

No. 753,219.

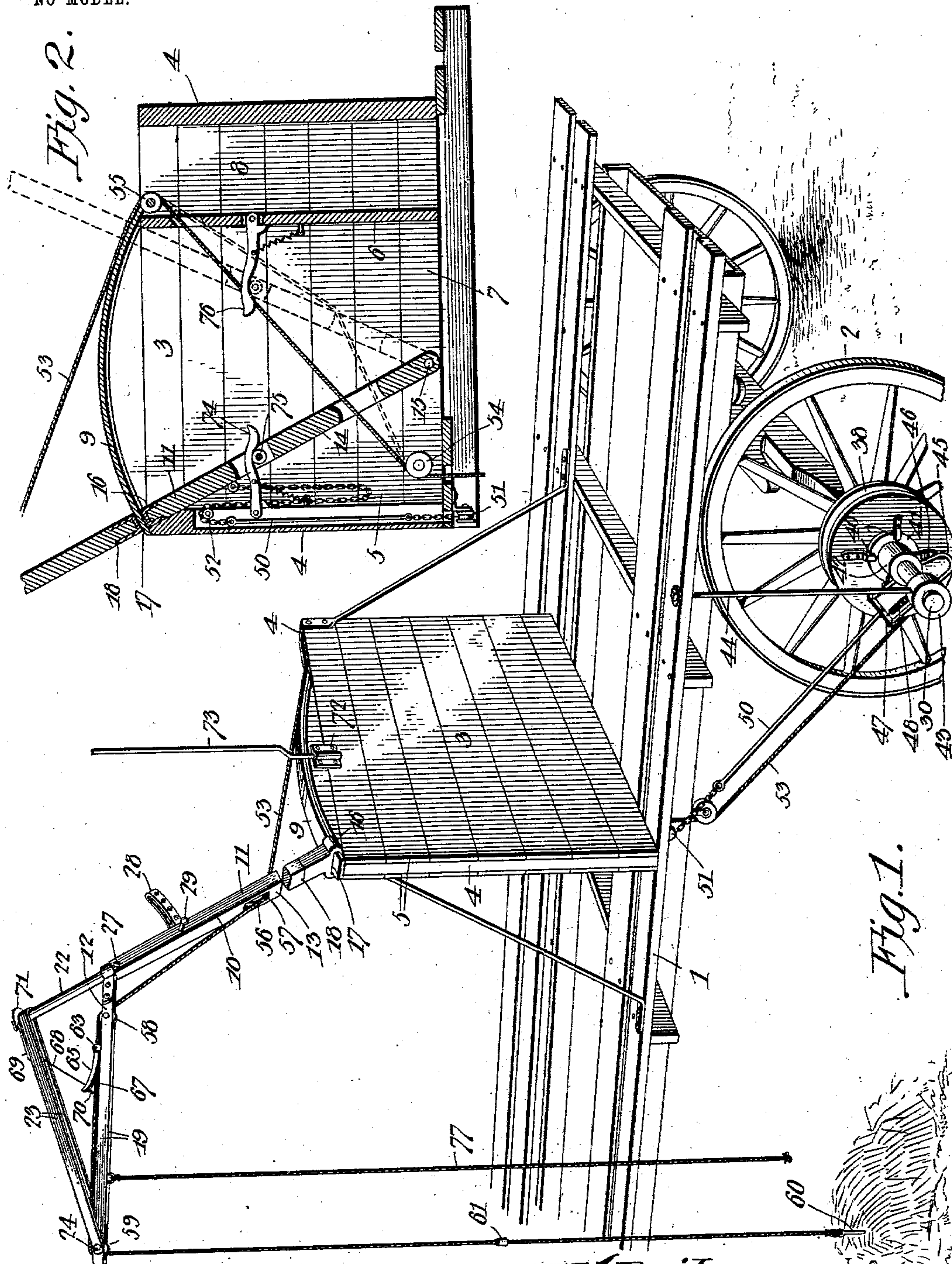
PATENTED MAR. 1, 1904.

A. W. BAILEY.
HAY LOADER.

APPLICATION FILED JUNE 19, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. H. Stewart
J. D. Almore

A. W. Bailey,
by *C. A. Snow & Co.*
Attorneys

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2 SHEETS—SHEET 2.

NO MODEL.

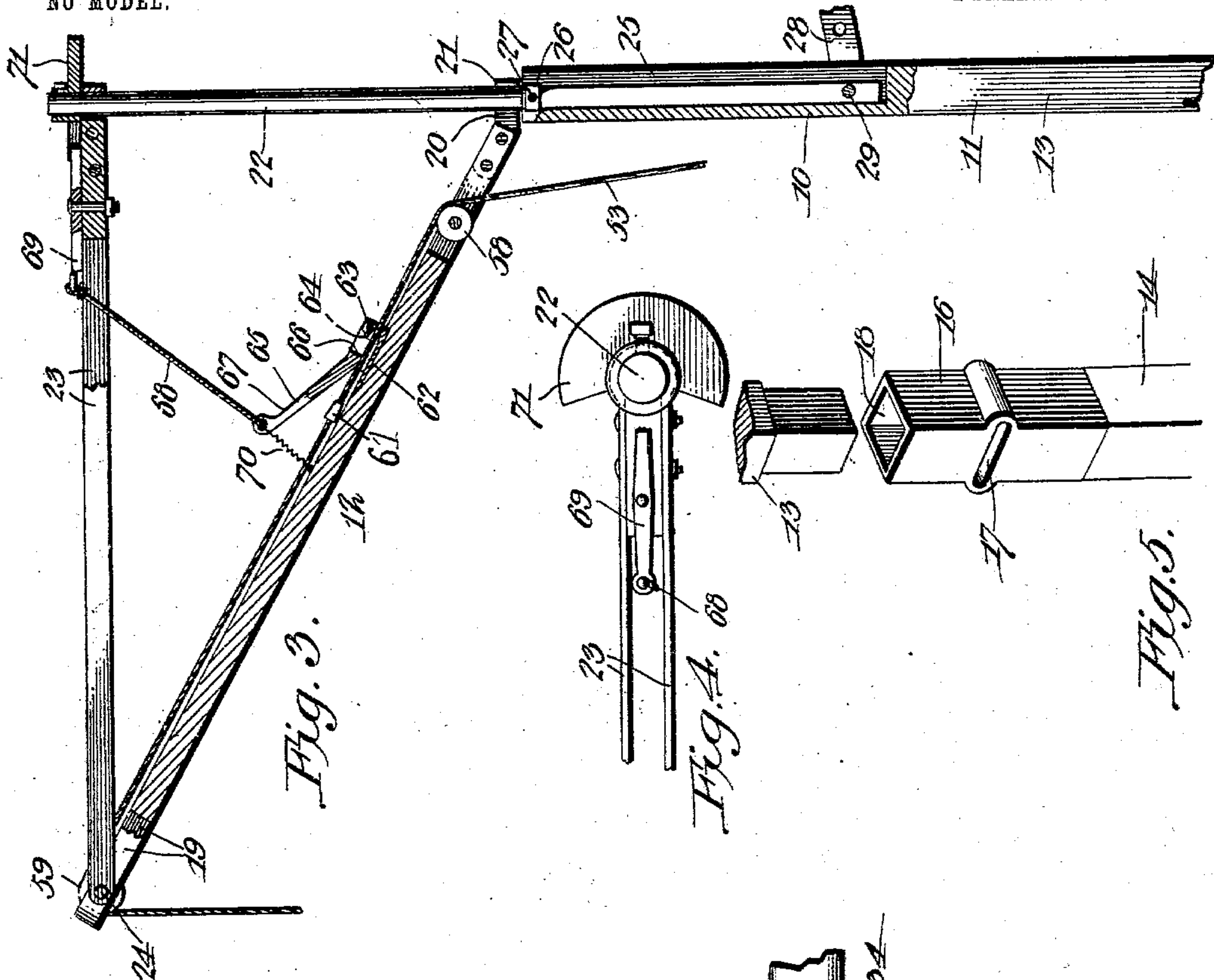


Fig. 3.

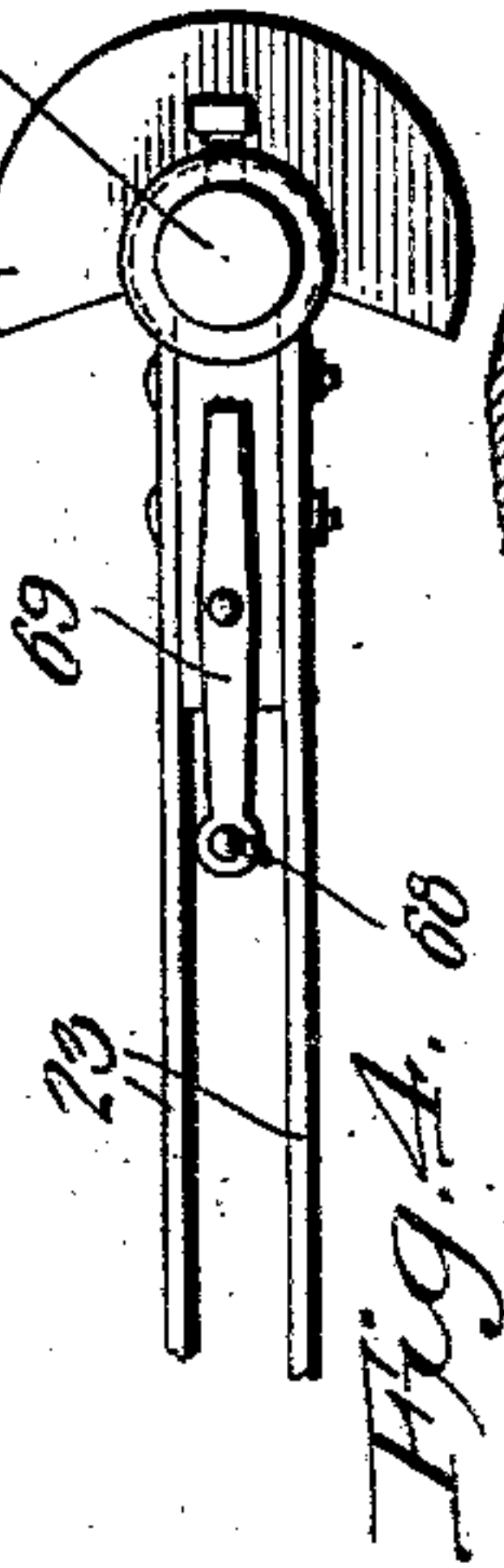


Fig. 4.

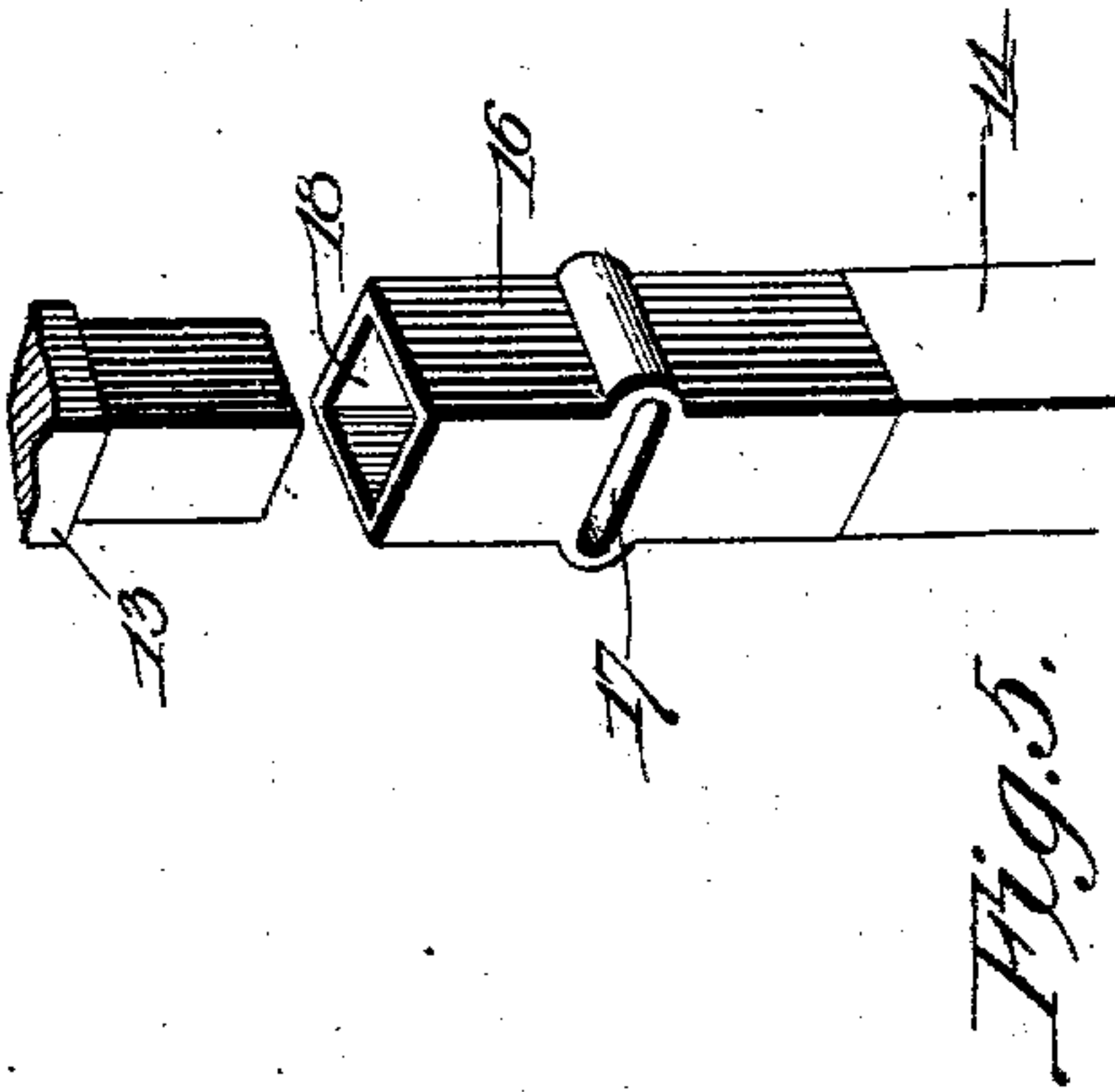


Fig. 5.

Fig. 7.

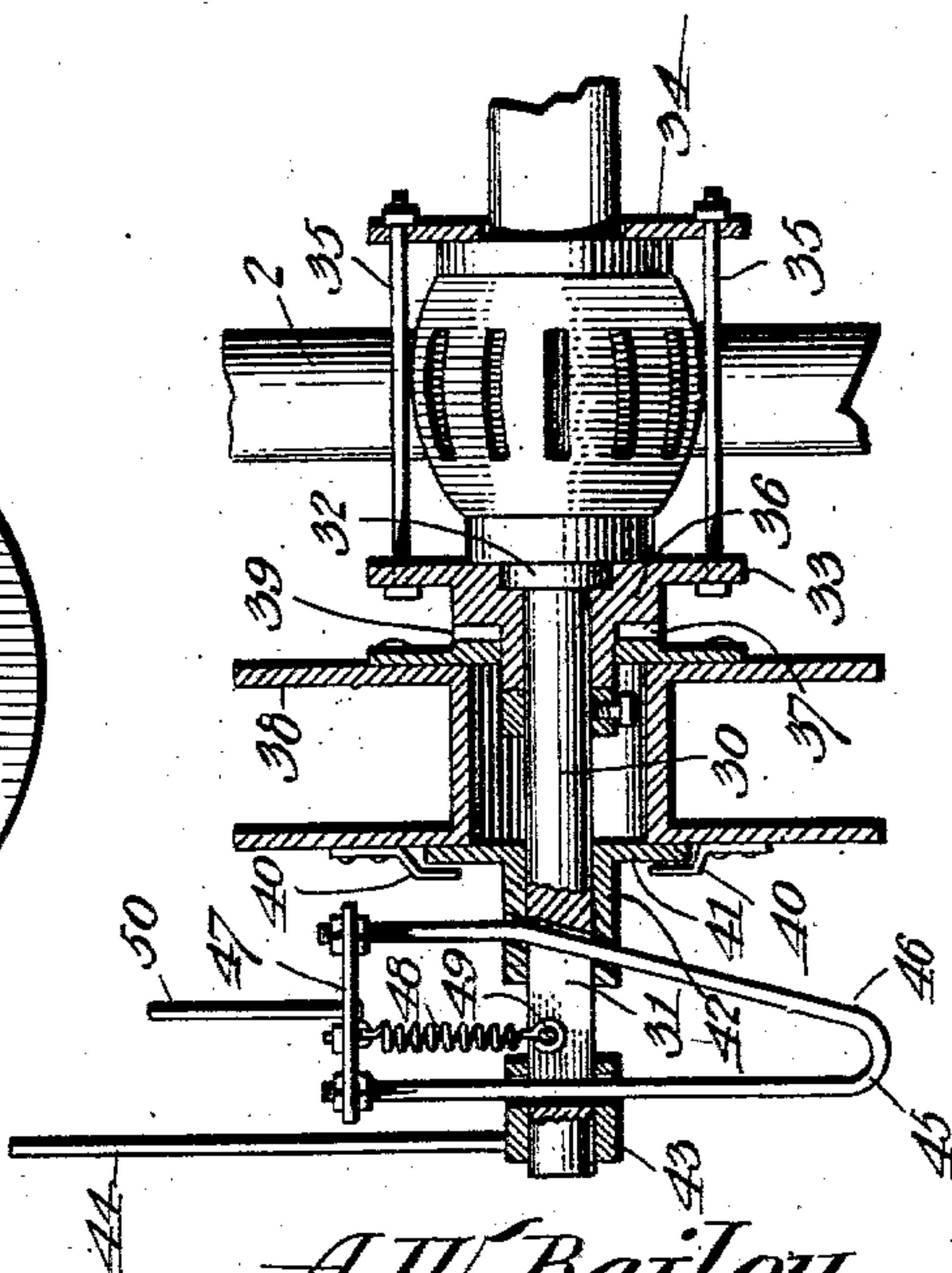
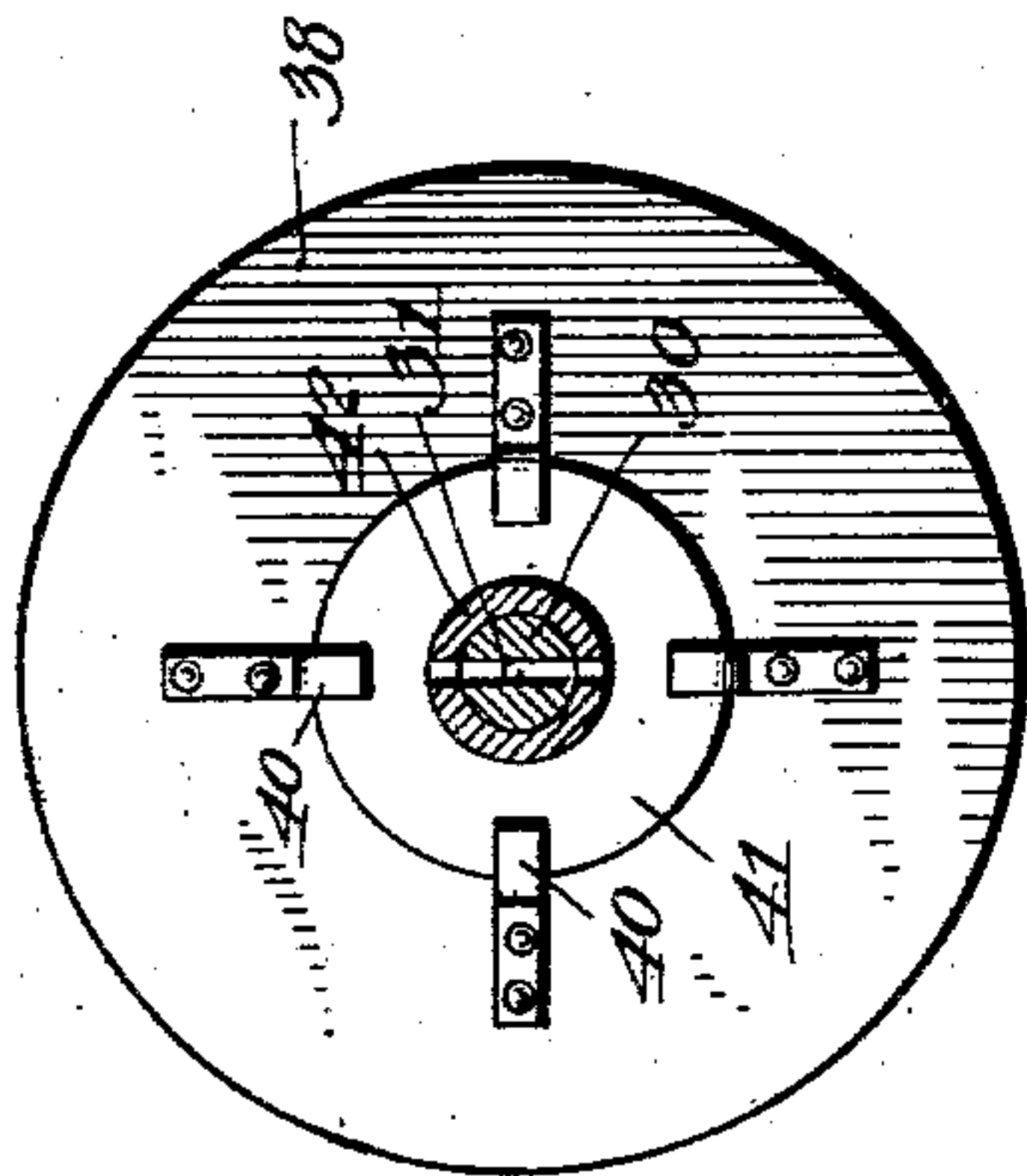


Fig. 6.

Witnesses
E. H. Stewart
F. J. Almore

A. W. Bailey, Inventor.
by *C. A. Snow & Co.* Attorneys

UNITED STATES PATENT OFFICE.

ALBERT WHITON BAILEY, OF JANESVILLE, WISCONSIN.

HAY-LOADER.

SPECIFICATION forming part of Letters Patent No. 753,219, dated March 1, 1904.

Application filed June 19, 1903. Serial No. 162,228. (No model.)

To all whom it may concern:

Be it known that I, ALBERT WHITON BAILEY, a citizen of the United States, residing at Janesville, in the county of Rock and State of Wisconsin, have invented a new and useful Hay-Loader, of which the following is a specification.

My invention relates to hay-loaders, and has for its objects to produce a device of this character which may be readily applied to any ordinary type of hay-rack or wagon, one by which the hay will be loaded onto the rack during its travel over the ground and one in which the hay-elevating mechanism will after elevating the hay be automatically tripped for depositing the same upon the rack.

With these and other objects in view the invention comprises the novel details of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view illustrating the device applied to a hay-rack. Fig. 2 is a vertical sectional elevation longitudinally through the derrick-frame. Fig. 3 is a detail sectional elevation of the upper part of the derrick and the derrick-arm. Fig. 4 is a detail plan view of the upper end of the derrick. Fig. 5 is a detail perspective of the member for connecting the sections of the derrick-standard. Fig. 6 is a vertical longitudinal section through the clutch mechanism. Fig. 7 is an elevation of the outer face of the drum.

Referring to the drawings, 1 indicates the body of a hay-rack sustained by suitable ground-wheels 2. These parts constitute no portion of my invention and are of the usual or any suitable construction.

In accordance with my invention I attach in any suitable manner to the rack-body, preferably adjacent to its longitudinal center, a derrick-frame 3, which extends transversely of the rack-body. This frame 3 is preferably in the form of a hollow casing composed of vertical end standards 4, sides 5, and an intermediate standard 6, which latter divides the casing into a main compartment 7 and a secondary compartment 8, the upper open end of the main compartment being normally closed by a longitudinally-arched cover 9.

10 is a derrick, which comprises a main vertical member or standard 11 and a secondary horizontal member or arm 12, which is pivoted to the upper end of the standard 11 in the manner hereinafter explained to swing in a horizontal plane. The standard 11 consists of an upper section 13 and a lower section 14, which latter is disposed within the frame-casing 3 and pivoted at its lower end upon a horizontal axle 15, which extends transversely of the casing adjacent to its longitudinal center. The section 14 of the standard is of a length substantially equal to the height of the casing and has secured to its upper end a casting 16, provided with a guide-opening 17, through which the cover 9 extends, and with a socket 18, in which the lower end of section 13 is seated. During the operation of the device the standard 10 swings upon its pivotal pin in a direction longitudinally of the casing 3, and during such movement of the standard the cover 9, traveling in the opening 17, constitutes a guide and brace for the standard.

The arm 12 consists of a pair of spaced parallel side members 19, which are secured at their inner ends to a casting 20, having a collar 21, which loosely and pivotally embraces a cylindrical pivoting-rod 22, which extends upward from the standard 10. The arm 12 is braced by a pair of parallel spaced bracing members 23, attached at their outer ends to the outer end of the arm by a transverse bolt 24 and at their inner ends to a suitable collar, which loosely and pivotally embraces the upper end of rod 22. Thus the arm 12 may swing freely in a horizontal plane upon the pivoting-rod, as will be readily understood.

The derrick-standard 10 is provided with a longitudinal recess 25, which extends from its upper end downward a suitable distance, and disposed within the recess adjacent to the upper end of the standard is an annular collar 26, which receives the rod 22 and is provided with suitable trunnions 27, journaled in the walls of the standard. The rod 22 continues downward from the collar 26 to the bottom of the recess 25, at which point there is attached to the standard a pair of spaced guide members 28, which are perforated for

the reception of a transverse pin 29. Thus it will be seen that the rod 22 is susceptible of a swinging movement upon the trunnions 27 as an axis and that during such movement of the rod its lower end will travel between the guides 28, whereby the rod may be disposed at an angle or inclination relative to the standard and secured in such position by means of the pin 29 for the purpose which will presently appear.

My improved derrick-operating mechanism is mounted upon a shaft 30, which is slotted longitudinally at 31 and provided at its normally inner end with a head 32. This shaft is attached to the wheel 2 concentric with its axle by means of an attaching member comprising an outer disk 33, having a central opening through which the shaft 30 extends and which receives its head 32, and an inner disk 34, connected to the outer disk by means of tie-bolts 35. In practice the disk 33 is placed upon the outer face of wheel 2, the inner disk 34 upon the inner face of said wheel, and the bolts 35 are extended between the spokes of the wheel, thus clamping the parts tightly together. The disk 33 is provided upon its outer face with an extended hub 36 and with an annular series of clutch-teeth 37.

Mounted upon the shaft 30 for sliding movement longitudinally thereof is a drum 38, provided upon its inner face with an annular series of clutch-teeth 39, which coincide with and normally engage the teeth 37 to maintain the drum in clutch engagement with the disk 33, which latter is of course fixed to and rotates with the wheel 2 of the vehicle, thus imparting rotation to the drum 38, as is obvious. Attached to the outer face of the drum is a series of radially-disposed spring-fingers 40, which overlies the peripheral flange 41 of a tubular collar 42, which is mounted upon the shaft 30 and is susceptible of sliding movement thereof. When the collar 42 is moved outward upon the shaft, the flange 41 engages the fingers 40 and moves the drum outward, thus disengaging its clutch-teeth from the teeth of the disk 33. Secured to the outer end of shaft 30 is a removable head 43, through which extends a brace-rod 44, which is attached at its upper end to the rack-body 1, thus bracing and sustaining the shaft 30.

45 is a cam-frame having spaced side bars, the inner one of which is provided with an inclined portion 46. This frame is provided at its widest end with a removable end member 47, which may be removed to permit insertion of the side bars of the frame through transverse perforations formed, respectively, through the head 43 and the collar 42, the perforations on the latter being in register with the longitudinal slot 31 of the shaft. Attached to the end member 47 of the cam-frame is a spring 48, the inner end of which engages a transverse pin 49, disposed at the outer end of slot 31. This spring tends normally to

draw the wider end of the frame downward toward the shaft 30, thus forcing the drum 38 inward and maintaining it in clutch.

Attached to the end member 47 of the frame is a wire or other suitable flexible member 50, which extends around a pulley 51, journaled at the lower outer end of frame 3, thence upward through a suitable channel in the frame, around a pulley 52 at the upper end thereof, and is attached to the standard 11 of the derrick for the purpose which will be presently explained.

53 is a cable which is attached to and adapted to wind upon the drum 38 and extends therefrom around a pulley 54, journaled adjacent to the lower end of frame-casing 3, upward and around a pulley 55, journaled at the upper end of standard 6, thence over a pulley 56, journaled in a slot 57, formed adjacent to the longitudinal center of the upper section of the standard, and finally over inner and outer pulleys 58 59, journaled between the side members 19 of arm 12. This cable has at its outer free end a suitable hay-fork 60 and has attached to it at a suitable distance above the fork a cylindrical stop member 61, composed of two half-cylindrical castings which conjointly embrace the cable and are attached by rivets or otherwise. Attached to the upper face of arm 12 is a plate 62, which has spaced ears 63 arising vertically therefrom and a horizontally-disposed tubular member 64 associated therewith. Pivoted between the ears 63 is a lever 65, provided with a shoulder 66, which lies at the outer end of member 64, and with an angularly-disposed arm 67, to which is attached a cord 68, which connects the lever with a second lever 69, pivoted for movement in a horizontal plane upon the inner end of brace 23. The end 67 of lever 65 is normally drawn downward toward arm 12 by means of a spring 70, attached at its opposite ends respectively to the arm and the lever. Attached to the upper end of rod 22 above brace 23 and in the path of lever 69 is a substantially semi-circular disk 71, which constitutes a stop for the lever 69, as will be hereinafter explained.

In practice, supposing the parts to be in the position illustrated in Fig. 1 and the fork 60 engaged with a bundle of hay which is to be loaded onto the rack, the vehicle will be started, and as it travels over the field to the next hay-cock the drum 38, being in clutch, will be actuated by wheel 2 for winding cable 53, thus elevating the hay until the stop 61 enters cylindrical member 64, when the travel of the cable will be checked, thus causing the drum in its further rotation to exert a pull upon the derrick, which will swing the same upon its pivot 15 longitudinally of the frame-casing 3 to the position indicated by dotted lines. When the derrick reaches the terminal of such swinging movement, it will exert a pull upon flexible member 50 sufficient to draw frame 45 outward and cause its inclined portion 46 in

passing through the perforation of sleeve 42 to move the same longitudinally of shaft 30, and thus move the drum out of clutch, as heretofore explained, thus releasing the latter to permit free unwinding therefrom of the cable 53. This unwinding of the cable is, however, prevented for the time being, owing to the fact that as the stop 61 passes into the cylindrical member 64 lever 65 is pulled downward by its spring 70, thus causing its shoulder 66 to close the cylindrical member and prevent escape of the stop therefrom, whereby the hay upon the fork 60 will be maintained in suspension until the arm 12 swings to a position for depositing the hay upon one side or the other of the frame 3, when the lever 69 will contact with stop 71, thus exerting a pull upon cord 68 sufficient to raise lever 65 and permit escape of stop 61 from member 64, when the weight of the load will unwind the cable from the drum and permit the hay to descend upon the rack. Thus it will be seen that as the derrick swings the drum is automatically thrown out of clutch and that when the arm 12 swings to proper position the cable is automatically released to permit depositing of the hay upon the rack.

In order that the arm 12 may be swung automatically toward the desired side of the frame 3, I provide upon opposite sides of the latter vertically-disposed sockets 72, either of which may receive a standard 73, with which the hay will contact as the derrick swings upon its pivot 15, thus deflecting the hay to the right or left, as the case may be, according to the side of the frame upon which the arm 12 is disposed, and consequently swinging the arm 12 to the right or left, as will be apparent. In this connection it is to be noted that by adjusting the pivoting-rod 22 to vary its angular disposition relative to the standard 11 to a greater or less degree in the manner above described the arm 12 will swing with more or less freedom, thus permitting adjustment according to the nature of the ground over which the machine is traveling.

In order to obviate premature swinging of the standard 11 prior to engagement of stop 61 with member 64, I provide a horizontal latch arm or member 74, which is attached to standard 4 within the casing 3 and adjacent to the upper end thereof and is formed for engagement with a rotary disk or latch member 75, disposed within a socket in the standard. This latch will serve to hold the standard in normal position until final pull is exerted upon cable 53, as above explained. After the standard 11 has been swung on its pivot 15 and in order that it may be maintained in such position until the hay has been properly deposited upon the rack I attach to standard 6 a latch arm or member 76, identical in form and operation with the arm 74 and adapted to similarly engage member 75.

In order that the arm 12 may be positively

swung upon its pivot, if such course at any time becomes necessary or desirable, I attach thereto a pull-cord 77, which may be manipulated by the operator in a manner which is obvious.

The standard 11 is formed in two sections in order that the upper section may be removed when it is desired for the machine to enter a barn or the like, and at such time the upper section 13 after being removed from socket 18 is placed within the smaller compartment 8 of the frame 3 for storage.

From the foregoing it will be seen that I produce a device of comparatively simple construction which in practice will admirably perform its functions for the attainment of the ends in view, and it is to be understood that I do not limit or confine myself to the precise detail herein shown and described, inasmuch as minor changes may be made therein without departing from the spirit or scope of my invention.

Having thus described my invention, what I claim is—

1. In a hay-loader, the combination with a hay-rack having a ground-wheel, of a derrick carried by the rack, a hoisting-drum in operative engagement with the ground-wheel and operable thereby, a hoisting-cable operable by the drum for elevating the hay, and means adapted, when the hay reaches the proper elevation, to automatically release the drum and permit unwinding of the cable.

2. In a hay-loader, the combination with a hay-rack having a ground-wheel, of a derrick-frame carried by the rack, a derrick pivoted in the frame to swing in a vertical plane, a hoisting-drum in operative engagement with the ground-wheel and operable thereby, a hoisting-cable operable by the drum, and means actuated by the swinging of the derrick to release the drum and permit unwinding of the cable.

3. In a hay-holder, the combination with a hay-rack having a ground-wheel, of a derrick-frame carried by the rack, a derrick pivoted to swing in a vertical plane, a hoisting-drum in operative engagement with the ground-wheel and operable thereby, a hoisting-cable operable by the drum, means actuated by the swinging of the derrick to release the drum and permit unwinding of the cable, and means for locking the derrick against premature swinging.

4. In a hay-loader, the combination with a hay-rack having a ground-wheel, of a derrick-frame carried by the rack, a derrick pivoted to swing in a vertical plane, a hoisting-drum in operative engagement with the ground-wheel and operable thereby, a hoisting-cable operable by the drum, means actuated by the swinging of the derrick to release the drum and permit unwinding of the cable, and automatically-releasable means for locking the derrick against premature swinging.

5. In a hay-loader, the combination with a hay-rack having a ground-wheel, of a derrick-frame carried by the rack, a derrick pivoted in the frame for swinging in a vertical plane, 5 a hoisting-drum in operative engagement with the ground-wheel and operable thereby, a hoisting-cable operable by the drum, means actuated by the swinging of the derrick to release the drum and permit unwinding of the 10 cable, a pivoted roller carried by the derrick, and a latch-arm carried by the frame for engaging the roller to prevent premature swinging of the derrick.

6. In a hay-loader, the combination with a 15 hay-rack having a ground-wheel, of a derrick carried by the rack and having an arm pivoted to swing in a horizontal plane, a hoisting-drum in operative engagement with the ground-wheel and operable thereby, a hoisting-cable 20 operable by the drum for elevating the hay, means adapted, when the hay reaches the proper elevation, to automatically release the drum and engage the cable to maintain the hay in suspension, and means actuated by the 25 swinging of the arm to automatically release the cable and permit unwinding of the same from the drum.

7. In a hay-loader, the combination with a 30 hay-rack having a ground-wheel, of a derrick-frame carried by the rack, a derrick pivoted in the frame to swing in a vertical plane and having an arm pivoted to swing in a horizontal plane, a hoisting-drum in operative engage-

ment with the ground-wheel and operable thereby, a hoisting-cable operable by the drum, 35 means actuated by the swinging of the derrick to release the drum for permitting unwinding of the cable, means engaging the cable to maintain the hay in temporary suspension, and means actuated by the swinging of the 40 arm to automatically release the cable and permit its unwinding from the drum.

8. In a hay-loader, the combination with a hay-rack having a ground-wheel, of a derrick 45 carried by the rack and having an arm pivoted to swing in a horizontal plane, a hoisting-drum in operative engagement with the ground-wheel and operable thereby, a hoisting-cable operable by the drum and provided with a stop 50 member, a fixed member associated with the arm and adapted to engage in advance of the stop member, a pivoted member associated with the arm for engagement in rear of the stop member, automatically-operable means 55 for releasing the drum to permit unwinding of the cable, and means actuated by the swinging of the arm for actuating the pivoted member to move it out of the path of the stop.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 60 the presence of two witnesses.

ALBERT WHITON BAILEY.

Witnesses:

M. P. RICHARDSON,
FRED J. MYLER.