

No. 744,141.

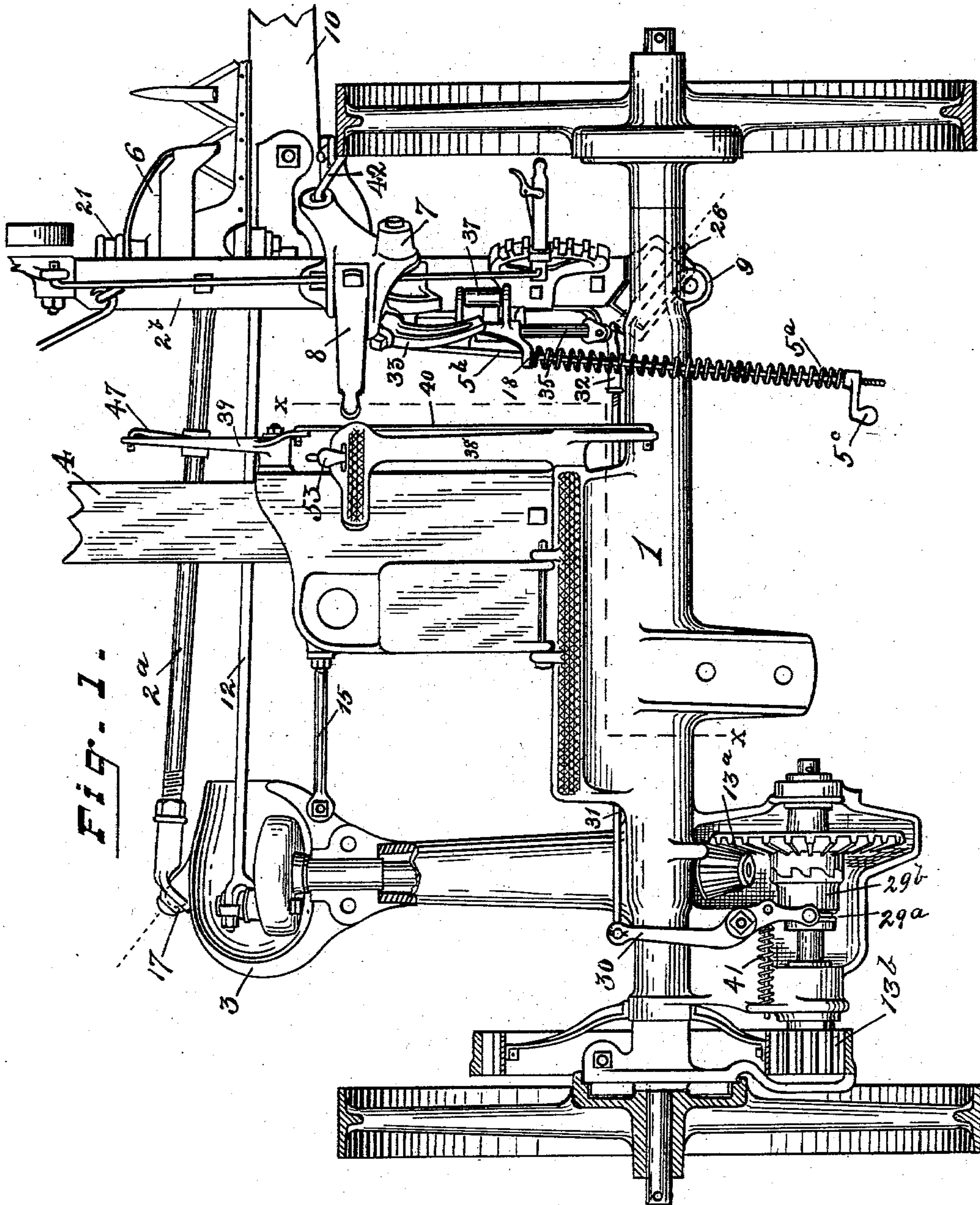
PATENTED NOV. 17, 1903.

W. N. WHITELEY.
MOWING MACHINE.

APPLICATION FILED AUG. 30, 1902.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses
Robert Weiskotten
John L. Gilligan

Inventor
William N. Whitely

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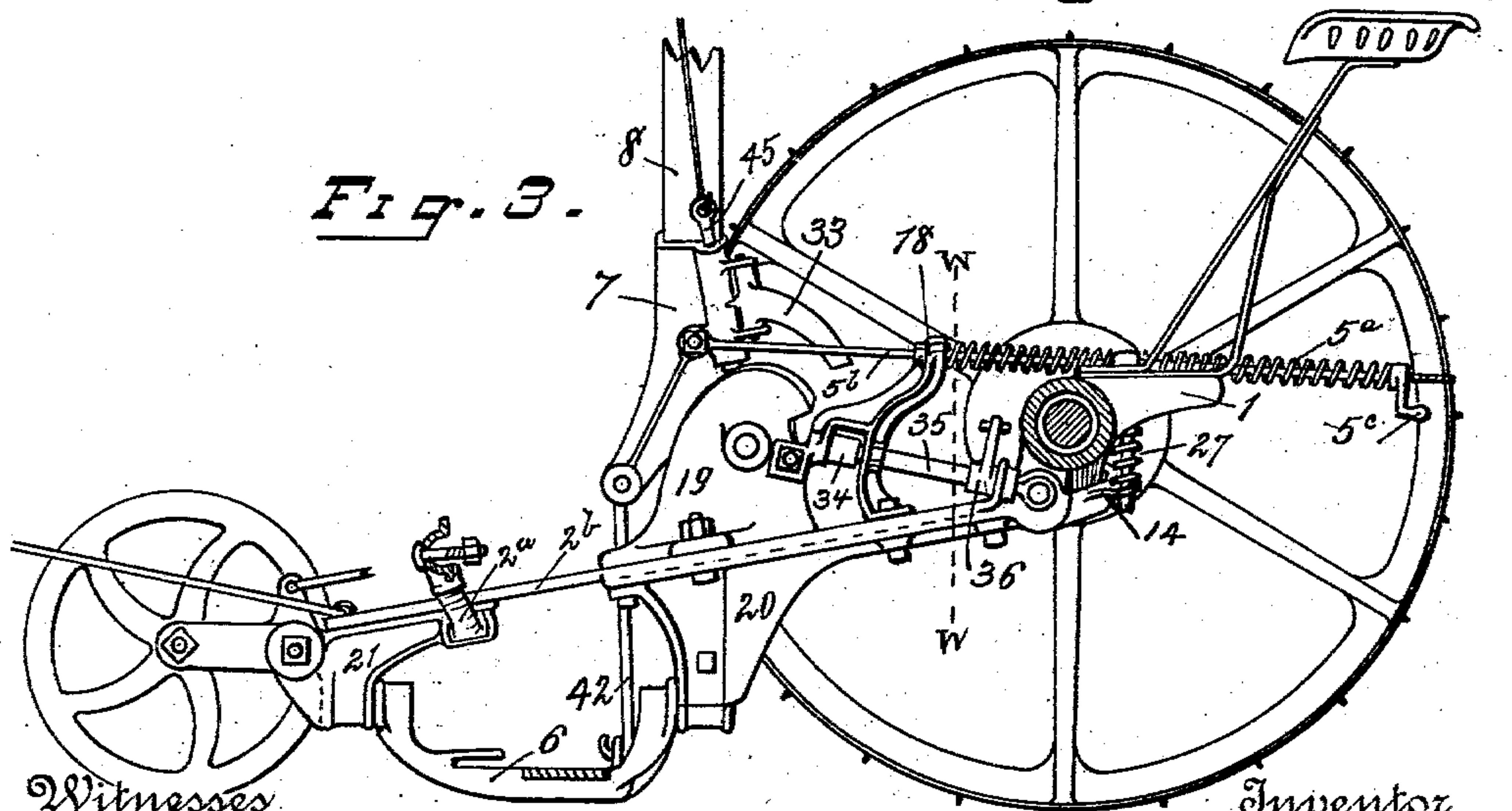
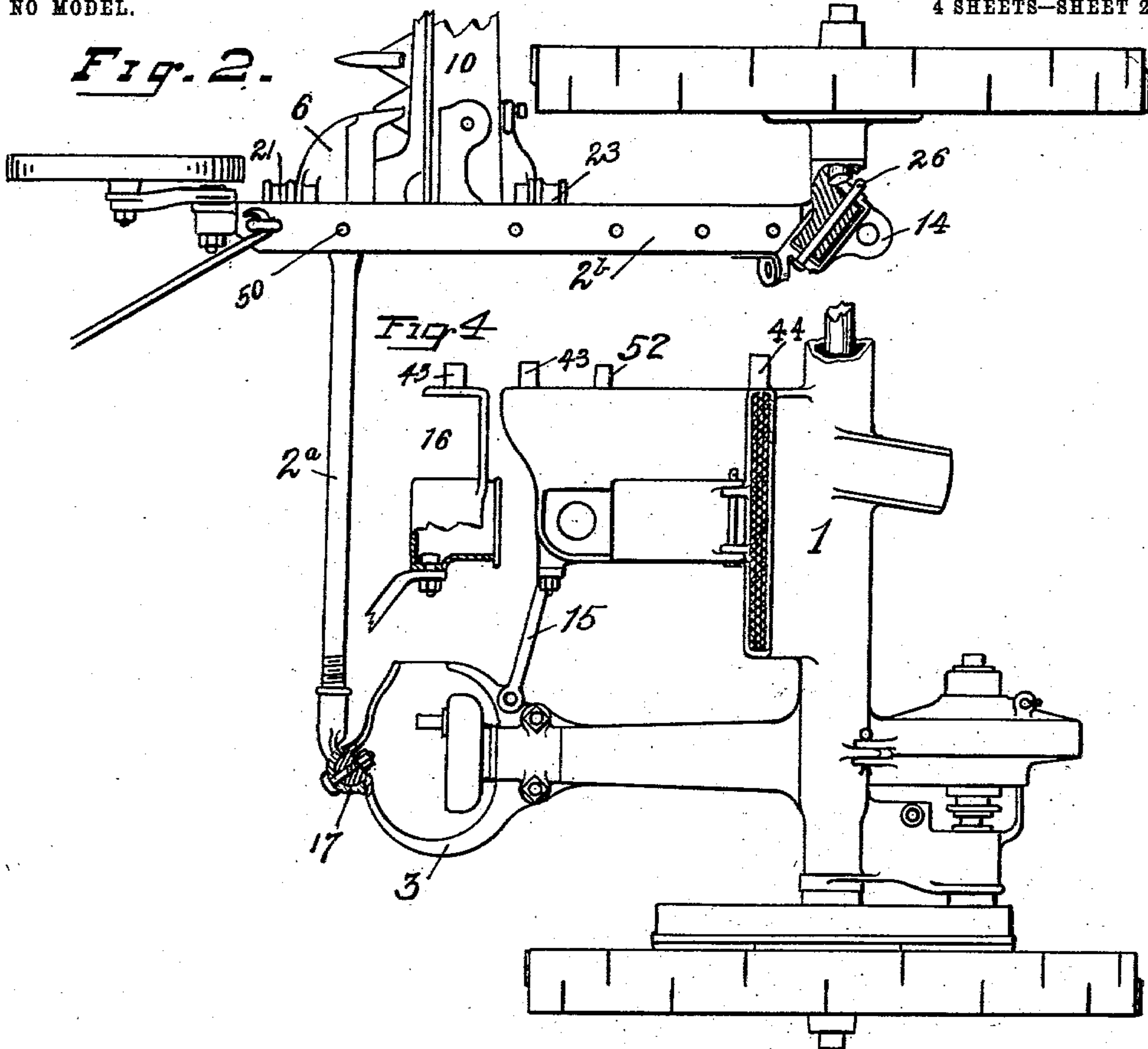
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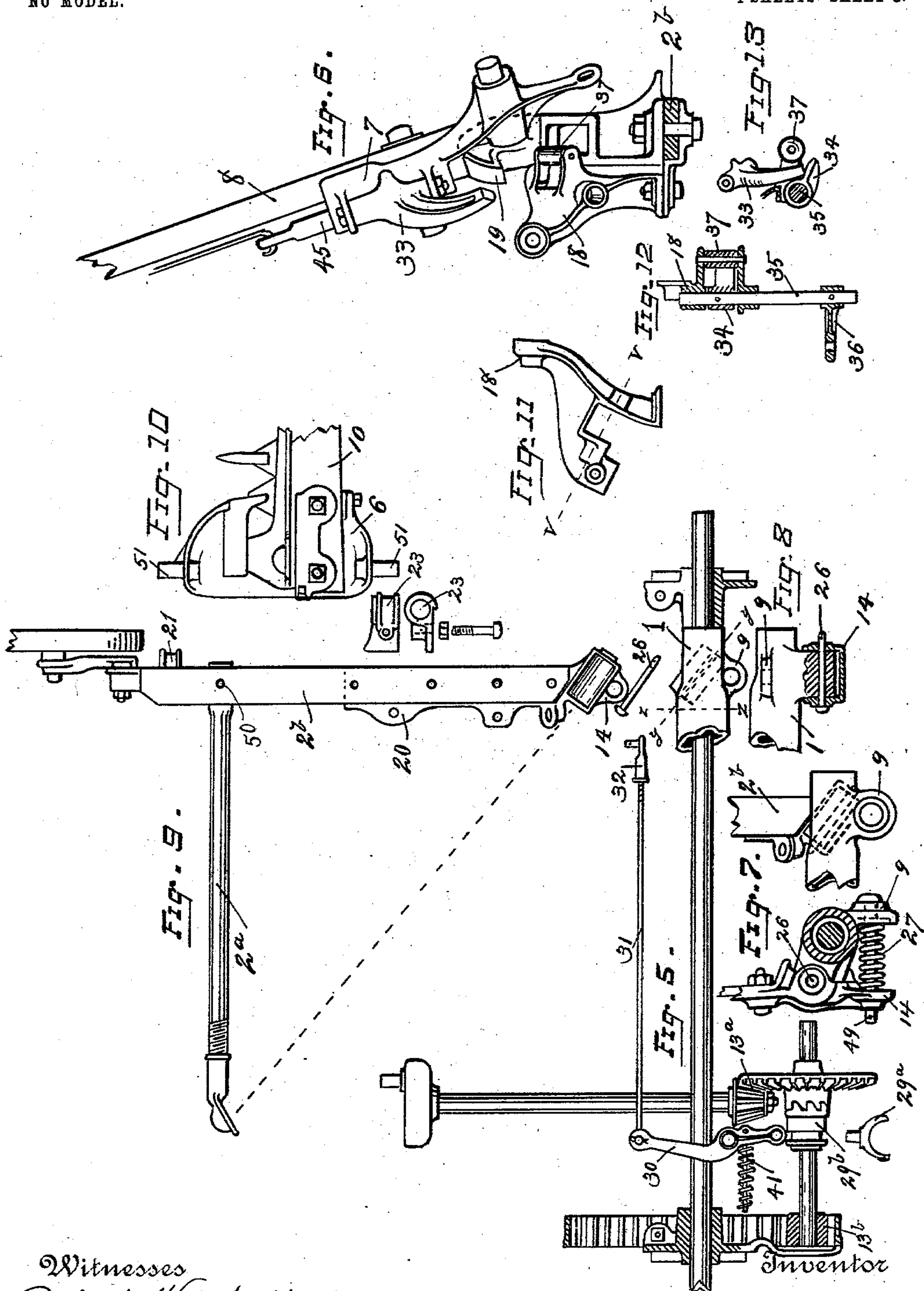
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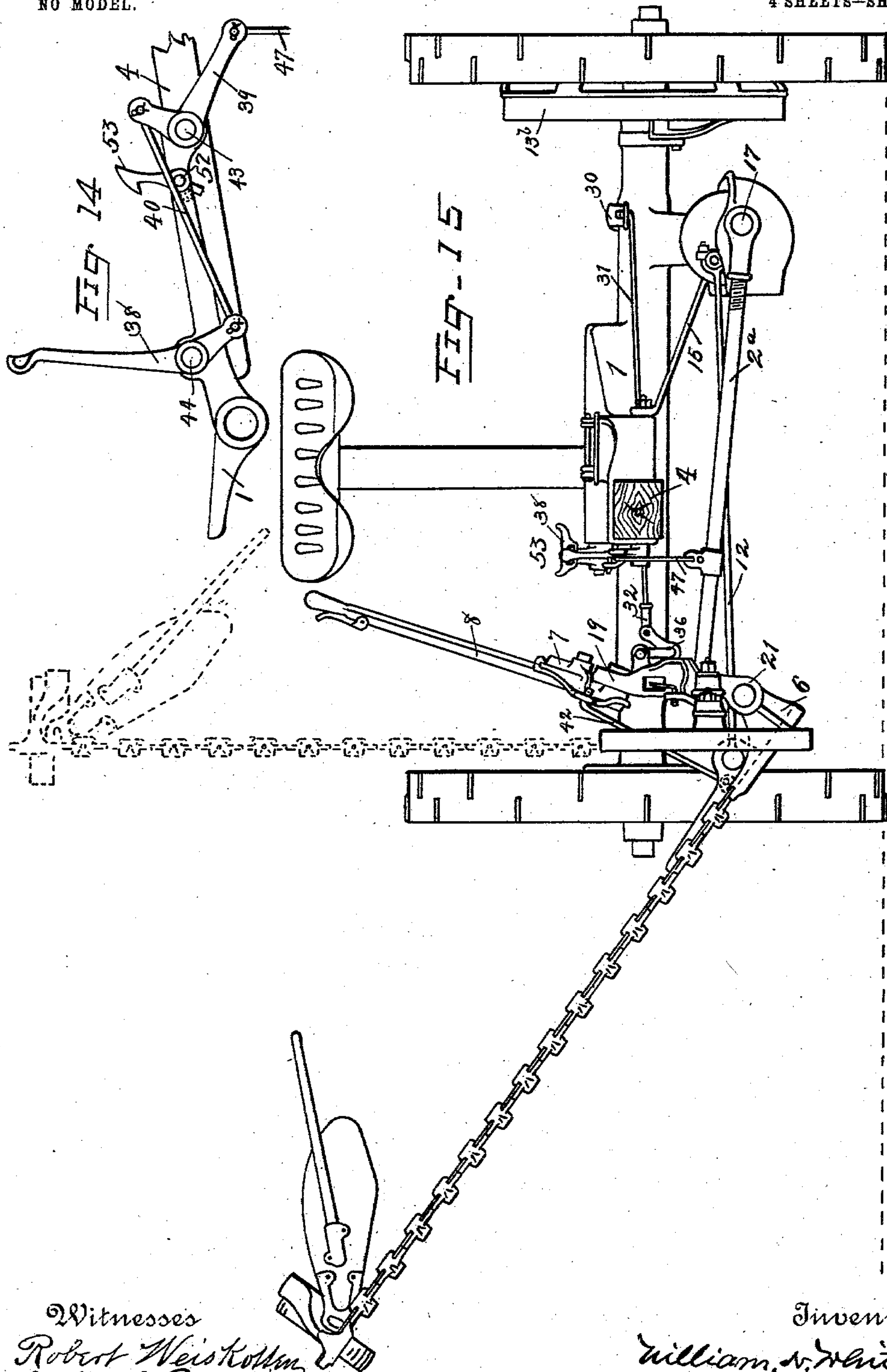
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

WILLIAM N. WHITELEY, OF SPRINGFIELD, OHIO.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 744,141, dated November 17, 1903.

Application filed August 30, 1902. Serial No. 121,619. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. WHITELEY, a citizen of the United States, residing at No. 153 East High street, Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Mowing-Machines; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements upon mowing-machines of the front-cut two-wheeled hinged-bar type having a main or primary frame to which the tongue and seat-support are rigidly attached and a secondary frame pivotally connected to the main or primary frame and to which the finger-bar is hinge-connected.

The object of my invention is to pivotally mount the lifting-lever for the finger-bar on this secondary frame and connect said lifting-lever with the shoe of the finger-bar by a pivotal connection; further, to provide a locking device for said lifting-lever on said secondary frame to lock the lever when the finger-bar is raised from the ground and to hold the finger-bar in any desired elevated position wholly independent of the main or primary frame; also, to provide a spring to assist the operator in lifting said finger-bar and connect said spring with said lifting-lever on the secondary frame. This spring may be located wholly upon said secondary frame. I further provide a manual and automatic gear disengaging and engaging mechanism for stopping and starting the movement of the cutters when the finger-bar is raised and lowered. This mechanism is located partly upon the secondary frame and partly upon the main or primary frame and is pivotally connected together near the pivotal connection of the secondary frame to the main or primary frame on its grassward side. The lifting-lever for the finger-bar and its connection with the finger-bar and its locking device are all operative independently of the main or primary frame and are not connected therewith. The finger-bar may be elevated

vertically, when desired, by its lifting-lever mounted on the secondary frame. I further provide for the easement of the secondary frame from the ground by means of a spring interposed between the main or primary frame and the secondary frame. I also provide a foot or hand lever located on the main or primary frame and connect same to the secondary frame by a link connection. A locking device for said lever is also provided, so that when the secondary frame and lifting-lever mounted thereon and the inner end of the finger-bar are raised from the ground they may be locked in their raised position.

While the above are my main improvements, there are other novel and important features, which will more fully appear by reference to the drawings and specification of this application.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a mowing-machine of the type described embodying my improvements. Fig. 2 is a plan view of a portion of a mowing-machine of the type described, the main or primary frame being partly broken away, so as to show the diagonal connection of the secondary frame thereto. Fig. 3 is a side elevation of a mower of the type described on lines *xx* of Fig. 1, showing the pivotal support of the shoe of the finger-bar to the secondary frame, the lift-lever, lift-lever stand, and the assisting-spring, also shows the manner of mounting these parts on the secondary frame independently of the main or primary frame. The gear-disengaging mechanism mounted on the secondary frame is also partially shown in this figure. Fig. 4 is a portion of the main or primary frame, showing the connection of the brace 15, also the recess 16 for the draft-tongue. Fig. 5 shows the arrangement of the driving-gearing and driving-shafts for the cutters, also the gear-disengaging mechanism. Fig. 6 is a view taken on the lines *ww* of Fig. 3, showing the lift-lever, lift-lever socket, and lift-lever stand, together with parts of the gear-disengaging mechanism. Fig. 7 is a top and side view taken on the lines *zz* of Fig. 5, showing the spring interposed between the main or primary and secondary frames to assist the

foot-lever and to help carry the secondary frame and the parts mounted thereon lightly over the ground. Fig. 8 is a partially sectional view on the lines *y y* of Fig. 5, showing the pivotal connection of the secondary frame to the main or primary frame on the grassward side of the main or primary frame. Fig. 9 is a plan view of the secondary frame, the dotted line indicating the axis of its pivotal connection with the main or primary frame. Fig. 10 is a plan view of the shoe of the finger-bar and the manner of pivotally connecting same to the secondary frame. Fig. 11 is a detail view of the support for the assisting-spring and gear-disengaging devices mounted on the secondary frame. Fig. 12 is a detail sectional view on the lines *v v* of Fig. 11, showing part of the gear-disengaging mechanism, also the rock-shaft 35. Fig. 13 is a detail view of a part of the gear-disengaging mechanism, showing the pivoted tongue of the lift-lever socket engaging the toe of the rock-shaft for the purpose of disengaging the driving-gearing for the cutters. Fig. 14 is a side view of the foot-lever mechanism pivotally mounted on the main or primary frame for lifting the inner end of the finger-bar and secondary frame, shown in plan in Fig. 1, also the locking device for the foot-lever. Fig. 15 is a front view of a mowing-machine embodying my improvements, the heavy lines showing the finger-bar in a semi-elevated position, at which point the driving-gearing for the cutters is positively disengaged by the downward movement of the lifting-lever, the dotted lines showing the vertical position occupied by the finger-bar when the lifting-lever has been drawn to its farthest downward position.

Those parts common to all mowers—such as the seat, the wheels, the knife and its connection, the finger-bar, swathboard, tilting mechanism, and gearing—need not be particularly described.

The particular devices of my invention and the manner in which I utilize them for the foregoing purposes will now be described.

Similar figures refer to similar parts throughout the several views.

Upon the main or primary frame 1 is mounted the driving-gearing 13^a for the cutters, said gearing having driving connection with the cutters by means of the pitman 12, the gearing 13^b being mounted at the end of said main or primary frame on the stubbleward side thereof. The secondary frame, as shown, consists of two members, (designated on the drawings as 2^a and 2^b), although it may be constructed in one piece, one disposed transversely to the line of draft, the front member 2^a having a ball-and-socket or universal diagonal pivotal connection with the forward extension part 3 of the main or primary frame 1, as shown in Fig. 1 at 17. The front member 2^a also serves as a protection to the pitman 12, the other member 2^b of said secondary frame projecting rearwardly

and pivotally connected with the main or primary frame 1 at the grassward side of said frame by means of the joint 14, pivotally connected diagonally to the frame 1 by the pin 26. The front member 2^a of said secondary frame has connection with a lever 38, mounted on the main or primary frame 1 by means of the link 47, the bell-crank 39, and intermediate connecting-rod 40 between the bell-crank 39 and lever 38, said bell-crank being mounted upon the stud 43 of the main or primary frame 1, and the lever 38, also mounted on the stud 44, secured to the main or primary frame 1. Mounted on the stud 52 is the latch 53, as shown in Figs. 1, 2, 14, and 15. When it is desired to lift the secondary frame and inner end of the finger-bar from the ground, the lever 38 is pressed downward, and by its pivotal connections with said secondary frame and finger-bar lifts said parts from the ground, and when said secondary frame and finger-bar are thus lifted said lever engages the latch 53, which is mounted on the main or primary frame, forming a locking device to lock and hold the secondary frame and the inner end of the finger-bar in an elevated position from the ground. The spring 27 is interposed between a rearwardly-extending portion 14 of the secondary frame member 2^b and an integral lug 9 of the main or primary frame and is held in position by means of the pin 49, as shown in Fig. 7. This spring partially sustains the weight of the secondary frame and the parts mounted thereon and also assists to lift the secondary frame by means of the lever 38. To the rearwardly-projecting member 2^b of the secondary frame is pivotally connected the shoe 6 of the finger-bar 10, said shoe pivotally connected by integral trunnions 51 51 in brackets 21 and 23, rigidly secured to said secondary frame. The lifting-lever 8 and its parts are pivotally mounted on the member 2^b of the secondary frame, as shown in Figs. 1 and 3, said lifting-lever being rigidly secured to the socket 7, said socket 7 journally mounted on the stand 19. From the forward end of said socket there extends a link 42, which is pivotally connected to the shoe 6 of the finger-bar 10 grassward of the pivotal connection of said shoe to the secondary frame. A spring-rod 5^b is pivotally connected at its forward end with the socket 7 and is supported by the bracket 18, mounted on the secondary frame. Said bracket 18 also serves to support the forward end of the rock-shaft 35 of the gear-disengaging mechanism. The lifting-spring 5^a is mounted on and supported by the rod 5^b between the bracket 18 and the crank-nut 5^c, which screws on the end of said spring-rod 5^b and serves to keep a proper tension on said lifting-spring and may be screwed back and forth on said spring-rod 5^b for the purpose of properly adjusting the tension of said spring 5^a.

It will be noticed that the lifting-lever 8 and the assisting-spring 5^a are wholly mounted upon said secondary frame entirely inde-

pendent of the main or primary frame, so that when the machine is drawn over the ground by means of the draft-tongue 4 (which is rigidly connected to the main or primary frame 1) the secondary frame floats along over the ground, following closely the contour thereof, sometimes in a closer position relative to the main or primary frame and again in a position farther away from the main or primary frame, according to the physical formation of the ground. Consequently the tension of the assisting-spring does not vary, nor does it exert a greater leverage on the finger-bar when the finger-bar is following a depression than when the finger-bar is passing over an elevation of the ground, the tension remaining the same no matter how uneven the ground may be over which the machine travels. To those skilled in the art the advantages thus obtained will be apparent.

I will now describe the devices constituting the gear-disengaging mechanism of my invention.

To the lifting-lever socket 7, as shown in Fig. 6, is pivotally connected the tongue 33, which, when the finger-bar 10 has been raised by means of the lifting-lever 8 to the vertically-inclined position shown in heavy lines in Fig. 15, said tongue 33 engages with the toe 34, which is rigidly secured to the rock-shaft 35, Fig. 12, said rock-shaft 35 being journally supported from said secondary frame. As the lifting-lever 8 is drawn downward and as the finger-bar 10 assumes a vertically-inclined position, as shown in heavy lines in Fig. 15, said tongue 33 engages with the toe 34 on said rock-shaft 35, causing said shaft to rotate, turning the crank 36, which is rigidly secured to said shaft and to which is pivotally connected the head 32 of the pull-rod 31. The movement of the parts as above described results in the shifter-lever 30 moving the clutch 29^b from engagement with the gearing 13^a, thus stopping the reciprocation of the cutters. Upon a further downward movement of the lifting-lever 8 the finger-bar 10 assumes a vertical position, as shown in dotted lines in Fig. 15, whereupon the plunger-bolt 45 of the lifting-lever socket 7 engages with the lifting-lever stand 19, and the finger-bar 10 is held and maintained in the vertical position described and shown by dotted lines in Fig. 15.

I provide a roller 37, secured to the apertured bracket 18, as shown in Fig. 12, the object of said roller being to properly guide said tongue 33 into the aperture in said bracket 18 and to avoid friction of said tongue 33 in its passage into and out of the aperture in said bracket 18 and also to insure the proper engagement of the tongue 33 with the toe 34 on said rock-shaft 35. Upon the releasing of the lifting-lever 8 the finger-bar 10 starts downward toward a horizontal position, and as said finger-bar 10 descends and approaches the position shown in heavy lines in Fig. 15

the rock-shaft 35 is released from the action of said lifting-lever 8 and tongue 33, and the clutch 29^b automatically returns to engagement by means of the spring 41, shifter-lever 30, and clutch-yoke 29^a.

It will be observed that while the driving-gear-disengaging mechanism is partly located on the secondary frame and partly on the main or primary frame provision is made by swiveling or screw-threading the head 32 on the pull-rod 31 and by placing it near the diagonal pivotal hinge connection of the member 2^b of the secondary frame whereby the movement of the secondary frame up and down does not affect the driving-gear-disengaging mechanism located on the main or primary frame in any position the secondary frame may assume within certain limits relative to the main or primary frame. Thus the driving-gearing for the cutters is disengaged at a predetermined elevation of the finger-bar 10 whether the secondary frame is raised above or drops below the level of the ground. The pull-rod 31 is provided with an adjustable head 32, so as to adjust the movements of the driving-gear mechanism and stop the reciprocation of the knife when the finger-bar 10 reaches a height beyond which it would not be practical for the pitman to reciprocate. The two forward-extending portions of the main or primary frame are connected together by means of the brace 15, so as to stiffen and strengthen said frame.

The member 2^a of the secondary frame is preferably riveted or bolted to the member 2^b of the secondary frame, as shown at 50 in Figs. 2 and 9; but other means of connection of the members of said secondary frame may be employed that will connect said members together. The shoe 6 of the finger-bar 10 may be pivotally connected with the secondary frame in any convenient way, as the precise manner shown is not made a subject of claim in this case, it being sufficient that there be a pivotal connection between the two for the purposes of this application.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a mowing-machine, in combination, a main or primary frame, a secondary frame, a front member of said secondary frame pivoted to the stubbleward side of said main or primary frame near the driving-crank for the cutters, a rearwardly-projecting member of said secondary frame pivotally connected in rear of said front member to the grassward side of said main or primary frame, a hinge connection between said secondary frame and the inner shoe of the finger-bar, a lifting-lever for the finger-bar pivotally mounted on said secondary frame independent of said main or primary frame, a connection from said lifting-lever to said inner shoe of the finger-bar, a locking device for said lifting-lever on said secondary frame to hold the finger-bar in an elevated position, the free end of

said secondary frame, and said lifting-lever and finger-bar free to rise and fall independently of said main or primary frame.

2. In a mowing-machine, in combination, a
5 main or primary frame, a secondary frame, a front member of said secondary frame pivoted to the stubbleward side of said main or primary frame near the driving-crank for the cutters, a rearwardly-projecting member of said
10 secondary frame pivotally connected in rear of said front member to the grassward side of said main or primary frame, a hinge connection between said secondary frame and the inner shoe of the finger-bar, a lifting-lever for
15 the finger-bar pivotally mounted on said secondary frame independent of said main or primary frame, a connection from said lifting-lever to said finger-bar, a locking device for said lifting-lever on said secondary frame
20 to hold the finger-bar in an elevated position, the free end of said secondary frame, lifting-lever and finger-bar free to rise and fall independently of said main or primary frame, an assisting-spring pivotally connected with said
25 lifting-lever and connected to said secondary frame independent of said main or primary frame to lessen the force required to lift said finger-bar from the ground.

3. In a mowing-machine, in combination, a
30 main or primary frame, a secondary frame, a front member of said secondary frame pivotally connected to said primary frame at the stubbleward side thereof near the driving-crank for the cutters, a rearwardly-projecting
35 member of said secondary frame pivotally connected to the grassward side of said main or primary frame in rear of said front member, a hinge connection between said secondary frame and the inner shoe of the finger-bar,
40 a lifting-lever for the finger-bar pivotally mounted on the secondary frame, a lifting-lever mounted on said main or primary frame, a connection between said lifting-lever on said main or primary frame and said secondary
45 frame, a lever-locking device on said main or primary frame to hold said secondary frame and finger-bar above the ground when desired.

4. In a mowing-machine, in combination, a
50 main or primary frame, a secondary frame, a front member of said secondary frame pivotally connected to said primary frame at the stubbleward side thereof near the driving-crank for the cutters, a rearwardly-projecting member of said secondary frame pivotally
55 connected to the grassward side of said main or primary frame in rear of said front member, a hinge connection between said secondary frame and the inner shoe of the finger-bar, a lifting-lever for the finger-bar pivotally
60 mounted on said secondary frame independent of said main or primary frame, a lifting-lever mounted on said main or primary frame, a pivotal connection between said lifting-lever mounted on said main or primary frame and
65 said secondary frame, a lever-locking device coacting with said lifting-lever on said pri-

mary frame to hold said secondary frame and finger-bar above the ground when desired, a spring located between said frames acting on the secondary frame to transmit a portion of
70 its weight onto the main or primary frame to lessen the force required to lift said secondary frame and inner shoe of the finger-bar from the ground.

5. In a mowing-machine, in combination, a
75 main or primary frame, a draft-tongue and seat-support rigidly connected thereto, a secondary frame pivotally connected at one end to the stubbleward side of said main or primary frame, and at its other end pivotally con-
80 nected to said main or primary frame in rear of said first-mentioned connection of the secondary and primary frames, a lifting-lever pivotally mounted on said secondary frame, a shoe of the finger-bar pivotally connected with
85 said secondary frame, a connection between said lifting-lever and said shoe of the finger-bar, an automatic gear-clutch engaging mechanism located on said main or primary frame, a gear-disengaging mechanism located on said
90 secondary frame and connecting with said lifting-lever, a connecting mechanism between said gear-disengaging and gear-engaging mechanism whereby upon the moving of the lifting-lever to raise the outer end of the fin-
95 ger-bar from its down position, the gear-clutch is disengaged and is automatically reengaged at a suitable cutting position of the cutters as the lifting-lever returns the finger-bar to its normal position.
100

6. In a mowing-machine of the type described, in combination, a main or primary frame, a secondary frame pivotally connected at one end to the stubbleward side of said main or primary frame, the other end of said frame
105 pivotally connected to said main or primary frame at the grassward side in rear of said first-mentioned connection to said main or primary frame, a draft-tongue and seat-support rigidly connected to said main or primary
110 frame, a gear engaging and disengaging mechanism located partly on said main or primary frame and partly on said secondary frame, a pivotal connection between said gear engaging and disengaging parts at or near the rear-
115 ward pivotal connection of said main or primary and secondary frames to maintain the proper working of the parts in all of the up-and-down movements of said secondary frame and finger-bar.
120

7. In a mowing-machine, in combination, a main or primary frame, a crank-shaft supported therein, a secondary frame consisting of two members, one member thereof pivoted to the stubbleward side of said main or pri-
125 mary frame near the forward end of said crank-shaft for the cutters, another member thereof projecting rearwardly from said first member and pivotally connected to said main or primary frame near the main axle, a lifting-
130 lever pivotally mounted on said last-named member of said secondary frame, a finger-bar,

an inner shoe of said finger-bar hinge-connected to said secondary frame, a connection between said inner shoe and said lifting-lever, an assisting-spring pivotally attached to said
5 lifting-lever and mounted on said secondary frame, whereby said assisting-spring, through the direct medium of said connection between said lifting-lever and said shoe of said finger-

bar, counterbalances the weight of said finger-bar.

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

WILLIAM N. WHITELEY.

Witnesses:

JOHN L. GILLIGAN,
ROBERT WEISKOTTEN.