

B. A. SPINNEY.
HAY LOADER.
APPLICATION FILED MAR. 8, 1909.

981,894.

Patented Jan. 17, 1911.

2 SHEETS—SHEET 1.

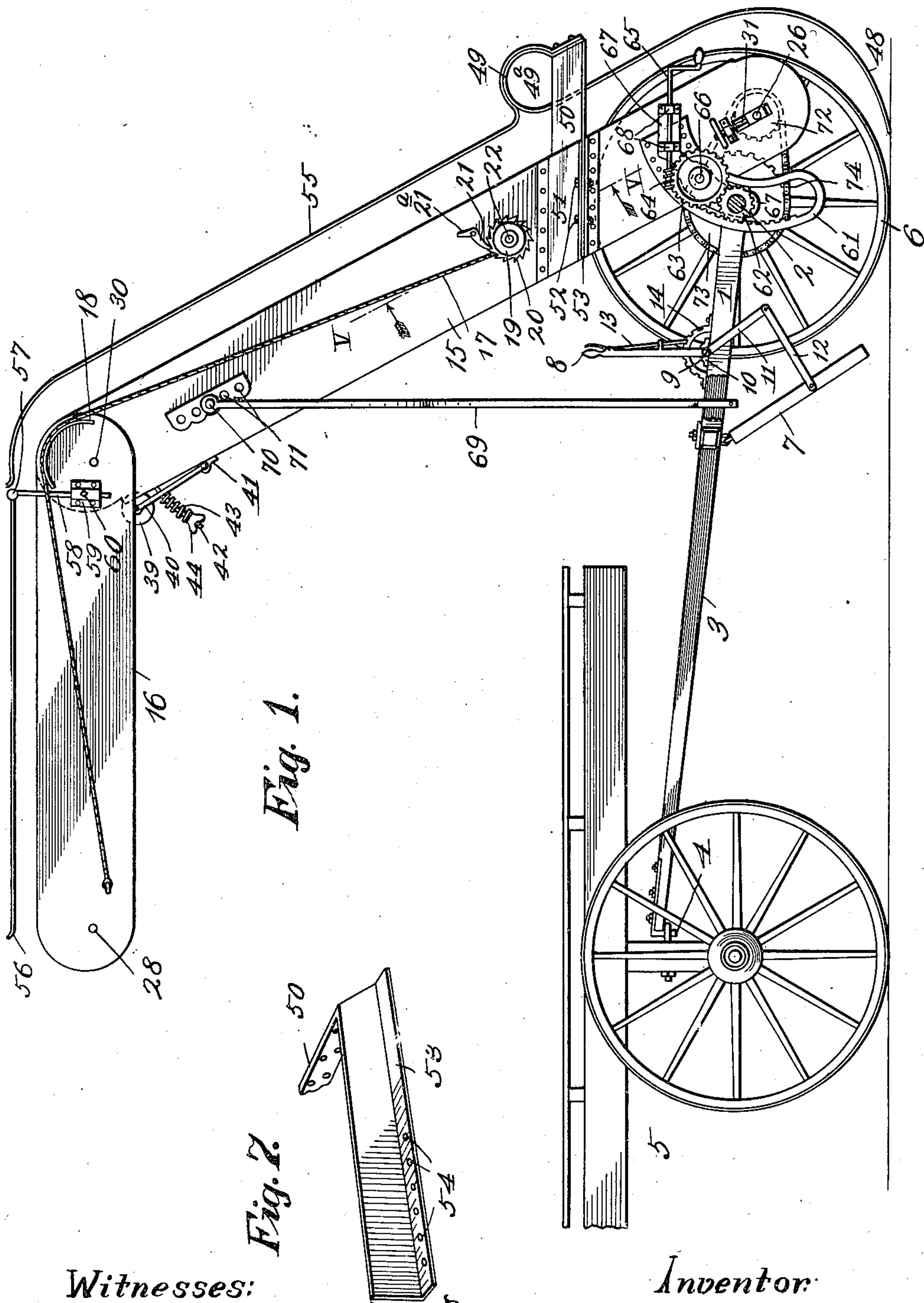


Fig. 1.

Fig. 2.

Witnesses:
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By

Inventor:
Burton A. Spinney,
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Fig. 2.

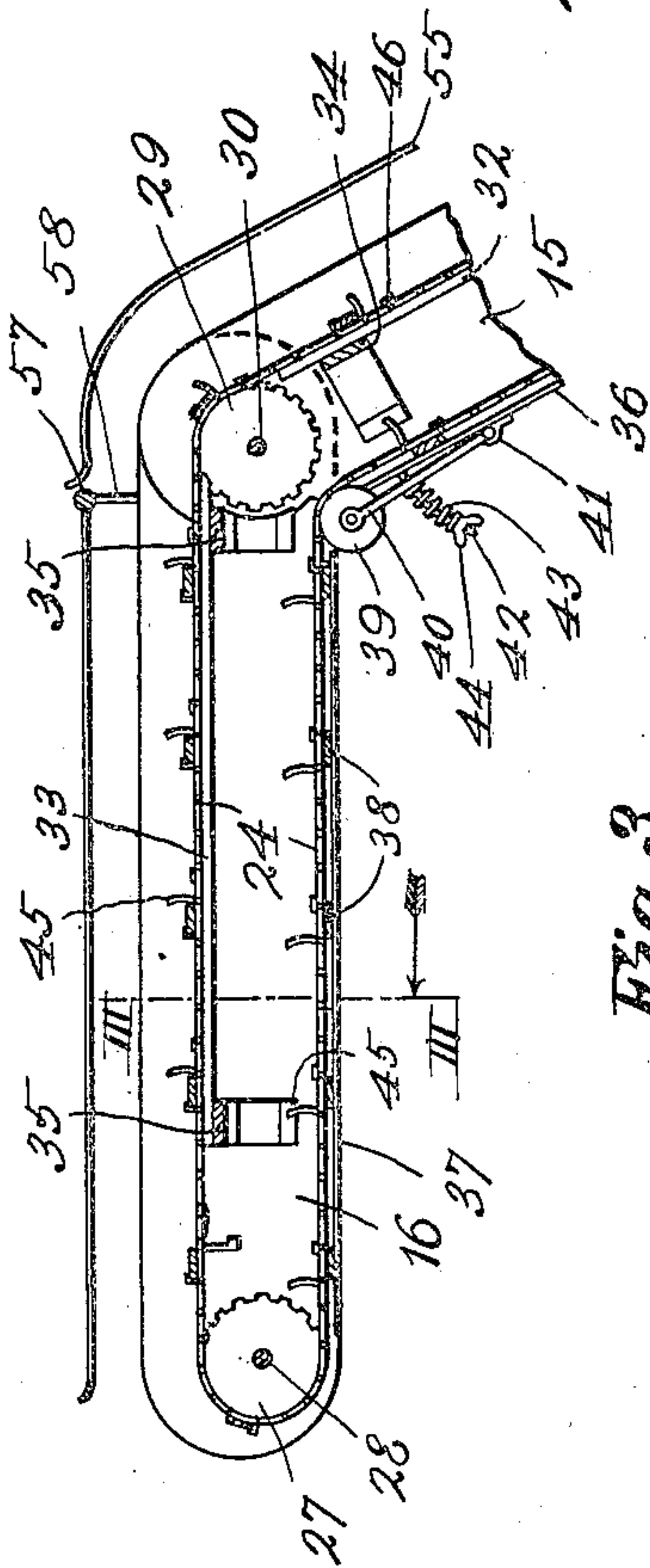


Fig. 3.

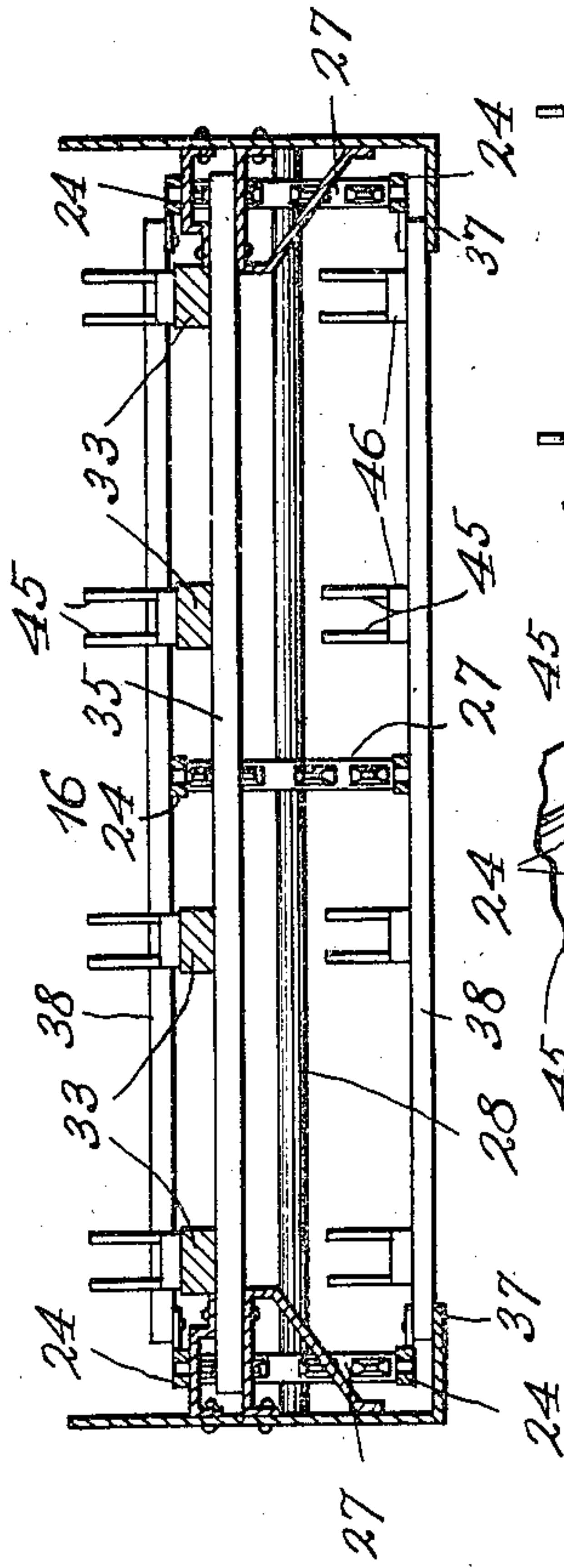


Fig. 4.

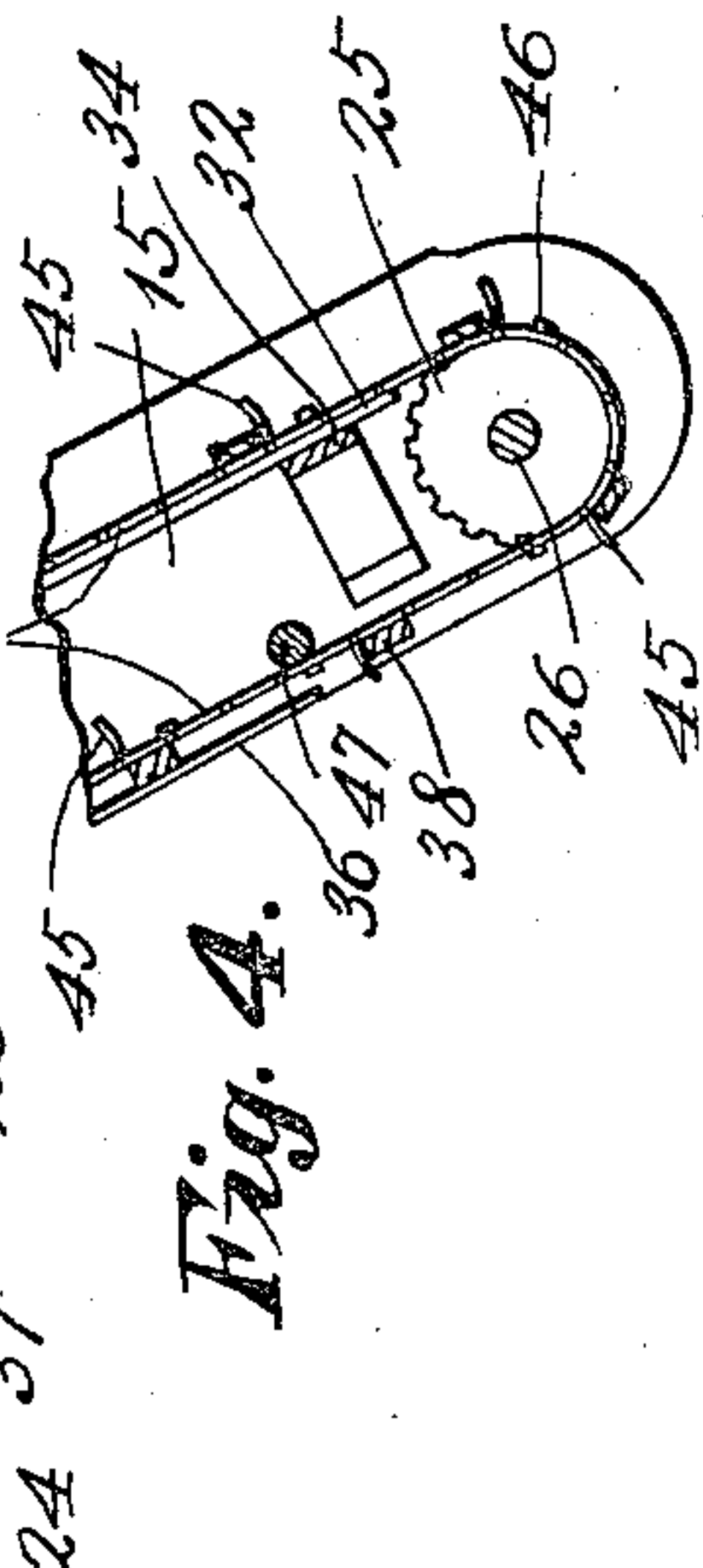


Fig. 8.

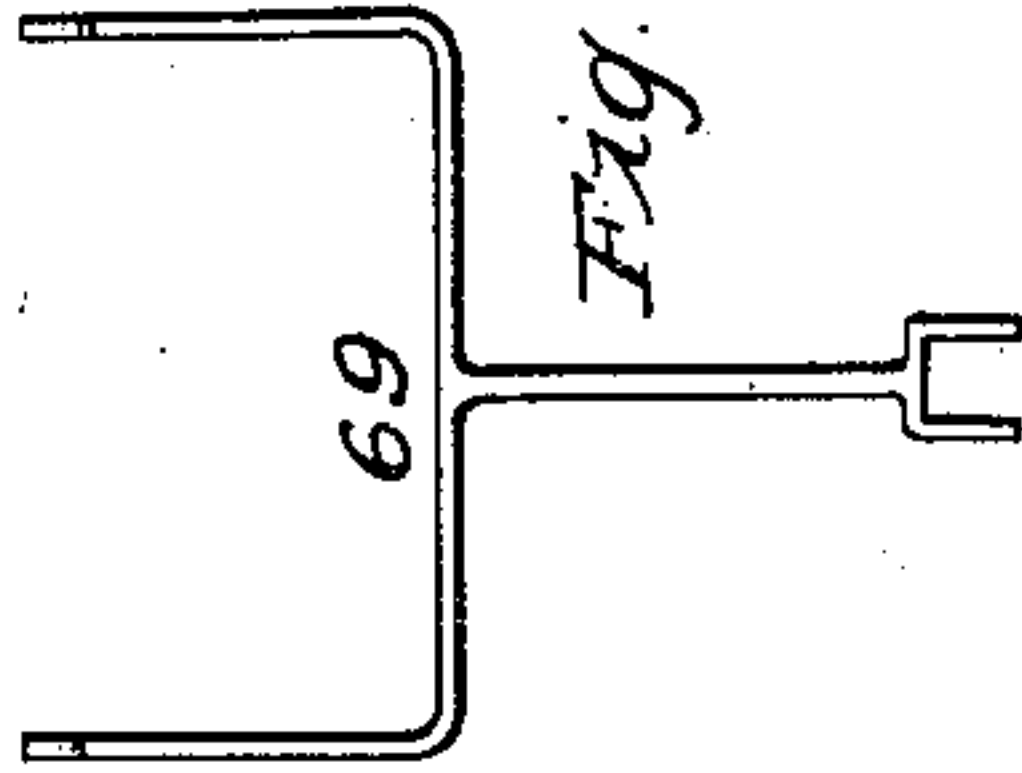


Fig. 6.

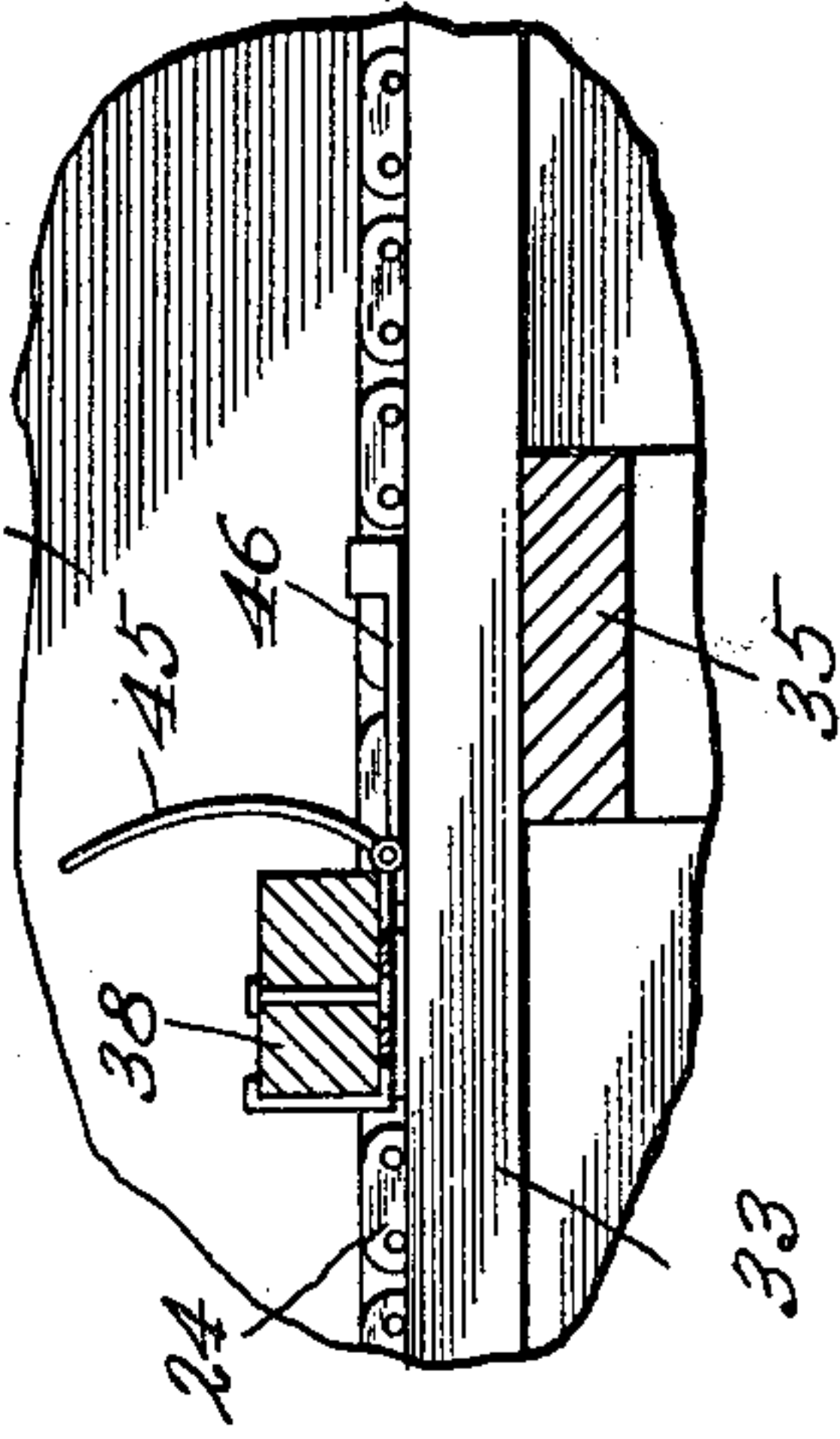
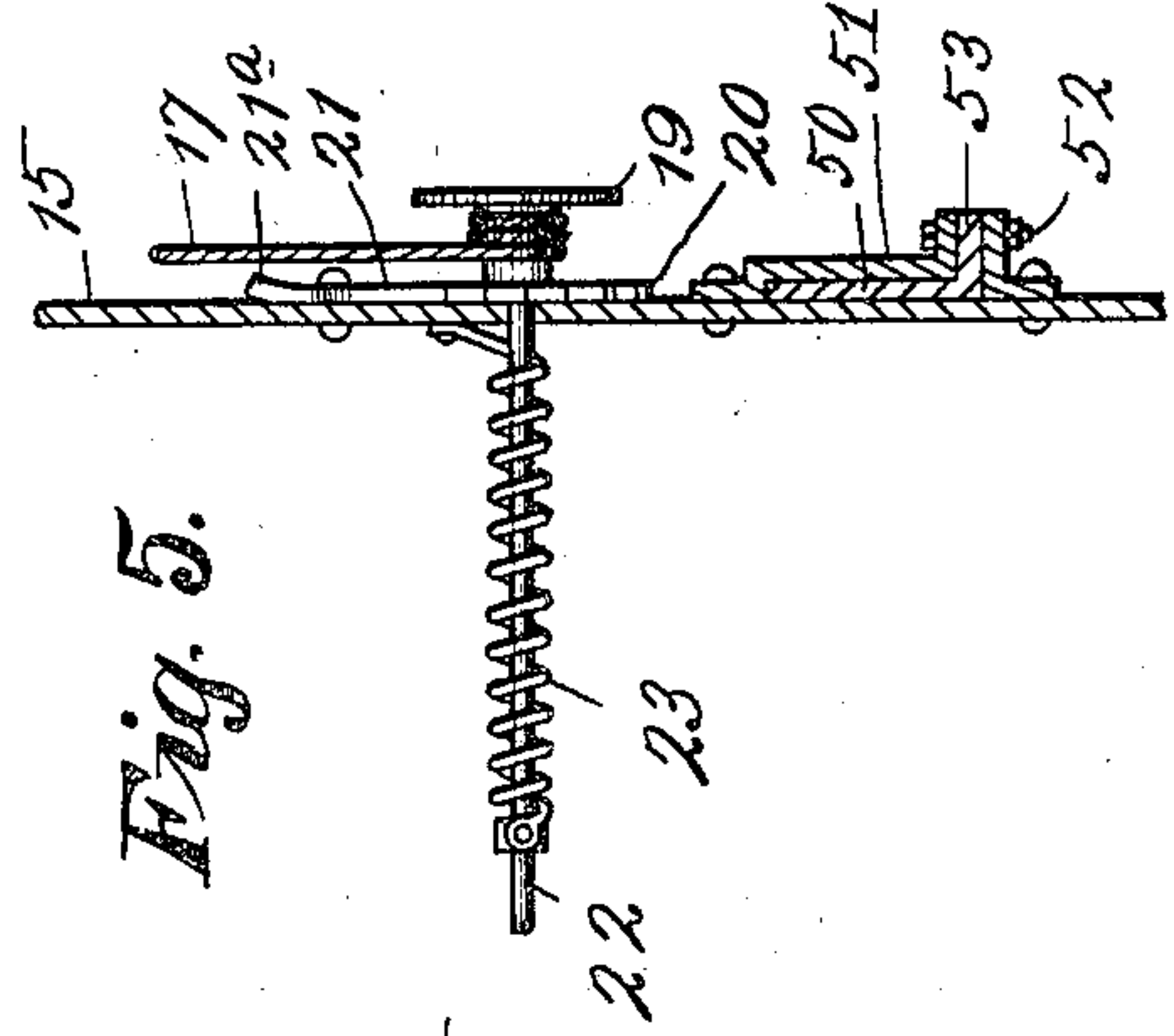


Fig. 5.



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UNITED STATES PATENT OFFICE.

BURTON A. SPINNEY, OF ATLANTIC, IOWA.

HAY-LOADER.

981,894.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed March 8, 1909. Serial No. 481,900.

To all whom it may concern:

Be it known that I, BURTON A. SPINNEY, a citizen of the United States, residing at Atlantic, in the county of Cass and State of Iowa, have invented certain new and useful Improvements in Hay-Loaders, of which the following is a specification.

My invention relates to improvements in hay-loaders, and my object is to provide a novel machine of this character for loading hay onto wagons.

In the accompanying drawings, which illustrate the invention: Figure 1 shows a side elevation of my improved hay-loader attached to the rear end of a wagon. Fig. 2 is a broken, vertical, central section of the upper portion of an elevator forming part of the invention. Fig. 3 is an enlarged cross section on line III—III of Fig. 2. Fig. 4 is a broken, vertical, central section of the lower portion of the elevator. Fig. 5 is a broken section on line V—V of Fig. 1. Fig. 6 is an enlarged, broken, vertical section of the upper portion of the elevator. Fig. 7 is a broken detail perspective of an adjustable rake-head. Fig. 8 is a front elevation of a support employed in carrying out the invention.

In carrying out the invention I employ a portable frame 1, including an axle 2, and provided with a tongue 3, having a hook 4 at its forward end whereby it is pivotally connected to the rear end of a wagon 5. Axle 2 is mounted in a pair of wheels 6 having the customary pawl-and-ratchet connection with said axle, so that they may turn independently of each other when rounding a corner.

Frame 1 is provided with an adjustable prop 7, which coöperates with the wheels in supporting the loader when the same is disengaged from the wagon and at rest. Said prop is actuated by a hand-lever 8 fixed to a shaft 9, mounted in bearings 10 on frame 1, and provided with crank-arms 11 connected to the prop by links 12. Lever 8 is locked in any of its adjusted positions by the customary latch-rod 13 and notched segment 14.

Adjustably mounted upon frame 1 is an elevator consisting preferably of a lower section 15 and an upper section 16, which latter is pivotally connected to the former so that its delivery end may be raised or lowered. Said operations are accomplished by means of a pair of cables 17 extending over segmental guides 18 on section 16, and

attached at their terminals to the forward end of the upper section 16 and at their lower ends to a pair of drums 19, provided with ratchet-wheels 20, which are normally engaged by gravity-pawls 21 to prevent the cables unwinding from the drums and allowing the forward end of the section to drop. Pawls 21 have upturned ends 21^a, so that a person standing on the rear portion of the wagon may reach over with a pitchfork and throw said pawls out of engagement with the ratchet-wheels, and permit section 16 to be lowered. As the forward end of the section is pushed upward the slack in the cables 17 is automatically taken up by the drums 19, which are rotated by a coil-spring hereinafter described. The forward end of section 16 extends outward to a point vertically above hook 4, so that when turning around in the field, said section will continue to discharge the hay onto the wagon instead of to one side thereof, as would be the case if said section terminated some distance in advance or in the rear of hook 4. Drums 19 are fixed upon the ends of a transverse shaft 22, journaled in section 15, and embraced by a coil-spring 23, above referred to. Spring 23 is attached at one end to shaft 22 and at its opposite end to the adjacent side of section 15, as shown in Fig. 5, to revolve the shaft and drums when cables 17 become slack.

The elevator further consists of a conveyor comprising endless sprocket-chains 24, running around sprocket-wheels 25, mounted upon a drive-shaft 26, sprocket-wheels 27 mounted upon a shaft 28, and idlers 29 mounted upon a shaft 30. Shaft 26 is journaled in the bearings of a pair of tighteners 31, at the lower end of section 15; shaft 30 is mounted in the upper end of section 15, and shaft 28 is mounted in the forward end of section 16. The upper strands of chains 24 are further supported by the longitudinal slats 32 and 33, supported by cross-bars 34 and 35, secured to the sides of sections 15 and 16, respectively, the lower edges of which have inturned flanges 36 and 37, which support the lower strands of the chains, through the intermediacy of cross-slats 38 connecting the chains.

In addition to tighteners 31, I also employ a pair of automatic tensioning devices which engage the two side chains 24. Said tensioning devices comprise idlers 39, mounted in the upper ends of arms 40 piv-

otally-mounted in bearings 41 secured to flanges 36, segmental bolts 42, projecting from flanges 36 and through arms 40, expansion springs 43, which force the idlers 5 back against the chains and embrace bolts 42, and thumb-nuts 44 adjustably-engaging the ends of bolts 42 for tensioning springs 43.

Slats 38 are provided with fingers 45, for 10 carrying the hay upward and discharging it onto the wagon. The fingers are held in an operative position when passing upward with the hay, by weighted-arms 46, until said arms reach the forward ends of slats 15 33, when they drop therefrom and disengage the fingers from the hay, so that the latter will be free to fall upon the wagon. The fingers are held in an inoperative position until they reach the lower portion of section 20 15, where they contact with a transverse trip-rod 47, whereby they are restored to their normal position, so that they will engage the hay on their upward movement.

The hay is gathered and carried upward 25 to the conveyer by teeth 48, rendered more or less resilient by segmental ends 49, secured to a rake-head 50. A wide throat 49^a is left between the rake-teeth and their upper ends so that when hay is carried upward 30 on the back of the teeth and pulled off by the segmental ends 49, it will not lodge and accumulate around said ends but will fall back upon the ground. Head 50 is substantially U-shaped in plan view and 35 adjustably connected to the sides of section 15 by guides 51 and bolts 52, which latter pass through the lower outturned portions of the guides and the outturned flanges 53 on the head, said flanges having a series of 40 perforations 54, to receive the bolts.

The hay is prevented from being blown off the elevator by guards 55 and 56, secured to the rake-head and a cross-rod 57, respectively, which latter is carried by a pair of 45 arms 58, adjustably secured in pockets 59 by set-screws 60, so that guard 56 may be adjusted toward or away from section 16 and thus accommodate the quantity of hay passing over the same. Guard 55 may also 50 be adjusted toward or away from section 15 through the instrumentality of the adjustable rake-head 50, for a like purpose.

The elevator is raised or lowered to adjust teeth 48 in proper relation to the surface of the ground, by means of toothed-segments 61, pinions 62, loosely-mounted upon the axle and engaging the segments, gear wheels 63 intermeshing with pinions 62, worms 64 intermeshing with gear wheels 60 63, and cranks 65 for rotating said worms. Pinions 62 are wider than the segments so that they may also engage the gear wheels 63 which are mounted upon stub-shafts 66, carried by arms 67, secured to frame 1, and provided with bearings 68 to carry cranks 65. 65

The elevator is balanced by a support 69, resting upon frame 1, and adjustably connected at its upper forked portion to the sides of section 15 by pins 70, adapted to engage any of holes 71 in the reinforced 70 portions of said sides.

Shaft 26 of the conveyer is provided with a sprocket-wheel 72, driven by a sprocket-wheel 73, through the instrumentality of an endless sprocket-chain 74, said sprocket-wheel 73 being connected to shaft 26 in the customary manner by a clutch (not shown), so that it may be thrown out of gear to stop the conveyer when going to and from the field. 80

Having thus described my invention, what I claim is:—

1. In a machine of the character described, a portable frame, an elevator carried thereby, teeth carried by said elevator, toothed-segments fixed to the elevator, pinions carried by the frame and intermeshing with said toothed-segments, cog-wheels intermeshing with the pinions to rotate the same, worms for rotating said cog-wheels, and 90 means for rotating said worms.

2. In a machine of the character described, a portable frame, an elevator consisting of a plurality of sections, independently-adjustable guards on said sections, and means 95 for gathering and conducting hay to the elevator.

3. In a machine of the character described, a portable frame, an elevator carried thereby consisting of a lower section and an upper section which latter is pivotally connected to the former, drums carried by the lower section, cables attached at their ends to the upper section and said drums, means which normally prevent said cables unwinding 100 from said drums, means for automatically rotating the drums to take up slack cable, and means for gathering and conducting hay to the elevator.

4. In a machine of the character described, 110 a portable frame, an elevator carried thereby consisting of a lower section and an upper section which latter is pivotally connected to the former, drums carried by the lower section, cables attached at their ends 115 to the upper section and said drums, ratchet-wheels and pawls carried by the drums and elevator, respectively, to normally prevent the cables unwinding from the drums, resilient means for automatically rotating the 120 drums to take up slack cable, and means for gathering and conducting hay to the elevator.

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

BURTON A. SPINNEY.

Witnesses:

W. E. WISSLER,
H. W. FULTON.