

A. TINDEL.
METAL SAWING MECHANISM.
APPLICATION FILED OCT. 28, 1905.

900,047.

Patented Sept. 29, 1908.

3 SHEETS—SHEET 1.

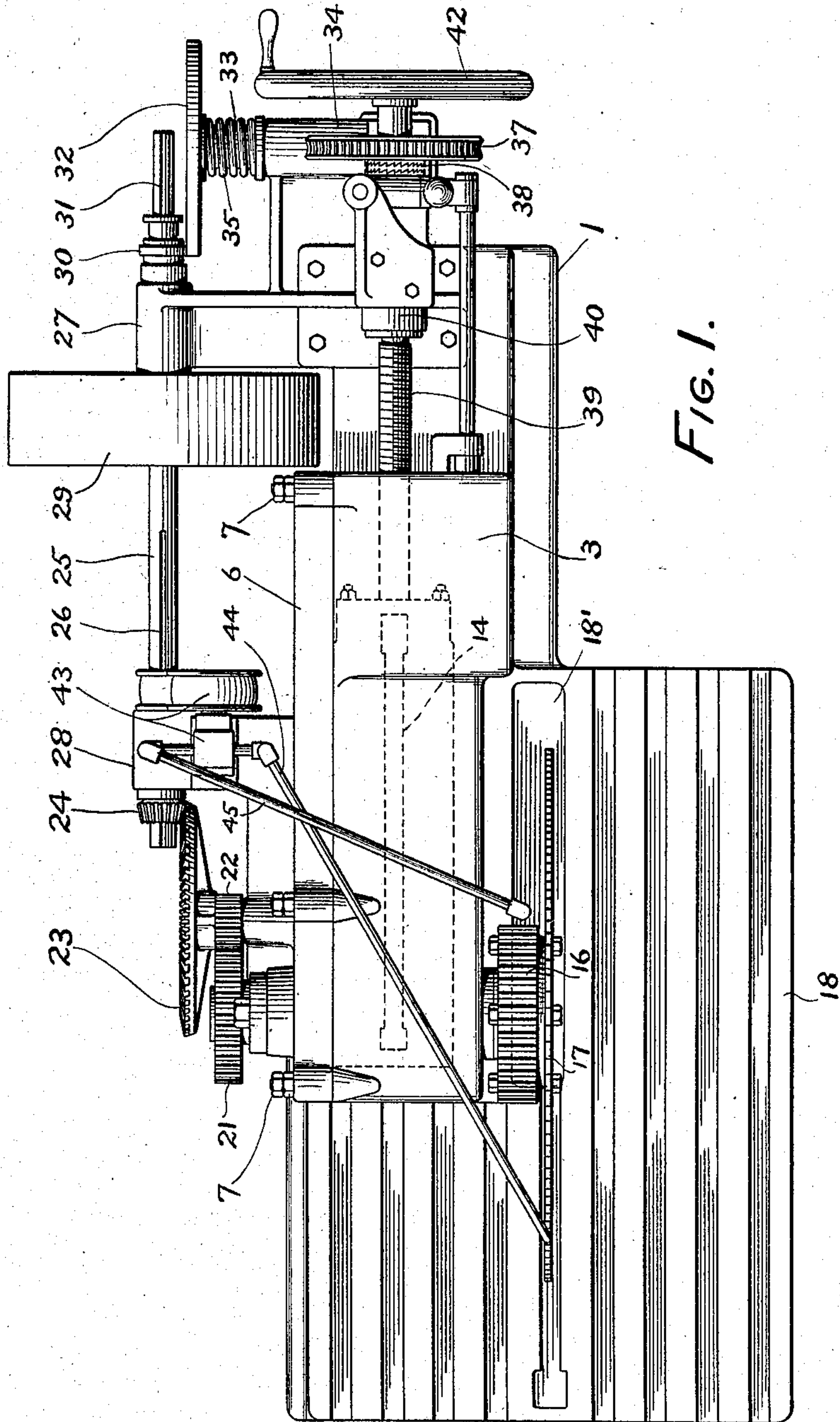


FIG. 1.

WITNESSES:

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Atty & E. Crane Jr.

INVENTOR

Adam Tindel
BY

Charles N. Butler
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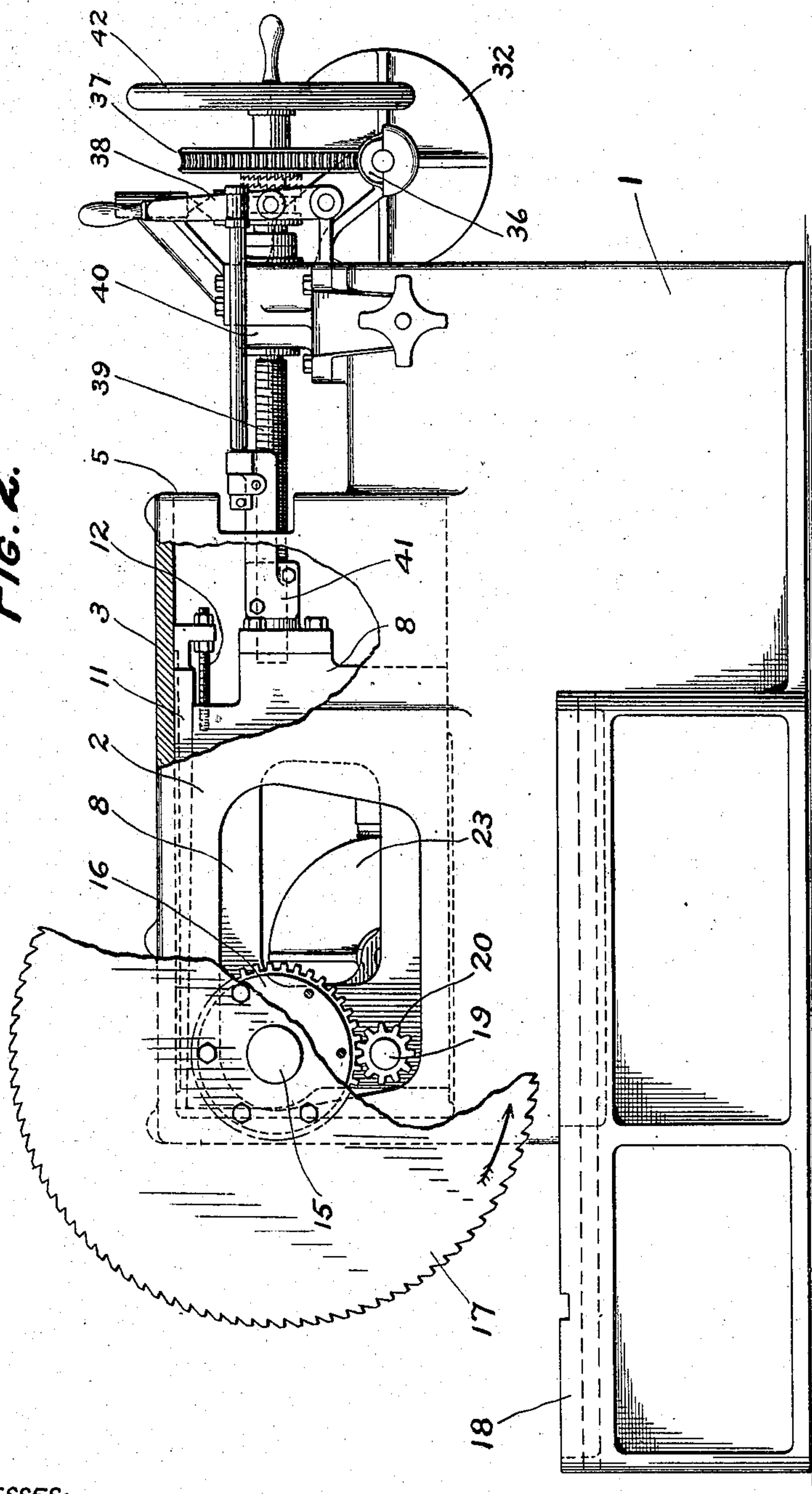
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3 SHEETS—SHEET 2.

FIG. 2.



WITNESSES:

John H. Buck.
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INVENTOR

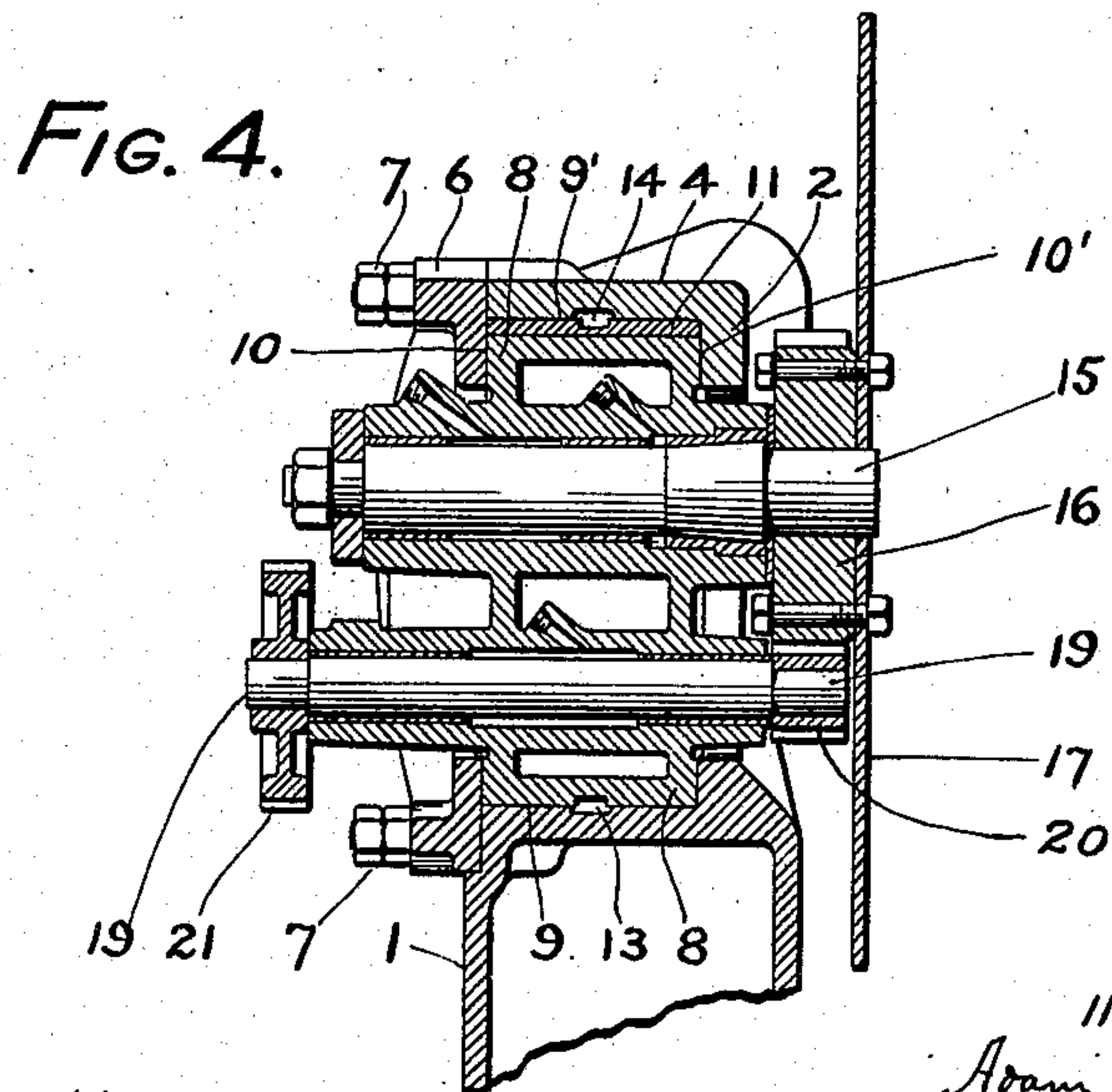
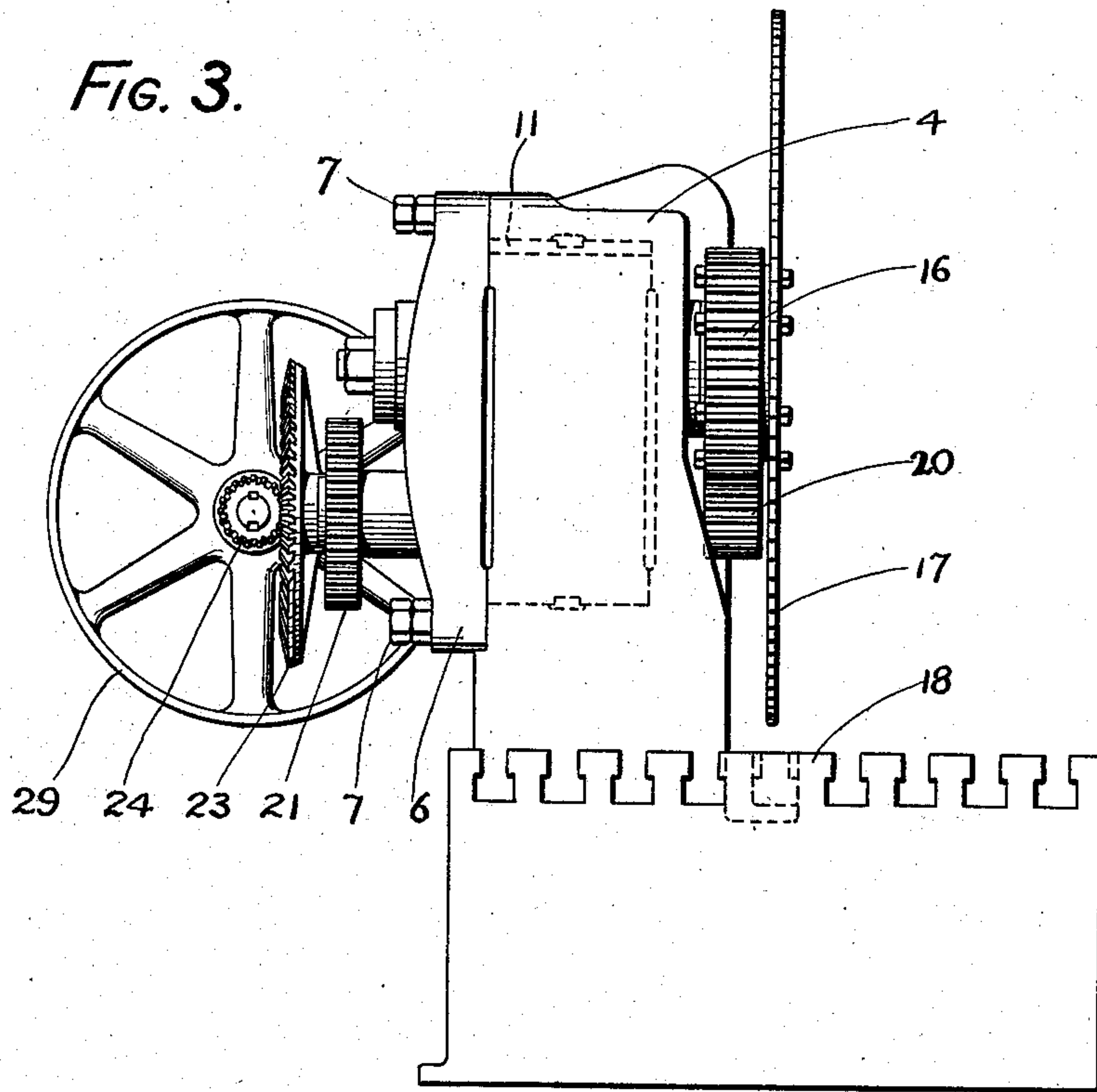
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3 SHEETS—SHEET 3.



WITNESSES:
Louis H. Burk.
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UNITED STATES PATENT OFFICE.

ADAM TINDEL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE HIGH DUTY SAW AND TOOL COMPANY, A CORPORATION OF PENNSYLVANIA.

METAL-SAWING MECHANISM.

No. 900,047.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed October 28, 1905. Serial No. 284,782.

To all whom it may concern:

Be it known that I, ADAM TINDEL, a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Metal-Sawing Mechanism, of which the following is a specification.

This invention is an improved metal sawing mechanism in which a revolving saw blade is pulled through the work by power applied in close proximity thereto so that there is eliminated all of the usual tendency to buckling, vibrating and chattering: the force due to the resistance of the work acting through the blade is opposed by an inclosing frame for the saw carriage which takes up such force so that the carriage will reciprocate in a true course without the binding, vibration and communication of irregular action to the blade that has taken place heretofore, and the true and easy reciprocation of the carriage are maintained by compensating means for taking up wear or lost motion and maintaining lubrication of the parts subject to friction.

In the accompanying drawings, Figure 1 represents the invention in plan view: Fig. 2 represents a side elevation thereof with parts broken away to show the interior construction: Fig. 3 represents a front elevation of the same: and Fig. 4 represents a broken vertical sectional view taken on the line of the saw blade arbor.

As represented in the drawings, the base 1 has thereon a carriage frame comprising the side 2, the top 3 and the ends 4 and 5 formed integrally therewith, with the detachable side 6 secured by bolts 7 thereto. Disposed within the inclosed way, of rectangular cross section thus formed by the frame is the carriage 8 reciprocating therein and supported by the bottom surface 9, the top surface 9', and the side surfaces 10 and 10', the carriage having fixed thereon the broad wedge or tapered key 11 adjusted by means of a screw 12 connecting it with the carriage body whereby lost motion or wear may be taken up and the reciprocation of the carriage in a true course maintained.

To effect a thorough lubrication of the carriage and way, the bottom slot 13 in the way and carriage and the top slot 14 in the key and way are provided whereby baths of oil are maintained for the wearing parts.

The arbor 15, journaled in the forward end

of the carriage, has the spur gear 16 fixed thereon and to this gear is bolted the saw blade 17 disposed above the work table 18 which extends substantially parallel to the parallel upper and lower ways of the carriage frame or housing. Journaled in the carriage beneath the arbor 15 is a spindle 19 having fixed on an end thereof a pinion 20 meshing with the gear 16 at a point between its center and the table. On the opposite end of the spindle 19 is fixed a spur gear 21 with which meshes a driving pinion 22 having the beveled gear 23 fixed in relation thereto, the pinion and beveled gear being journaled on the carriage. The gear 23 is driven by a beveled pinion 24 revolved by a shaft 25 through a spline connection 26 whereby the pinion is permitted to reciprocate on the shaft, the latter being journaled in the bearing 27 on the frame and the bearing 28 on the carriage which takes the thrust of the pinion. The shaft 25 is revolved by a driving pulley 29 fixed thereon and revolves the saw blade 17 in the direction of the arrow thereon through the intermediate gear train described.

A roller or friction wheel 30, revolved by the shaft 25 and longitudinally adjustable thereon through the spline connection 31, engages the face of a friction disk 32 fixed on the shaft 33. The shaft 33 is journaled in the bearing 34 and a coiled spring 35 holds the disk 32 in frictional engagement with the roller 30. The shaft 33 revolves the worm 36 which drives the worm wheel 37, and the worm wheel is engaged by a clutch mechanism 38 to a screw 39 which is journaled in the bearing 40 of the base and feeds through the nut 41 of the carriage, whereby the latter is advanced to advance the saw, the reverse movement being effected upon disengaging the clutch mechanism by the hand wheel 42 fixed to the screw.

The mechanism 43 feeds oil through the pipes 44 and 45 to the saw blade 17 and the channel 18' of the table to lubricate the blade and work.

It will now be understood that as the power is applied, through the pinion 20 meshing with the spur gear 16 directly fixed to the saw blade 17, so that it is carried to the work by tension applied through a short section of the blade, from a point well removed from the blade center, there is avoided the buckling and consequent chattering effect that

exists where the section of the blade between the point of application of the power and the work is under compression or where power is applied through an arbor fixed to the blade.

5 It will also be understood that the upward thrust of the carriage 8, induced by the resistance of the work acting through the blade and its arbor 15, is directly opposed by the housing or frame so that the binding effects
10 found in the usual forms of construction are avoided.

Having described my invention, I claim:—

1. A metal sawing mechanism comprising a table, a housing having ways substantially
15 parallel to said table, a carriage reciprocating along and between said ways, a saw blade and a spur gear fixed directly thereto, means for connecting said blade and gear in revoluble relation to said carriage, a pinion engaging
20 said gear at a point between its axis and said table, means for connecting said pinion in revoluble relation to said carriage, and means for driving said pinion.

2. A metal sawing mechanism comprising
25 a work support, a saw blade, a gear wheel fixed directly to said blade, said blade and

wheel having a common axis of revolution, a driving gear wheel engaging said first named gear wheel between said axis of revolution and said work support so that power is ap- 30 plied to said first named wheel in proximity to and in front of work carried by said support and the blade pulled through such work.

3. A metal sawing mechanism comprising a reciprocating carriage, a frame inclosing 35 said carriage, an arbor journaled in said carriage, a spur gear fixed to an end of said arbor projecting beyond said carriage, a saw blade fixed directly to said spur gear, a spindle journaled in said carriage parallel to 40 and beneath said arbor, a pinion fixed to said spindle and engaging said spur gear, and mechanism for driving said spindle.

In testimony whereof I have hereunto set my hand this 25th day of October, A. D. 45 1905, in the presence of the subscribing witnesses.

ADAM TINDEL.

Witnesses:

UTLEY E. CRANE, Jr.,
ROBERT JAMES EARLEY.