

976,368.

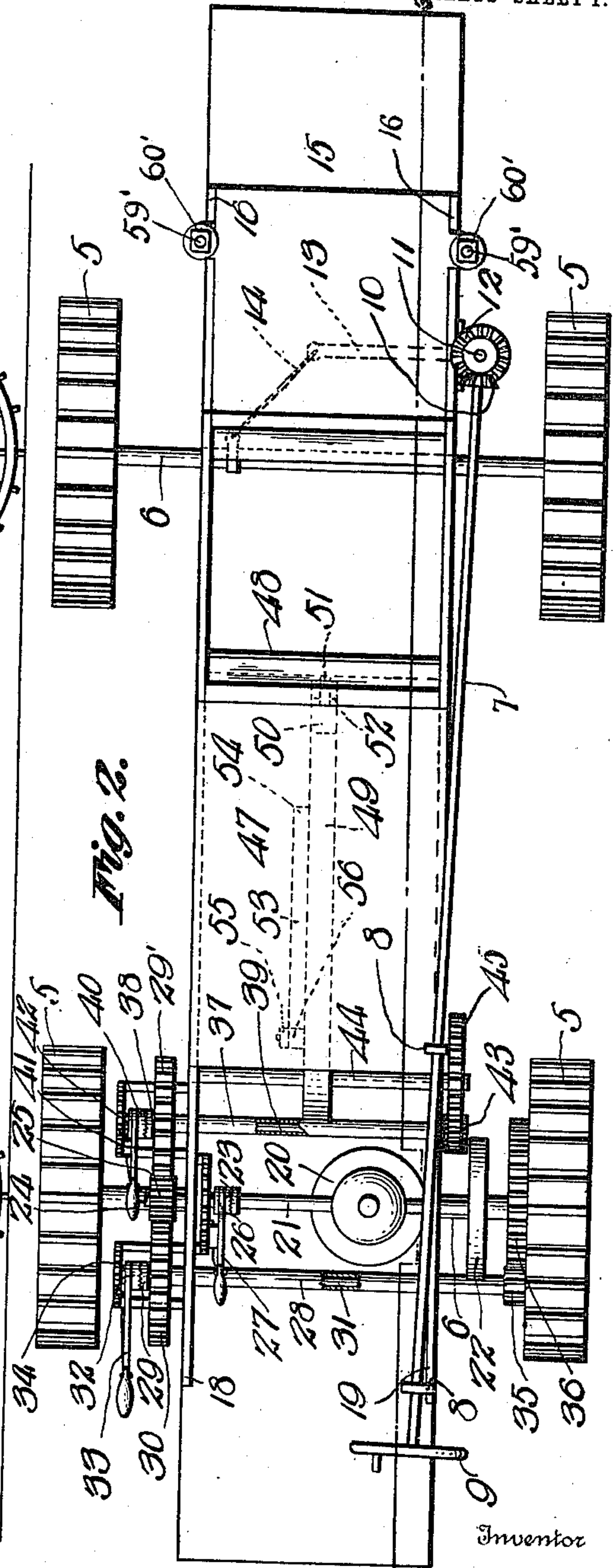
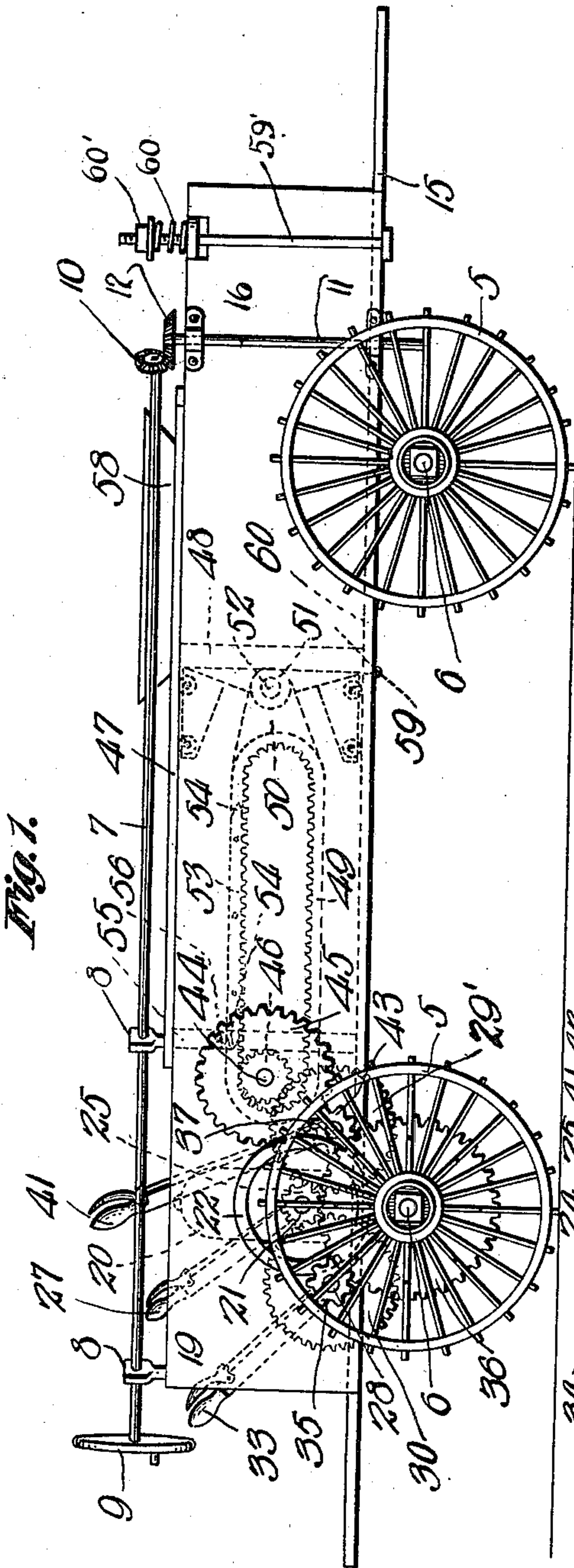
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HAY PRESS.

APPLICATION FILED JUNE 27, 1910.

Patented Nov. 22, 1910.

3 SHEETS-SHEET 1.



Witnesses

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3 SHEETS-SHEET 2.

Fig. 3.

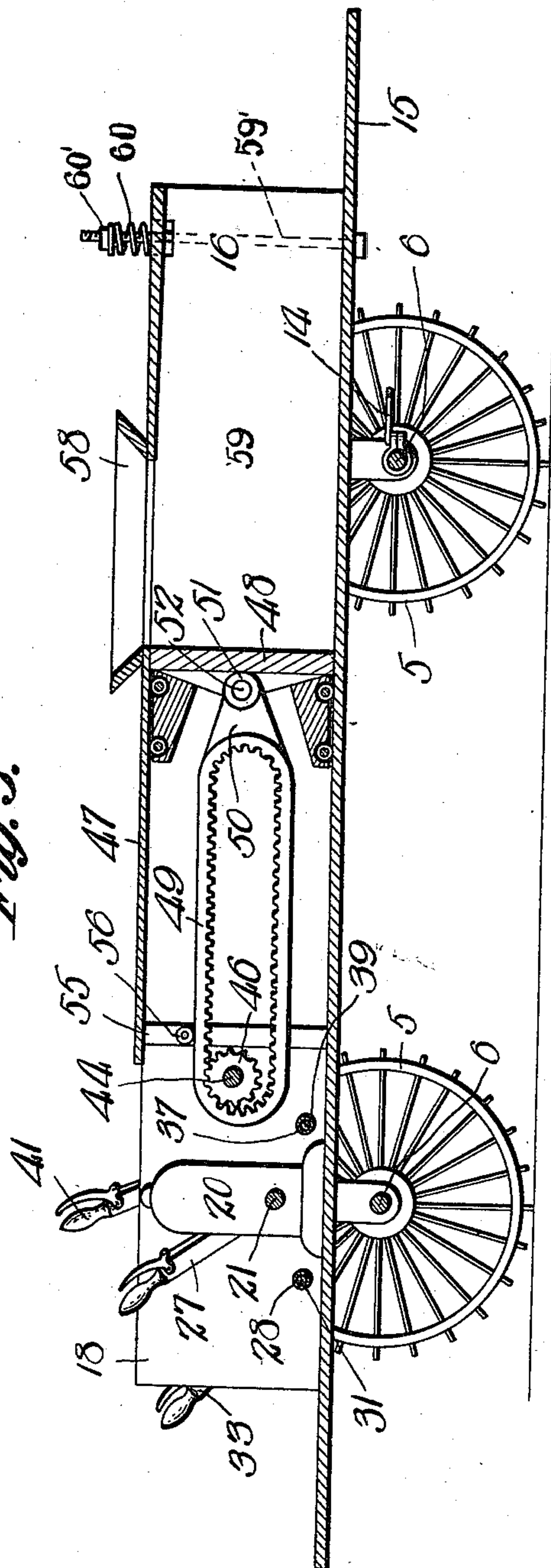
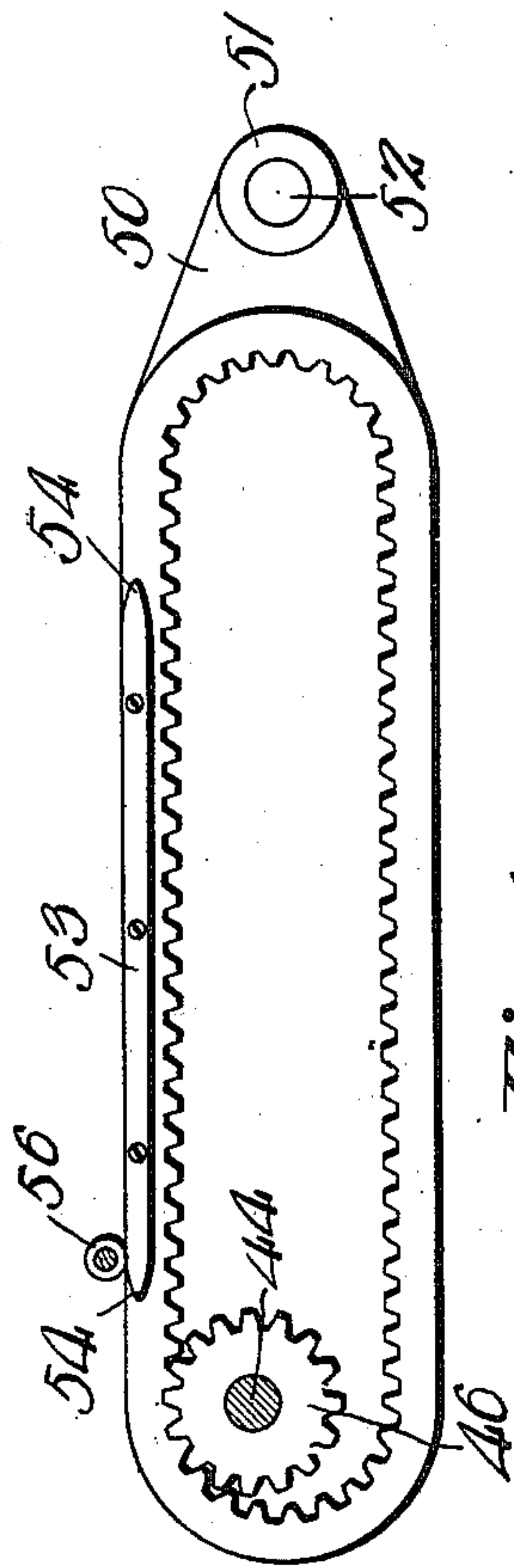


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

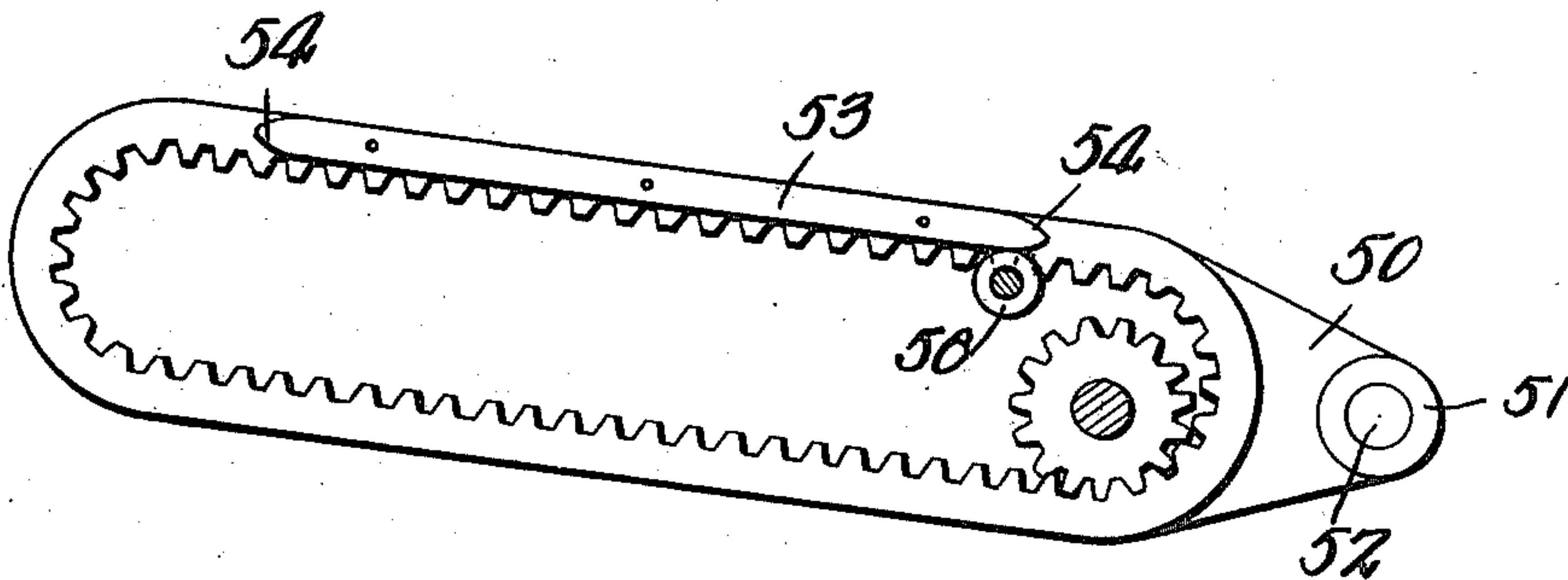
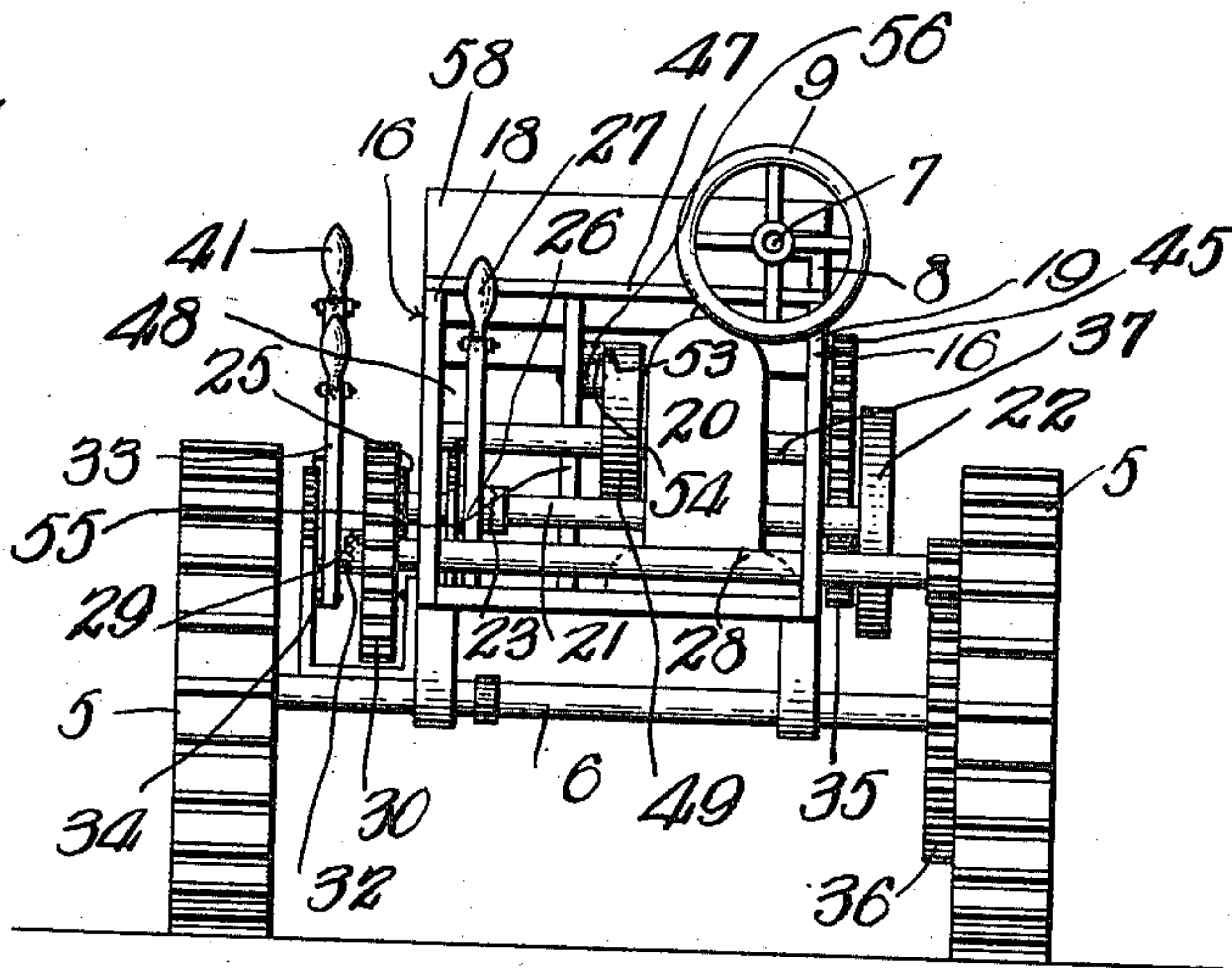


Fig. 6.

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UNITED STATES PATENT OFFICE.

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976,368.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES A. HUGHES, a citizen of the United States, residing at Sycamore, in the county of Greene, State of Pennsylvania, have invented certain new and useful Improvements in Hay-Presses; and I do hereby 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.

This invention relates to improvements in hay presses and more particularly to the portable type.

The invention contemplates for its object the provision of a portable hay press which may be driven from one locality to another by the power which actuates the press.

Another object is the provision of an improved form of pressing plunger and means for actuating the same.

With these and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size and minor details of the device may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of the specification:—Figure 1 is a side elevation of the device. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal section on the line 3—3, Fig. 2. Fig. 4 is a side elevation of the improved form of compressor rod. Fig. 5 is a rear end elevation of the device. Fig. 6 is another view of the compressor rod but showing the same on the opposite stroke.

Similar numerals of reference are employed to designate corresponding parts throughout.

As shown in the drawings the device is in the form of a vehicle, the body of which is designed to contain the pressing mechanism and the driving mechanism and is shown to consist of an oblong casing which corresponds in contour to the ordinary wagon

body. The wheels are designated by the numeral 5 and may be of any well known type and are connected together by the usual axles 6. The casing or body is rectangular in contour, and when the device is driven by an engine to be hereafter described, a steering mechanism is provided which in the present instance is shown to consist of an elongated rod 7 journaled in brackets 8 which are secured to the top of the casing or body one end of the rod being provided with a hand wheel 9 which is disposed at the rear of the vehicle and the opposite or front end terminating in a beveled pinion 10.

A vertical shaft 11 is disposed at one side of the body and has at its upper end a pinion 12 which meshes with the pinion 10 and its lower end is provided with a laterally extending crank 13, connection between the free end of the latter and the front axle is established by means of a link 14, the opposite ends of which are pivoted to a clip carried by the axle and the free end of the crank. The clip is disposed to one side of the middle of the axle so that by turning the hand wheel 9 the crank 13 will operate to turn the front axle so as to head the device in the required direction. As before stated, the body or casing is oblong or rectangular in contour and consists of a bottom 15 from the sides and ends of which rise the side walls 16.

Disposed within the body and at the opposite sides thereof are frame plates 18 and 19 and arranged intermediate of the frame plates and supported by the bottom 15 is an engine 20. The latter may be of any well known type and may be either the gas or steam type. The engine 20 and frame plates 18 and 19 are disposed at the rear end of the body and over the rear axle, the driving shaft of the engine extends transverse the body and is designated by the numeral 21. One end of this engine shaft is journaled in one end of the frame plate 19 and extends through one of the sides of the body and is provided at its end with the usual balance wheel 22. The opposite end of the driving shaft terminates at a point adjacent the opposite side wall of the body and is provided with a clutch 23. Journaled in the opposite frame plate 18 is a shaft sec-

tion 24, the inner end of which extends to a point adjacent the clutch 23 and the opposite end of which extends through and beyond the adjacent side wall and is provided with a pinion 25 which is keyed thereto. Opposite sides of the inner terminal of the shaft section 24 are provided with recesses which receive the inwardly projecting lugs of a clutch collar 26, a vertically disposed lever 27 has its lower end fulcrumed on the bottom 15 of the body and its intermediate portion provided with an opening which receives the clutch collar 26. The lever moves in a plane transverse the longitudinal plane of the body and the clutch collar 26 is provided at that portion which extends through the lever with an annular groove into which the sides of the opening in the lever loosely fit. Owing to the disposition of the clutch collar 26 on the shaft section 24 it may be moved longitudinally of the said shaft section by the lever 27 and when so moved the clutch collar 26 will be brought into or out of engagement with the clutch 23. Thus it will be seen when the parts are in position as shown in Fig. 2 and the clutch surfaces are in engagement with each other and the engine in motion that the pinion 25 will be rotated.

30 Journaled in the end plates 18 and 19 is a hollow shaft 28 the opposite ends of which extend through and beyond the side walls 16 of the body. One end of this hollow shaft terminates in a clutch surface 29 and keyed to the shaft adjacent the clutch surface is a gear 30, the teeth of which mesh with the teeth of the pinion 25. Extending through the hollow shaft 28 is a solid shaft 31 one end of which terminates at a point in advance of the clutch surface 29 of the hollow shaft 28 and is provided with a longitudinal groove having an abrupt outer end. Slidingly fitted on the last-named portion of the solid shaft 31 is a clutch collar 32 which is interiorly provided with a tongue which extends into the groove of the shaft. A lever 33 moving laterally with respect to the body of the device has its lower end fulcrumed on a laterally extending strip 34 while its intermediate portion is provided with an opening which receives the clutch collar 32, that portion of the clutch collar which extends through the lever 33 is provided with an annular groove similar to the clutch collar 26. Thus it will be seen when the lever is moved in one direction the clutch collar 32 will be brought into engagement with the clutch surface 29 at the end of the hollow shaft 28, whereby motion will be communicated to the inner or solid shaft 31. The opposite end of the latter extends in advance of that end of the hollow shaft 28 remote from the clutch sur-

face 29 and has keyed thereto a pinion 35 and keyed or otherwise secured to the hub of the adjacent rear wheel is a gear 36 the teeth of which mesh with the pinion 35; thus it will be seen when the parts are in position as shown in Fig. 2, and the engine is in motion, that movement will be imparted to the gear 36 on the hub of the rear wheel through the pinion 35 and hollow shaft 28, whereby the vehicle will move in one direction. By moving the lever 33 to the opposite direction so as to bring the clutch collar 32 out of engagement with the clutch surface 29 the vehicle will come to a standstill even though the engine may work.

Journaled in the frame plates 18 and 19 and on that side of the engine 20 opposite the hollow shaft 28 is a similar hollow shaft 37 the opposite ends of which extend through and beyond the opposite side walls 16 of the body. One terminal of this hollow shaft 37 is provided with a clutch surface 38 and keyed to the said hollow shaft is a gear 29' which meshes with the pinion 25 similar to the gear 30. On the opposite side and extending through the hollow shaft 37 is a solid shaft 39 similar to the shaft 31 and one end of which is provided with a longitudinal groove similar to the shaft 31 and has slidingly fitted within the tongue of a clutch collar 40. A lever 41 is fulcrumed on a bracket 42 extending laterally from the side wall 16 and like the lever 33 is provided with an opening which receives the clutch collar 40, the latter being provided with an annular groove at that portion extending through the lever. On that end of the inner shaft 39 remote from the clutch collar 30 is a pinion 43. Thus it will be seen when the lever is moved so as to bring the clutch surface 40 into engagement with the clutch surface 38 and the engine in motion that motion will be imparted to the pinion 43.

Journaled in the side plates 18 and 19 and in advance of the hollow shaft 37 is a shaft 44, one terminal of which extends through one of the side walls 16 and has keyed thereto a gear 45 the teeth of which mesh with the pinion 43; and keyed to the middle of the shaft 44 is a driving pinion 46. Thus it will be seen when the parts are in position and as shown in the drawings that movement will be imparted to the driving pinion 46 through the train of gearing before described.

That portion of the body in advance of the frame plates 18 and 19 is provided with a top cover 47 which extends forwardly to a point adjacent the middle of the body so that the space formed by the floor 15, side walls 16 and top 47 will provide a rectangular opening which in the present instance

constitutes a guide. Slidingly fitted within this guide is a compressor 48. The latter may be of any suitable material and of a size to snugly fit within the guide. An internal rack 49 is provided at one end with an extension 50 having an opening which interlocks between a pair of spaced perforated ears 51 formed on the inner face and at the center of the compressor or plunger 48, the openings of the extensions 50 and ears 51 are adapted to aline so as to receive a pivot pin 52 by means of which the internal rack is pivotally connected with the compressor and free to oscillate thereon in a vertical plane. The internal rack 49 is oblong in contour and extends longitudinally of the body and is so arranged that the teeth of its opposite sides will lie in a vertical plane. The rack is provided on one of the faces of its upper side with a lateral guide 53 of less length than the guide and the opposite ends of which are slightly rounded as shown at 54.

Disposed within the guide formed by the top 47 and sides and floor of the body is a vertical standard 55 which is arranged to one side of the internal rack 49 and is provided on one face with a laterally extending roller 56. By referring now to Figs. 1 and 3 it will be seen that the pinion 46 is disposed within the internal rack 49, its teeth meshing with the teeth of the rack. Owing to the disposition of the parts and the gravity of the internal rack 49 the teeth on the upper side of the collar will normally mesh with the teeth of the pinion 46. As the latter turns, however, in the manner before described, the rack will be moved in a rearward direction until the teeth of the pinion engage one of the curved ends of the rack, when the parts are in this position the opposite or free end of the rack will tilt upwardly owing to the pivotal connection of the rack with the compressor, whereby the teeth of the lower side of the rack will be brought into engagement with the teeth of the pinion, this will give an opposite movement to the compressor and as the latter starts to move in the new direction the rack will start to descend and at the beginning of its descending movement the lateral guide 53 will bear on the upper side of the roller 56 whereby the teeth on the lower side of the rack will be held into engagement with the pinion until the curved opposite end of the rack engages with the pinion whereupon the rack will move downwardly and the teeth of the pinion mesh with the teeth on the upper side of the rack, thus imparting the first-named movement to the compressor. It is to be understood that the length of the guide will be such that it will engage the roller just as the rack starts to

descend in the manner first described and when the rack has reached the opposite end of the stroke and the free end thereof starts to lower the guide 53 will have moved beyond the roller 56. Thus it will be seen that a reciprocatory movement will be imparted to the compressor by virtue of the rack.

By referring now to the drawings it will be seen that on that portion of the body directly in advance of the top cover 47 is arranged a hopper 58, which communicates with the compressing chamber designated in general by the numeral 59. The latter may be of any required dimensions according to the size of bale to be formed. Thus it will be seen when hay is fed into the hopper 58 and the compressor or plunger given movement by the engine in the manner before described that the hay will be compressed into a bale. Any well known form of wiring the bales may be employed and since the same forms no part of this invention the process is not shown. When the bale has been formed and wired it is moved forwardly through the box and discharged from the front end thereof by the action of the baling mechanism in forming other bales. Tension bolts which connect the top and bottom of the compressing chamber are shown at 59', provided with adjusting springs 60 and nuts 60'.

Thus it will be seen that I have provided a device which is exceedingly simple in structure and comparatively inexpensive to manufacture embodying few parts and these so arranged, that the danger of derangement will be reduced to a minimum, and it will be further observed that the utility of the device will be greatly appreciated since it can be taken from place to place in the country to perform the baling generally required by farmers.

Having thus described my invention what is claimed as new, is:—

1. In a portable baling press, a baling chamber, a reciprocating plunger operating in said chamber, an internal rack having one end pivoted to said plunger, a guide on said rack, a driving pinion and a bearing roller adapted to engage with one face of said guide and hold the teeth of one side of said rack in engagement with said pinion.

2. In a portable baling press, a baling chamber, a horizontally reciprocating plunger operating in said chamber, an oblong internal rack having one end horizontally pivoted to said plunger, a lateral guide on said rack, a driving pinion and a bearing roller adapted to engage with one face of said guide and hold the teeth on one side of said rack in engagement with said pinion.

3. In a portable baling press, a baling chamber, a horizontally reciprocating plun-

ger operating in said chamber, an oblong internal rack having one end horizontally pivoted to the center of said plunger, a lateral guide on the upper side of said rack of less
5 length than the side and having its opposite ends rounded, a driving pinion, a vertical standard and a horizontally disposed roller carried by the standard and adapted to engage with one face of said guide and

hold the teeth on one side of the rack in engagement with said pinion. 10

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

CHARLES A. HUGHES.

Witnesses:

JOHN R. BURSON,
J. E. PARKINSON.