

No. 885,810.

PATENTED APR. 28, 1908.

C. WAIS.
SHEARING MACHINE.
APPLICATION FILED APR. 14, 1906.

2 SHEETS—SHEET 1.

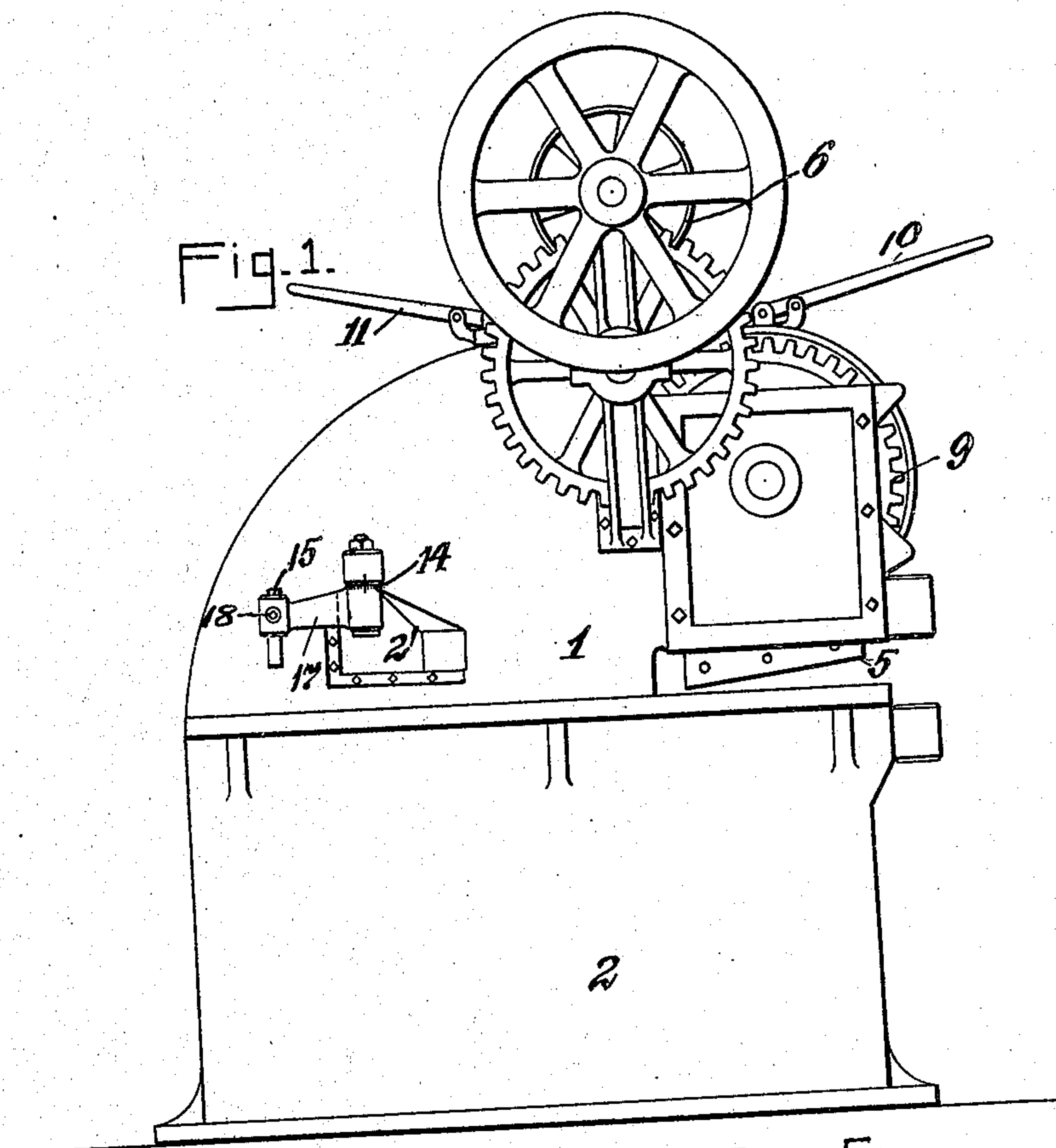
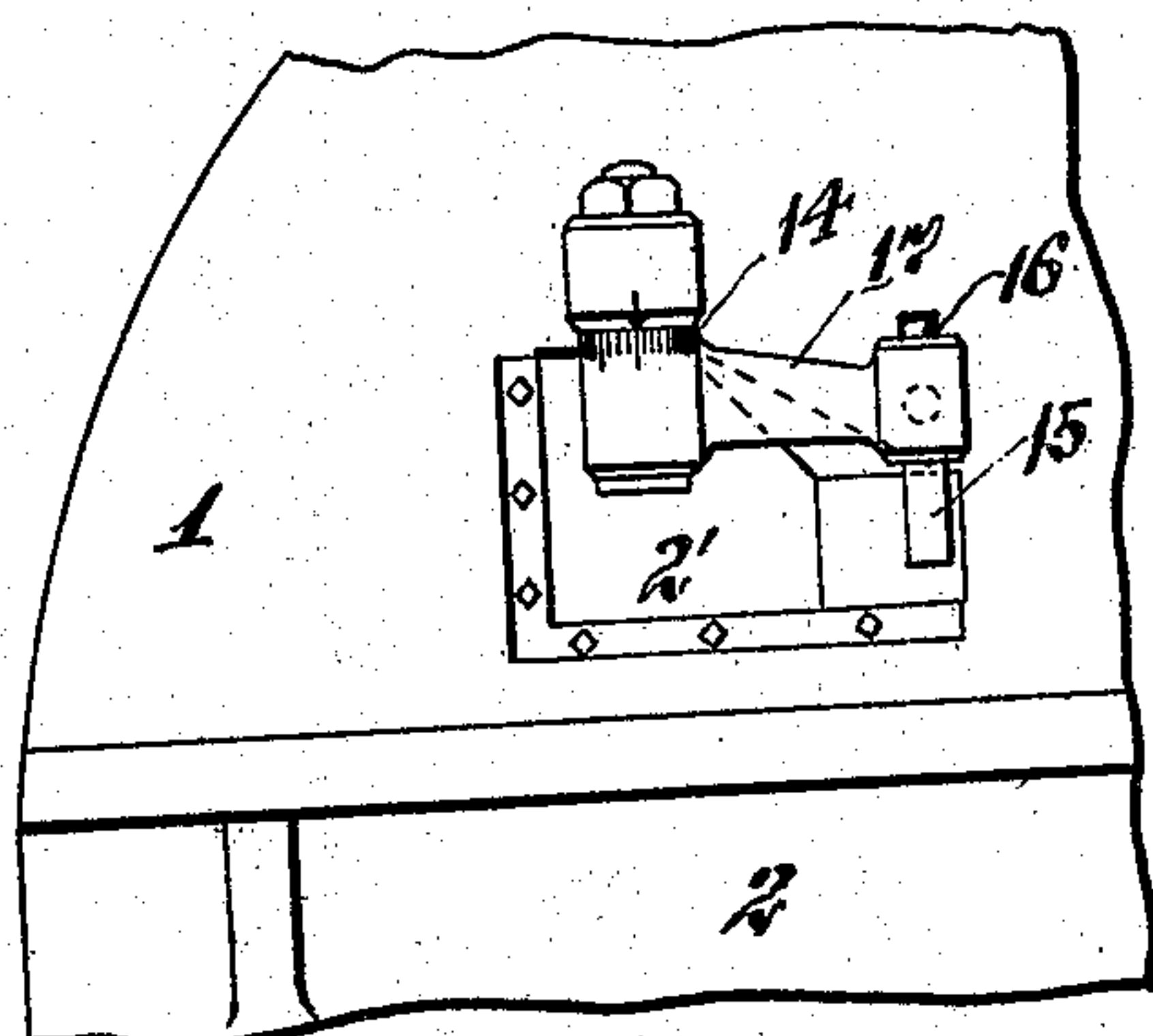


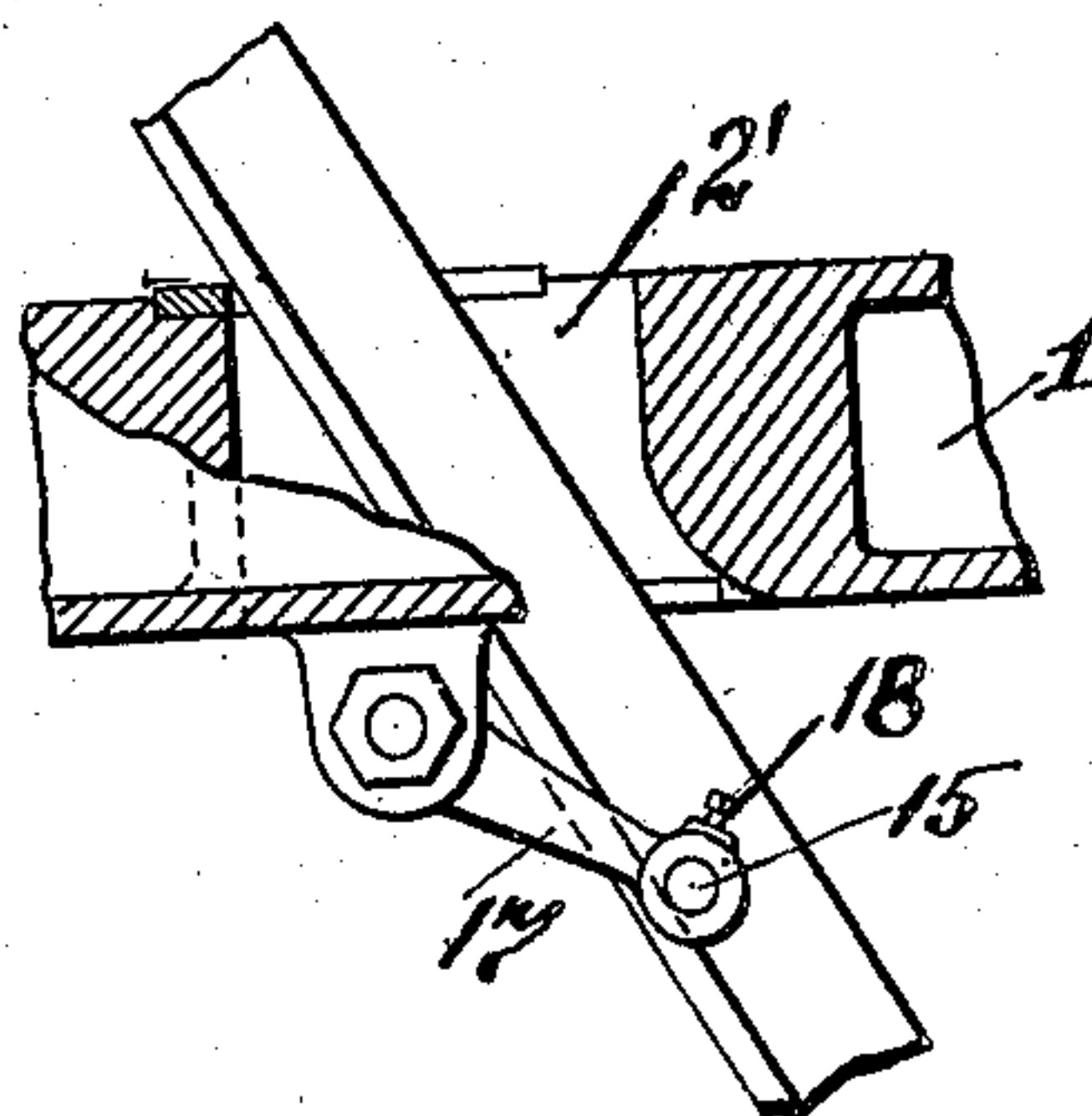
Fig. 4.



Witnesses.

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Fig. 5.



Inventor.

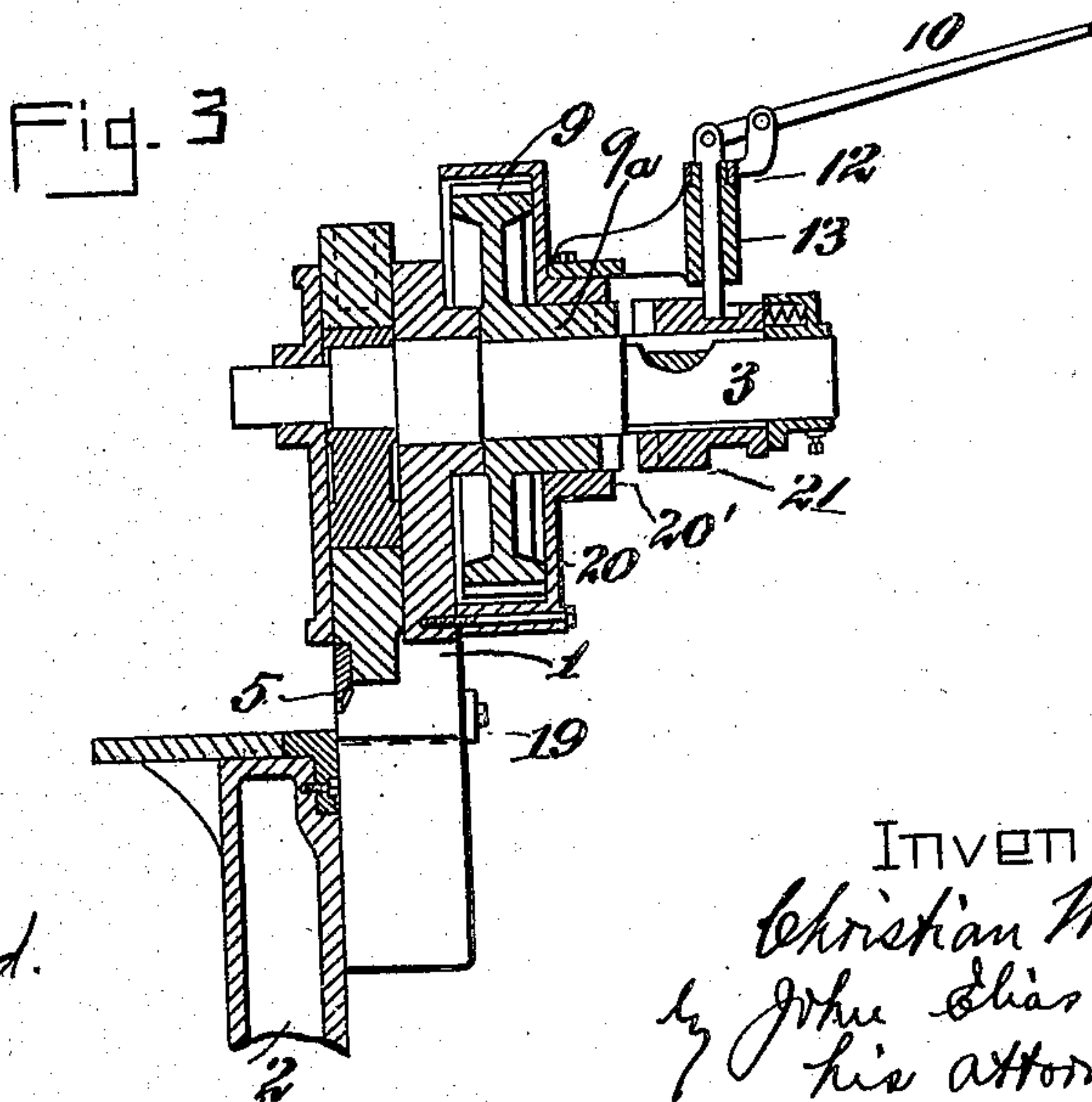
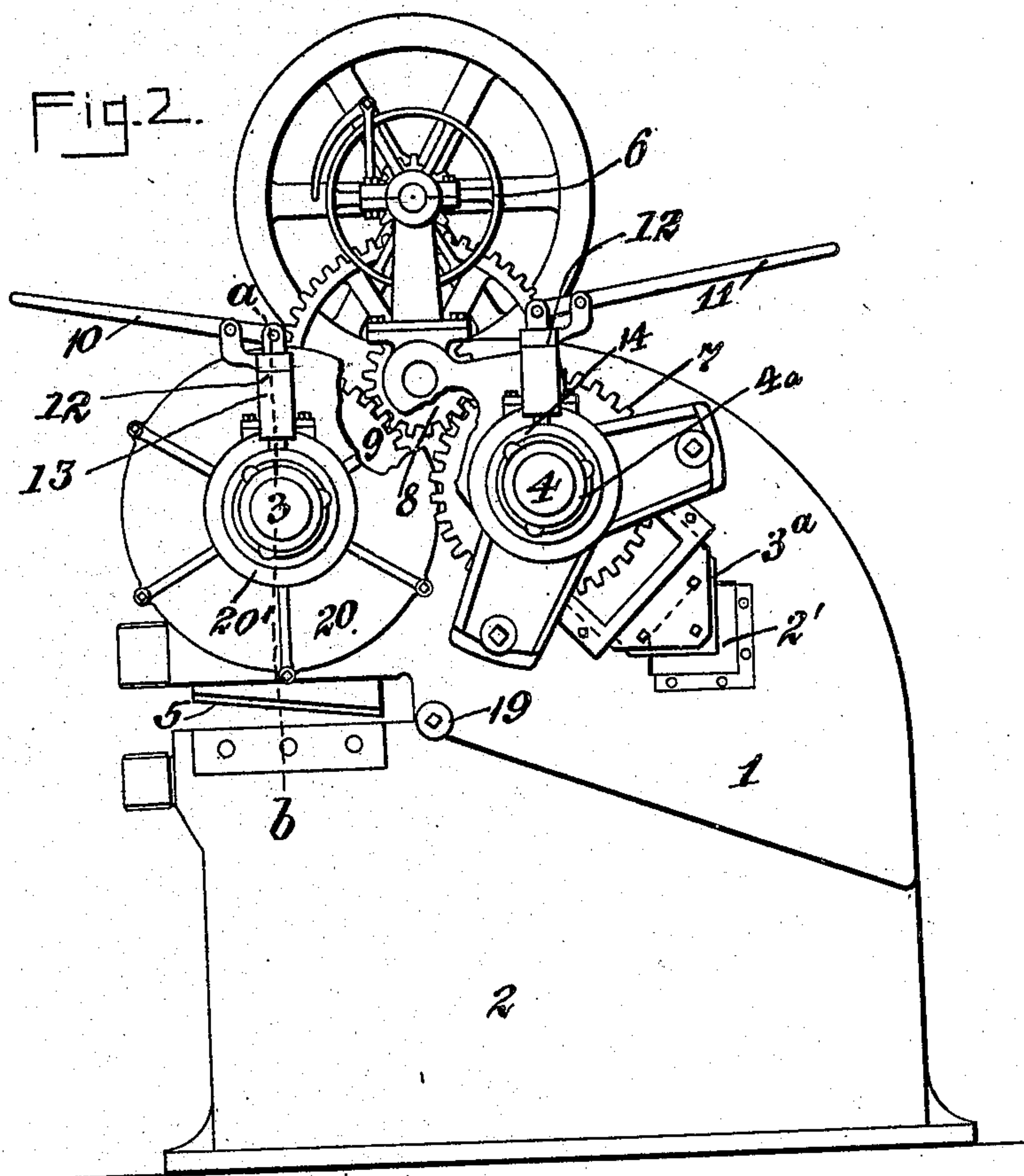
Christian Wais,
by John Elias Jones,
his attorney.

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2 SHEETS—SHEET 2.



Witnesses.
Homer Bradford.
C. W. Wolf

INVENTOR.
Christian Wais,
by John Elias Jones,
his attorney.

UNITED STATES PATENT OFFICE.

CHRISTIAN WAIS, OF CINCINNATI, OHIO.

SHEARING-MACHINE.

No. 885,810.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed April 14, 1906. Serial No. 311,710.

To all whom it may concern:

Be it known that I, CHRISTIAN WAIS, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Shearing-Machines, of which the following is a specification.

My invention relates to improvements in shearing-machines for use in cutting metallic plates, bars, angles of even and uneven legs and channel-irons in any degree up to forty-five degrees, either jointly or separately. I attain these objects by means of the machine or mechanism illustrated in the accompanying drawings in which—

Figure 1 is a side view of my machine showing the two sets of cutting devices. Fig. 2 is another, but reversed, side view parallel to the side view shown in Fig. 1 with part of the frame cut out or removed, showing the combination of gearing. Fig. 3 is a vertical section through dotted-line *a, b*, of Fig. 2, showing the fastening of the shaft to the frame. Fig. 4 is an enlarged view of the regulating device for determining the degree of angles desired for cutting. Fig. 5 is also an enlarged sectional plan view of the regulating device showing an angle-iron in the frame-opening therefor and the regulating device in operative position.

Similar figures refer to similar parts throughout the several views.

The upper portion 1, which is composed of a single integral web and the lower standards 2 constitute the framework of the machine, and the upper portion 1 through suitable openings at its two sides serves as bearing means for the plate-shear shaft 3 and angle-shear shaft 4 and the attached gearing apparatus as shown in the vertical section, Fig. 3. Both said shafts are bedded in the apertures of the upper portion 1, and plate-shear 5 and angle-shear 3^a, Fig. 2, receive their operative power through pulley 6 and a transmitter or pinion 8, which latter, in turn, transmits power to the plate-shear and angle-shear gears 9 and 7, respectively, and the joint or separate action of the machine is determined by engaging or releasing the two clutch-levers 10 and 11. These clutch-levers 10 and 11 swivel in a horizontal direction by being bedded on a shoulder 12, Fig. 3, on the clutch-block 13, in which view (Fig. 3) the lever 10 is swung in line with shaft 3.

The angle-shearing is accomplished by

leaving an open space 2', Fig. 2, in the upper portion 1, cut out at a right-angle, and when the clutch 21, through its lever 10 is adjusted for action on the sheaves 14, the angle-shear 3^a will descend at an angle of forty-five degrees and operate upon the desired metal to crosscut in any degree to forty-five degrees through the aid of the regulating device as shown in Fig. 4. This regulator is fastened on the side of the machine where the metal is inserted, and is provided with a suitable scale or vernier to determine the desired degree of cutting, having an extended arm 17 and a movable pin 15 sliding vertically through the outer end of said arm 17 in pin-hole 16, acting also as a presser-bar. To allow pin 15 to keep its fastening or position and established degree upon the metal to be cut, a set-screw 18, seen in Fig. 5, is provided in the outer end of the arm 17 and tightened till said pin 15 remains rigid. Through the above stated arrangement of shears, bars can be cut on either shear, and extra shears for channel-irons can be inserted on either side, and the device can also be made to act as a punch with but few changes.

The friction-roller 19, Figs. 2 and 3, is provided on the outer corner of the upper portion 1, immediately in rear of the plate-shear opening, to divert and carry the sheared-strips downward and, also, to avoid frictional resistance against the bottom of frame-member 1 when said strip is a wide one.

The gear-wheel 9 is provided with a hub 9^a turning in a bearing 20', which is constructed in the gear-cover 20, as shown in the vertical section, Fig. 3.

The laterally-extended hub 9^a of the gear-wheel 9 has a bearing in the laterally-extended hub 20 of the web or gear-cover 20' and the plate-shear shaft 3 bears in the said gear-wheel hub 9^a, thus dispensing with the use of brackets.

The angle-shear shaft 4 has a like bearing in the companion web part or armed member 4^a (seen to the right in Fig. 2).

I claim—

1. In a shearing machine, a frame formed of a lower part, an upper part composed of a single integral web bolted to said lower part, a plate-shear shaft and an angle-shear shaft extended through said web, a gear on each shaft disposed adjacent to one another, a common transmitter in engagement with each gear, a clutch on each shaft, means for

operating each clutch, and means carried by said web to support said shafts, transmitter and clutches.

2. In a shearing machine, a frame embody-
5 ing a lower part and an upper part composed of a single integral web bolted to said lower part, a pair of spaced hubs carried by said webs with openings formed in the web alining with the openings in the hubs, a plate shear
10 shaft extending through one of said hubs and web openings, an angle shear shaft extending through the other hub and the other web opening, a gear on each shaft disposed adjacent said hubs, hubs on the gears having
15 clutch faces, a common transmitter in engagement with each gear, a clutch movable on each shaft at the outer free ends thereof so as to engage and be disengaged from the clutch faces of said gears, and means carried
20 by said web to operate each clutch.

3. In a shearing machine, having an opening, an angle shear operating adjacent said opening, a regulator disposed adjacent said opening and embodying a pivoted arm secured at one end and to the machine, and at
25 its free end carrying a vertically movable pin.

4. In combination with a shearing machine having an opening and a knife operating thereacross, a regulator disposed adjacent said
30 opening and having movement in a horizontal rotary plane, and a vertically movable presser pin carried by said regulator.

5. In combination with a shearing machine having an opening and a knife operating
35 thereacross, a horizontal arm having a graduated scale on one end thereof pivoted to said machine adjacent said opening, a vertically movable presser pin on the free end of said
40 arm, and means for securing said pin in adjusted position.

6. In a shearing-machine, a frame formed of a lower part and an upper auxiliary part,

the latter comprising a single integral web suitably attached to said lower part, a plate-shear shaft and an angle-shear shaft both of
45 which are extended through said web, a gear loosely mounted on each shaft and disposed adjacent to but not in direct engagement with one another, a common transmitter in operative engagement with each gear, a
50 clutch on each of said shafts, means for operating each clutch, and means carried by said web to support said shafts, transmitter and clutches.

7. In a shearing-machine, a frame embody-
55 ing a lower part and an upper part, the former having an integral upward extension and the latter comprising a single integral web suitably attached to said upward extension of the said lower part, spaced hub-bosses on
60 said upward extension, a pair of spaced wheel-bearing hubs carried by said web and provided with openings alining with openings in said hub-bosses on said upward extension, a
65 plate-shear shaft extending through and journaling in one set of said wheel-bearing hubs and hub-bosses, an angle-shear shaft extending through and bearing in the other wheel-bearing hub and the other hub-bosses
70 a gear loosely mounted on each of said shafts and disposed adjacent said respective hub-formations, extension-hubs on the gears bearing in the web-hubs and having clutch-faces, a common transmitter in engagement
75 with each loose shaft-gear, a clutch movable on each of said shafts at the outer free ends thereof and adapted for operative engagement with the clutch-faces of said gears, and means carried by said web to operate each clutch.

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Witnesses:

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