

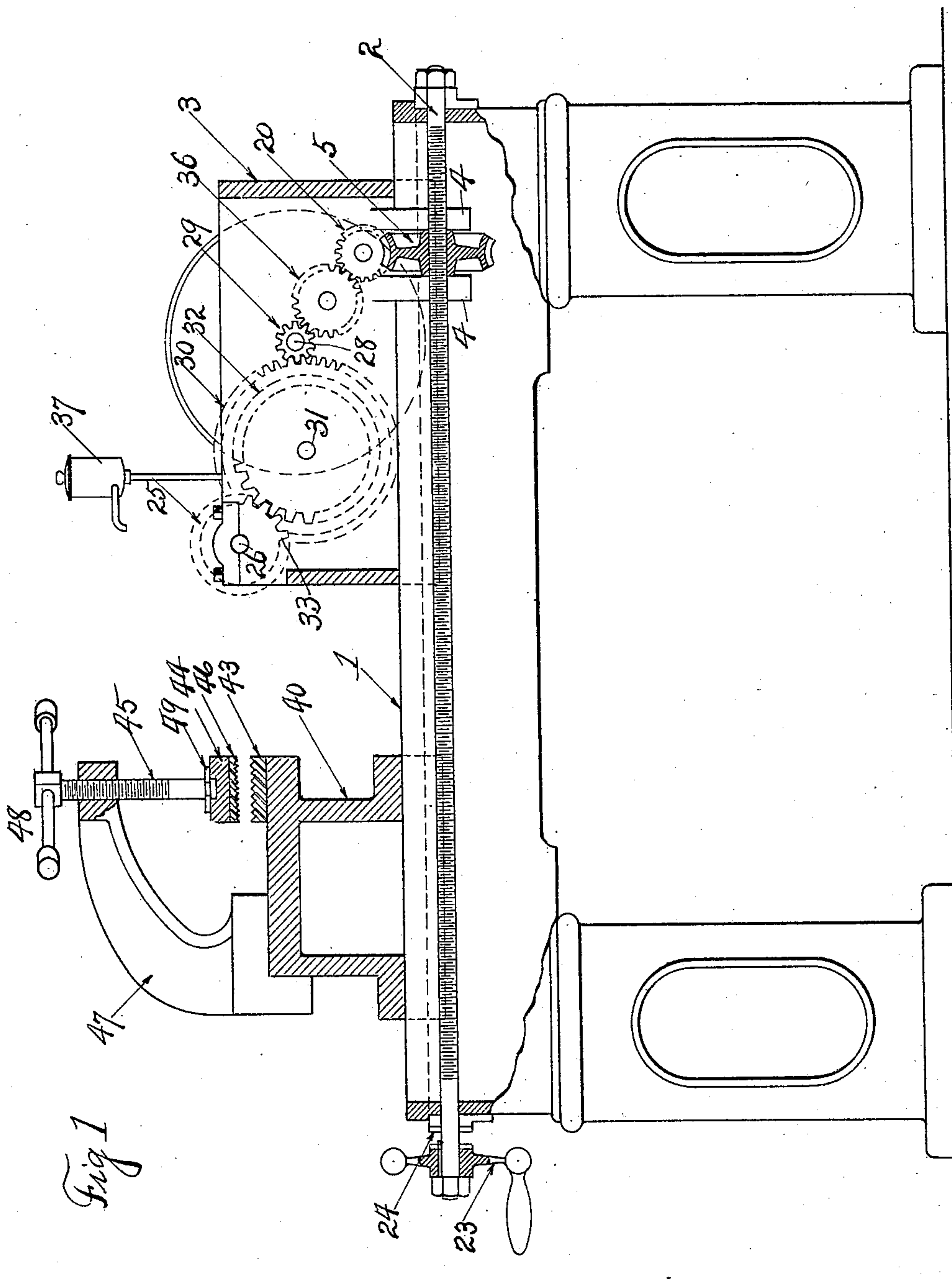
No. 886.173.

PATENTED APR. 28, 1908.

G. BINDER.  
SAWING MACHINE.

APPLICATION FILED FEB. 11, 1907.

3 SHEETS—SHEET 1.



Witnesses:  
Alfred T. Gage.  
Lewis Hodges

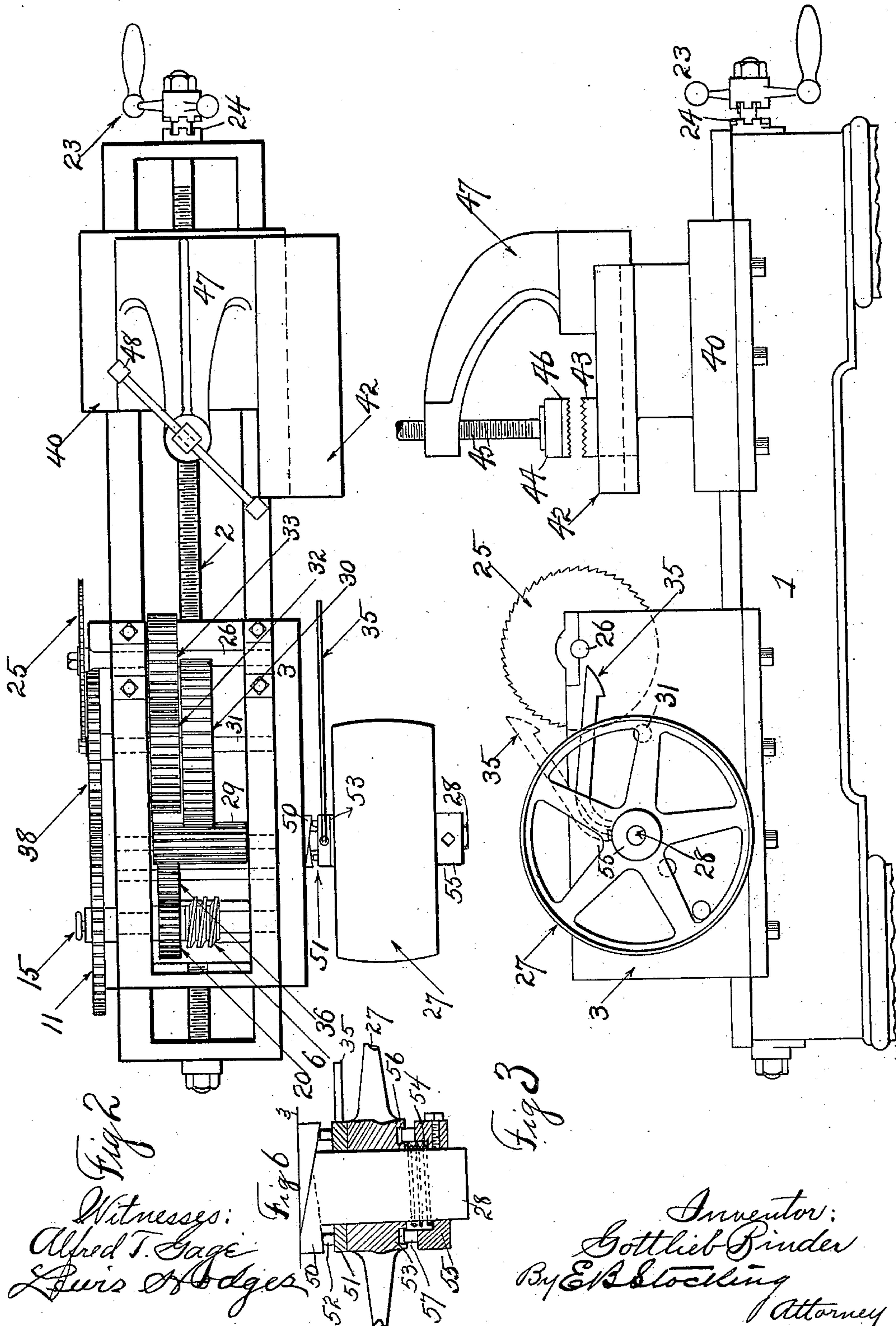
Inventor:  
Gottlieb Binder  
By E. B. Stocking  
Attorney

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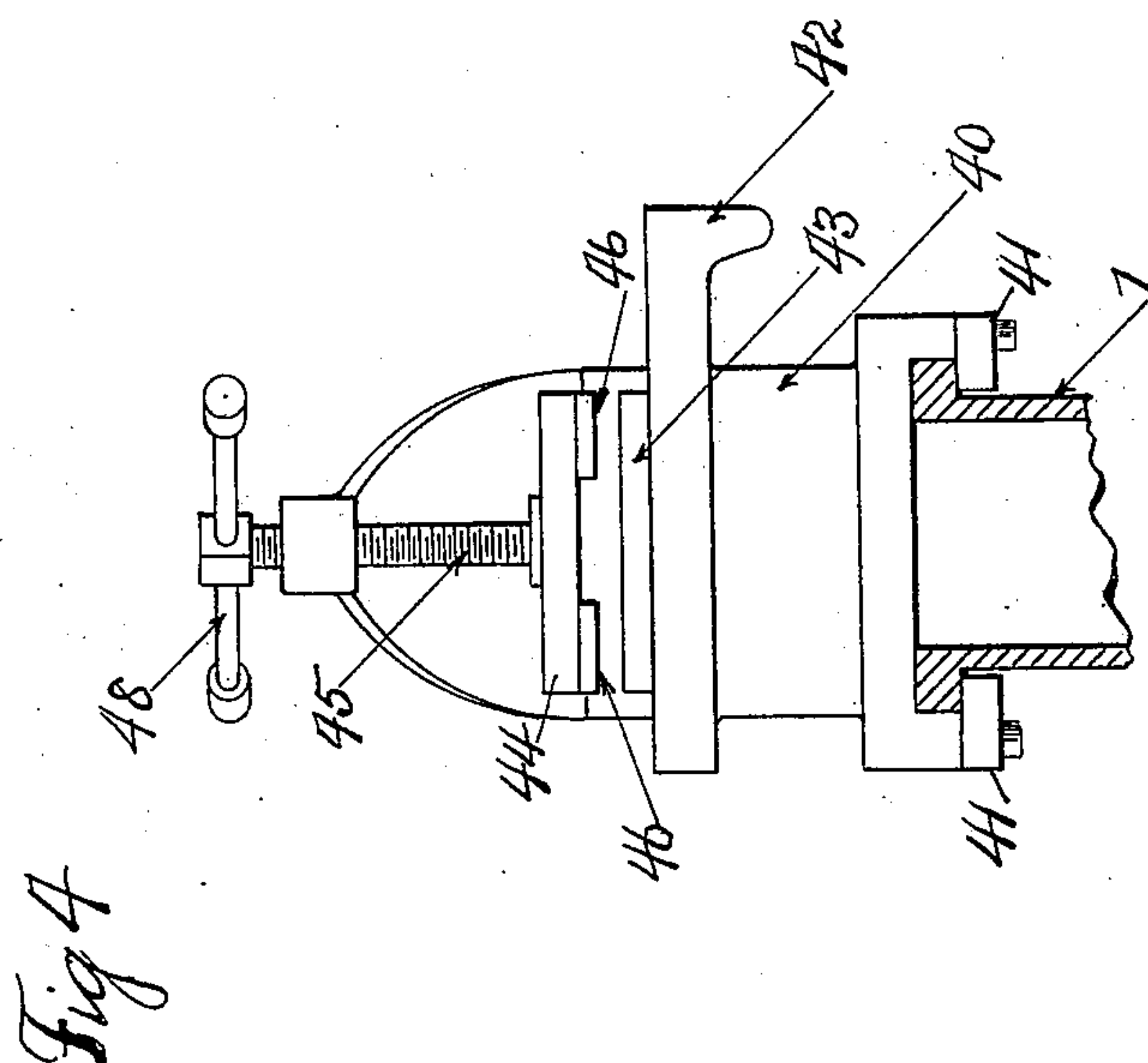
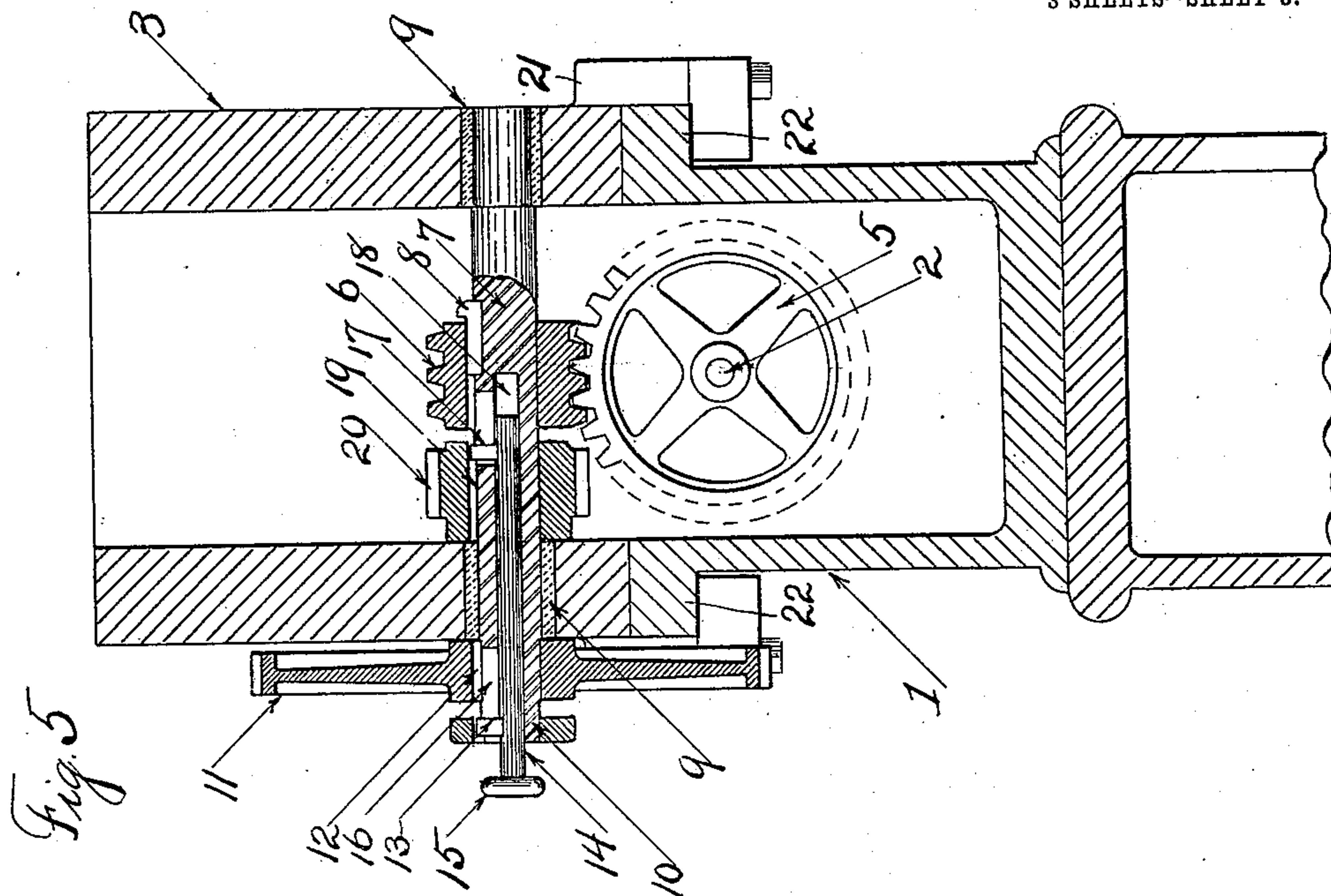
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Gottlieb Binder  
By E. B. Stocking  
Attorney.



# UNITED STATES PATENT OFFICE.

GOTTLIEB BINDER, OF LOUISVILLE, KENTUCKY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO KENTUCKY GEAR AND MACHINE COMPANY, OF LOUISVILLE, KENTUCKY, INCORPORATED.

## SAWING-MACHINE.

No. 886,173.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed February 11, 1907. Serial No. 356,869.

*To all whom it may concern:*

Be it known that I, GOTTLIEB BINDER, citizen of the United States, residing at Louisville, in the county of Jefferson, State of Kentucky, have invented certain new and useful Improvements in Sawing-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to a metal sawing machine, and particularly to a construction where a circular saw is fed relative to the work.

The invention has for an object to provide 15 a novel and improved construction of driving means for the saw, and for the casing containing the same by which these parts may be positively driven by a belt connection or fed by a hand operated device, while the 20 driving may be accomplished at different speeds.

A further object of the invention is to provide a novel and improved construction of clamp for retaining the work in proper position for the action of the saw which is fed 25 relatively toward and from the same.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the 30 appended claims.

In the drawings:—Figure 1 is an elevation of the invention with parts in section; Fig. 2 is a top plan thereof; Fig. 3 is a side elevation; Fig. 4 is a front view of the clamp; Fig. 5 is 35 an enlarged vertical section through the shifting device for the driving connections, and Fig. 6 is an enlarged horizontal section through the clutch mechanism for the driving pulley.

40 Like numerals refer to like parts in the several views of the drawings.

The numeral 1 designates the base or bed of the machine which may be of any desired construction or configuration and provided 45 with the feed screw 2 pivotally mounted to rotate therein. Upon the upper face of the bed the casing 3 is mounted to travel or slide longitudinally and provided with depending bearing lugs 4 intermediate of which the 50 driving worm gear 5 is disposed and threaded upon the shaft 2. This worm gear meshes with the worm 6 secured to the driving shaft 7 by a spline or key 8 so as to rotate therewith. The shaft 7 is mounted in the casing 55 3 by means of bearing sleeves 9, and the end

10 of the shaft 7 is extended beyond the casing and there provided with a speed gear 11 loosely mounted thereon and provided with a key way 12 adapted to cooperate with the key 13 carried by the push rod 14 which is 60 provided with an operating handle 15. This key travels in the slot 16 formed in the end 10 of the shaft 7. The rod 14 also carries a gear key 17 at its inner end which is adapted to travel in the slot through the shaft 7 as the 65 rod is disposed in the recess 18 within said shaft. This key 17 is adapted to engage and enter a channel or way 19 in the driving pinion 20 which is geared to the saw driving mechanism as hereinafter described. The 70 casing 3 is secured against vertical movement on the base 1 by means of the lugs 21 extended therefrom at opposite sides embracing the ribs 22 on the bed. When the 75 rod 14 is withdrawn, as shown in Fig. 5, the parts are connected to be driven from the saw connections through the pinion 20 and the worm 6 so that the casing is actuated on the feed screw. When this rod is pressed 80 inward the keys thereof disconnect the pinion 20 and connect the low speed gear 11 so that the feed screw is free to be driven by a gear connection which may comprise the gear wheel 38. When it is desired to drive 85 by the hand connection, the wheel 23 splined on the feed screw, and provided with a clutch member is withdrawn from the fixed cooperating clutch member 24 on the bed and when the wheel is held in clutched position the 90 parts may be driven from the saw mechanism.

The circular saw 25 is mounted upon the shaft 26 in the casing or carriage 3 and is adapted to be driven from the power pulley 27 disposed upon the shaft 28. This shaft is provided with an elongated pinion 29 which 95 meshes with the gear 30 disposed upon the shaft 31 which shaft also carries the pinion 32 meshing with the cooperating gear 33 upon the saw shaft 26, and the shaft 31 also carries the low speed gear 38. The power 100 shaft 28 may be provided with the automatic stop comprising the ordinary spring operated clutch from which the operating lever 35 extends and adapted to be operated by engagement with a fixed part. For the purpose of 105 driving the casing or carriage from the power shaft of the saw, a pinion 36 is disposed between and intermeshes with the driving pinion 29 and the gear 20 on the worm shaft, as shown in Figs. 1 and 2 and provides the high 110



speed. Any suitable oil feeding device may be disposed adjacent the saw, for instance, as shown at 37 in Fig. 1.

The work holder herein shown provides a novel and improved construction for supporting the work in any desired position for action by the saw and to allow the maximum length of cut thereby. It comprises the frame 40 mounted upon the base 1 and having gibs 41 to retain it in position and against vertical movement thereon. This frame is provided at one side with a table or platform 42 to engage and operate the clutch lever 35, and with the clamping plate 43 which is preferably formed with a corrugated surface. The cooperating plate 44 is swiveled at 49 upon the lower end of the screw 45 and provided at each end with clamping surfaces 46 disposed opposite the plate 44, as shown in Fig. 4. This screw is mounted in the neck 47 and provided with the operating handle 48 so as to be adjusted into contact with the work.

The casing 3 is provided with inclined faces 50 opposite the collar 51 of the clutch operating lever 35 which is loosely mounted upon the shaft 28. This collar is provided with lugs 52 bearing upon the faces 50, and the hub 53 of the pulley 27 is loosely mounted on the shaft and held in sliding contact with the collar by the spring 54 bearing against the sleeve 55 secured at the outer end of the shaft. The hub 53 is formed with a clutch member 56 upon its outer face and the sleeve with the cooperating member 57. With the parts in the position shown in Figs. 2 and 6 the inclined faces have forced the pulley hub into clutched contact with the sleeve secured to the shaft. When the operating lever is raised by any means the lugs thereon pass down the inclined faces of the casing and permit the spring to force the pulley hub out of clutched contact with the sleeve.

In the operation of the invention, with the key rod in the position shown in Fig. 5 the saw will be continuously driven and the casing or carriage fed toward the work holder at high speed as the pinion on the worm shaft being keyed thereto drives the worm and its gear so that the latter travels upon the feed screw of the base. The feed through this train of gears is at a relatively high speed essential for the metal sawing operation, and at this time the hand wheel keyed upon the feed screw is slipped into engagement with the fixed clutch member which holds the screw against rotation to permit the feed of the worm thereon. When it is desired to accomplish this feed at a less speed the key rod is pushed inward disconnecting the high speed pinion on the worm shaft and keying the low speed gear thereto which is driven by its associate carried upon the shaft 31 of the saw driving train, and provision is thus made

for high or low speed of the parts when driven from the power pulley, and if this pulley be unclutched the feed can be accomplished by hand by simply withdrawing the hand wheel from the fixed clutch member and rotating the feed screw thereby. It will be seen that in the travel of the casing or carriage the operating lever for the automatic stop clutch engages the shelf or projection at one side of the work holder and is forced upward into the dotted line position shown in Fig. 3 so that the usual spring construction of the clutch releases the driving connection and stops the operation of these parts. The construction of the clamp provides means for supporting the work in such position as to secure the longest possible length of cut by the saw and the swiveled top plate permits the work to be held at an angle. It will also be observed that the driving train for the saw insures a positive drive and feed of the saw carriage which prevents breakage of the saw and insures uniformity and accuracy of the cut essential in a metal working tool.

Having described my invention and set forth its merits what I claim and desire to secure by Letters Patent is:—

1. In a sawing machine, a base provided with a feed screw, a carriage mounted upon said base and provided with a worm nut mounted upon said screw, a driving shaft mounted in the carriage and provided with a worm to engage said nut, a driving pinion loosely mounted on said shaft, a speed gear loosely mounted upon said driving shaft, a shiftable device adapted to clutch either said pinion or speed gear to said shaft, a power shaft upon said carriage, and separate gearing trains therefrom to said pinion and speed gear.

2. In a sawing machine, a base provided with a feeding device, a carriage mounted upon the base and connected to said device, a slotted driving shaft upon said carriage operatively connected to drive said feeding device and provided with an aperture therein, a slidable key rod mounted in said aperture and provided with keys extending through slots in said shaft, a driving pinion loosely mounted on said shaft and adapted to be engaged by one of said keys, a driving gear loosely mounted upon said shaft and adapted to be engaged by another of said keys, a power shaft upon said carriage, and separate gearing trains therefrom to said pinion and driving gear.

3. In a sawing machine, a carriage provided with a power shaft mounted thereon and having a pinion, a parallel countershaft having a gear meshing with said pinion and a transmitting gear thereon, a parallel saw shaft provided with a driving pinion meshing with said transmitting gear, a base provided with a feed screw, a driving shaft



upon said carriage geared to said screw, a gearing from the power shaft to said driving shaft, and a supplemental gearing from said countershaft to said driving shaft.

5 4. In a sawing machine, a carriage provided with a power shaft mounted thereon and having a pinion, a parallel countershaft having a gear meshing with said pinion and a transmitting gear thereon, a parallel saw  
10 shaft provided with a driving pinion meshing with said transmitting gear, a base provided with a feed screw, a driving shaft upon said carriage geared to said screw, a gearing from the counter shaft to said driving shaft, a  
15 loosely mounted pinion upon said driving shaft, an intermediate pinion disposed between the loose pinion and the power shaft, and means for connecting the loose pinion to the driving shaft.

20 5. In a sawing machine, a carriage having a driving shaft provided with a driving pinion, a countershaft having a gear meshing with said pinion and a transmitting gear thereon, a saw shaft provided with a driving  
25 pinion meshing with said transmitting gear, a feed screw mounted in the machine base, a traveling nut carried by said screw, a driving shaft for said nut provided with a pinion thereon, an intermediate pinion between the  
30 driving pinion and the pinion upon the feed nut driving shaft, a speed gear carried upon said countershaft, a cooperating meshing gear carried upon the feed nut driving shaft, and means for connecting either the pinion  
35 or gear upon the feed nut driving shaft to actuate the same.

6. In a sawing machine, a carriage having a driving shaft provided with a driving pinion, a countershaft having a gear meshing

with said pinion and a transmitting gear 40 thereon, a saw shaft provided with a driving pinion meshing with said transmitting gear, a feed screw mounted in the machine base, a traveling nut carried by said screw, a driving shaft for said nut provided with a pinion 45 thereon, an intermediate pinion between the driving pinion and the pinion upon the feed nut driving shaft, a speed gear carried upon said countershaft, a cooperating meshing gear carried upon the feed nut driving shaft, 50 means for connecting either the pinion or gear upon the feed nut driving shaft to actuate the same, a clutch member carried upon one end of the frame, and a hand wheel slidably splined upon the feed screw and provided 55 with a cooperating clutch member.

7. In a sawing machine, a base provided with a feed screw, a traveling saw carriage thereon, a work holder mounted upon said base and provided with a clamping plate, a 60 lateral extension from said holder, and a stop device carried upon the carriage to contact with said extension in the carriage travel.

8. In a sawing machine, a base provided with a feed screw, a saw carriage connected 65 to be driven by said screw, a work holder provided with a clamp and a lateral extension therefrom, an automatic stop device carried on the driving shaft of said saw carriage, and a lever extending from said stop device to 70 engage the lateral extension from said work holder.

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

GOTTLIEB BINDER.

Witnesses:

HARRY FIELDHOUSE,  
MIKE KEMPNIICH.