

No. 891,745.

PATENTED JUNE 23, 1908.

J. G. STOEN.
WHEELWRIGHT MACHINE.
APPLICATION FILED AUG. 2, 1907.

6 SHEETS—SHEET 1.

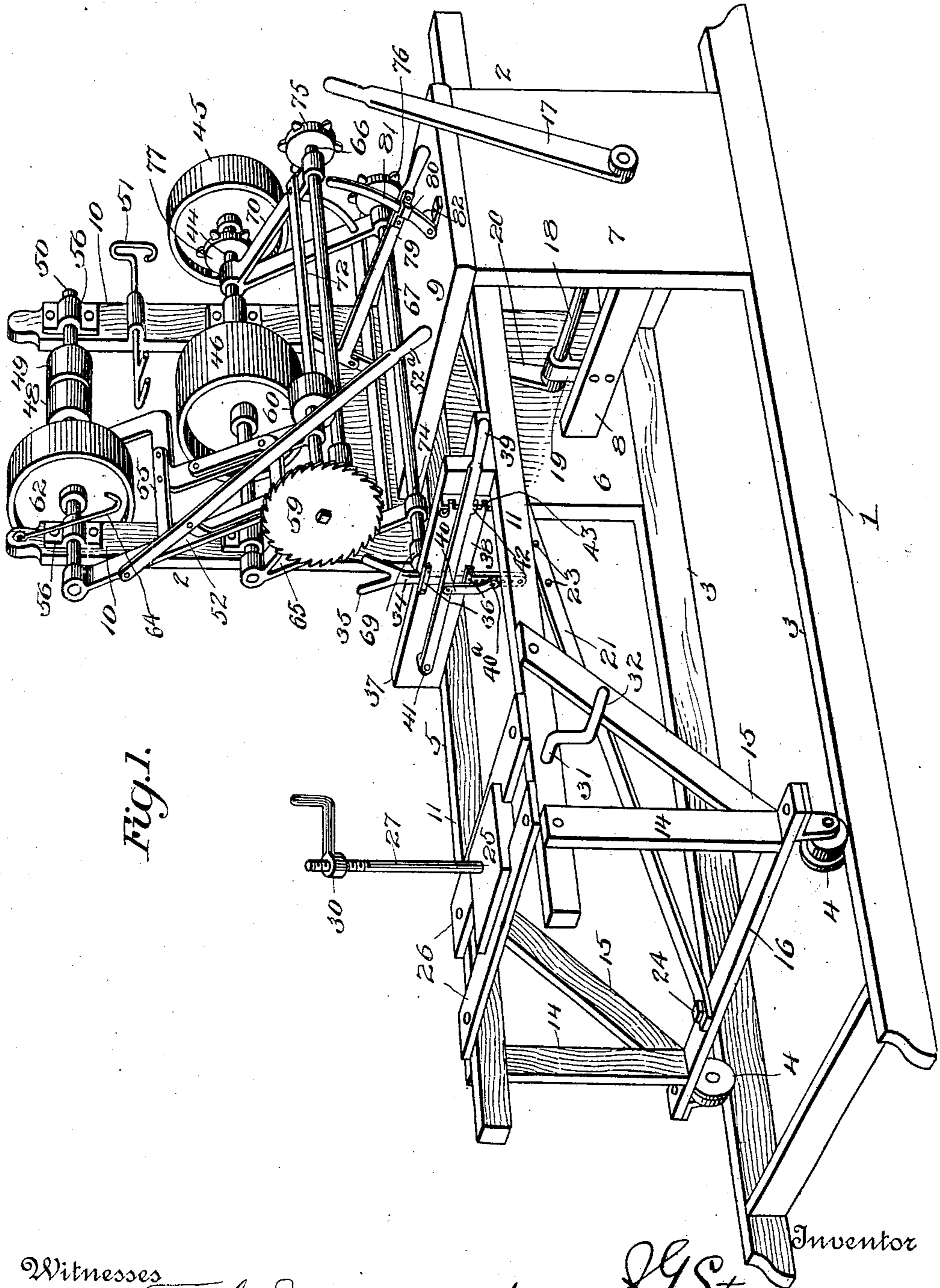


Fig. 1.

Witnesses

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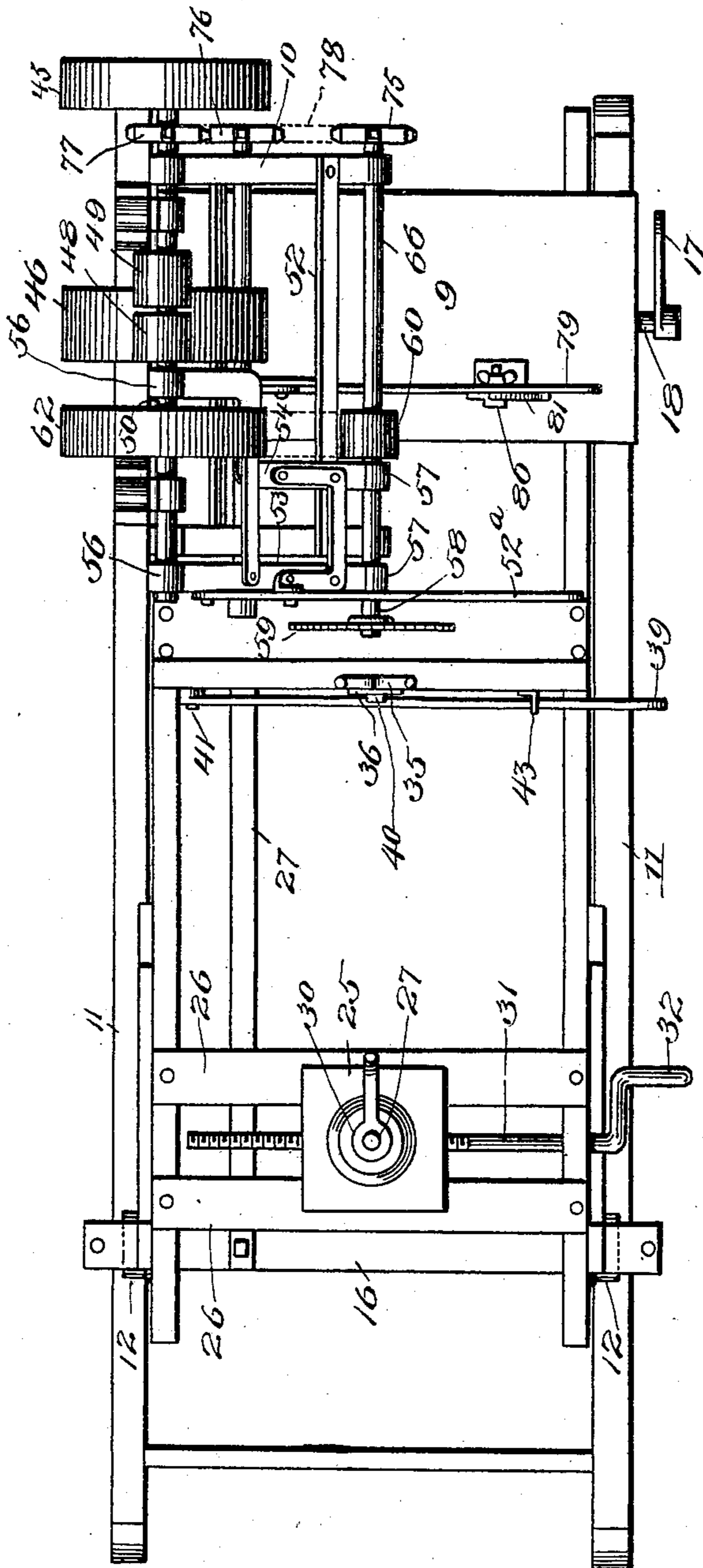
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5 SHEETS—SHEET 2.

Fig. 2.



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5 SHEETS—SHEET 3.

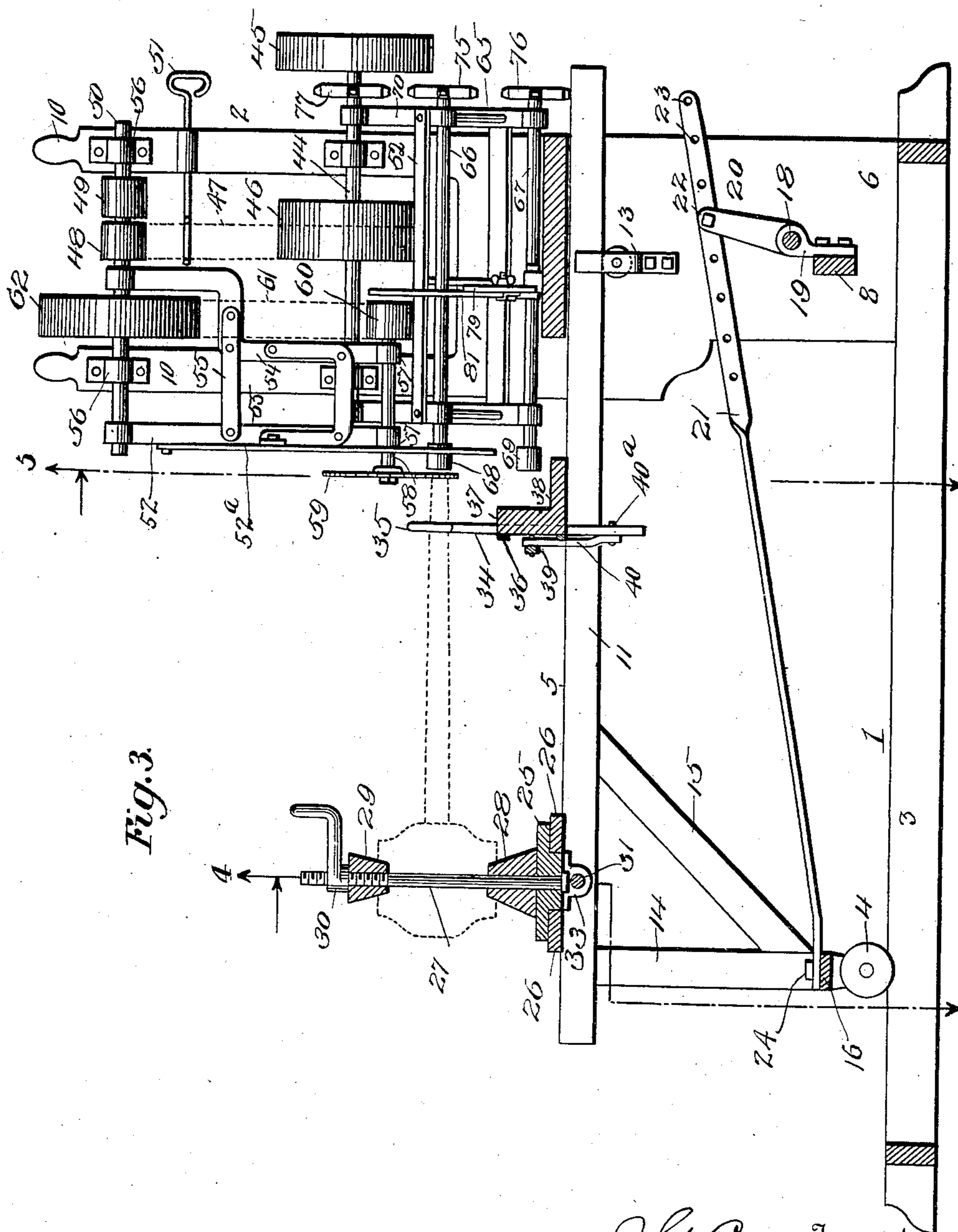


Fig. 3.

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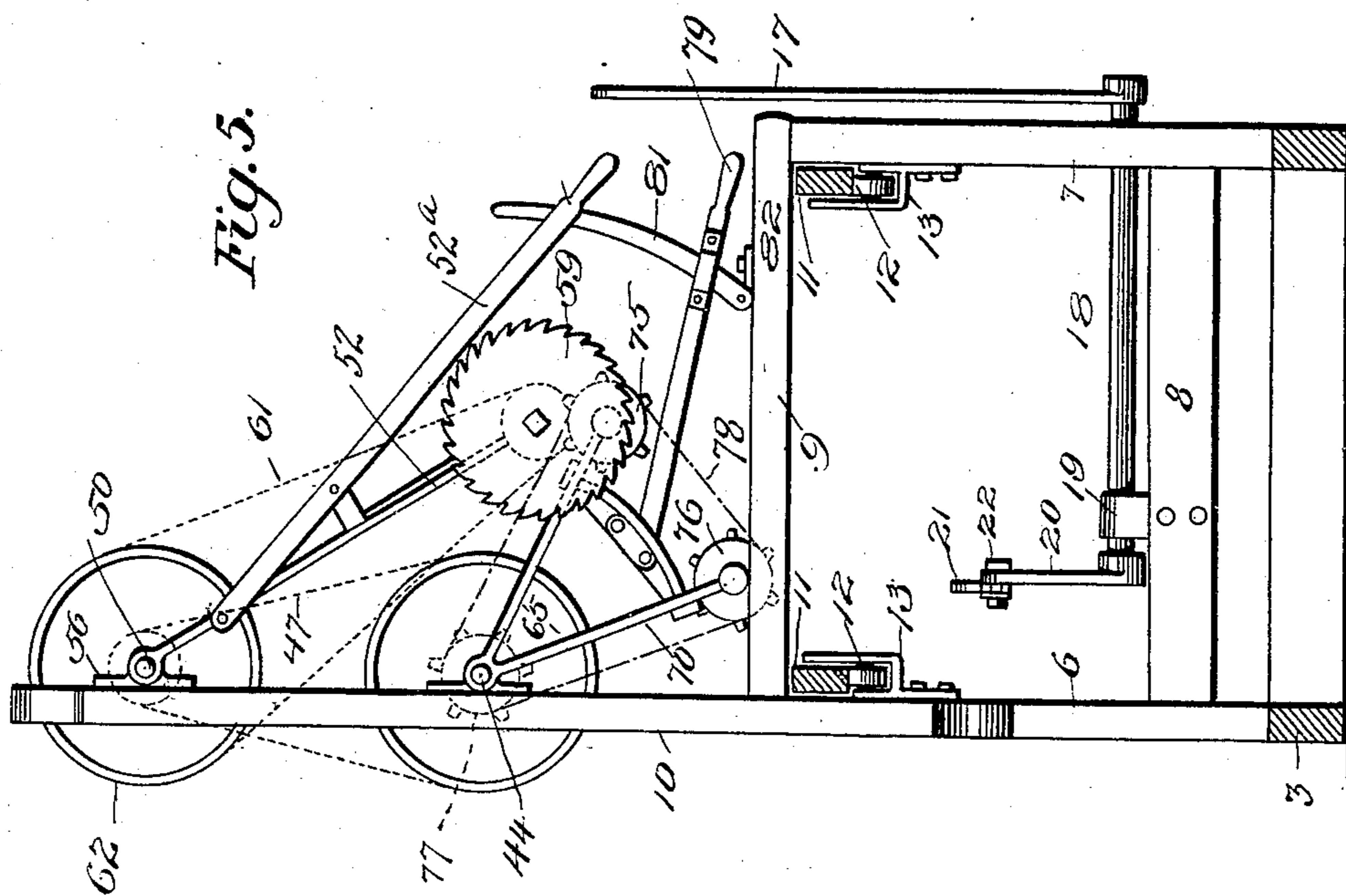
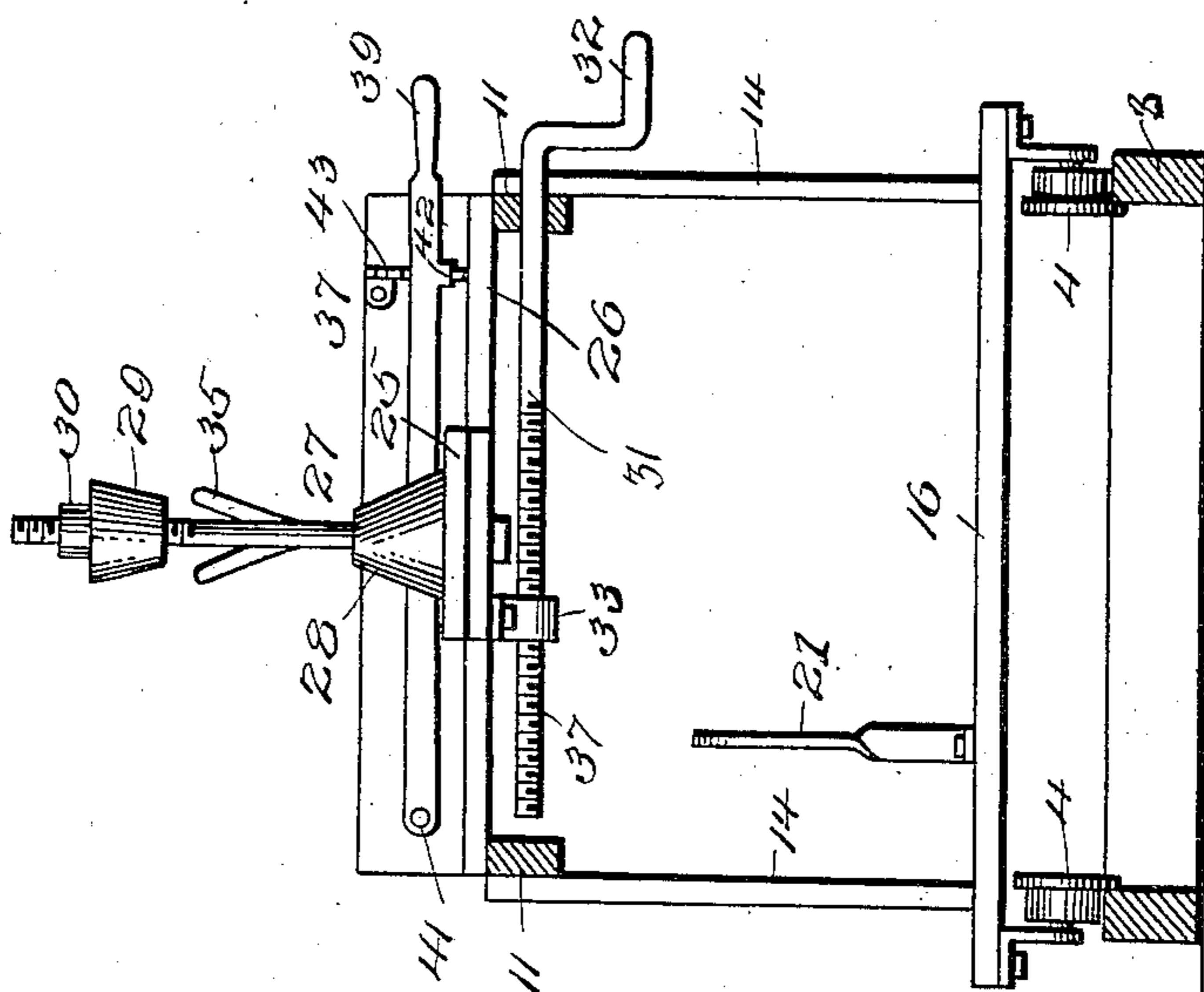


Fig. 4.



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5 SHEETS—SHEET 5.

Fig. 6.

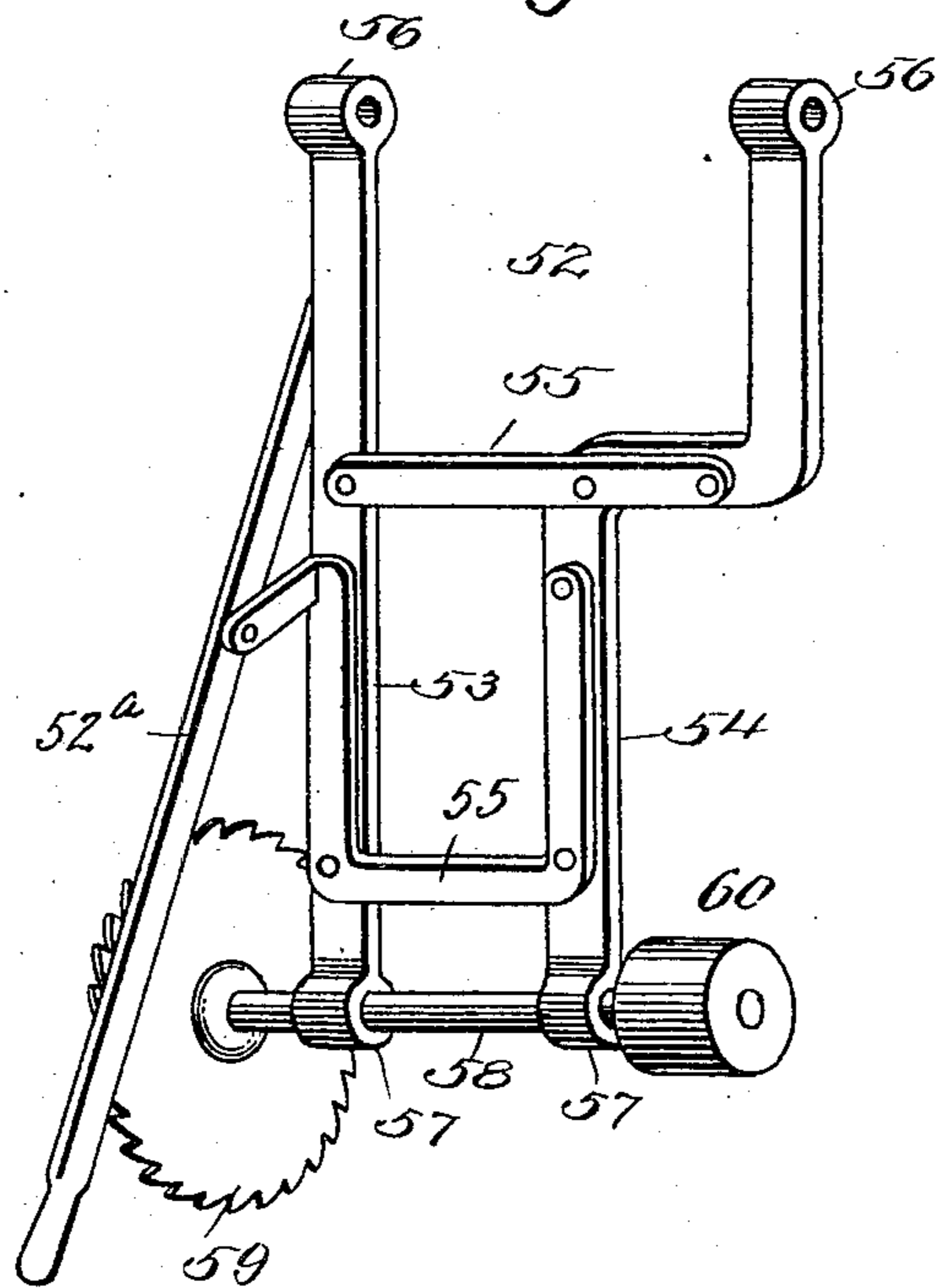
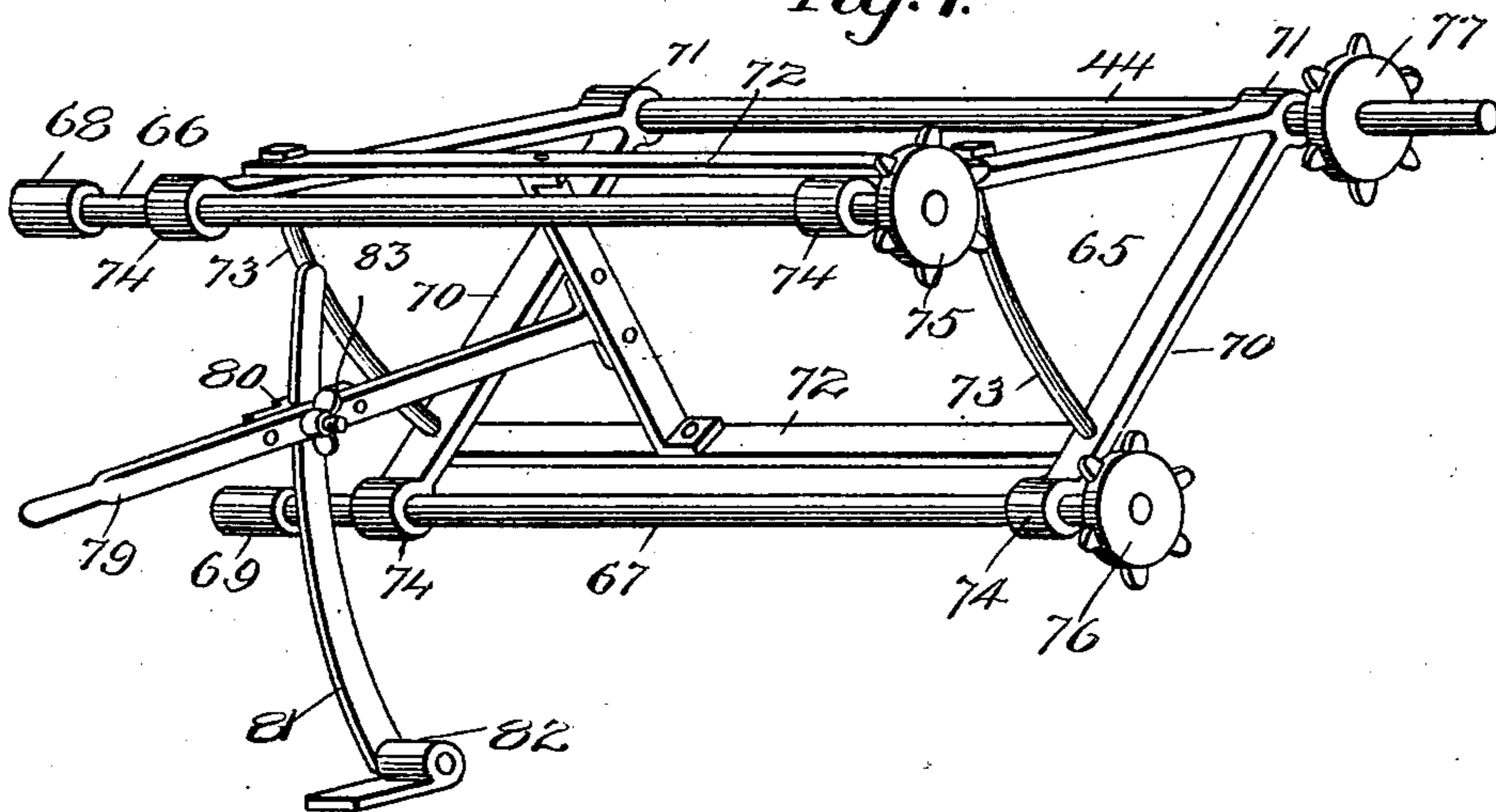


Fig. 7.



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UNITED STATES PATENT OFFICE.

JUUL G. STOEN, OF LAC QUI PARLE, MINNESOTA.

WHEELWRIGHT-MACHINE.

No. 891,745.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed August 2, 1907. Serial No. 386,796.

To all whom it may concern:

Be it known that I, JUUL G. STOEN, a citizen of the United States, residing at Lac qui Parle, in the county of Lac qui Parle and State of Minnesota, have invented certain new and useful Improvements in Wheelwright-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in combination wood working machines especially adapted for the use of wheelwrights, blacksmiths and wagon manufacturers; and it consists in the novel construction and the combination and arrangement of devices hereinafter described and claimed.

One object of the invention is to provide a machine of this character which will cut off the spokes of a wheel, then point them, then cut tenons upon them successively without removing the wheel from the machine.

Another object of the invention is to provide a machine of this character upon which wheel rims or fellies or other work may be bored.

A further object of the invention is to improve and simplify the construction and operation of machines of this character and to provide one which will effect a great saving in time and labor in performing wheelwright work.

The above and other objects which will appear as the nature of the invention is better understood, are attained in the preferred embodiment of my invention illustrated in the accompanying drawings in which

Figure 1 is a perspective view; Fig. 2 is a top plan view; Fig. 3 is a vertical longitudinal section; Figs. 4 and 5 are vertical transverse sections taken on the planes indicated by the lines 4, 4 and 5, 5 in Fig. 3; Fig. 6 is a detailed perspective of the hanger for the saw, and Fig. 7 is a similar view of the hanger for the shafts of the pointing, tenoning and drilling tools.

My improved machine comprises a main frame consisting of a horizontal portion 1 and an upright portion 2 arranged adjacent to one end of the latter. The horizontal portion 1 comprises suitably connected side beams or sills 3 which are adapted to serve as tracks or flanged wheels 4 of a reciprocatory work carriage 5. The upright portion 2 of the main frame consists of two side pieces 6, 7 which arise from the sills 3 and are connected by a cross brace 8 and a top piece or

table 9. The side piece or upright 6 is extended above the table top 9 and is divided to provide two standards 10.

The reciprocatory carriage 5 consists of two side bars or beams 11 connected by cross bars and having their inner or forward ends mounted for sliding movement beneath the table top 9 and between the upright side pieces 6, 7 upon rollers 12 suitably journaled in bearings 13 which are secured upon the inner faces of the side pieces 6, 7 and are also adapted to serve as guides for the carriage as clearly shown in Fig. 5. Depending from the outer or rear ends of the side bars 11 of the carriage are legs 14 which are strengthened by inclined braces 15 and connected together by a cross bar 16 carrying hangers for the supporting wheels 4. The carriage is reciprocated to move the work upon it toward and from the operating tools or devices upon the upright portion 2 of a main frame, by oscillating a hand lever 17 secured upon one end of a transverse rock shaft 18 journaled in a bearing opening in the side piece 7 and in a bearing 19 upon the cross bar or brace 8. On the inner end of the rock shaft is a crank 20 which is adjustably connected to one end of a rod 21 by passing a bolt 22 through an opening in said crank and through one of the series of apertures 23 in said rod. The opposite end of the latter is pivotally or loosely connected at 24 to the cross bar 16 so that when the lever 17 is rocked the carriage will be reciprocated above the horizontal portion 1 and through the vertical portion 2 of the main frame.

For the purpose of securing a wheel upon the carriage I provide a movable head block 25 which slidably engages a transverse guide formed by cross bars 26 which connect the side bars 11. Projecting centrally from the head block 25 is a stationary bolt or upright rod 27 having a threaded upper end. This bolt 27 is adapted to pass through the wheel hub which latter is centered between two cone-shaped blocks or washers 28, 29 and is rigidly held by a crank nut 30 engaged with the threaded upper end of said bolt as clearly shown in Fig. 4. For the purpose of adjusting the transversely slidable head block 25 I provide a transverse screw shaft 31 which is swiveled in the side bar 11 of the carriage and has a crank handle 32 upon its outer end. The threaded portion of this shaft 31 passes through a nut 33 carried by the head block 25, so that when the crank 32

is rotated the head block 25 may be shifted transversely with respect to the carriage.

In order to support and steady the outer ends of the spokes of the wheel while they are being operated upon I provide a vertically adjustable brace bar 34 having a fork 35 at its upper end to receive one of the spokes and having its lower end slidably mounted in a groove formed in the upright portion 37 of a boring table or head 38 which latter extends transversely of the carriage at a point adjacent to its center and which is of right angular shape in cross section, as seen in Fig. 3. Straps 36 retain said spoke brace in its groove, as shown. The spoke brace is supported and adjusted by means of a hand lever 39, which is pivoted at one of its ends as at 41 to the portion 37 of the table and which has adjacent to its handle end an integral pawl 42 adapted to engage a vertical rack 43 arranged upon the table as more clearly shown in Fig. 1. The spoke brace 34 is connected to the lever by a link 40 which has its upper end pivoted to the lever 39 and its lower end adjustably pivoted to the brace by a bolt or the like 40^a which passes through an aperture in the link and through anyone of a longitudinal series of apertures formed in the lower end of said brace. Owing to this adjustable connection, the range of movement of the spoke brace or support may be varied so that it may be used for supporting the spokes of wheels of any description.

Journalled in suitable bearings upon the lower portion of the standards 10 is a longitudinally extending main drive shaft 44 on which is arranged a pulley or other driving wheel 45 and a pulley 46 which latter is connected by a belt 47 to tight and loose pulleys 48, 49 upon a countershaft 50 journalled upon suitable bearings on the upper portion of the standards. The belt 47 is adapted to be shifted from one of the pulleys 48, 49 to the other by a belt shifter 51 slidably mounted upon one of the standards 10.

Mounted to swing transversely from the countershaft 50 is a saw hanger 52 consisting of two bars 53, 54 connected by cross pieces 55 and having at their upper ends bearings 56 to receive the shaft 50 and at their lower ends bearings 57 to receive an arbor or shaft 58. On one end of the latter is secured a circular saw 59 and upon its other end is a pulley 60 which is connected by a belt 61 to a pulley 62 on the countershaft 50.

It will be seen that when the main shaft 44 is driven and the belt 47 is engaged with the tight pulley 48 its motion will be imparted to the saw and the latter will cut off the ends of spokes or cut other work as the hanger 52 is swung transversely across the machine. A hand lever 52^a is connected to the hanger 52 so that it may be conveniently swung or oscillated and upon one of the standards 10

is arranged a pivoted hook 64 which is adapted to engage one of the cross pieces 55 of the hanger and to hold the same in an elevated position when the saw is not in use.

Mounted to swing from the main shaft 44 is a double frame or hanger 65 for two shafts 66, 67 the former of which carries a suitable spoke pointing tool 68 and the latter a suitable spoke tenoning tool 69. These tools may be of any desired form and construction and they are removably mounted so that they may be replaced by other tools for performing other work. The frame or hanger 65 consists of two V-shaped side pieces 70 having bearings 71 at their closed ends to receive the shaft 44 and having their arms connected by longitudinal bars 72 and transverse bars 73. Said arms have their outer ends formed with bearings 74 for the shafts 66, 67 which latter carry sprocket wheels 75, 76 arranged in transverse alinement with the sprocket wheel 77 on the shaft 44. A sprocket chain 78 indicated in dotted lines in Figs. 2 and 5 passes around the wheels 75, 76, 77 and imparts the motion of the shaft 44 to the tool carrying shafts 66, 67. For the purpose of swinging the frame or hangers 65 and holding it in adjusted position, I provide a hand lever 79 upon a brace connecting the bars 72 and arranged upon said levers a guide 80 for a curved supporting bar 81 which is pivoted in a bearing 82 upon the table 9. A set screw 83 is arranged in a threaded opening in the lever 79 and is adapted to impinge against the supporting bar 81 to rigidly connect the lever to the latter and thus retain the frame or hanger 65 in an adjusted position with one of its tool carrying shafts arranged in an operative position or in alinement with the work upon the boring table 38 or in the spoke brace 34.

From the foregoing it will be seen that when a wheel is clamped upon the head block 25 of the carriage its spokes may be successively cut off at an equal length by swinging the saw transversely as they are successively adjusted in the spoke brace 34. By shifting the hand lever 17 the carriage may be adjusted longitudinally so that the spokes may be cut off at any desired length. After the spokes have been cut off the belt 47 is shifted to the loose pulley 49 and the hanger 52 is hung up out of the way by the hook or catch 64. The spokes may be then successively pointed by adjusting the frame or hanger 65 so that the shaft 66 which carries the pointing tool 68 is in proper alinement with the work. As each of the spokes is adjusted in the brace or support 34 the lever 17 is rocked so as to bring such spoke up to the tool 68. After the spokes have all been pointed tenons may be successively cut upon them in a similar manner after the frame 65 has been adjusted to bring the shaft 67 into an operative position. After the spokes have been cut

off, pointed and tenoned the wheel is removed and the felly or rim may then be bored by removing the tool from one of the shafts 66 and 67 and substituting a suitable bit and then reciprocating the carriage with the rim supported upon the table or bed 38.

While the machine is especially designed for performing the work above mentioned it will be seen that it may be conveniently used for other purposes.

Having thus described my invention what I claim is:

1. In a machine of the character described, a main frame having a horizontal portion consisting of connected side bars adapted to serve as tracks and a vertical portion consisting of connected side pieces arranged at one end of said side or track bars, guides arranged upon the inner faces of said side pieces, supporting rollers journaled in said guides, a reciprocatory work carriage having connected side bars and depending legs arranged at the outer ends of said side bars, the inner ends of said side bars being engaged with said guides and supported upon said rollers, a cross bar connecting the lower ends of said legs, flanged wheels journaled upon said cross bar and adapted to engage the side or track bars of the horizontal portion of the frame a transversely swinging tool carrier upon the vertical portion of the main frame, work holding means upon the carriage and means for reciprocating said carriage, substantially as set forth.

2. In a machine of the character described, a main frame having a horizontal portion consisting of connected side bars adapted to serve as tracks and a vertical portion consisting of connected side pieces arranged at one end of said side or track bars, guides arranged upon the inner faces of said side pieces, supporting rollers journaled in said guides, a reciprocatory work carriage having connected side bars and depending legs arranged at the outer ends of said side bars, the

inner ends of said side bars being engaged with said guides and supported upon said rollers, a cross bar connecting the lower ends of said legs, flanged wheels journaled upon said cross bar and adapted to engage the side or track bars of the horizontal portion of the frame, a transversely swinging tool carrier upon the vertical portion of the main frame, work holding means upon the carriage a transverse rock shaft journaled in the vertical portion of the frame and having one of its ends projecting through one of said side pieces, a hand lever upon the projecting end of said rock shaft, a crank upon the inner end of said rock shaft, and a connecting rod having one of its ends pivoted to the cross bar connecting the legs of the carriage and its other end adjustably connected to said crank, substantially as set forth.

3. In a machine of the character described, a main frame having uprights arranged upon one side thereof, a longitudinal shaft journaled in bearings upon said uprights, a shaft hanger consisting of V-shaped end members connected by longitudinal and transverse bars and having at their closed ends pivot or bearing openings to receive said shaft and at their open ends longitudinally alined bearings, parallel tool carrying shafts arranged in the bearings upon the outer ends of said V-shaped end members of said hanger, means for driving said tool carrying shafts from the first mentioned one, a lever connected to said hanger and provided with a guide, a curved bar pivoted upon the main frame and slidable in the guide and a set screw arranged in the lever for engagement with said bar for securing the hanger in an adjusted position, substantially as set forth.

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

JUUL G. STOEN.

Witnesses:

J. H. SKOGRAND,
C. O. ERICKSON.