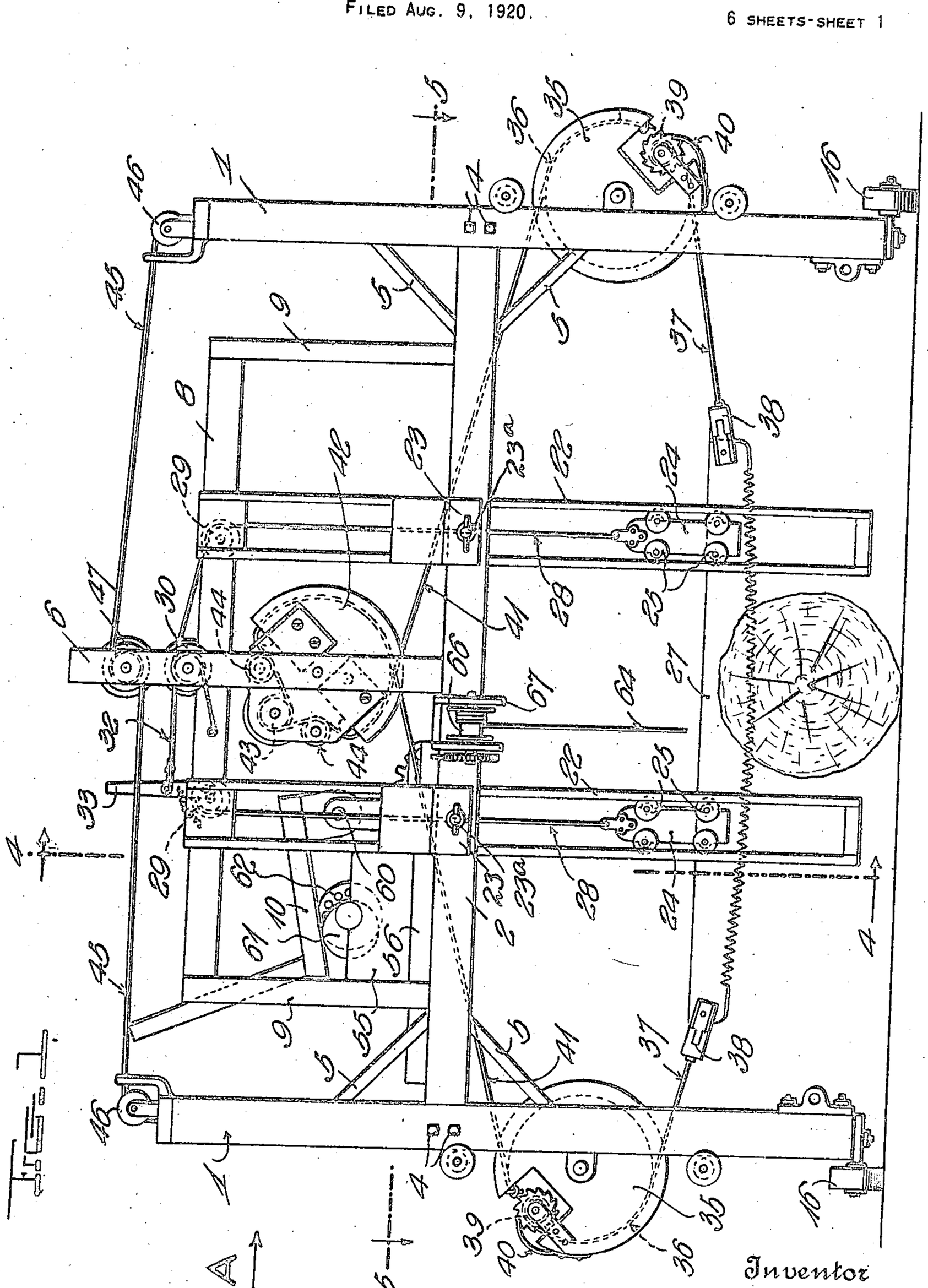
Jan. 2, 1923.

1,440,461

N. HANSEN.
WOOD SAWING MACHINE.
FILED AUG. 9, 1920.

6 SHEETS-SHEET 1



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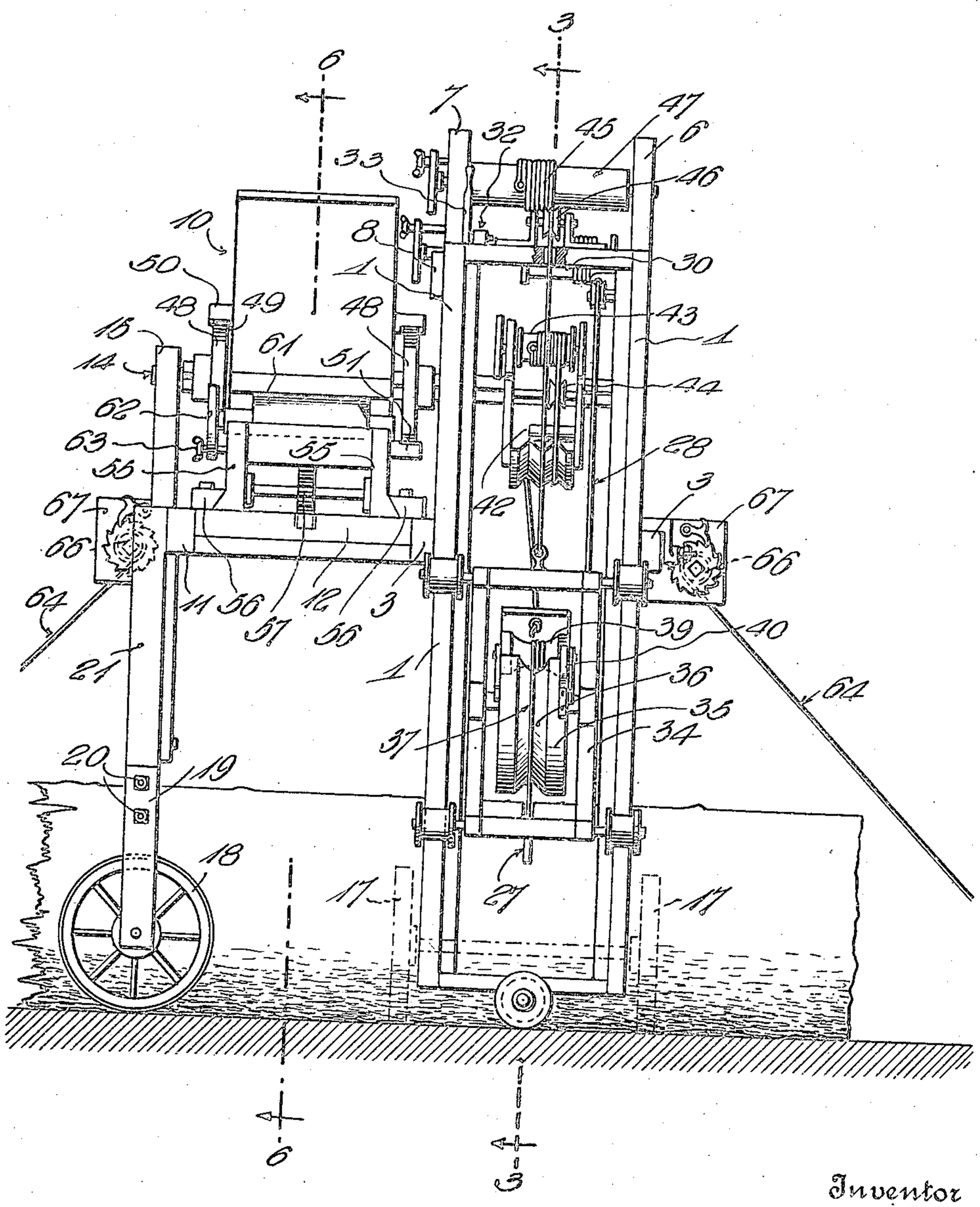
6 SHEETS-SHEET 2

FIG. 2



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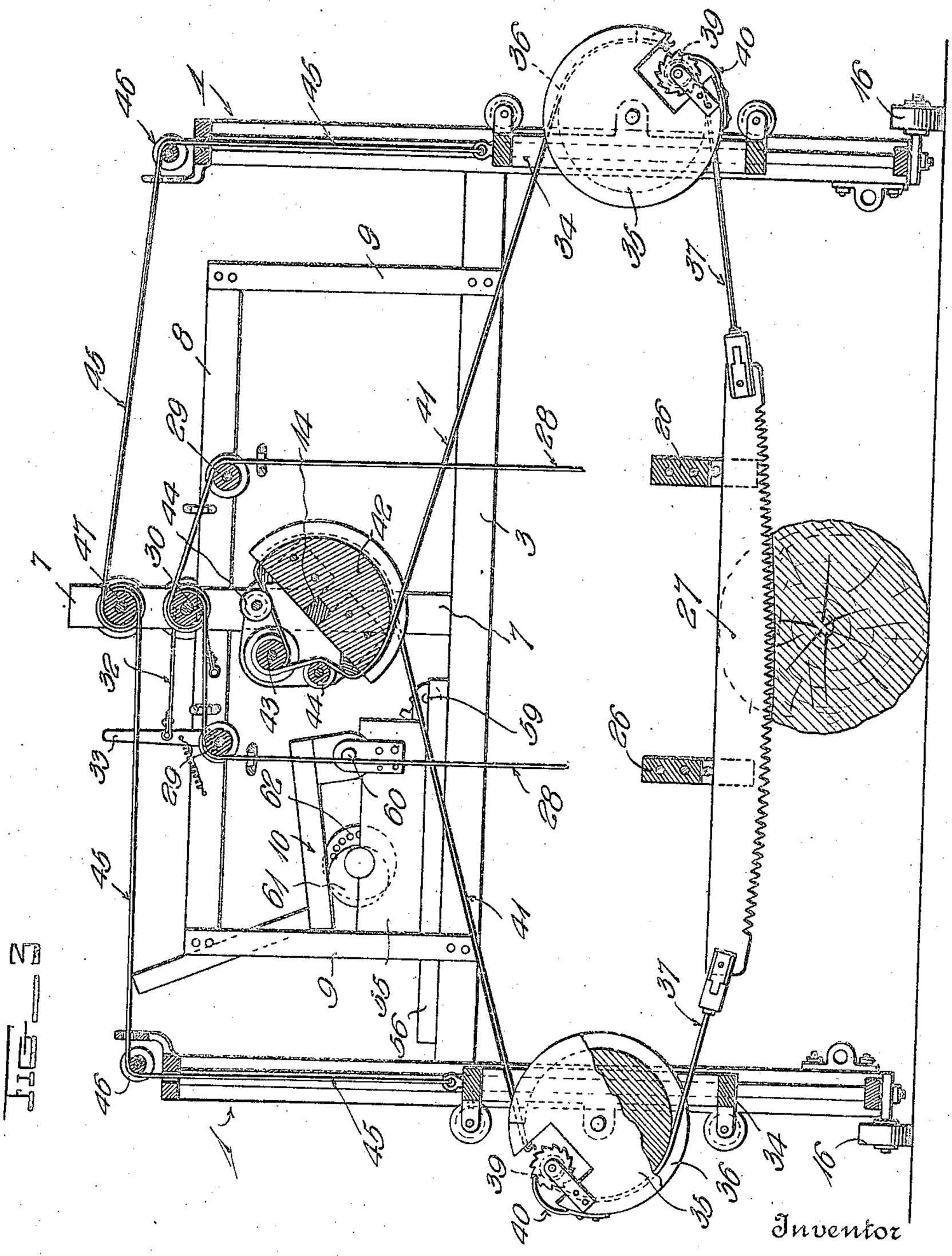
6 SHEETS-SHEET 3



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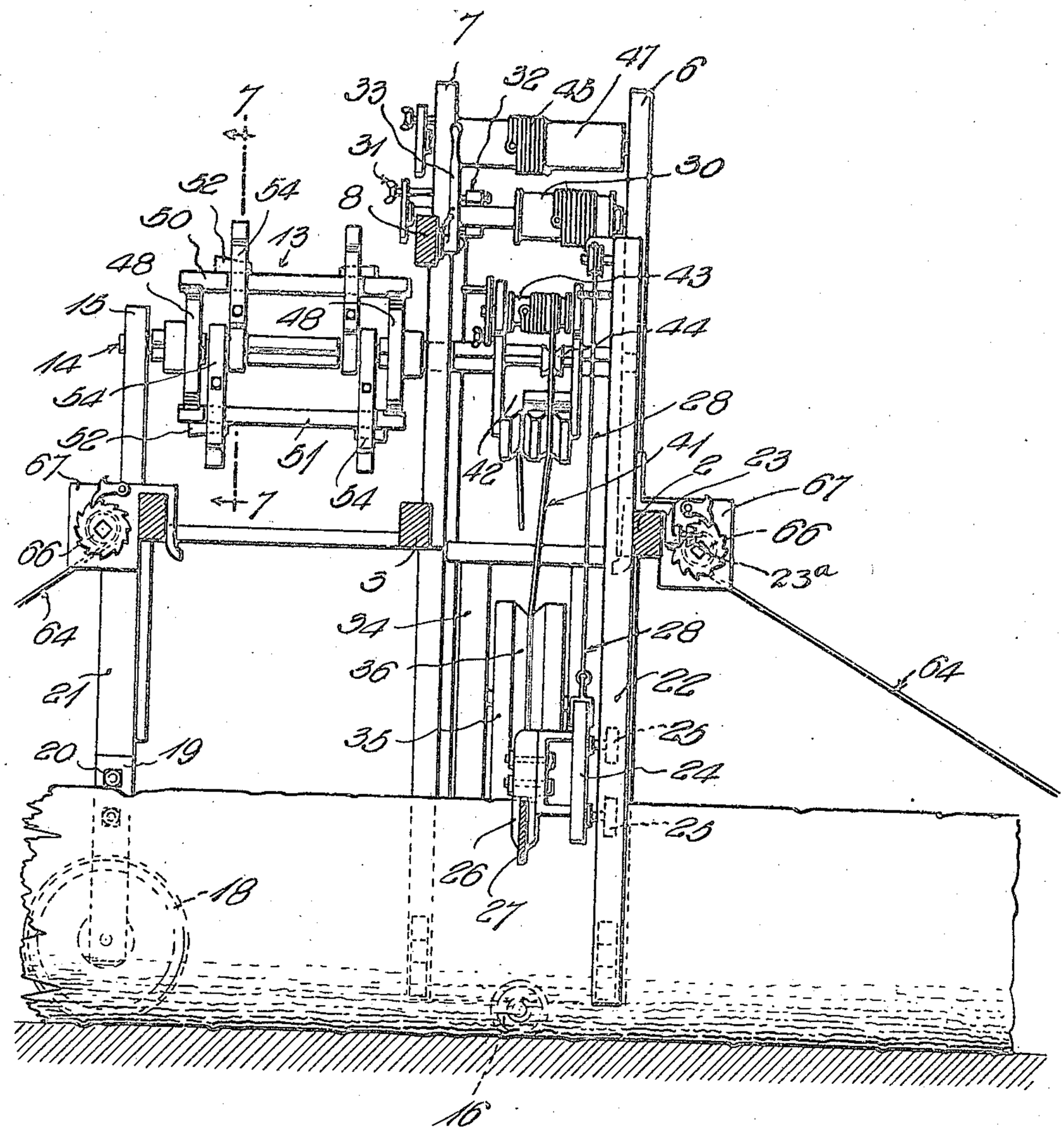
6 SHEETS-SHEET 4

FIG. 4



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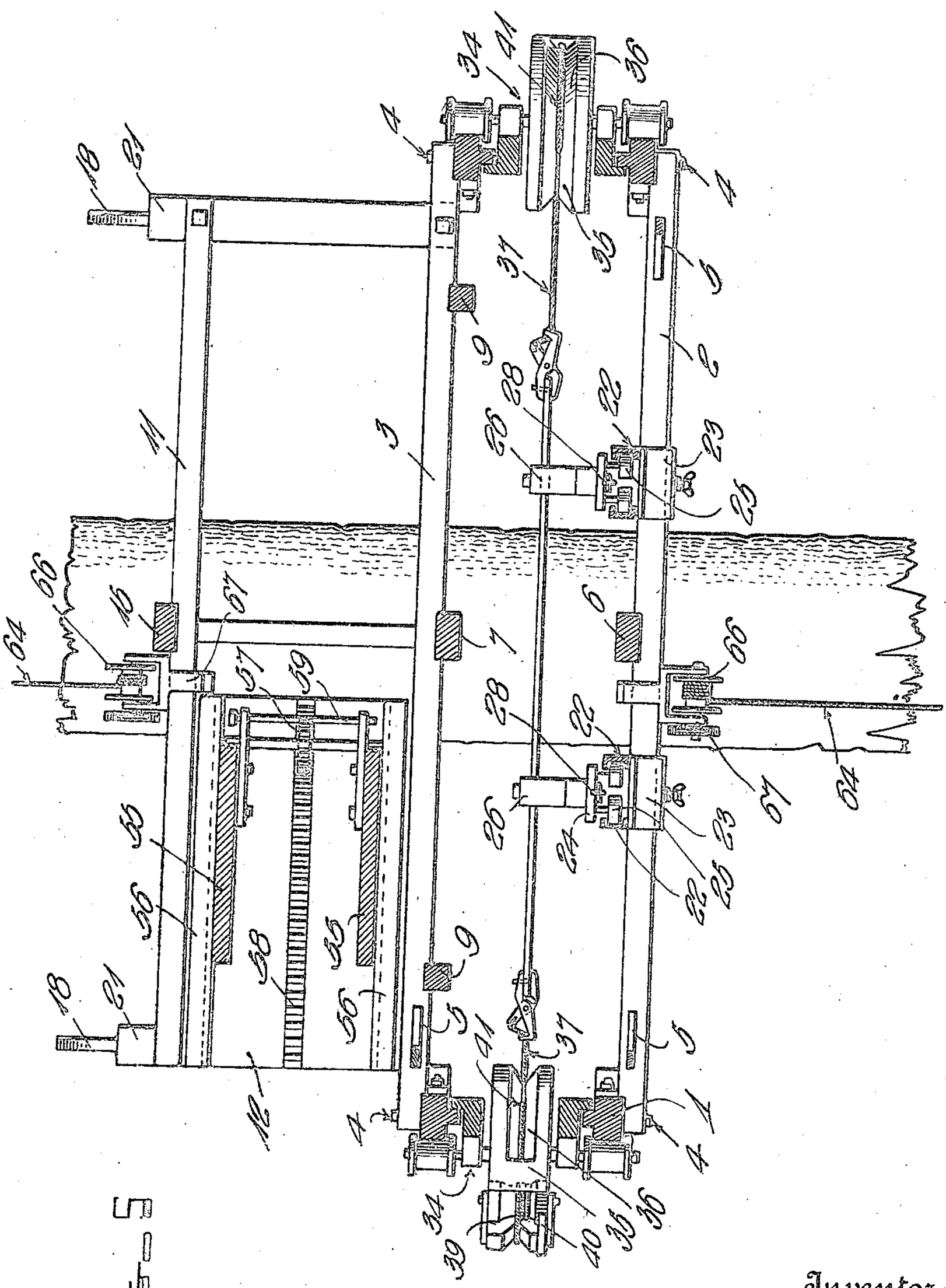
6 SHEETS-SHEET 5



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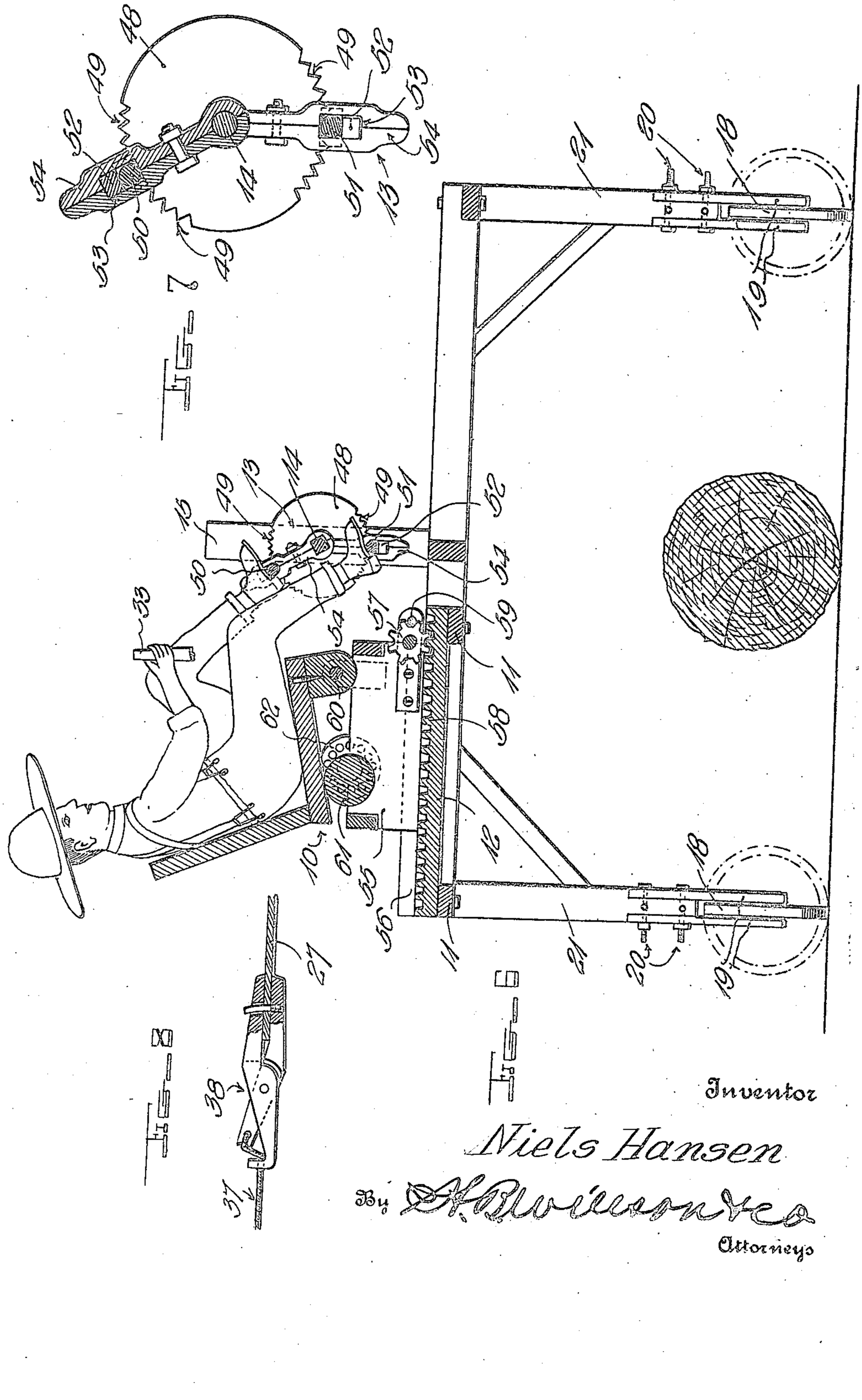
6 SHEETS-SHEET 6



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Patented Jan. 2, 1923. 1,440,461

UNITED STATES PATENT OFFICE.

NIELS HANSEN, OF EAST STANWOOD, WASHINGTON.

WOOD-SAWING MACHINE.

Application filed August 9, 1920. Serial No. 402,134.

To all whom it may concern:

Be it known that I, NIELS HANSEN, a citizen of the United States, residing at East Stanwood, in the county of Snohomish and State of Washington, have invented certain new and useful Improvements in Wood-Sawing Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in wood sawing machines and has for its principal object to greatly improve the construction shown by my U. S. Patent No. 1,110,777 of September 16, 1914.

One object is to provide a sawing machine which may be operated by a foot treadle instead of by a hand lever as in my previous machine, and in this connection a further object is to provide an elevated platform for adjusting both the operator's chair and the foot treadle.

Another object is to provide a machine which may be manufactured and marketed at little expense, easily and efficiently operated, readily shifted from place to place when necessary, and easily knocked down for transportation.

With the foregoing and minor objects in view, the invention resides in the novel construction and arrangement of parts hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawings.

Figure 1 is a side elevation of my improved wood sawing machine illustrating the same in use upon a log.

Figure 2 is an end elevation looking in the direction of the arrow A of Fig. 1.

Figure 3 is a vertical longitudinal section taken substantially on the plane of line 3—3 of Fig. 2.

Figure 4 is a vertical transverse section as indicated by line 4—4 of Fig. 1.

Figure 5 is a horizontal sectional view as designated by the line 5—5 of Fig. 1.

Figure 6 is a vertical longitudinal section substantially on the line 6—6 of Fig. 2.

Figure 7 is an enlarged detail vertical section of the foot treadle taken on line 7—7 of Fig. 4.

Figure 8 is a top plan partly in horizontal section, showing the preferred manner of connecting the saw with its operating cable.

In the drawings above briefly described, the numeral 1 designates a pair of vertically elongated end frames which are connected at their front and rear sides by horizontal beams 2 and 3 respectively, said beams and frames being by preference detachably connected by bolts or the like 4 and relatively braced by suitable braces 5. A central standard 6 is shown rising from the beam 2, while a similar standard 7 rises from the beam 3, the latter standard being connected with the central portion of a horizontal bar 8 which is supported at its ends by other standards 9 rising from the beam 3, said bar 8 being located adjacent the operator's chair 10 and constituting an arm rest. A suitably constructed horizontal frame 11 extends rearwardly from and is by preference detachably connected with the beam 3, said frame 11 carrying a platform 12 upon which the chair 10 is mounted. In advance of the chair 10, a foot treadle 13 is located for operating all moving parts of the machine, and by novel features of construction, yet to be described, both the treadle and chair are adjustable. The treadle 13 operates a main transverse drive shaft 14 which is rotatably supported by the two standards 6 and 7 and by a relatively short standard 15 rising from the frame 11.

When the machine is in operation, the end frames 1 are supported by rollers 16 but when the machine is to be carried from place to place, relatively large wheels 17 may be substituted for said rollers, and indicated in dotted lines in Fig. 2. Other wheels 18 support the frame 11 and as shown, are mounted in forks 19 which are detachably bolted at 20 to suitably braced legs 21 depending from the aforesaid frame. When the machine is set up for use and must, therefore, be moved along a log or a stack of poles, the wheels 18 are positioned to travel in the same direction as the rollers 16, but when the machine is to be drawn from one place to another, the forks 19 are detached from the legs 21 and turned to position the wheels 18 at right angles to their previous positions. The wheels 17 are then substituted for the rollers 16 and these wheels coact with the wheels 18 in supporting the machine while it is being moved from one place to another. Whenever the machine is to be moved an unusual amount,

especially when the ground is very rough or full of stumps, the entire machine is preferably knocked down and carried to the destination, and then again set up for use, but otherwise the wheels 17 and 18 may be used when moving the machine from one location to another.

A pair of vertically elongated runways 22 are detachably connected by clamps or the like 23 to the longitudinal beam 2, and slides 24, preferably having antifriction rollers 25, are movable vertically along said runways, said slides having downwardly opening saw-guides 26 which slidably receive a cross cut saw 27 which may be of any desired form. A comparatively light saw, however, is preferably employed in order that it may be more easily operated. Attention may here be directed to the fact that the clamps 23 are of downwardly-opening, hook-shaped formation, so that it is simply necessary to hook them over the beam 2, set screws 23[a] being threaded through said clamps so that they may be held in place after they have been adjusted to the proper position along the beam. To detach the clamps and the guideways 22 carried thereby, when the entire machine is disassembled to be moved from one place to another rather remote point, it is simply necessary to loosen the set screws 23[a] and unhook the clamps 23 from the beam 2. Cables 28 rise from the slides 24, are trained over sheaves 29 at the upper ends of the runways 22, and are connected to a manually rotatable drum 30 which is suitably mounted between the standards 6 and 7. Any suitable means, such as a pin 31 may be employed for holding the drum 30 normally against rotation, but whenever desired, this pin may be removed so that the weight of the slides 24 and the guides 26 will act to feed the saw 27 downwardly. I prefer to employ some suitable brake, such as a strap 32 and a hand lever 33 for controlling the rotation of the drum 30 in a direction to permit unwinding of the cables 28 and it will therefore be seen that the amount of downward pressure exerted on the saw 27 by the slides 24 and the guides 26, may be readily controlled. The lever 33 is preferably mounted on the bar 8 adjacent the operator's chair 10 so that it may be readily controlled.

Attention may here be directed to the fact that by the provision of the drum 30 and the cables 28, the saw guides may be raised and lowered as desired, independently of the carriages 34 which may be adjusted vertically along the end frames 1. In my previous patent, the corresponding slides and carriages could be adjusted only in unison and this was found to be a great handicap in the proper operation of the machine. Attention is also directed to the fact that whereas in my patented machine, I employed a pair of segments on the carriages 34 for guiding and actuating the operating cables of the saw, I now employ a pair of complete wheels 35 peripherally grooved as at 36 to guide the cables. There is thus no possibility of these cables jumping from the wheels and interfering with proper operation of the machine. Cables 37 are shown connected with opposite ends of the saw 27, by suitable clamps 38, the outer ends of said cables being attached to drums 39 mounted on the wheels 35 so that slack may be removed from said cables whenever necessary. The drums 39 are provided with suitable means 40 for locking them against retrograde motion after they have once been adjusted properly. The cables 37 travel in the peripheral grooves 36 and the operating cables 41 for the wheels 35 are also received in said grooves. The cables 41 pass oppositely around a segment 42 which is rigidly carried by the drive shaft 14 between the standards 6 and 7. The segment 42 is provided with suitable peripheral grooves to receive the cables 41 and is also equipped with a drum 43 to which said cables are secured so that they may be tightened as required. Appropriate guides 44 are carried by the segment 42 for the cables 41 and any desired locking means may be employed for the drum 43.

For vertically adjusting the carriages 34 as required, cables 45 extend upwardly from said carriages over suitable guides 46 at the upper ends of the frames 1, said cables being wound around a drum 47 which is rotatably mounted between the standards 6 and 7 above the drum 30. Drum 47 may be equipped with any suitable means for holding it in adjusted position.

As disclosing the preferred form of foot treadle, reference may be made more particularly to Figs. 2, 4 and 7. A pair of wheels 48 are rigidly secured upon the drive shaft 14 and are provided with peripheral teeth 49 with which the ends of an upper foot bar 50 and a lower foot bar 51 are adjustably engaged. The bars 50 and 51 may be adjusted along the peripheries of the wheels 48 until the most advantageous and convenient relation is obtained, and although said bars could then be locked in position by any preferred means, I have shown wedges 52 for this purpose, said wedges being driven into openings 53 in radial arms 54 which carry the bars 50 and 51, said arms 54 being free to swing on the drive shaft 14.

When the operator rests one foot on the bar 50 and the other on the bar 51, while sitting upon the chair 10, he may conveniently oscillate the treadle 13, thereby similarly moving the drive shaft 14 and the segment 42, with the result that the cables 41 are alternately pulled upon, thereby rocking

the wheels 35 to and fro and actuating the cables 37 in a manner to reciprocate the saw 27.

In order to obtain the best results, it is desirable that the chair 10 be adjustable both in height as well as to and from the treadle 13. These adjustments may of course be effected in numerous ways, but the construction shown is by preference followed. A chair base 55 is movably and detachably mounted on the platform 12, being preferably received between parallel rails 56 on said platform. A hand operated gear 57 is carried by the base 56 and engages a rack bar 58 on the platform 12, whereby the base may be moved toward or from the foot treadle 13 as occasion may dictate. Any preferred means, such as a removable pin 59, may be employed to lock the gear 57 against rotation, thereby holding the base 55 in adjusted position. The chair seat is hinged at 60 on the base 55 and an eccentric 61 is shown for raising and lowering the rear end of said seat, whereby both the inclination of the chair back and the height of the seat may be controlled. In Fig. 2, I have shown a hand wheel 62 for adjusting the eccentric 61 and this hand wheel may be locked when set, by any preferred means such as the removable pin 63.

For the purpose of moving the entire machine along a log or a pile of poles to set the saw for successive cuts, I employ a pair of guys 64 whose upper ends are mounted on appropriate drums 66. These drums are shown carried by clamps 67 which are secured respectively to the front beam 2 of the frame and the rear side bar of the frame 11. By unwinding one guy from its respective drum and winding the other, the entire machine may be pulled along as required.

In operation, the machine is set up as shown, the chair 10 and the foot treadle 13 are adjusted to suit the needs of the operator, the carriages 34 and the slides 24 are disposed at the most advantageous positions, and the foot treadle is then oscillated. This movement, through the instrumentality of the connections provided, reciprocates the saw 27 and cuts the log or bundle of poles as the case may be. As the saw feeds downwardly, the slides 24 may be gradually lowered as is also true of the carriages 34, but attention is directed to the fact that said slides may be raised or lowered as required independently of any movement on the part of the carriages 34. The weight of these slides when allowed to act upon the saw 27, serves to hold the latter more effectively to the work, and the amount of downward stress exerted by said slides on the saw, may be controlled by means of the lever 33 and brake strap 32. Whenever necessary, the cables 37 and 41 may be adjusted by means of the drums provided for that purpose, the drum 43 being rotated to slacken the cable 41 by the hand of the operator, similar to the action in Patent 1,110,777, above identified, and after each successive cut, the entire machine may be advanced along the log or the like by operating the drums 66 in the manner above described. Since the chair 10 is removable from the tracks 56, it may be entirely detached from the machine and carried to a place of shelter at night, insuring a dry seat for the next day's work.

From the foregoing taken in connection with the accompanying drawings, it will be seen that although certain analogy exists between the present application and my patented machine above referred to, I have greatly improved the old structure, principally by having the saw feed downwardly instead of upwardly; by providing independent adjustments for the carriages 34 and the slides 24; by employing complete wheels 35 instead of segments; by using a suitable form of friction brake for controlling the lowering of the slides 24; and by employing an adjustable foot treadle and chair instead of a hand lever. Since probably the best results may be obtained from the several features of construction shown, such features may well be followed if desired, but within the scope of the invention as claimed considerable latitude is allowed for embodying the machine in other forms than that shown.

I claim:

A wood sawing machine comprising a frame including a horizontal elevated beam, a saw below said beam, means on the frame for operating said saw, a pair of vertical guideways having carriages for guiding the saw and following the same as it advances through the work, said carriages being provided with downwardly-opening, hook-shaped clamps which are hooked over and adjustable along said beam, and set screws threaded through said hook-shaped clamps and engaging said beam to hold the clamps and guideways in adjusted position thereon and to permit easy detachment of said guideways from said beam.

In testimony whereof I have hereunto set my hand.

NIELS HANSEN.