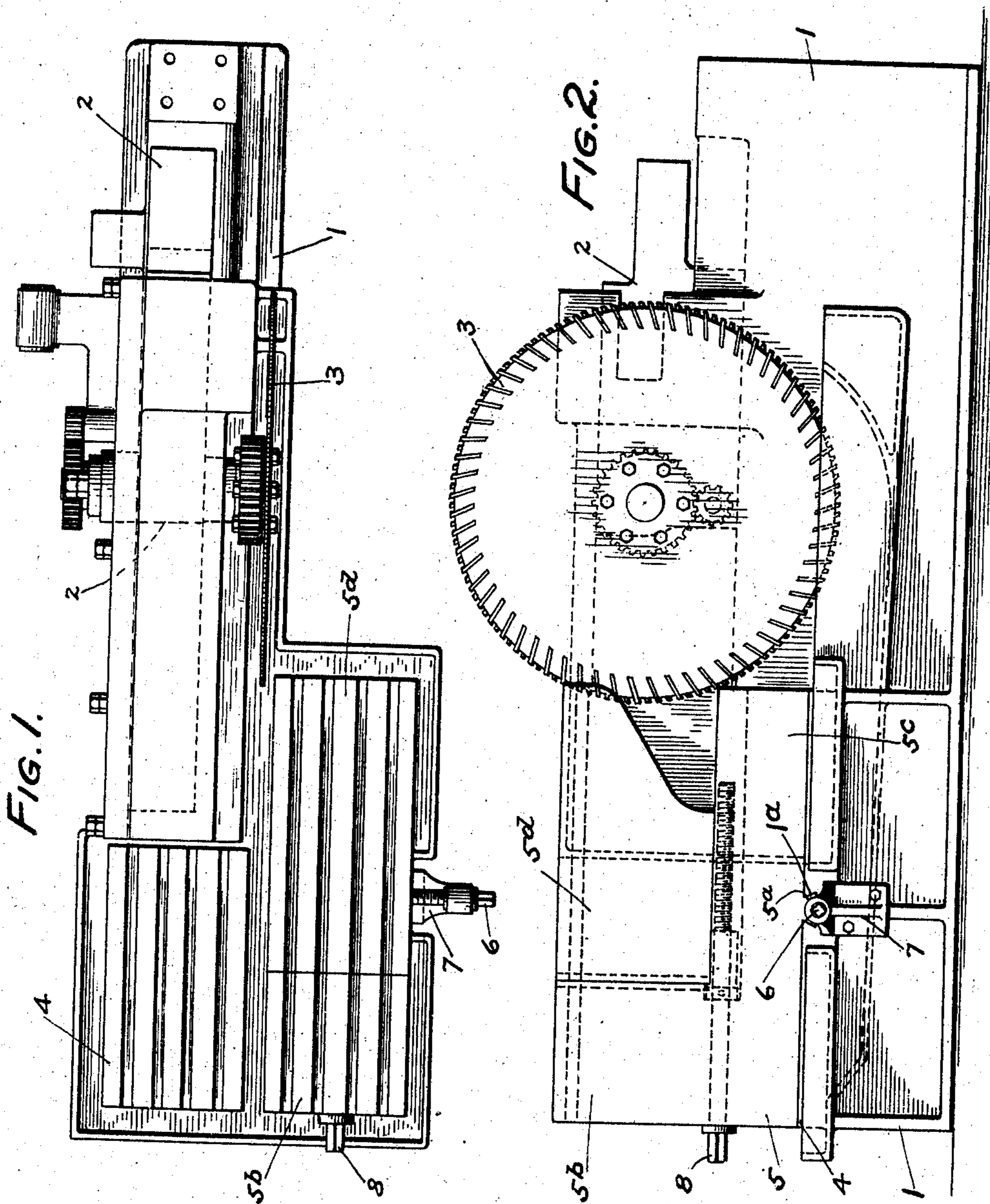


No. 846,525.

PATENTED MAR. 12, 1907.

A. TINDEL.
METAL SAWING APPARATUS.
APPLICATION FILED MAY 12, 1906.

3 SHEETS—SHEET 1.



WITNESSES:
Arthur R. Ritchie
John G. Denny Jr.

INVENTOR
Adam Tindel
BY
Charles D. Butler
ATTORNEY.

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3 SHEETS—SHEET 2.

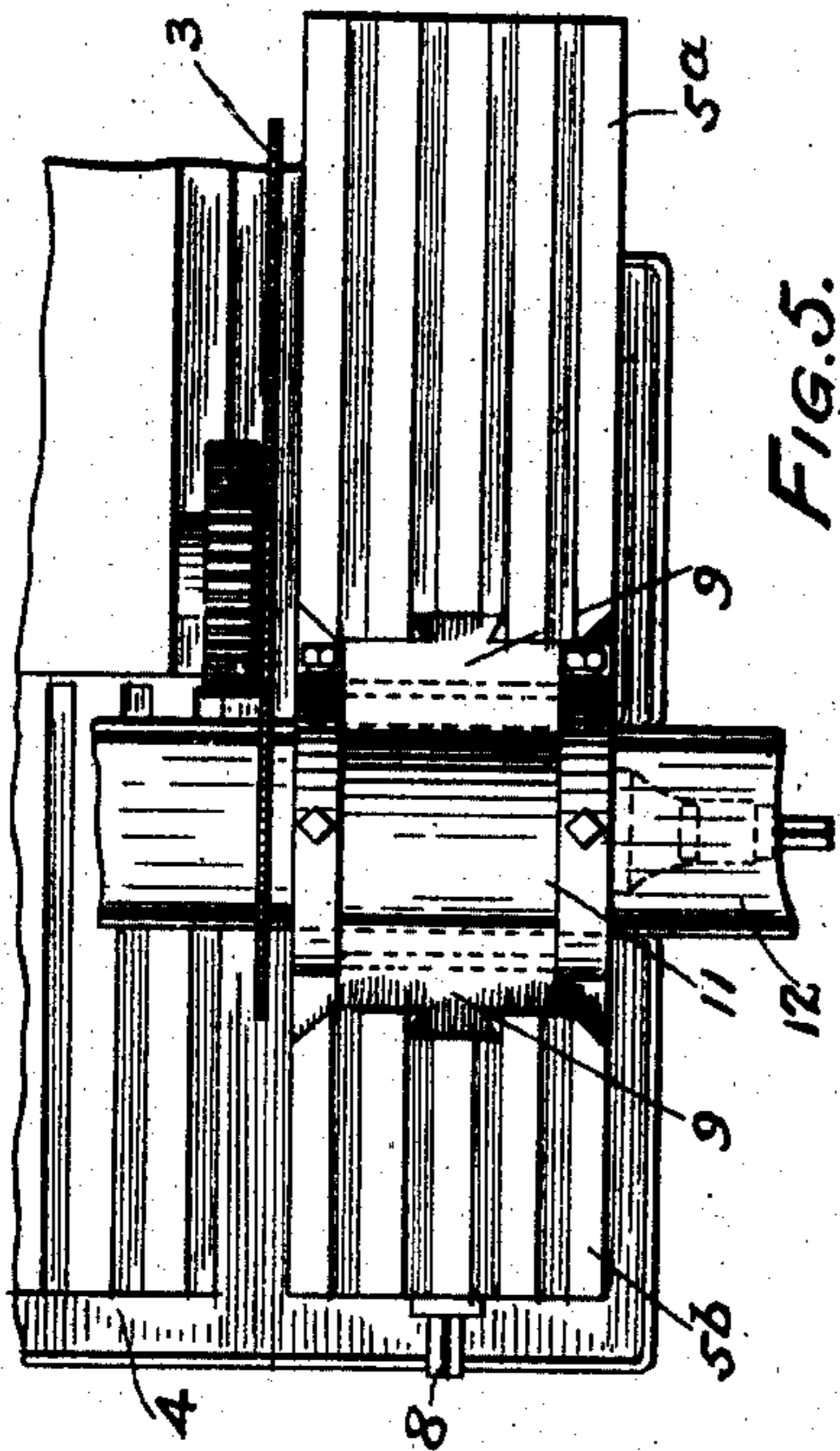


FIG. 5.

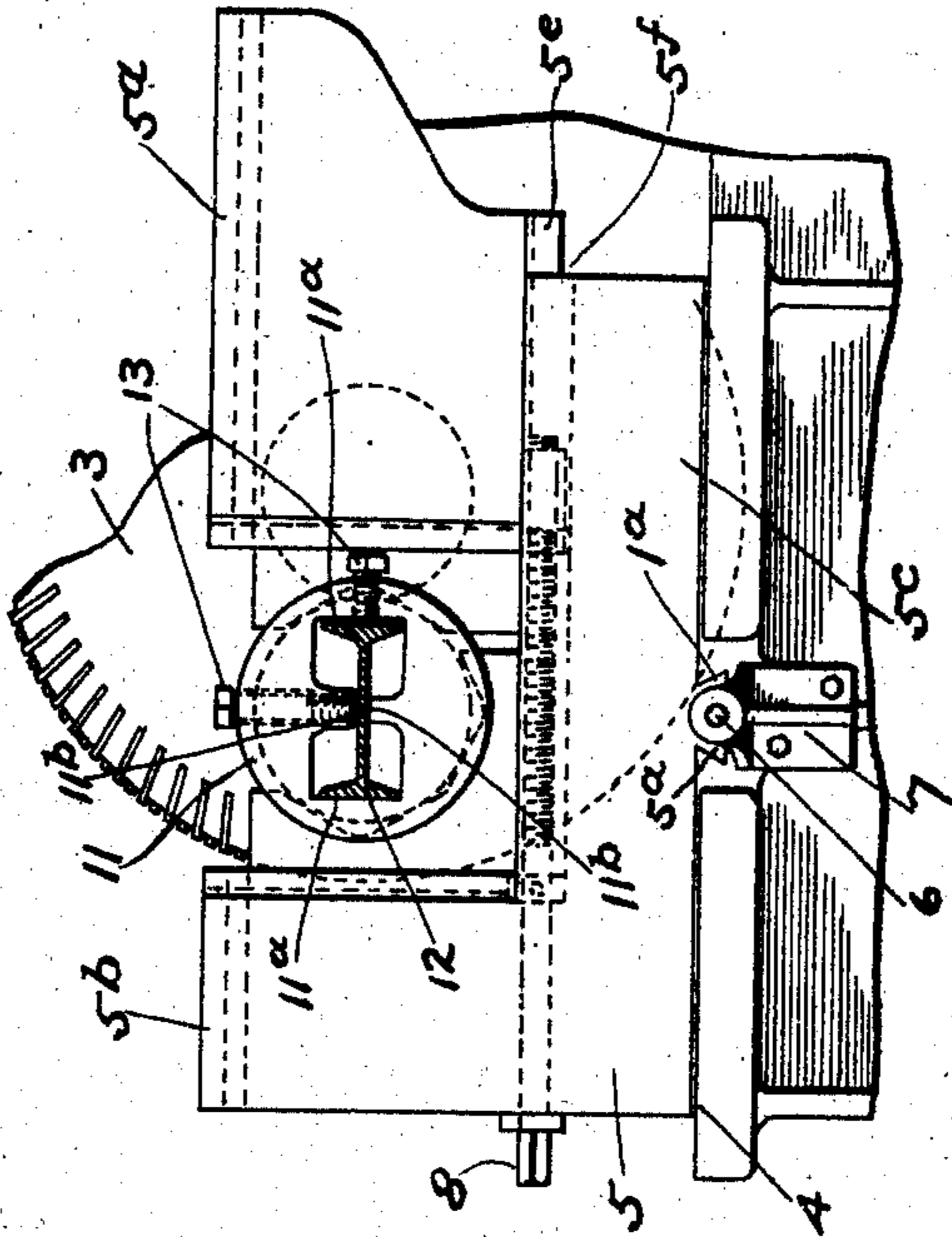


FIG. 6.

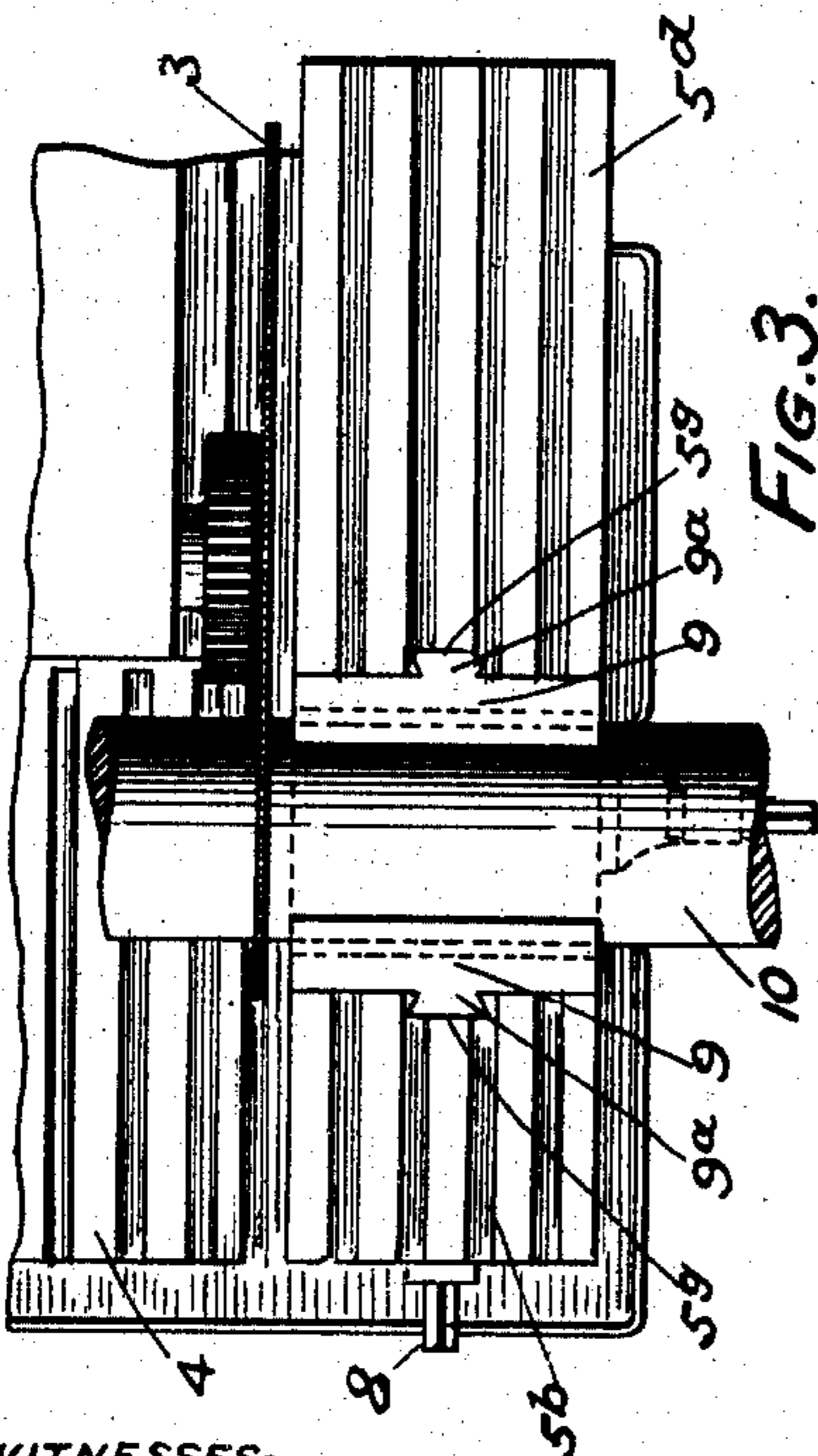


FIG. 3.

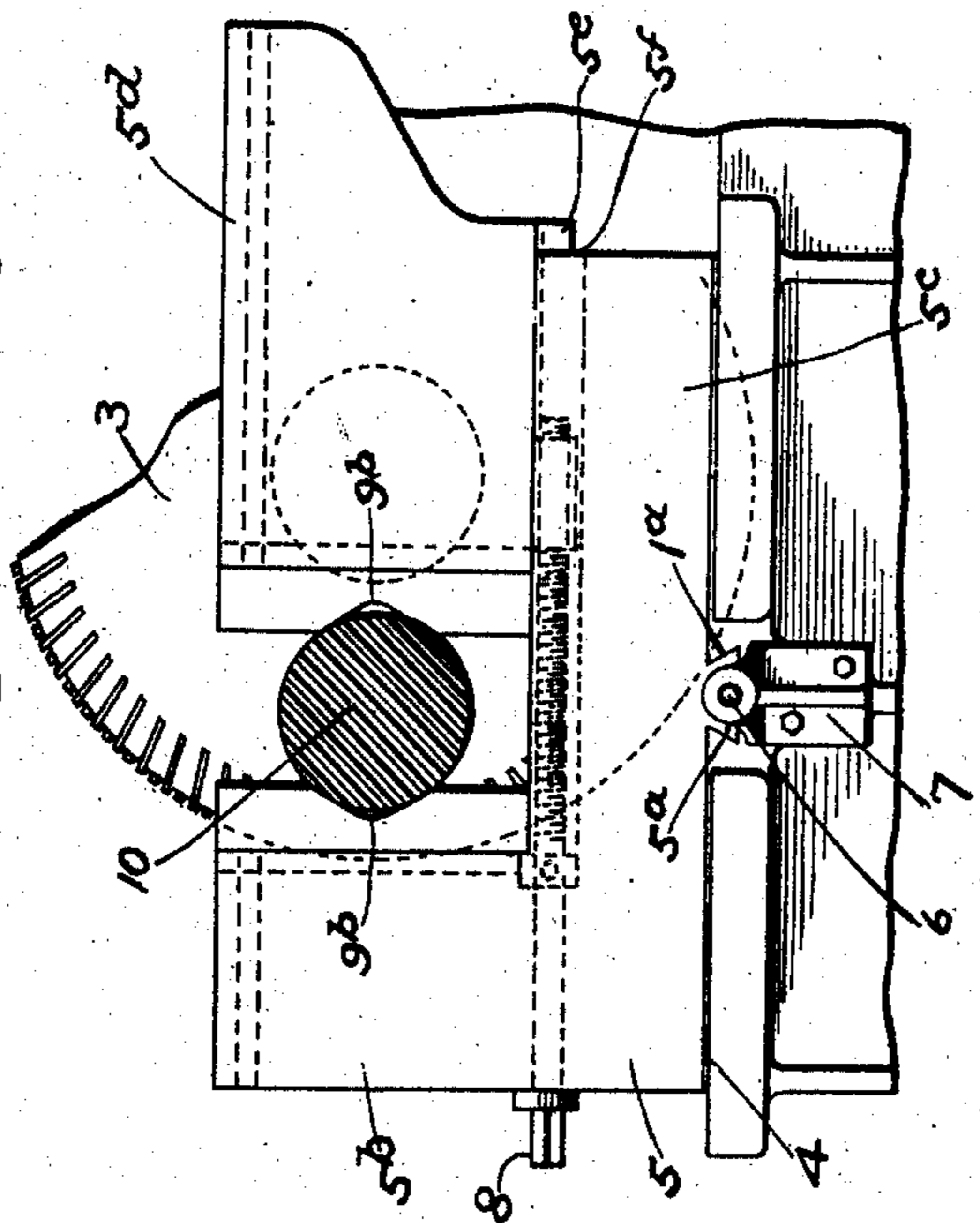


FIG. 4.

WITNESSES:

Robt. H. Kitchel.
Jos. B. Denny Jr.

INVENTOR

Aram Tindel

BY

Charles D. Butler

ATTORNEY.

No. 846,525.

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APPLICATION FILED MAY 12, 1906.

3 SHEETS—SHEET 3.

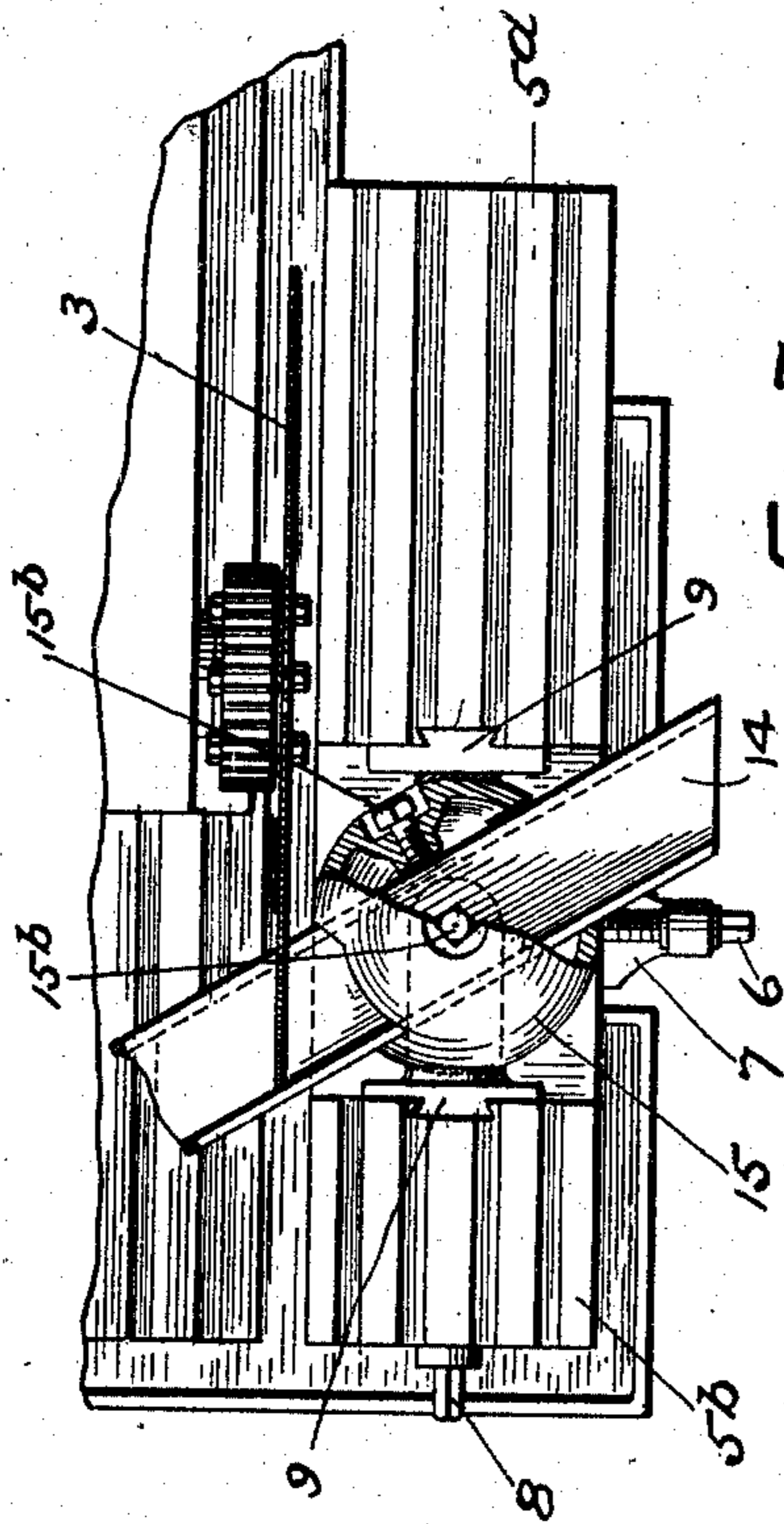


FIG. 7.

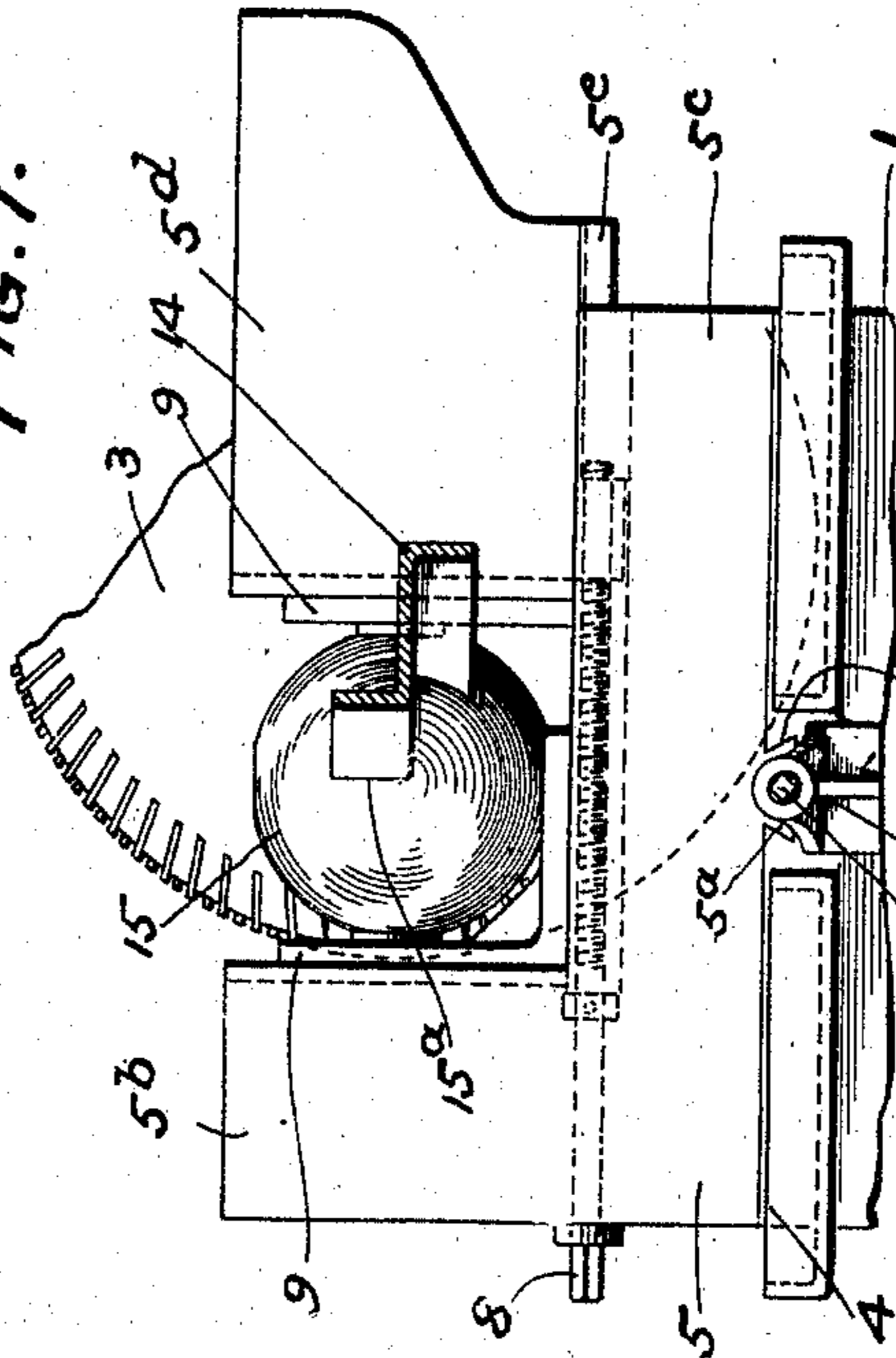


FIG. 8.

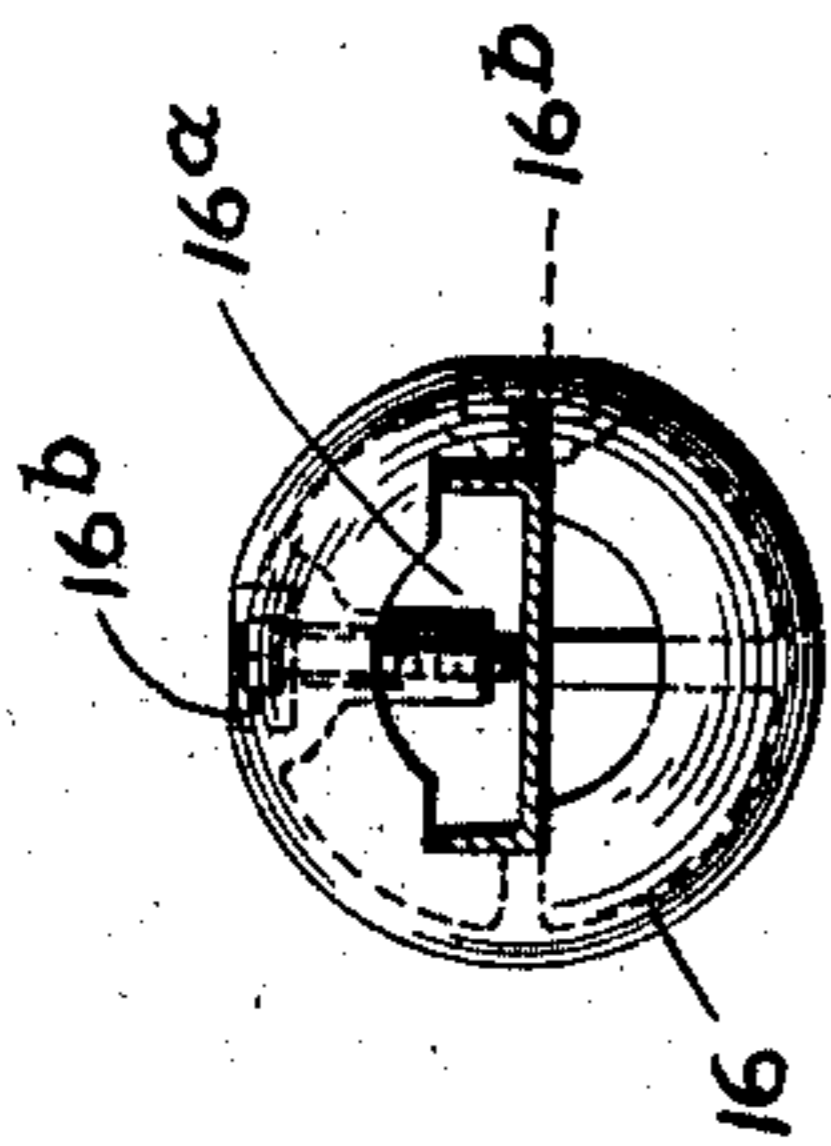


FIG. 10.

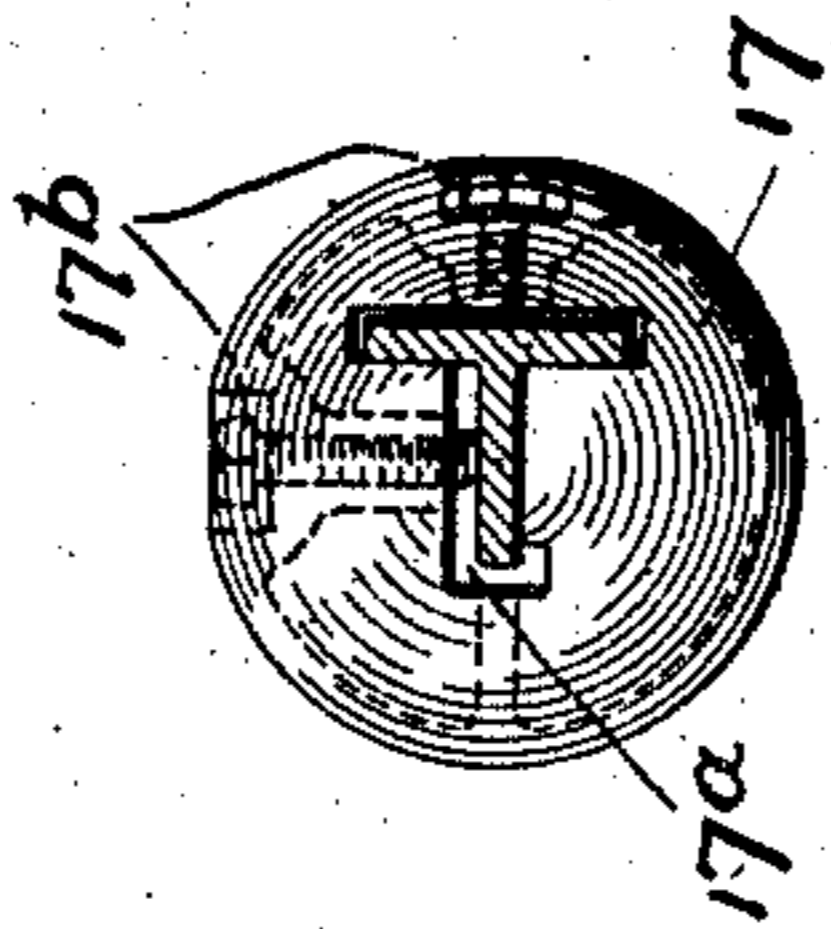


FIG. 11.

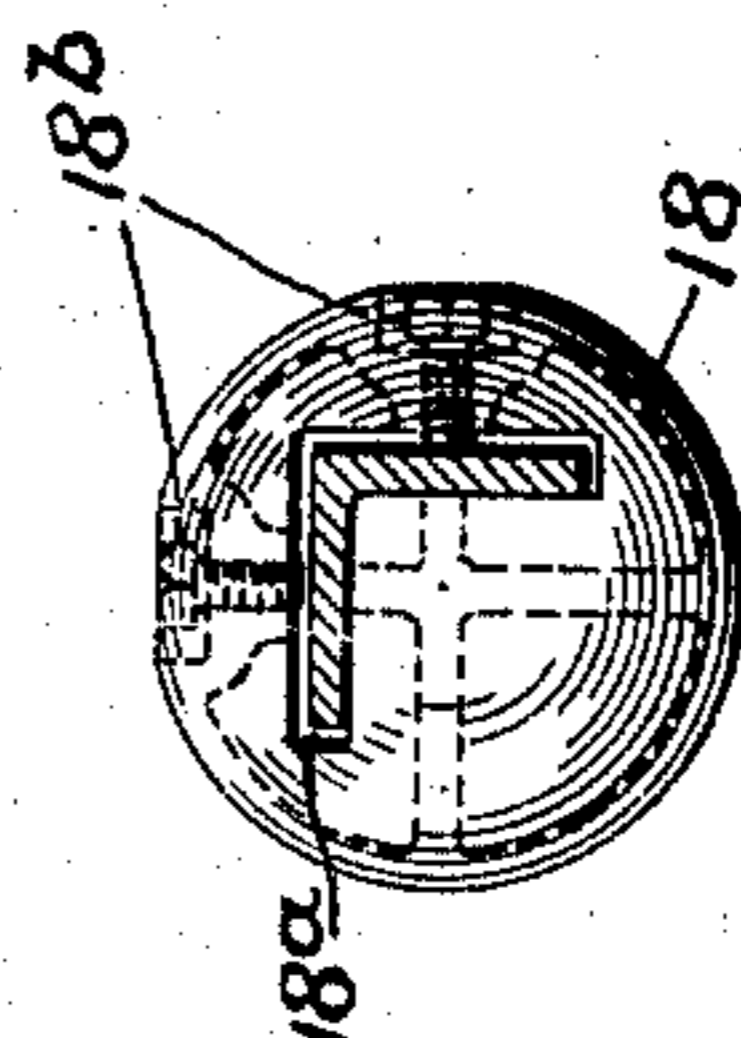


FIG. 12.

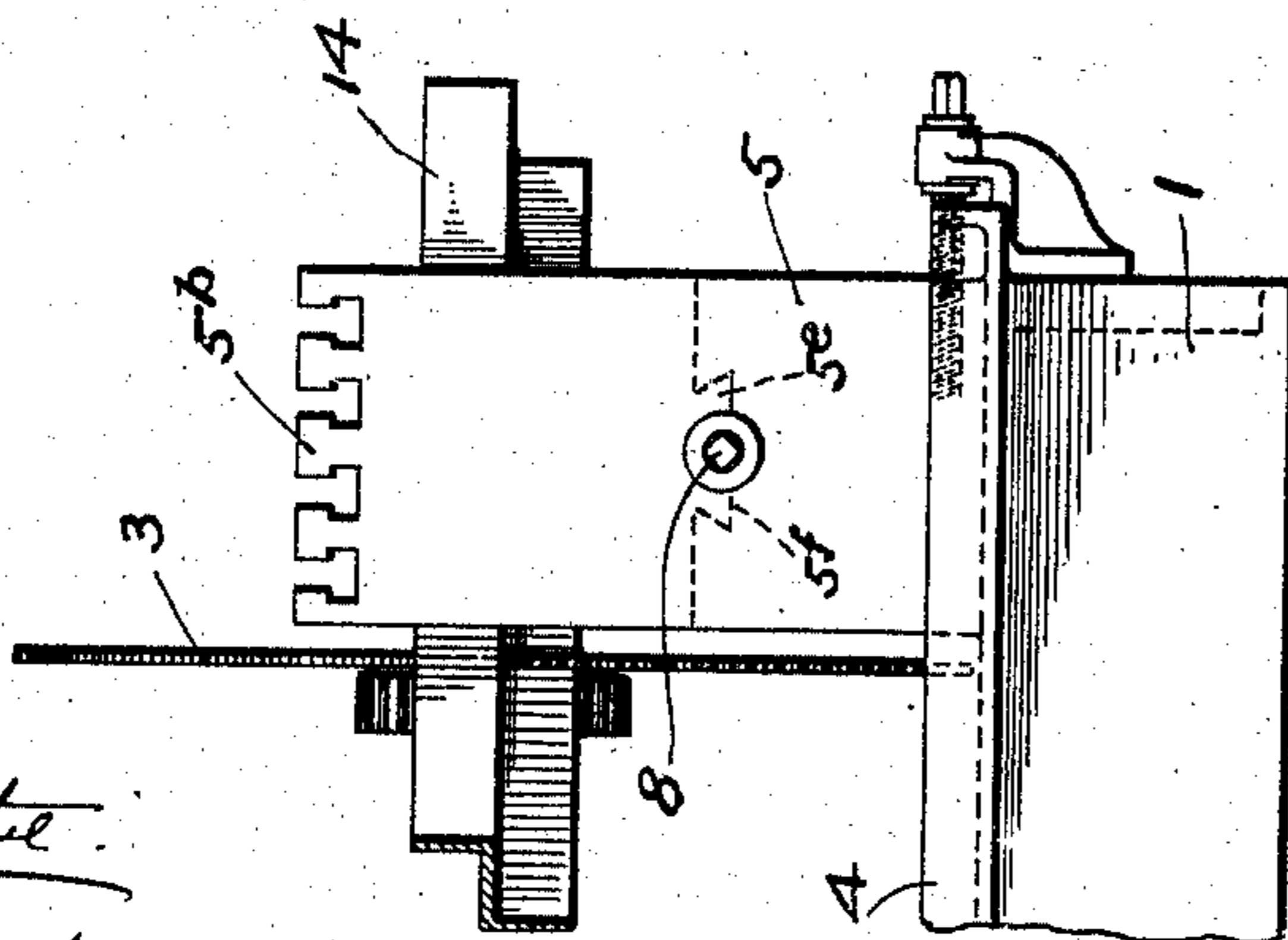


FIG. 9.

WITNESSES:
Robt. R. Ritchie
Geo. H. Denny

INVENTOR
Adam Tindel
BY
Charles N. Butler
ATTORNEY.

UNITED STATES PATENT OFFICE.

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

METAL-SAWING APPARATUS.

No. 846,525.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed May 12, 1906. Serial No. 316,497.

To all whom it may concern:

Be it known that I, ADAM TINDEL, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Metal-Sawing Apparatus, of which the following is a description.

This invention is a metal-sawing apparatus comprising mechanism permitting its table to be used as an ordinary work-support or as a vise for holding the work in the desired relation to the saw-blade, the table being formed in two sections, so that one can be moved with relation to the other to form a plain table or to provide an opening for receiving the work or a work-holder to be engaged between the sections.

In sawing shapes of various kinds with apparatus heretofore in use it has been necessary to strap or tie them upon the table, with difficulty in setting and holding them in the desired relation to the saw, while to fix and change the position of the shapes involves considerable loss of time and renders it impracticable to turn the various shapes operated upon so as to saw through them in the most expeditious manner. The improvements of the present invention avoid these objections by providing means for firmly holding, readily changing, and easily adjusting the material to be operated upon in relation to the operating mechanism. Through my mechanism it is rendered practicable to cut through various shapes with the shortest possible travel of the saw-blade and a corresponding reduction of time for the operation and with the largest possible number of cutting-teeth simultaneously engaging in the kerf of the work, whereby the action of the blade is steadied, so that there is avoided the chattering and jolting incident to sawing through thin sections of material having their edges presented to the blade and a single tooth thereof engaged at a time, with increased steadiness, greater safety, and saving of wear. For example, in the usual manner of sawing a twelve-inch I-beam the shortest section through which the blade travels would be six inches, with the beam resting upon a flange and in an upright position, while if supported upon the edges of the flanges with the web parallel to the table the blade would be required to travel twelve inches. By my invention the work can be

turned to present the faces of the flanges and the web to the blade successively, so that to cut through each the blade is required to travel through but one-half inch or through a total distance of one and one-half inches to sever the entire section.

In the accompanying drawings, Figure 1 represents a plan view of a sawing apparatus embodying the improvements. Fig. 2 represents a side elevation thereof. Fig. 3 represents a plan view, and Fig. 4 a side elevation, of a section of the machine, showing the table-sections open and holding a bar at right angles to the saw-blade acting thereon. Fig. 5 represents a plan view, and Fig. 6 a side elevation, of a section of the machine with a holding device engaged between the open sections of the table. Fig. 7 represents a plan view, and Fig. 8 a side elevation, of a section of the machine with a device for holding shapes in various relations to the saw-blade. Fig. 9 represents an end elevation of the apparatus shown in Figs. 7 and 8, and Figs. 10, 11, and 12 represent views of further forms of devices for holding various shapes.

As shown in the drawings, the apparatus comprises the base 1, on which moves the carriage 2 for the saw-blade 3, the base having thereon the table 4. A table 5 is removably supported on the table 4, being adjustable thereon transversely to the saw-blade by means of a screw 6, revolving in a bearing 7 on the base and working in a slide 5^a on the bottom of the table, which runs in the way 1^a in the base. The table 5 comprises the section 5^b, having the base 5^c and the section 5^d movably supported by the base 5^c. To guide the section 5^d in its movement parallel to the plane of the blade, it is provided on its bottom with the slide 5^e, which works in a way 5^f in the base 5^c, the movement being effected by the screw 8, journaled in the section 5^b and working in the section 5^d. By operating the screw 8 the section 5^d can be brought into abutting relation with the section 5^b, so as to form a solid unbroken table having the usual functions, as shown in Figs. 1 and 2, or opened to receive and fix a shape or a shape-holder, as shown in Figs. 3 to 8, inclusive.

In Figs. 3 and 4 the sections 5^b and 5^d are provided with the dovetail ways 5^g, and jaws 9 are provided with the dovetail slides 9^a, which engage the ways to hold the jaws

to the respective table-sections, the section 5^d being drawn up by the screw 8 to grip the cylindrical shaft 10 between the concave bearings 9^b of the jaws in the manner of a vise and hold it firmly for the operation of the saw-blade 3 thereon.

In Figs. 5 and 6 the jaws 9 engage the chuck 11 for holding the I-bar 12, the chuck having end bearings 11^a for the I-bar flanges and lateral bearings 11^b for the I-bar web, set-screws 13 engaging a flange and the web to firmly fix the shape in the chuck. As through this mechanism the shape can be readily adjusted and held in the desired relation to the blade, the operation of sawing is facilitated, since the broad surfaces of the shape can readily be presented to the blade in sequence, as by presenting the face of a flange to the blade and cutting through to the web and then turning the shape through one hundred and eighty degrees and cutting through the other flange and then turning the shape through ninety degrees or to the vertical position and cutting through the web.

In Figs. 7, 8, and 9 a Z-bar is held in a spherical chuck 15, having an aperture 15^a conforming to the bar and the set-screws 15^b for engaging it. This chuck gripped between bearings therefor on the jaws 9 provides means for giving to the bar a universal movement, so that it can be revolved about an axis parallel to that of the saw-blade or held at any desired angle thereto.

In Figs. 10, 11, and 12 are shown spherical chucks 16, 17, and 18, having the respective apertures 16^a, 17^a, and 18^a and the set-screws 16^b, 17^b, and 18^b for holding, respectively, channels, I-bars, and angles, these chucks being adapted for use in providing universal movements for the shapes and holding them in the desired relation to the blade. There is thus provided by the sectional table a combined table and vise, whereby the adjustments described are readily made while the work can be securely held in the desired position.

Having described my invention, I claim—

1. In mechanism of the class described, a saw-blade, in combination with a table having sections adapted for holding upon or between them an object to be acted upon by said blade and means whereby the sections of said table can be opened and closed.

2. In mechanism of the class described, a base, a carriage movable on said base, a saw-blade supported by said carriage, a sectional table supported by said base and adapted for holding work upon or between the sections thereof, and a screw for moving the one section of the table with reference to the other.

3. In mechanism of the class described, a saw-blade, in combination with a sectional table, jaws between the table-sections for holding the work so that said blade can act thereon, and means for moving one of said sections with reference to the other.

4. In mechanism of the class described, a sectional table, a chuck held between the sections of said table and a cutting device adapted to operate upon work held by said chuck.

5. In mechanism of the class described, a base having a table, a carriage movable on said base, a saw-blade supported by said carriage, a sectional table mounted on said first table and adapted for holding work between the sections thereof so that said blade can act thereon, and means for moving said sectional table transversely to said blade.

6. In mechanism of the class described, a base, and a table having a section with a base movable on said first base, and a section movable on the second base.

In testimony whereof I have hereunto set my name, this 9th day of May, 1906, in the presence of the subscribing witnesses.

ADAM TINDEL.

Witnesses:

GEORGE N. CRISPIN,
W. ELLIOTT HAZZARD.