passing through one of a series of holes 37 in the lever 20 and becoming thereby the fulcrum of said lever. The other end of the lever 20 engages, by means of the center pin 24, the pivot hole of the swinging table. The position of the pin 24 is changed from that shown in Fig. 4 to that shown in Fig. 5 by simply disengaging the lever 20 from the front notch 19 and turning it on the pivot 23 until it engages the rear notch 19 and this change of position carries with it the entire swinging table, but as the saw 1 is in a fixed position it is evident that the radius of the curve of the cut which it makes in the first position (Fig. 4) is greater than that in the second position (Fig. 5) and that in the first position it will therefore cut the outside curve of the segment while in the second position it will cut the inside curve thereof. The amount of the difference between the two radial lengths is adjusted by shifting the pin 23 from one hole 37 in the lever 20 to another, thus altering the ratio between the two arms of the lever. In making this adjustment the table 11 must be re-adjusted. By shifting the pin 23 in the holes 37 the depth of the segment is adjusted and by shifting the pin 23 in the holes 22 the radii of the segment are adjusted.

The swinging table 25 is supported on the table 12 and is perfectly free to move in every direction thereon and is confined solely at the pivot point by the center pin 24 so that every point thereof moves in a true circle about said pin. The general shape of the table 25 is rectangular, but the portion around the saw is cut away so that the saw does not touch it. It is provided with parallel flanges 26 along each edge and a guide rail 27 is also secured thereto, parallel with said flanges 26, to guide the sliding carrier 28 by means of the shoe 29 which fits over and along said rail 27. The sliding carrier 28 is particularly illustrated in Figs. 3, 9, 10 and 11 and consists of a piece of wood extending across the table 25 and having fixed clamp pieces 30 secured to its upper edge and extending therefrom toward the saw, and adjustable clamp pieces 31 which are mounted on a bar 32 which may be adjustably raised or lowered by means of the screw bolt and nut 33. The two clamp pieces 31 can also be swung to either side as illustrated in Fig. 11. The carrier 28 is adapted to be slid on the guide rail 27 and to carry the wood to be

worked on, which is held between the clamp pieces 30 and 31 thereon, into operative position relatively to the saw 1. The distance of the carrier from the pivot pin 24 is controlled by a latch bar 34 pivoted to the carrier 28 and extending sidewise beyond the end thereof over a notched flange 35 and adapted to enter any one of the notches 36 thereof. The notches 36 are larger than the latch bar 34 so that said bar has sufficient play therein to allow the carrier to slide back a little to make a clearance between the saw and the sawed curve of the wood when said wood is returned to the position for a new cut. The distance between the notches 36 is such as to co-act with the distance of the change of positions of the pin 24 (above described) so that when the outer curve has been cut, with the pin 24 furthest from the saw 1, and the pin 24 is then shifted to its position nearest to the saw then, by moving the carrier 28 so that the latch bar 34 engages the next forward notch 36, the wood is brought to position to cut the inner curve of the next segment, as shown in Fig. 5, at practically the same point as the outer curve has just been cut.

The operation of my invention is briefly described as follows: The table 25 is swung to the left (Fig. 4) and a piece of wood of the required dimensions is clamped between the pieces 30 and 31, then the lever 20 is pushed into the position shown in Fig. 5 and the carrier 28 is moved forward until the latch bar 34 engages one of the notches 36 and so that the wood will be in position to be sawed; then, while the carrier 28 is pressed forward so that the bar 34 will engage the forward edge of the notch 36, the table 25 is swung on the center pin 24, towards the right, and the saw 1 cuts its way through the wood on the curve of the shortest radius; then the piece of waste wood which has been cut off drops down on the chute 13 and is carried off; then the carrier 28 is drawn back from the saw, the latch bar 34 simply sliding back in the notch 36, and the table 25 is swung to the left again into its first position; then the lever 20 is pulled into the other notch (Fig. 4) and the whole table 25, with the carrier 28, is drawn forward a distance equal to the required depth of the segment, the depth of the rim of the pulley; then, while the carrier 28 is again pressed forward as above, the table 25 is again swung on the center pin 24 towards the right and the saw 1 cuts its way through the wood on the curve of the longest radius; then the cut segment drops down on the chute 13 and is carried off; then the carrier 28 is drawn back so that the wood will clear the saw, and the table 25 is swung to the left to its first position; then the lever 20 is pushed into its first described position (Fig. 5); then the latch bar 34 is lifted and the carrier 28 is slid forward until the bar 34

engages the next forward notch 36 in the flange 35 and the machine is then in position to repeat the operations and saw off another segment. The operations are then repeated
 5 over and over again so long as there is sufficient wood clamped to the carrier to form a segment. When the last piece has been cut the end scrap is unclamped from the carrier and the carrier is drawn back to the end of
 10 the table 25 and a new piece of wood to be similarly sawed into segments is clamped thereinto.

It is evident that, the machine having been properly adjusted as to the table 11 and the
 15 lever pivot 23, all the segments sawed thereby will be exactly similar so far as the radii of the inner and outer curves are concerned, and that all the segments from any one piece of wood are similar in shape, size and grain.
 20 It is therefore evident that if the wood used in the machine is similar in width, thickness and grain, the segments will all be similar in all respects. When the segments have been made their ends may be cut on lines radial
 25 to the circles and at a constant angle with each other so that said segments may be placed end to end to form a complete ring and several rings may be fastened together to form a built-up pulley.

30 Having described my invention, what I claim is:

1. In a segment sawing machine, the combination with a frame having a fixed table thereon and a saw acting at right angles to
 35 said table; of a lever pivotally mounted on said fixed table and carrying a second pivot pin; a strip secured to said fixed table and having two notches therein adapted to receive and hold said lever whereby said pivot
 40 pin is removably held in either of two positions; and a swinging table supported by said fixed table and engaging said pivot pin, and holding the wood to be sawed, whereby

the wood is carried with a circular motion past the saw. 45

2. In a segment sawing machine, the combination with a frame having a fixed table thereon and a saw acting at right angles to said table; of a strap mounted on said fixed table and having a series of holes therein; a
 50 lever having a pivot engaging any one of said series of holes and carrying a second pivot pin; a strip secured to said fixed table and having two notches therein adapted to receive and hold said lever whereby said second pivot pin is removably held in either of
 55 two positions for every position of said first pivot; and a swinging table supported by said fixed table and engaging said second pivot pin, and holding the wood to be sawed, 60 whereby the wood is carried with a circular motion past the saw.

3. In a segment sawing machine, the combination with a frame having a fixed table thereon and a saw acting at right angles to
 65 said table; of an extension adjustably secured to said fixed table; a lever pivotally mounted on said adjustable extension and carrying a second pivot pin; a strip secured to said fixed table and having two notches
 70 therein adapted to receive and hold said lever whereby said pivot pin is removably held in either of two positions, said positions being adjustable relatively to the saw by the adjustment of said extension to the table; and
 75 a swinging table supported by said fixed table and engaging said pivot pin, and holding the wood to be sawed, whereby the wood is carried with a circular motion past the
 80 saw.

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

WATSON W. McKEE.

Witnesses:

F. E. PHILLIPS,
 ISRAEL H. DU BOIS.