

No. 855,650.

PATENTED JUNE 4, 1907.

W. W. MILLER.
STACKER.

APPLICATION FILED JAN. 29, 1904.

3 SHEETS—SHEET 1.

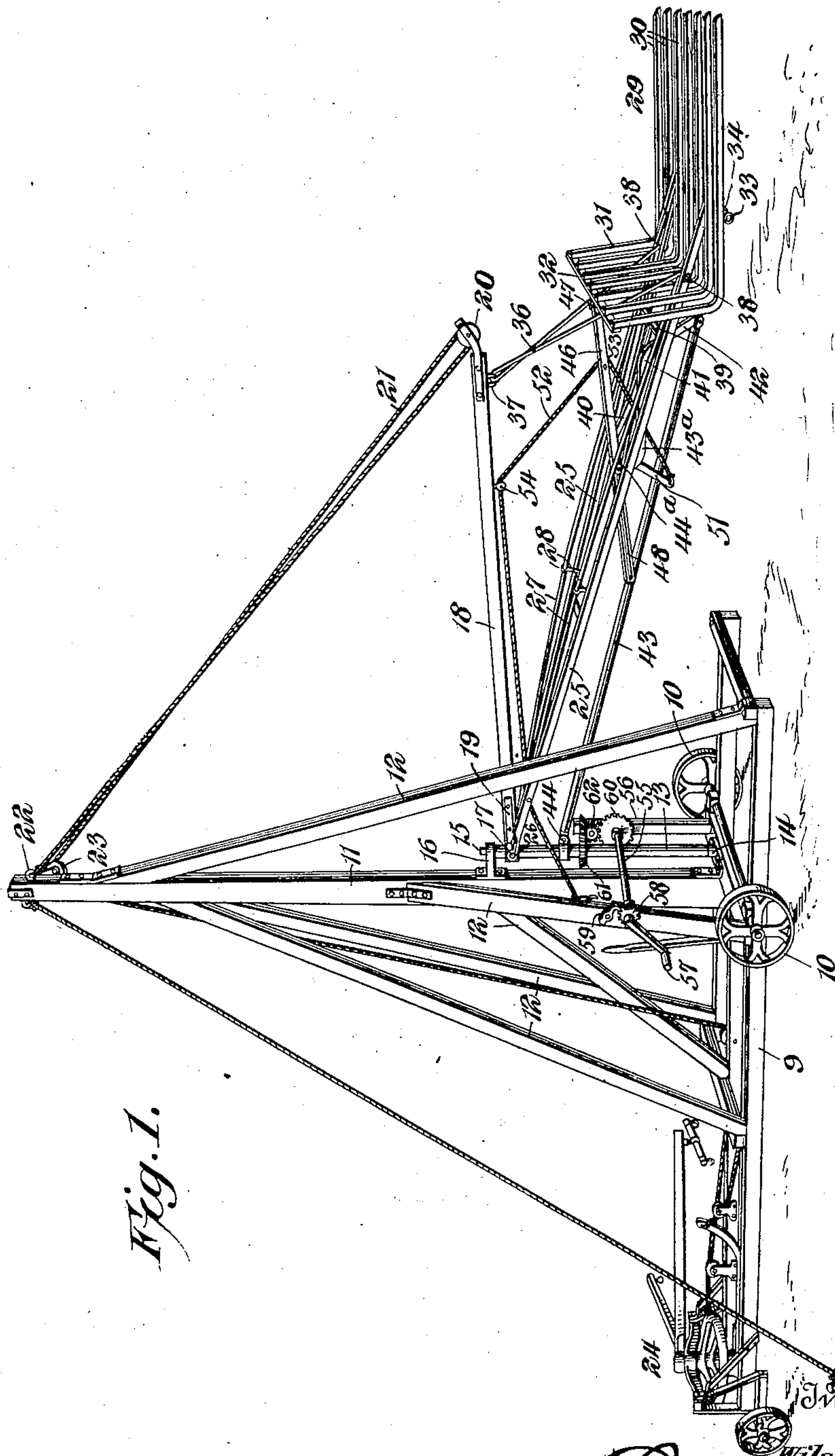


Fig. 1.

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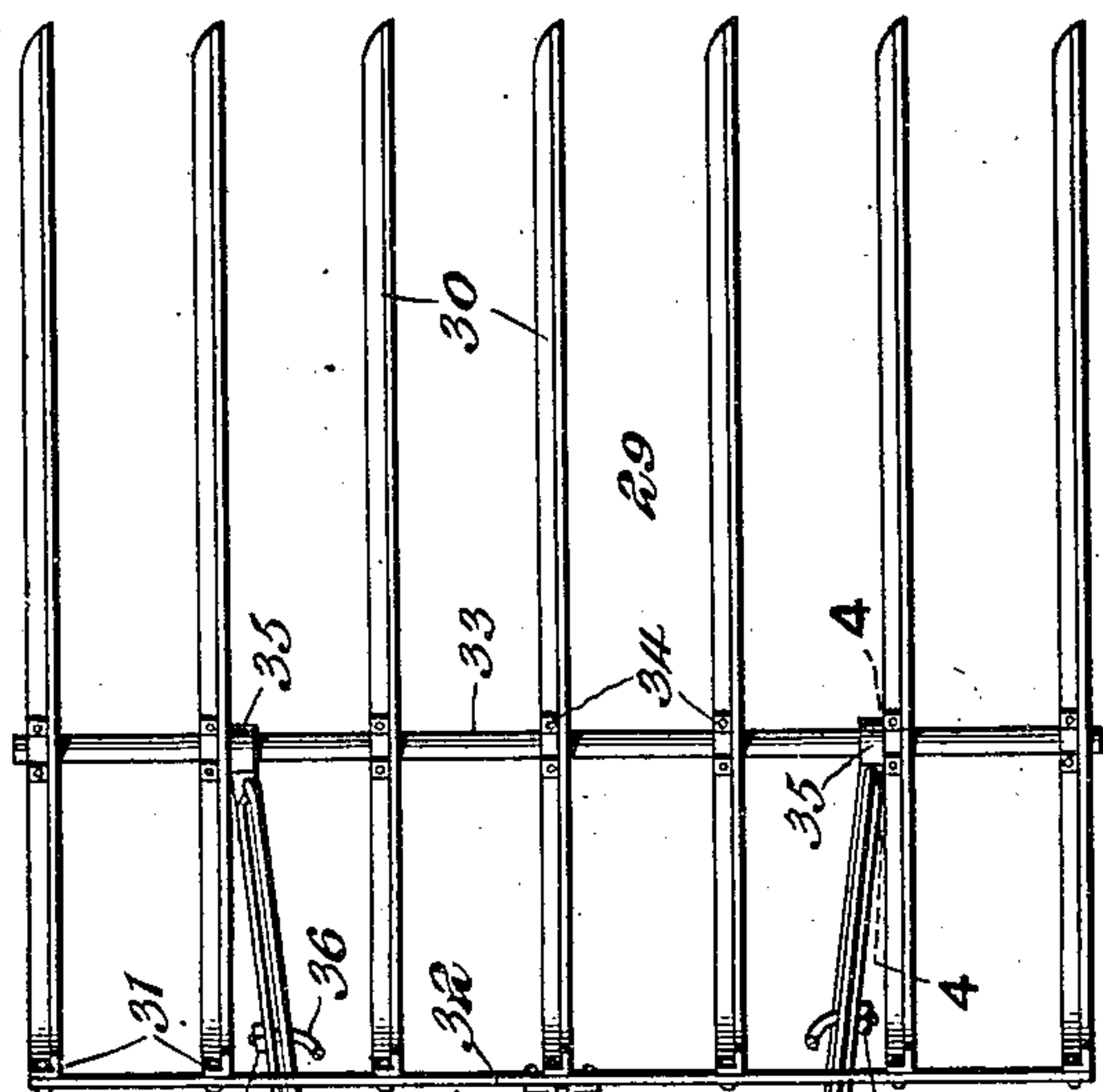


Fig. 2.

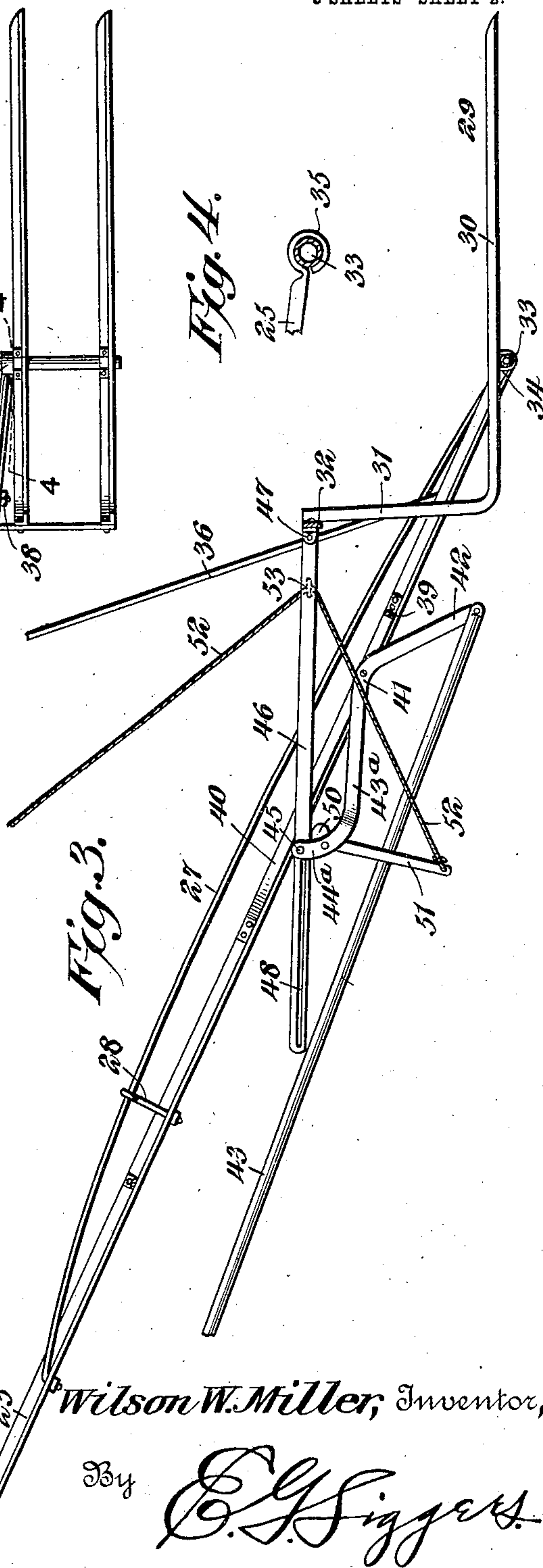


Fig. 3.

Fig. 4.



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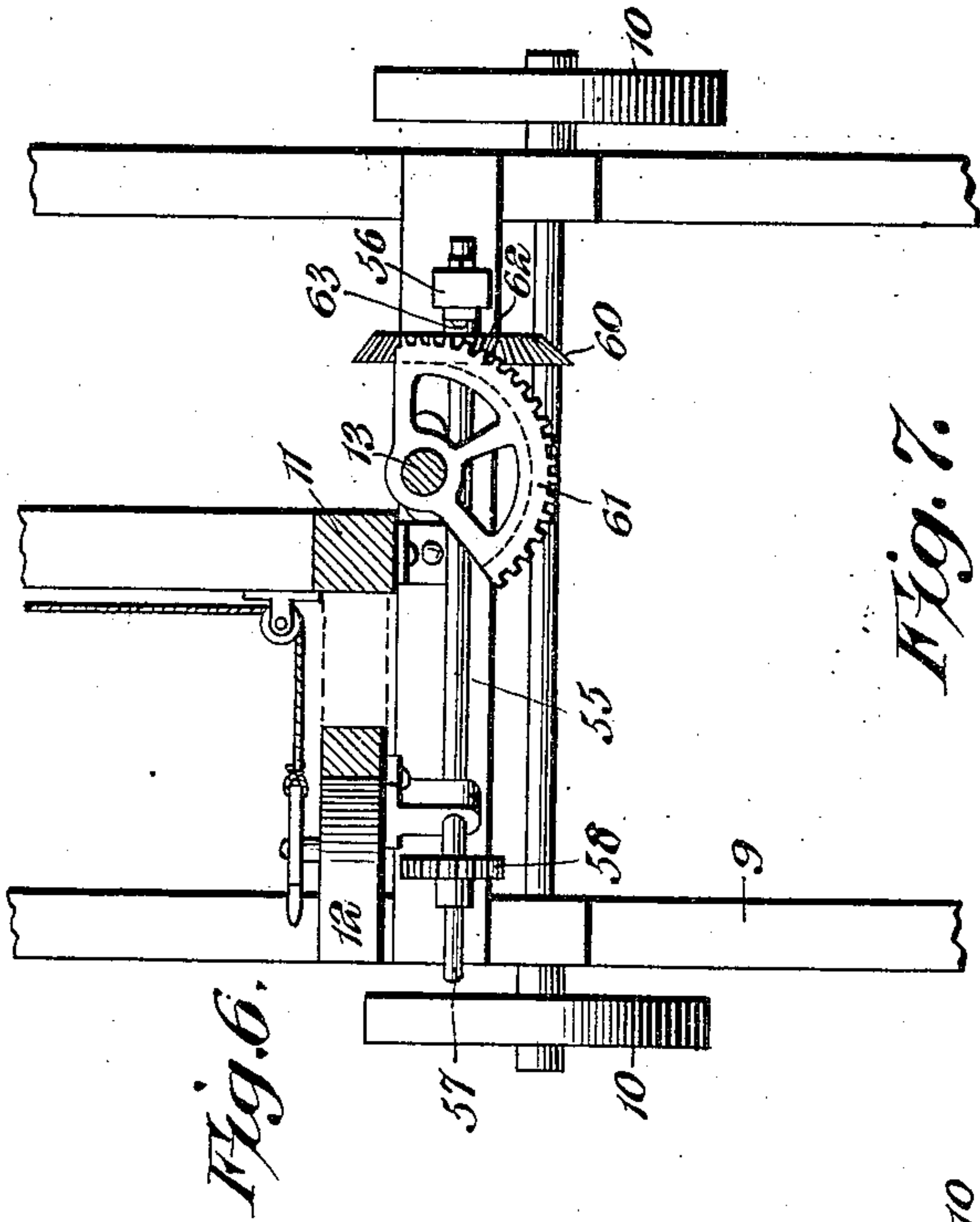


Fig. 6.

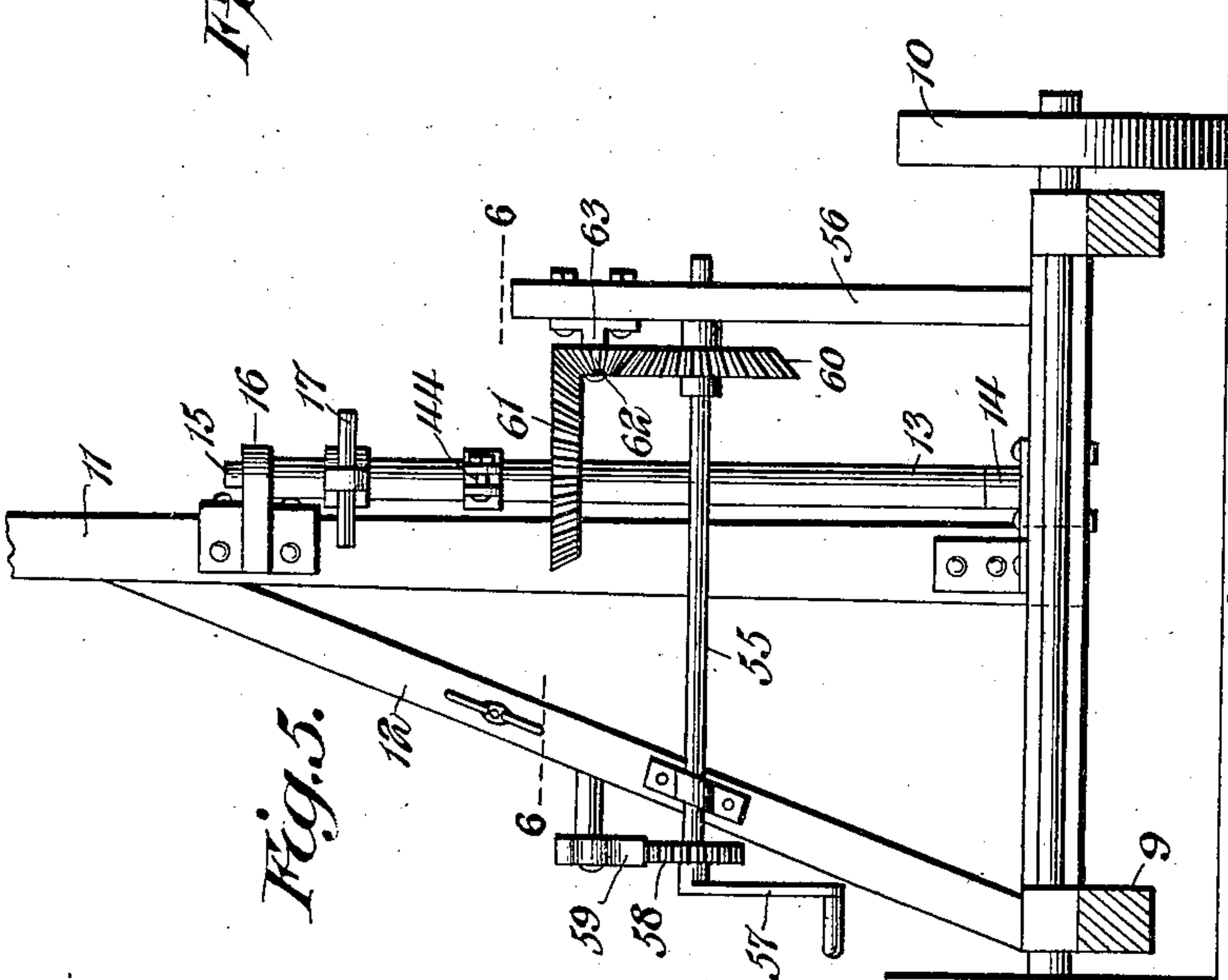
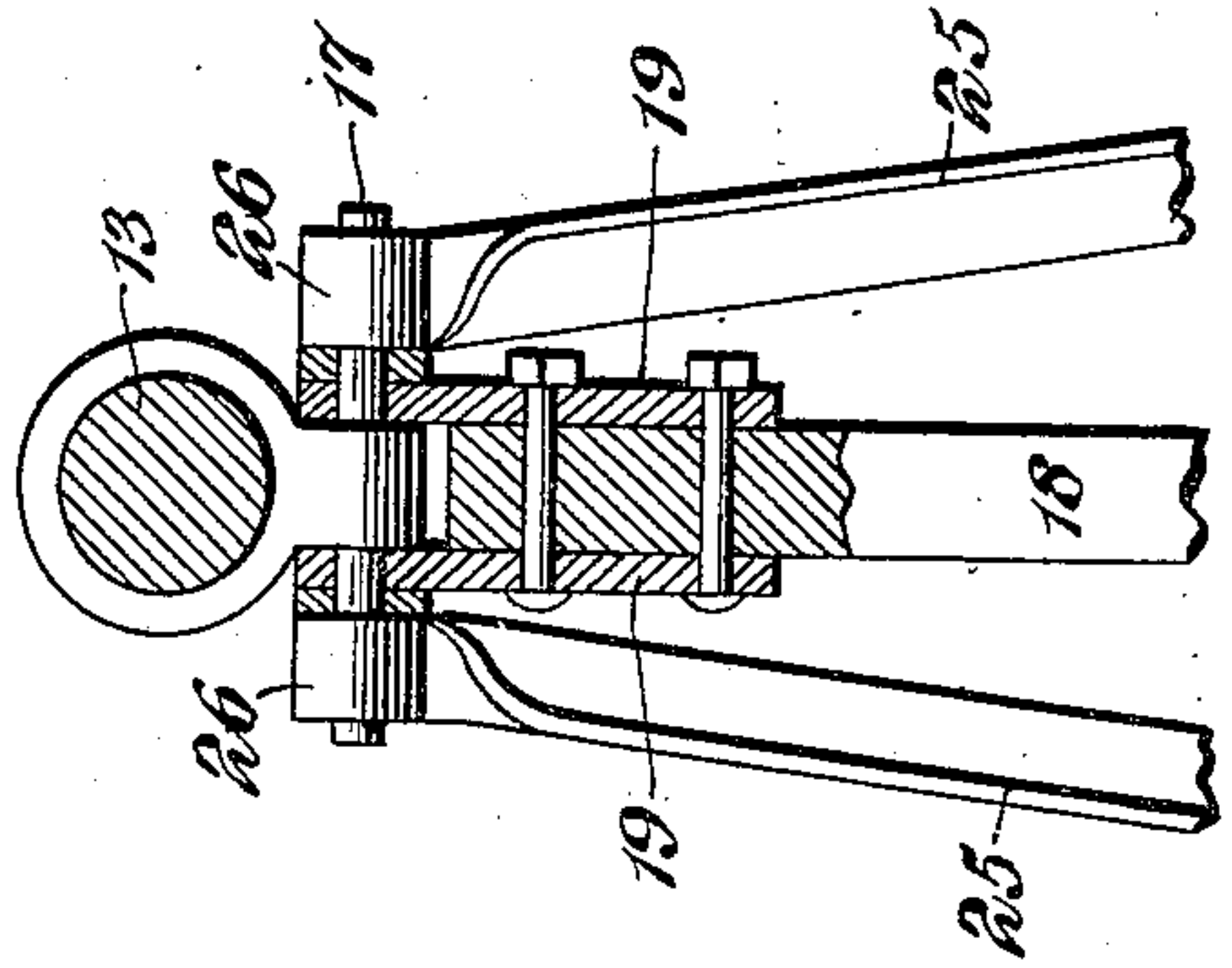
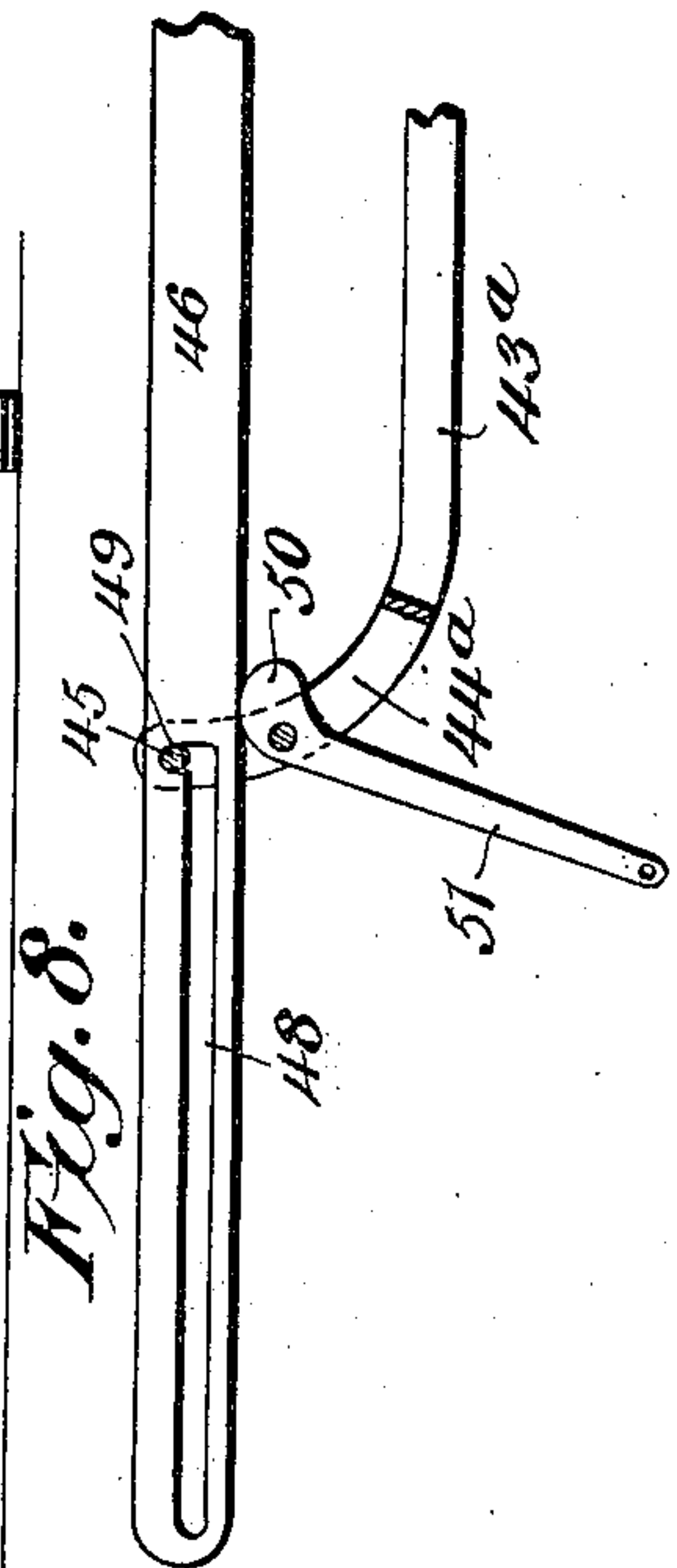


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILSON W. MILLER, OF NEWTON, KANSAS.

STACKER.

No. 855,650.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed January 29, 1906. Serial No. 298,529.

To all whom it may concern:

Be it known that I, WILSON W. MILLER, a citizen of the United States, residing at Newton, in the county of Harvey and State of Kansas, have invented a new and useful Stacker, of which the following is a specification.

This invention relates to improvements in means for stacking hay, fodder, and the like.

One of the principal objects is to provide novel and simple means for effecting the lateral swinging movement of the fork and the holding of the same in different lateral positions.

A further and important object is to provide an improved structure for elevating and controlling the tilting of the fork, said structure being strong and able to withstand the strain of heavy loads and hard usage.

An embodiment of the invention that is at present considered the preferable one is illustrated in the accompanying drawings, and is described in the following specification.

In said drawings:—Figure 1 is a perspective view of the stacker. Fig. 2 is a plan view of the fork and the controlling means associated therewith. Fig. 3 is a side elevation of the same. Fig. 4 is a detail sectional view on the line 4—4 of Fig. 2. Fig. 5 is a cross sectional view through the structure. Fig. 6 is a horizontal sectional view on the line 6—6 of Fig. 5. Fig. 7 is a detail horizontal sectional view through the supporting post and the hinged connections therewith. Fig. 8 is a detail sectional view illustrating the holding or locking mechanism for the fork.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the particular embodiment disclosed, a suitable frame is employed, comprising a base 9, which may be supported on wheels 10 if desired for the purpose of transportation. Mounted on this base is an upright mast 11, suitably braced, as shown at 12. Disposed at one side of the mast 11 is a rotatable supporting post 13, the lower end of which has a suitable step bearing 14, the upper end having an axle or pintle portion 15, rotatably mounted in a bearing 16 that is suitably fastened to the side of the post 11. Secured to the post 13 contiguous to its upper end is a transversely disposed pintle or pivot 17, shown more particularly in Figs. 5 and 7.

A hanger bar 18 is provided at its inner end with ears 19 that are journaled on the pintle 17 on opposite sides of its connection with the post 13. The outer end of said hanger bar carries a pulley 20, around which passes an elevating and lowering cable 21, one end of said cable being secured, as shown at 22 to the upper end of the mast 11, said cable also passing about a pulley 23 hung from said upper end of the mast. The cable from said pulley 23 passes downwardly to the base, and thence to suitable hoisting mechanism 24, which while it may be of any suitable character, is preferably that disclosed in the patent granted to me on June 26, 1906 No. 824,258. It will thus be seen that by means of the hoisting mechanism 24, the hanger 18 may be swung vertically.

Spaced and preferably divergent arms 25 have eyes 26 at their inner ends that are journaled upon the pintle 17, these arms being preferably constructed of angle iron. They are braced and reinforced by truss-rods 27, the ends of which, as shown in Figs. 2 and 3, are secured to the end portions of the arms. Spreaders 28 are interposed between intermediate portions of the arms, and truss-rods. A fork 29 is mounted on the outer ends of the arms 25. This fork consists of tines 30, preferably formed of angle iron, and having upturned rear ends 31 connected by a cross-piece 32. A pivot rod or tube 33 is located beneath and transversely of the tines, and is secured thereto by suitable clips 34. The outer ends of the arms 25 are pivoted to the rod 33 preferably by having the ends of said arms looped about the same to form hinge ears 35, as illustrated in Fig. 4. The arms 25 are connected to the outer end of the hanger bar 18 by means of a bail 36, the central portion of which passes through a suitable staple or keeper 37 on the underside of the bar 18, the ends of said bail being pivoted as shown at 38 to the arms contiguous to the rear end of the fork 29.

Extending between the arms 25 and in rear of the fork is a cross-bar 39, and spaced braces 40 secured to the cross-bar are also secured to said arms. A locking device substantially in the form of a bell crank lever 41 is pivoted to and between the braces 40, and one of the arms 42 thereof has a pivotal connection with a link 43, which link is also pivoted as shown at 44 to the supporting post 13 below the pintle 17. The other arm 43^a of the locking device has an outturned terminal

44^a that is in the form of a yoke, the space between the arms of said yoke being bridged by a pin 45. A holding device in the form of a bar 46 has a pivotal connection 47 with the cross-piece 32 of the fork. The rear portion of said holding device slidably passes through the yoke 44^a of the locking device, and has a longitudinal slot 48 that receives the pin 45, and permits the longitudinal movement of the holding device. One end of the slot 48 has an offset 49 that is arranged to receive the pin 45, as shown in Fig. 8. Consequently the locking device 41 and holding device 46 will be detachably interlocked, and the fork will be held in a horizontal position without regard to the vertical swinging movement of the arms 25. The parts, however, are arranged to be disengaged, and for this purpose, an actuating cam 50 is pivoted in the yoke 44^a and bears against the underside of the holding bar 46. The cam 50 has an arm portion 51 to the free end of which is attached a suitable actuating cable 52, said cable passing through a guide 53 on the holding bar, thence through a pulley 54 on the hanger bar and to one of the braces 12, where it may be secured in any suitable manner.

For the purpose of effecting the lateral swinging movement of the fork and for holding the same in any of a plurality of lateral positions, the following mechanism is preferably employed. An actuating shaft 55 is journaled on one of the braces 12 and on a standard 56 disposed at one side of the post 13. One end of the shaft 55 has a suitable handle crank 57, and a toothed wheel 58 arranged to be engaged by a dog 59 mounted on the brace. The other end of the shaft 55 is provided with a beveled gear wheel 60. The post 13 is provided with a beveled segmental gear wheel 61, and interposed between the gear wheels 60 and 61 and intermeshing with both, is an idler beveled pinion 62 journaled on a suitable stud axle 63 secured to the upper end of the standard 56.

The operation of the mechanism may be briefly described as follows. When the fork is in its lowermost position, it is resting upon the ground, and therefore may be readily loaded. After having received its load, the hoisting mechanism 24 is thrown into operation, thus drawing upon the cable 21, and causing the upward swinging movement of the hanger bar. This of course through the medium of the bail 36 will effect a corresponding movement of the arms 25, and the fork. When the desired height of said fork has been attained, it is only necessary to disengage the dog 59 from the toothed wheel 58 and revolve the crank 57 in the desired direction, whereupon the post 13 will be rotated, and the fork with the associated mechanism, carried by the post, will in like manner be turned. During these various movements, the fork has been maintained in horizontal

position by means of the link 43, the locking device 42 and the holding device 46, the latter two elements being in their interlocked engagement already described. To deposit the load therefore, it is only necessary for the operator to draw upon the cord 52, whereupon the cam will be turned, and the holding bar 56 will be slightly elevated to disengage the pin 45 from the offset 49. Consequently the rod 46 being free, and the load overbalancing the fork, will cause said fork to tilt, so that said load will drop therefrom.

In this structure, there are several features of importance. In the first place, the particular structure and arrangement of the elevating mechanism for the fork is advantageous, as the elevating cable through the medium of the hanger bar and bail more evenly and perfectly supports the load. The bracing of the arms and the particular mounting of the locking and holding means is also desirable, and furthermore the location of the pivot rod 33 below the tines materially strengthens and reinforces the fork. A decidedly important feature is the means for laterally swinging the fork and holding it in different lateral positions. By means of the shaft, the gearing and the handle crank, the operator can remain in his position and effect the lateral swinging with ease and expedition, and can lock the fork in any lateral position by engaging the dog 59 with the toothed wheel 58. This is important, particularly in windy weather, as will be apparent.

From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In a stacker, the combination with a mast, of a rotatable post journaled alongside the same, a hanger hingedly connected to the post, a fork also hinged to the post, means connecting the fork to the hanger, and means movably mounted on the mast and connected to the hanger for elevating and lowering the hanger and thereby the fork.

2. In a stacker, the combination with a mast, of a rotatable post journaled alongside the same, a vertically swinging hanger bar hinged to the post, fork arms connected to the fork and hinged to the post, a bail pivoted between its ends to the hanger bar and having said ends connected to the arms, a pulley mounted on the mast, and a cable passing through the pulley and engaging the hanger

bar to vertically swing the same, and thereby raise and lower the fork.

3. In a stacker, the combination with a supporting frame including a mast, of a post mounted alongside the mast, a transversely disposed pintle arranged on the upper portion of the post, a hanger bar hinged at one end to the pintle, means connected to the mast and hanger bar for raising and lowering the latter, arms pivoted on the pintle on opposite sides of the hanger bar, a bail connected to the outer portion of the hanger bar and the outer portions of the arms, and a fork pivotally mounted on the outer ends of the arms.

4. In a stacker, the combination with vertically swinging spaced arms, of a fork pivoted to the outer ends of the arms, a cross bar between the arms, braces connecting the cross bar and the arms and disposed between the latter, a locking device pivoted to and between the braces, a holding device connected to the fork and having a detachable interlocking engagement with the locking device, means for effecting the disengagement of the lock and holding device to permit the tilting of the fork, and a swinging link connected to the locking device.

5. In a stacker, the combination with a fork having tines, of a single transverse pivot rod extending across and beneath intermediate portions of all the tines, constituting a support for the same, clips securing the tines to the rod, and spaced vertically swinging arms pivoted to said rod between the tines.

6. In a stacker, the combination with a fork having tines, of a pivot rod extending beneath the tines, and transversely thereof, clips connecting the pivot-rod and the tines, divergently disposed vertically swinging arms composed of angle iron and having

their terminals looped about the pivot-rod, truss-rods extending longitudinally of the arms and having their ends secured thereto, spreaders interposed between portions of the truss-rods and arms, braces located between the arms, a locking device, and a holding device pivoted respectively to the braces and to the fork and having a detachable interlocking engagement, a hanger bar located over the arms, a bail connecting the hanger bar and arms, and means connected to the hanger bar for raising and lowering the same, and thereby the fork.

7. In a stacker, the combination with a vertically movable and laterally swinging fork, of means for vertically moving the same, means for laterally swinging the fork, and locking means engaging the laterally swinging means for holding the fork in different lateral positions.

8. In a stacker, the combination with an upright rotatable post, of a vertically swinging fork mounted thereon, a rotatable operating shaft, and gearing connecting the shaft and post.

9. In a stacker, the combination with an upright rotatable post, of a vertically swinging fork mounted thereon, a beveled gear carried by the post, a rotatable operating shaft extending transversely of the post, a beveled gear mounted on the shaft, and a beveled pinion interposed between and meshing with the said beveled gears of the post and shaft.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILSON W. MILLER.

Witnesses:

GEO. G. GREEN,
A. L. MANASSA.