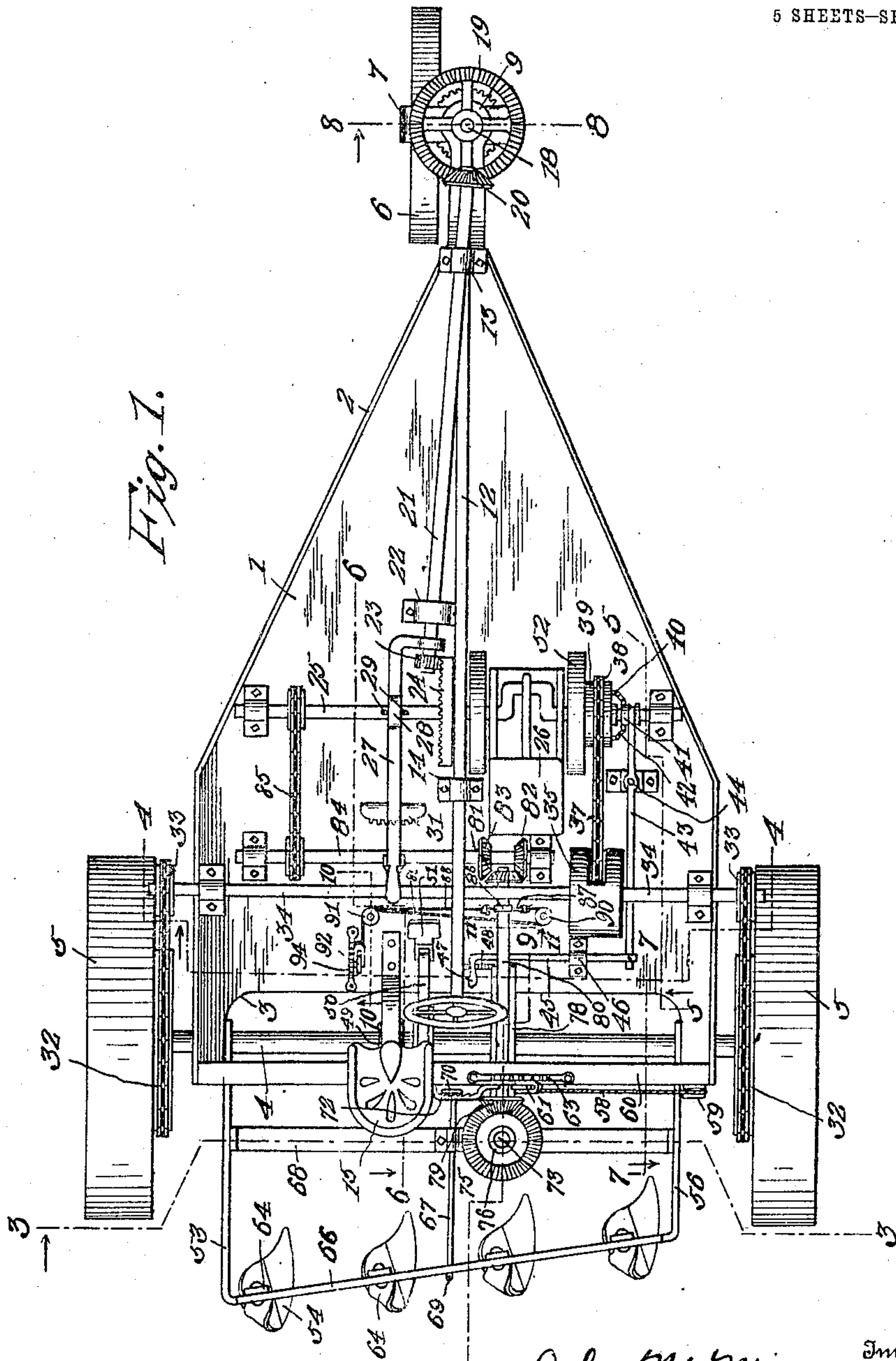


J. M. MITTENDORF.
TRACTION ENGINE.
APPLICATION FILED SEPT. 22, 1909.

990,374.

Patented Apr. 25, 1911.

5 SHEETS—SHEET 1.



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By ^{Attorney} Walter E. Coleman

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5 SHEETS—SHEET 2.

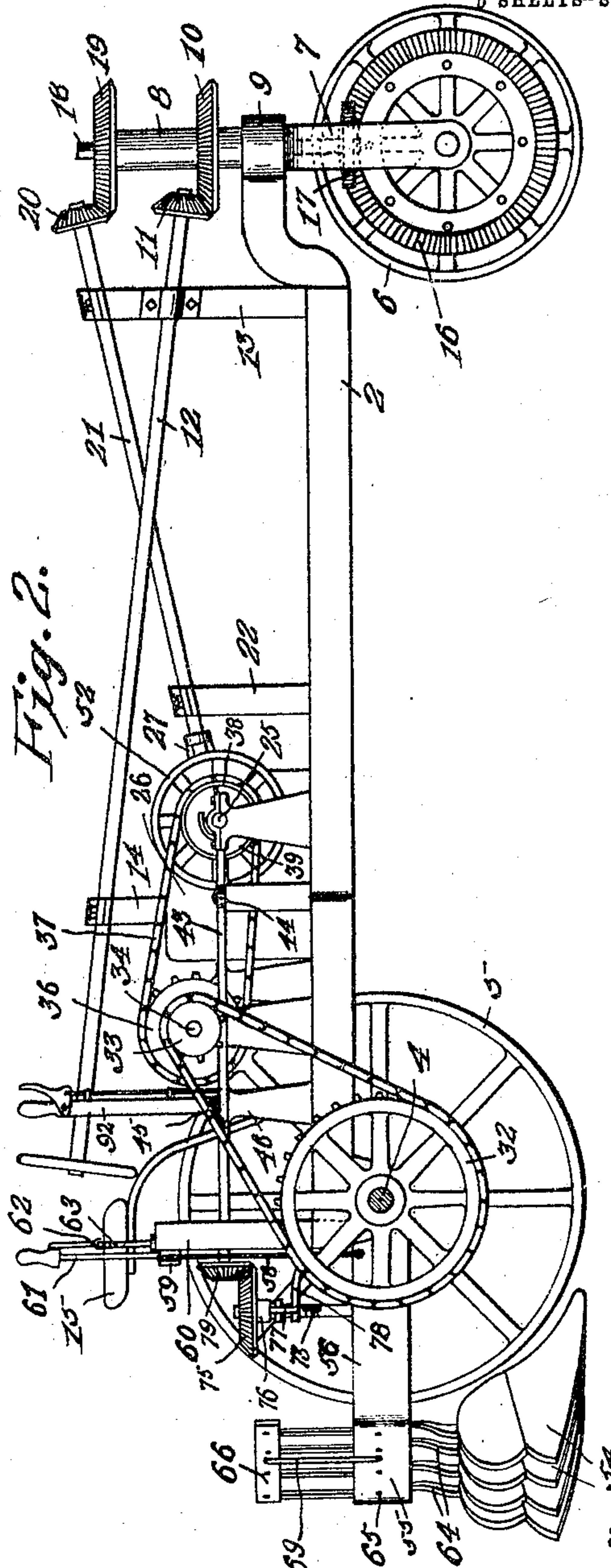


Fig. 2.

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5 SHEETS—SHEET 3.

Fig. 3.

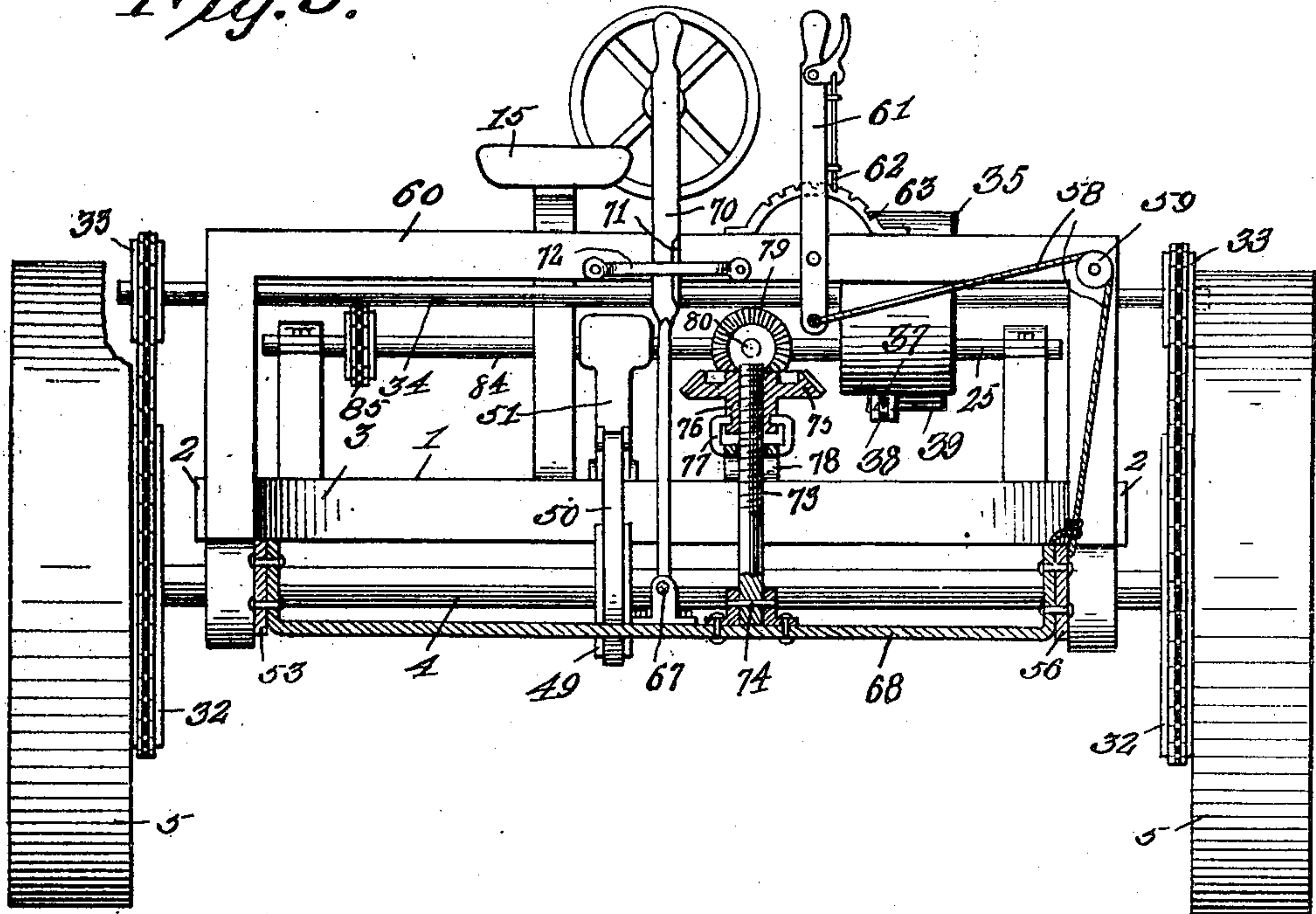
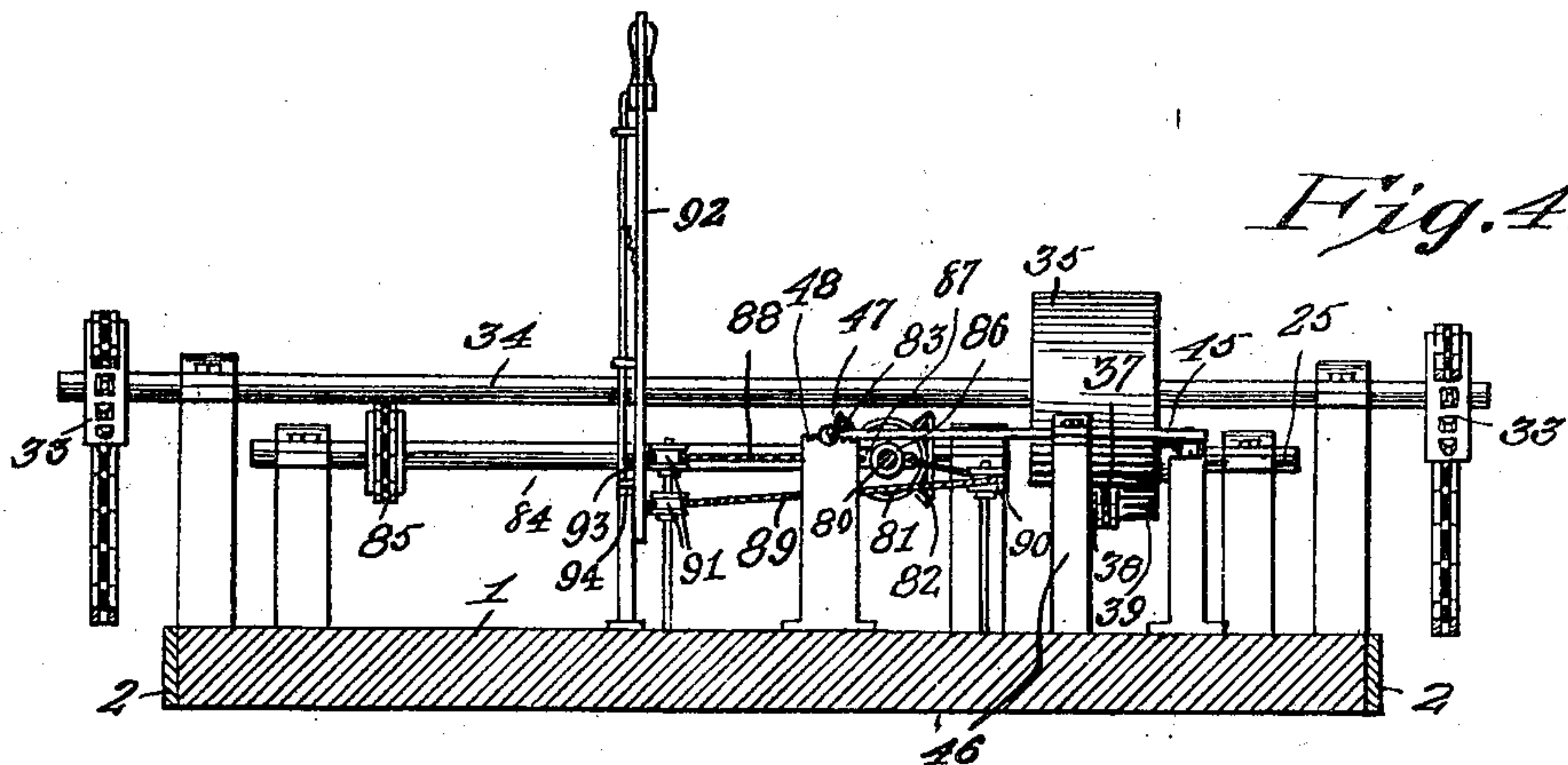


Fig. 4.



Witnesses

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5 SHEETS—SHEET 4.

Fig. 5.

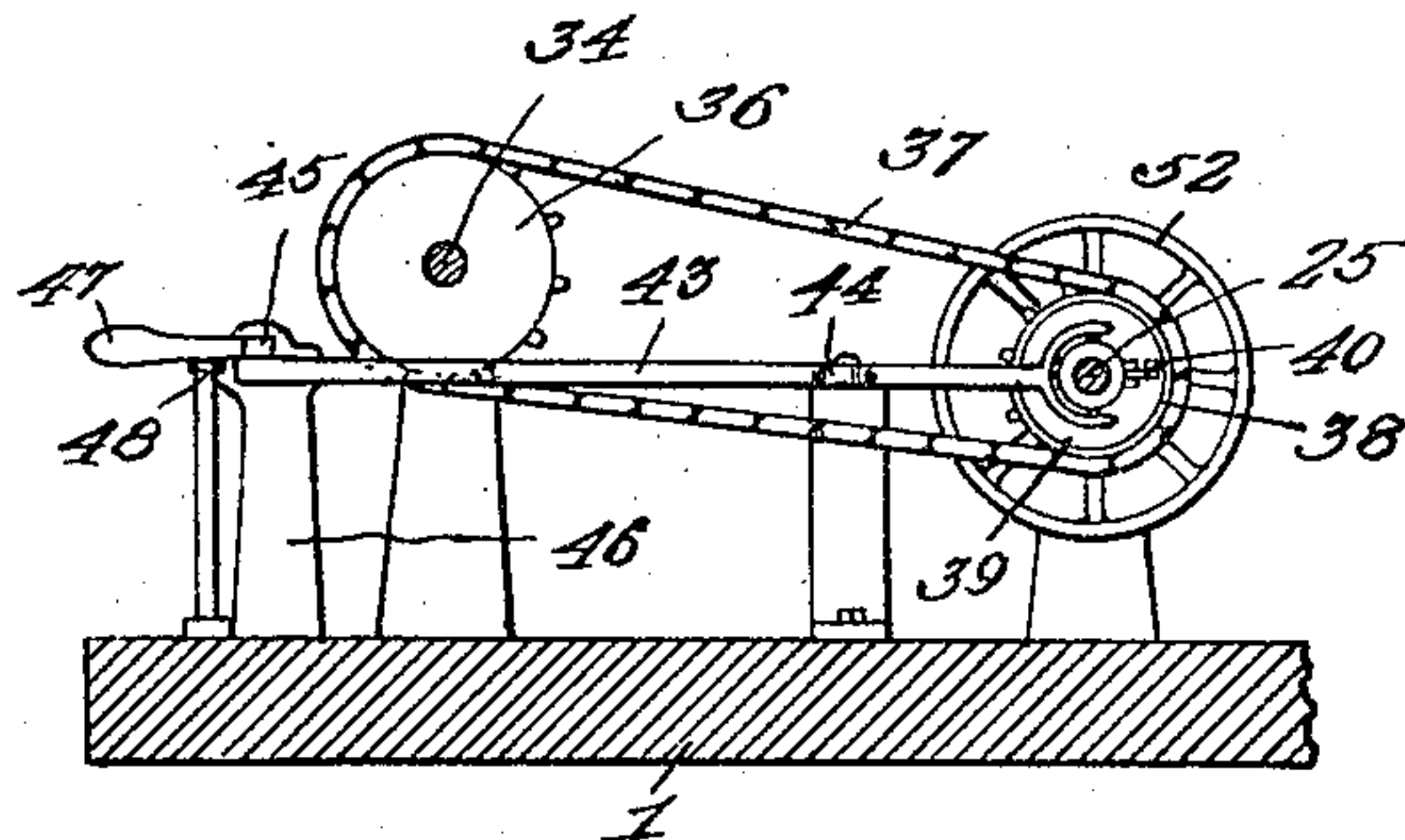


Fig. 7.

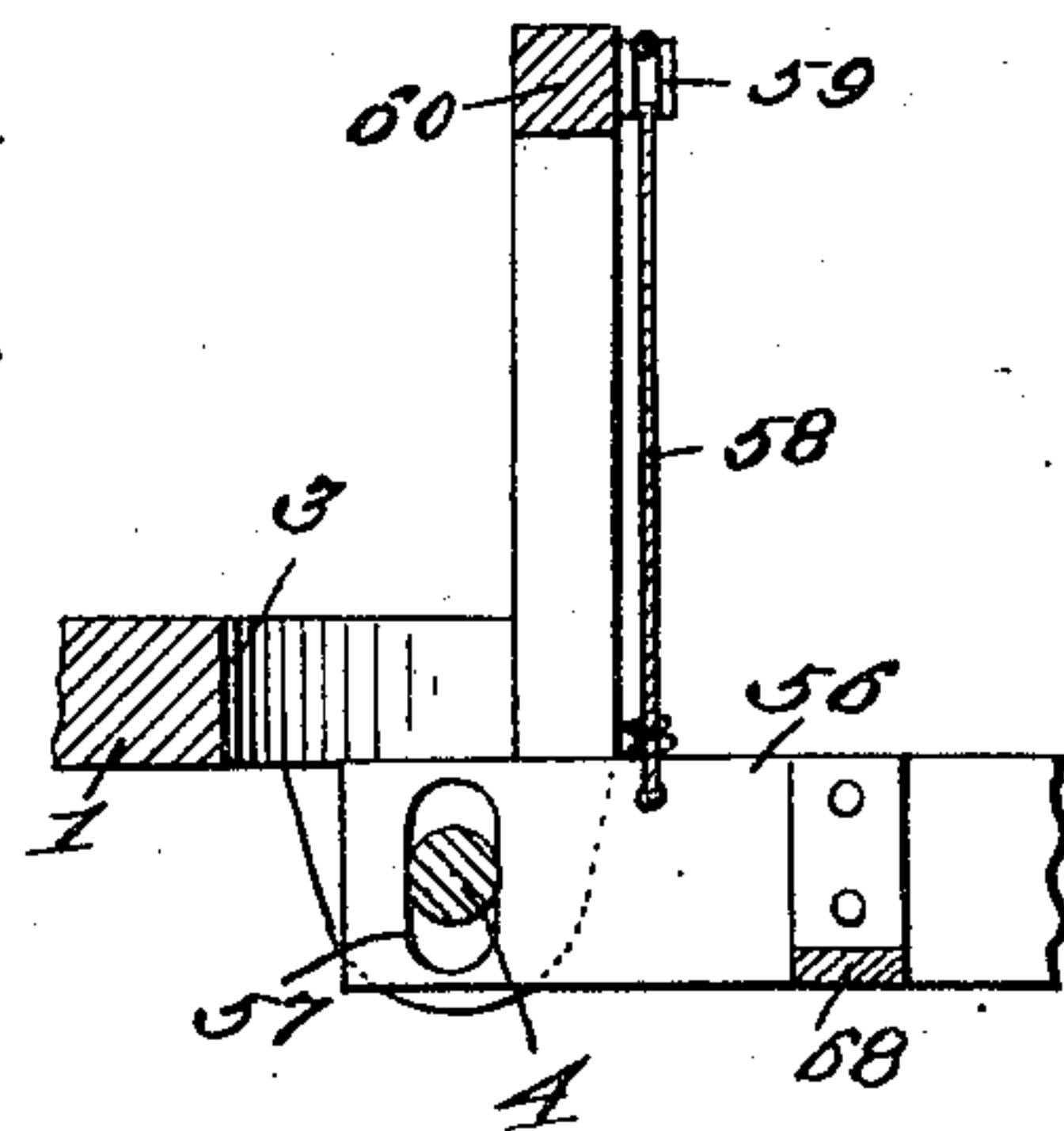
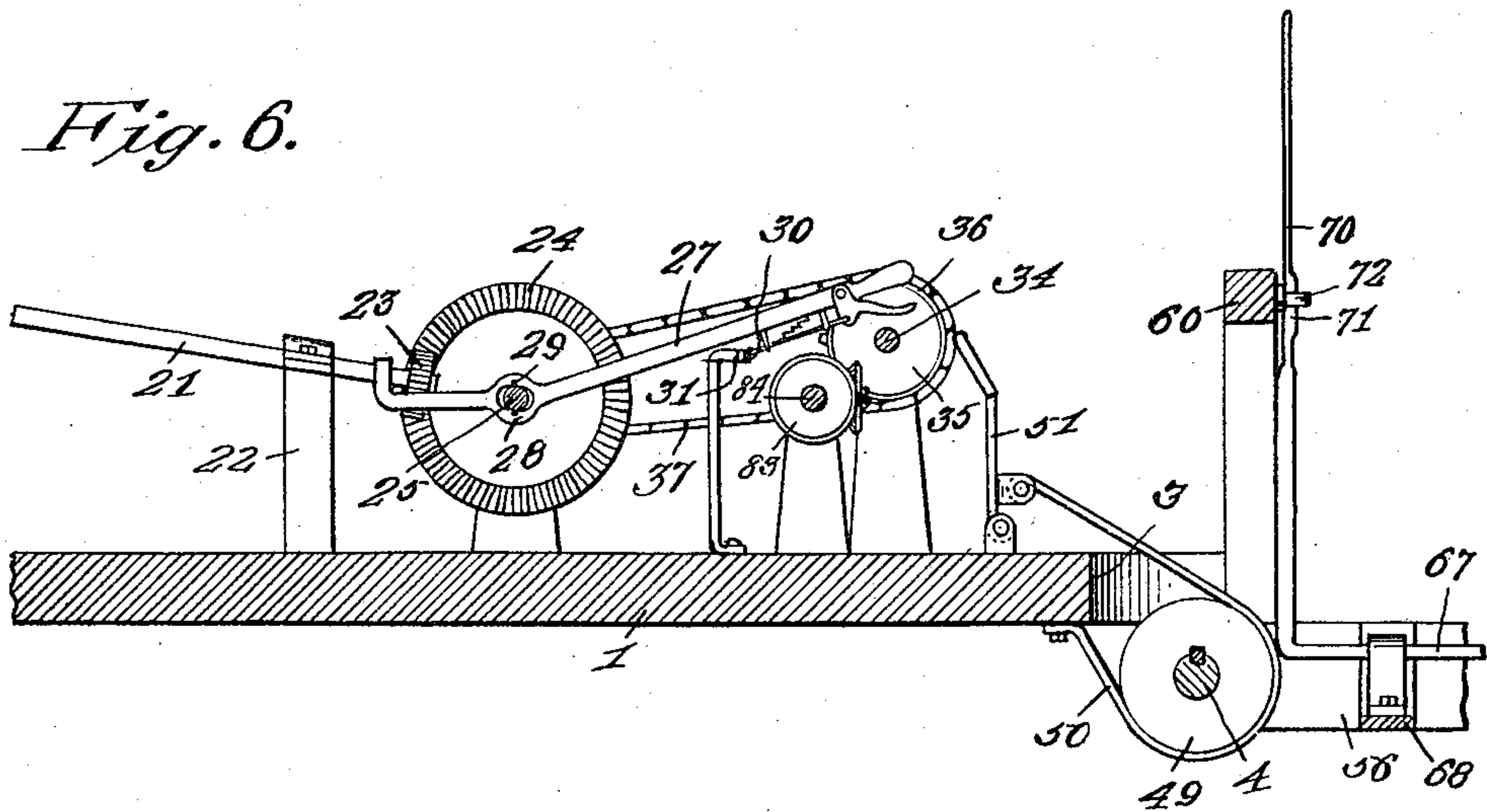


Fig. 6.



Witnesses

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5 SHEETS—SHEET 5.

Fig. 8.

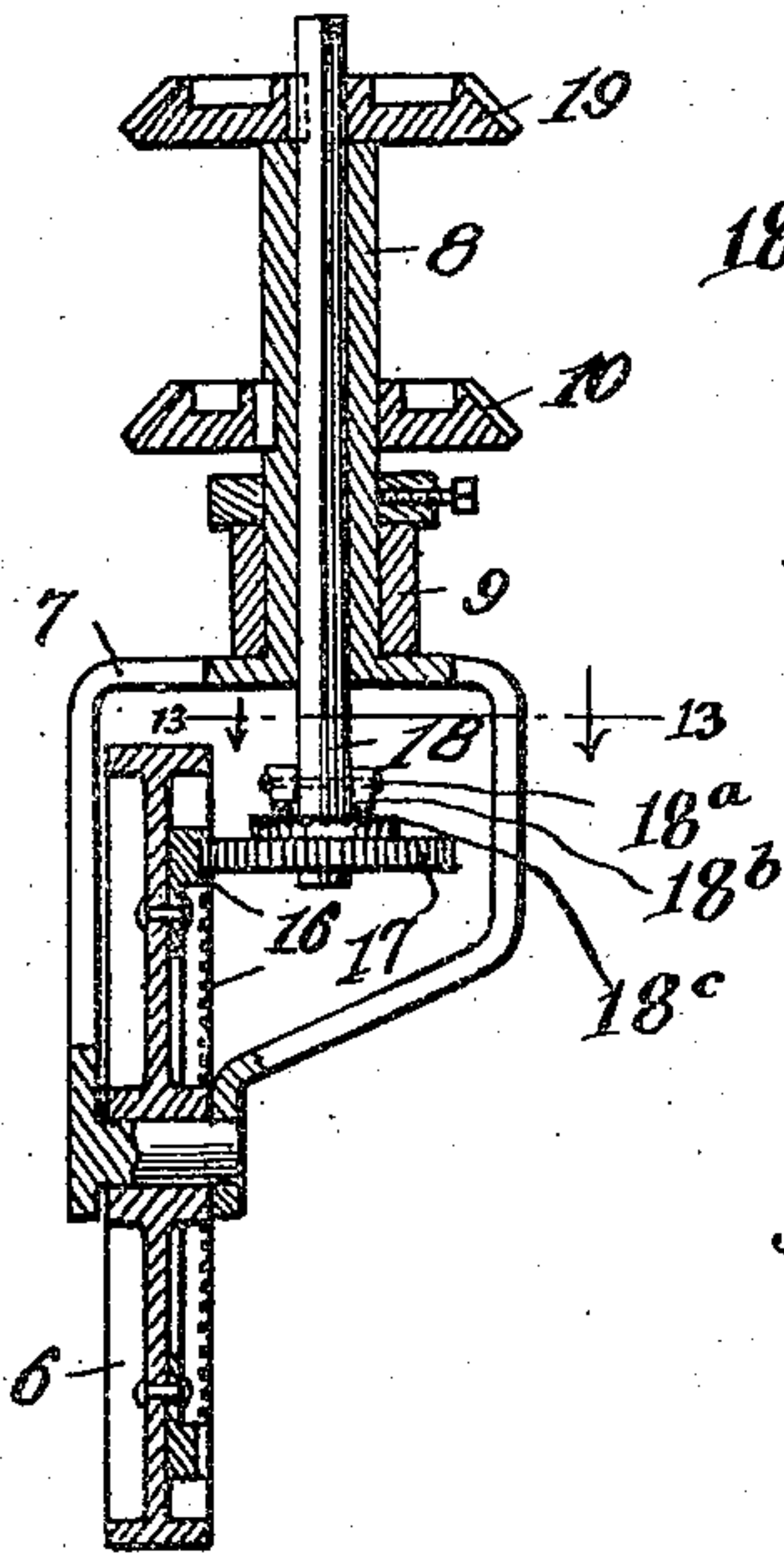


Fig. 13.

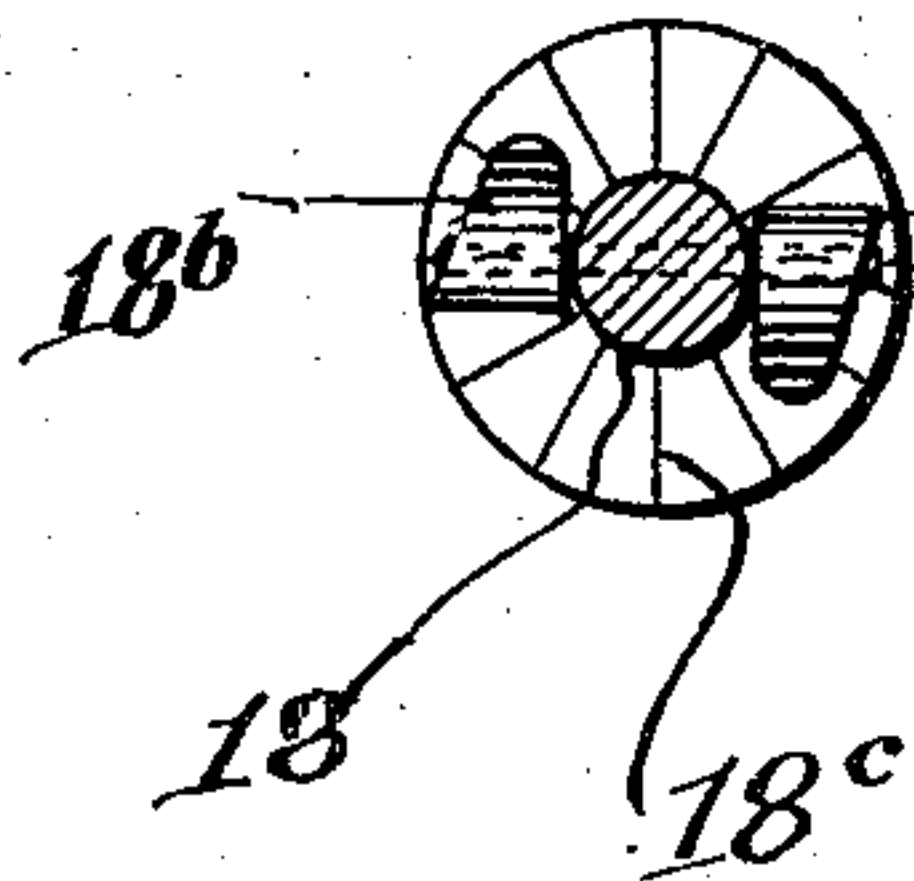


Fig. 9.

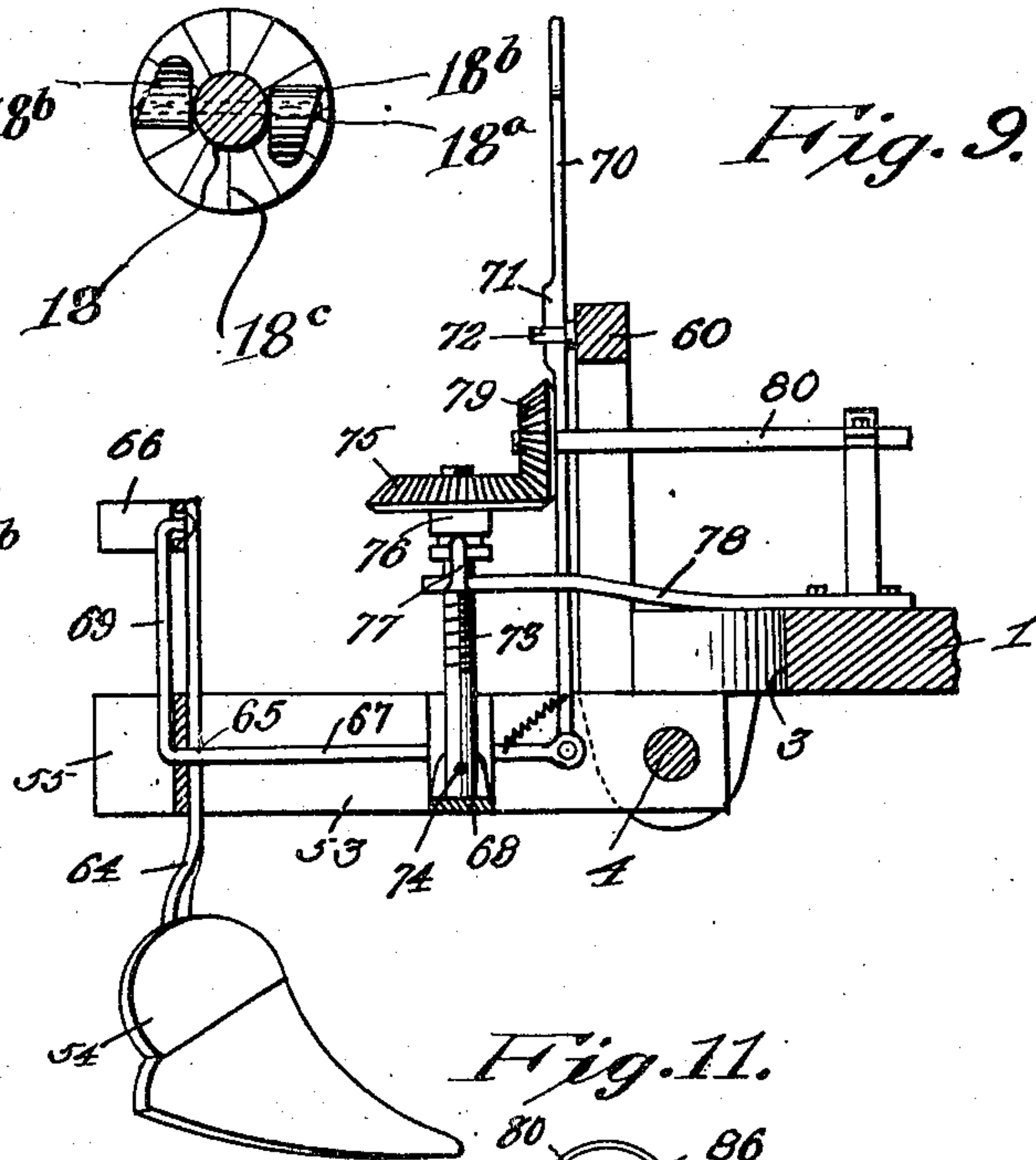


Fig. 11.

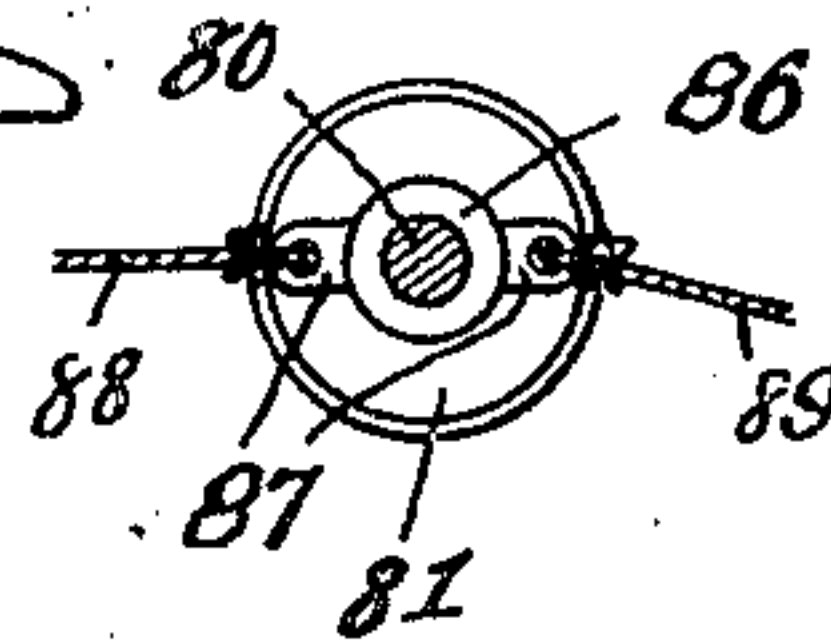


Fig. 10.

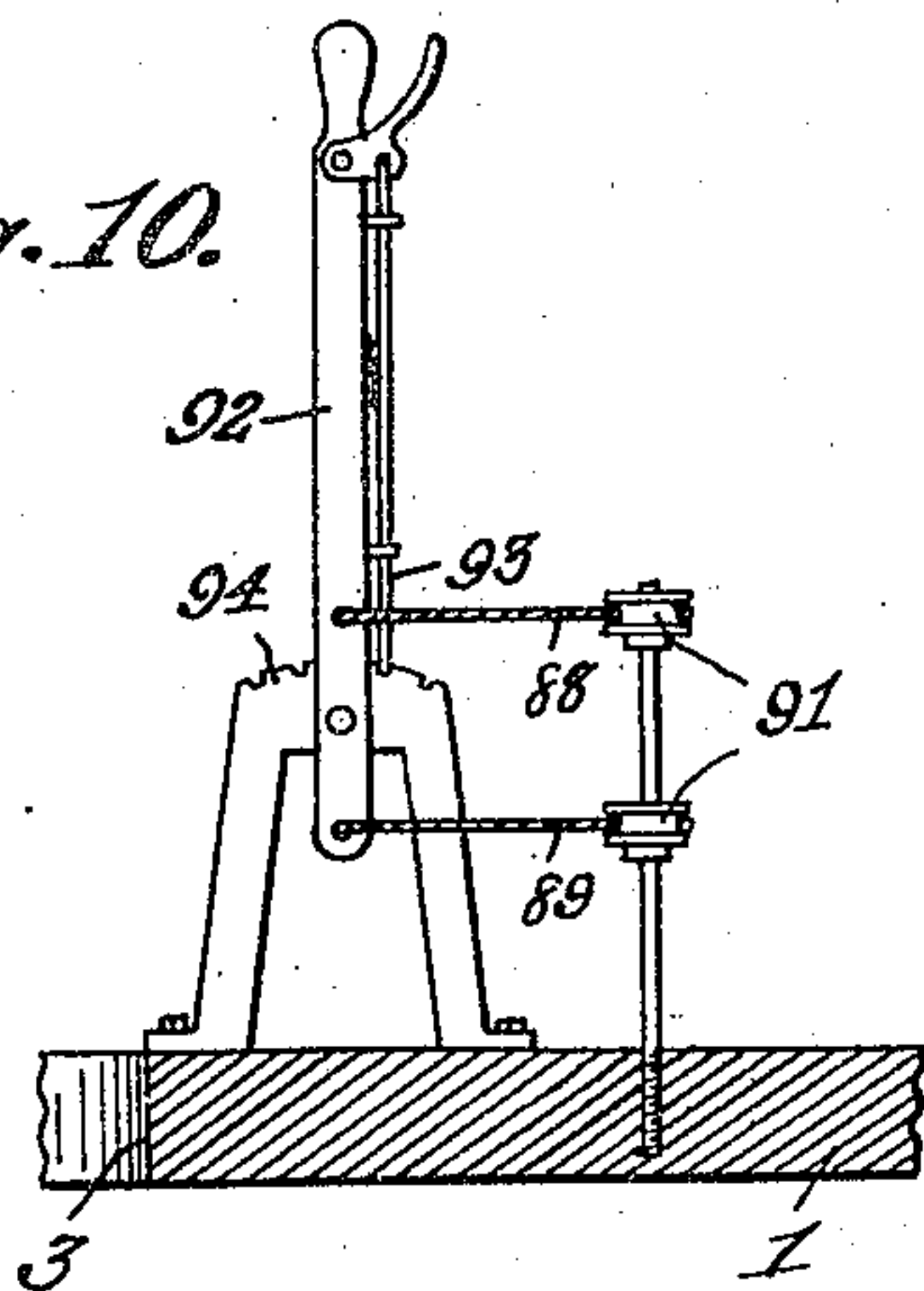
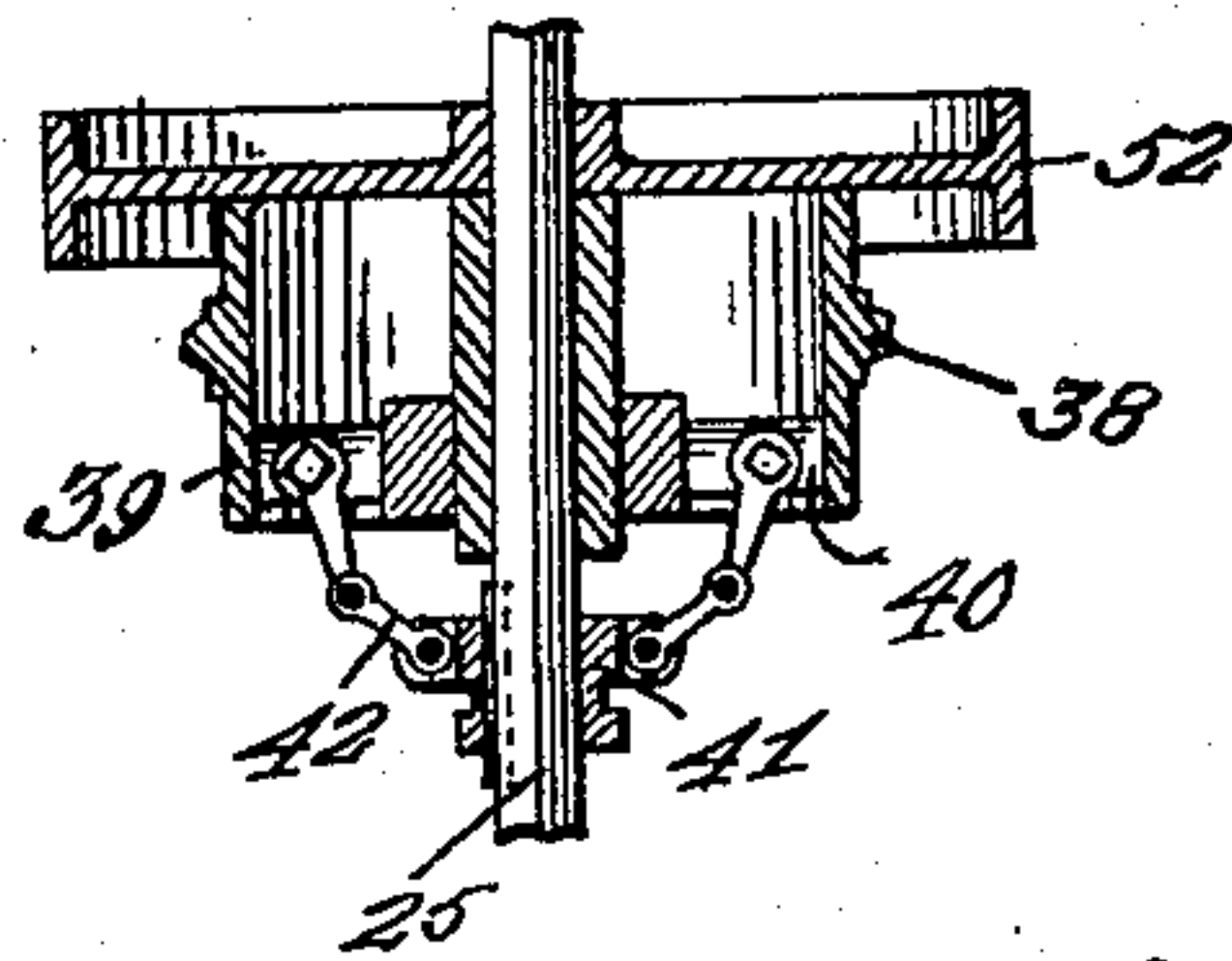


Fig. 12.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN M. MITTENDORF, OF ST. LOUIS, MISSOURI.

TRACTION-ENGINE.

990,374.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed September 22, 1909. Serial No. 518,977.

To all whom it may concern:

Be it known that I, JOHN M. MITTENDORF, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Traction-Engines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in traction engines and other motor-propelled vehicles which may be used on a road for hauling loads, or in a field for pulling gang plows, cultivators and other farming implements or machines.

The object of the invention is to provide a simple and practical machine of this character, the use of which will effect great saving in manual labor, and which has an improved front steering and propelling wheel which will enable the machine to make very short turns.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the improved machine; Fig. 2 is a side elevation, the wheel on the near side being removed and its axle being in section; Figs. 3 to 11 inclusive are detail sectional views taken, respectively on the planes indicated by the lines 3—3, 4—4, 5—5, 6—6, 7—7, 8—8, 9—9, 10—10 and 11—11 in Fig. 1; and Fig. 12 is a detail section showing the friction clutch. Fig. 13 is a detail section taken on the plane indicated by the line 13—13 in Fig. 8.

The invention comprises a body or platform 1 preferably of triangular shape and made of wood and having its side edges bound by a strip of metal, as indicated at 2. Journaled in suitable bearings on the recessed rear portion 3 of the platform is a rear axle 4 carrying traction wheels 5. The rear portion of the frame is supported on these wheels 5 and its tapered front end is supported by a smaller traction wheel 6

which is also used for steering the machine. The wheel 6, as shown more clearly in Fig. 8, is journaled on a stub axle carried by the offset lower end or arm 7 of a tubular upright 8 rotatable in a bearing bracket 9 projecting from the front end of the platform. The upright 8 has fixed to it a beveled gear 10 which meshes with a beveled pinion 11 on a rearwardly extending shaft 12. The latter is journaled in bearings upon two uprights 13, 14 rising from the platform and has upon its rear end a hand wheel disposed within convenient reach of the operator who occupies a seat 15 suitably located at the rear portion of the platform. By turning the hand wheel or shaft 12, the tubular upright 8 will be rotated to dispose the wheel 6 in different directions for steering purposes.

Secured to the wheel 6 is a crown gear ring 16 with which meshes a pinion or gear 17 loose on the lower end of a vertical shaft which is rotatable in the tubular upright 8. The gear 17 is loose upon said shaft 18 so that it can rotate independently thereof in one direction, but it is adapted to be locked thereto by providing on the ends of a transverse pivot bolt 18^a two oppositely projecting pawls 18^b to engage an annular series of ratchet teeth 18^c on the upper face of the gear 17. Owing to this construction the front wheel 6 will not be positively driven by the motor, as hereinafter explained, unless the rear driving wheels slip, whereupon said front wheel will be positively driven to pull the machine in a forward direction. Fixed to the upper end of the shaft 18 is a beveled gear 19 which meshes with a pinion 20 on the front end of a shaft 21. The latter is journaled in a bearing on the upright or standard 13 and a bearing on a similar upright 22 and on its rear end is a pinion 23 which meshes with a crown gear 24 fixed to the crank shaft 25 of a gasoline engine 26 or any other engine or motor. By reason of the gearing just described, it will be seen that the motion of the engine will be imparted to the wheel 6 so that the latter will act as a drive or traction wheel. To permit the wheel 6 to be thrown out of gear, the

shaft 21 has its rear end mounted for slight lateral movement in the bearing on the upright 22 so that the pinion 23 may be moved into and out of mesh with the gear 24. The latter is effected by providing a shifting lever 27, the intermediate portion of which has an apertured enlargement 28 adapted to receive the shaft 25 and to be loosely retained thereon between two pins 29. The forward end of the lever 27 is angular and has a bearing for the shaft 21 and its rear end serves as a handle and carries a spring projected and hand retracted pawl 30 to engage a segmental locking rack 31 arranged on a bracket or upright rising from the platform.

Provided upon the rear traction wheels 5 are sprocket wheels 32 which are connected by sprocket chains to sprocket wheels or pinions 33 fixed to the ends of a transverse shaft 34 journaled in bearings on the platform. The shaft 34 is preferably made in two sections which are connected by a suitable differential gear here shown as inclosed in a casing 35. The shaft 34 is driven by a sprocket chain 37 extending from the differential gear in the casing 35, to a sprocket wheel 38 provided on the periphery of one of the members 39 of a friction clutch. Said member 39 is in the form of a drum loosely arranged on the engine shaft 25 and adapted to be locked to said shaft for rotation therewith by co-acting friction clutch members 40 in the form of shoes operatively connected to a sliding hub 41 on said shaft by means of links 42. The hub or collar 41 has a groove for the forked end of a shifting lever 43, which latter is fulcrumed intermediate its ends at 44 and has its rear end pivoted to an operating rod 45 slidably arranged in a bearing 46. The free end of the rod 45 is offset to provide a handle portion 47 adapted to be sprung into and out of engagement with a stationary locking rack 48 and the friction clutch may be adjusted to throw the traction wheels 5 into or out of gear and also to control the speed of said wheels and hence of the machine.

49 denotes a friction brake wheel fixed to the rear axle 4 and around which passes a friction brake band 50. The latter has one end secured to the platform and its other end connected to a foot lever 51 pivoted on top of the platform adjacent to the operator's seat. This brake gives the operator greater control over the movement of the machine.

The machine as above described may be used as a traction engine for propelling vehicles or the like over roads and for propelling agricultural implements through fields and for similar purposes and it may also be used for driving threshing machines, sawing machines, or similar stationary ma-

chinery by suitably anchoring the machine and connecting one of the fly wheels 52 of the engine 26 by a belt to the machine to be driven.

I have illustrated in the drawings, my invention embodied in a traction engine, carrying a gang of plows 54. These plows are carried by a vertically swinging frame 53 adapted to be secured in adjusted position and said plows are also mounted for horizontal swinging movement whereby they may be adjusted laterally and retained in adjusted position.

It is thought that from the foregoing detail description taken in connection with the accompanying drawings the construction, operation and advantages of the invention will be readily understood without a more detailed explanation. It will be noted, however, that by means of my machine large tracts of ground may be quickly plowed and cultivated at a small expenditure of labor and that when the machine is not used in this way it may be used about the farm for traction and power purposes.

Having thus described the invention what is claimed is:

1. In a machine of the character described, the combination of a body provided with a bearing, a tubular upright rotatable in said bearing and having an enlarged off-set lower end carrying a horizontal pivot, a steering wheel journaled on said pivot, a gear concentric with said wheel and carried thereby, an upright shaft rotatable in said tubular upright, a loosely mounted gear on the lower end of said shaft to mesh with the gear on the steering wheel, and carrying an annular series of ratchet teeth, a pawl carried by the shaft to engage said ratchet teeth, a motor on the body for rotating said shaft, and means for rotating said tubular upright to change the direction of the steering wheel.

2. In a machine of the character described, the combination of a body having a bearing at its front end, a tubular upright in said bearing, a vertical shaft rotatable in said tubular upright, a steering wheel carried by the lower end of said tubular upright, and driven from said shaft, means for turning the tubular upright to change the direction of the steering wheel, a motor carried by the body and having a transversely arranged shaft, a gear fixed to the last mentioned shaft, other bearings on said body, a longitudinal shaft mounted in the last mentioned bearings for rotary movement and also for lateral movement, a gear on the end of the longitudinal shaft and movable into and out of mesh with the gear on the motor shaft, by reason of the lateral movement of said longitudinal shaft, gearing connecting the front end of the longitudinal shaft to said vertical shaft, spaced stops on the motor

shaft, a lever having an open portion to loosely receive the motor shaft and arranged on the latter between said stops, said lever being engaged with the rear portion of the longitudinal shaft for shifting the latter laterally, and means for locking said lever in adjusted position.

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

JOHN M. MITTENDORF.

Witnesses:

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FRED. K. SCHNIEDER.