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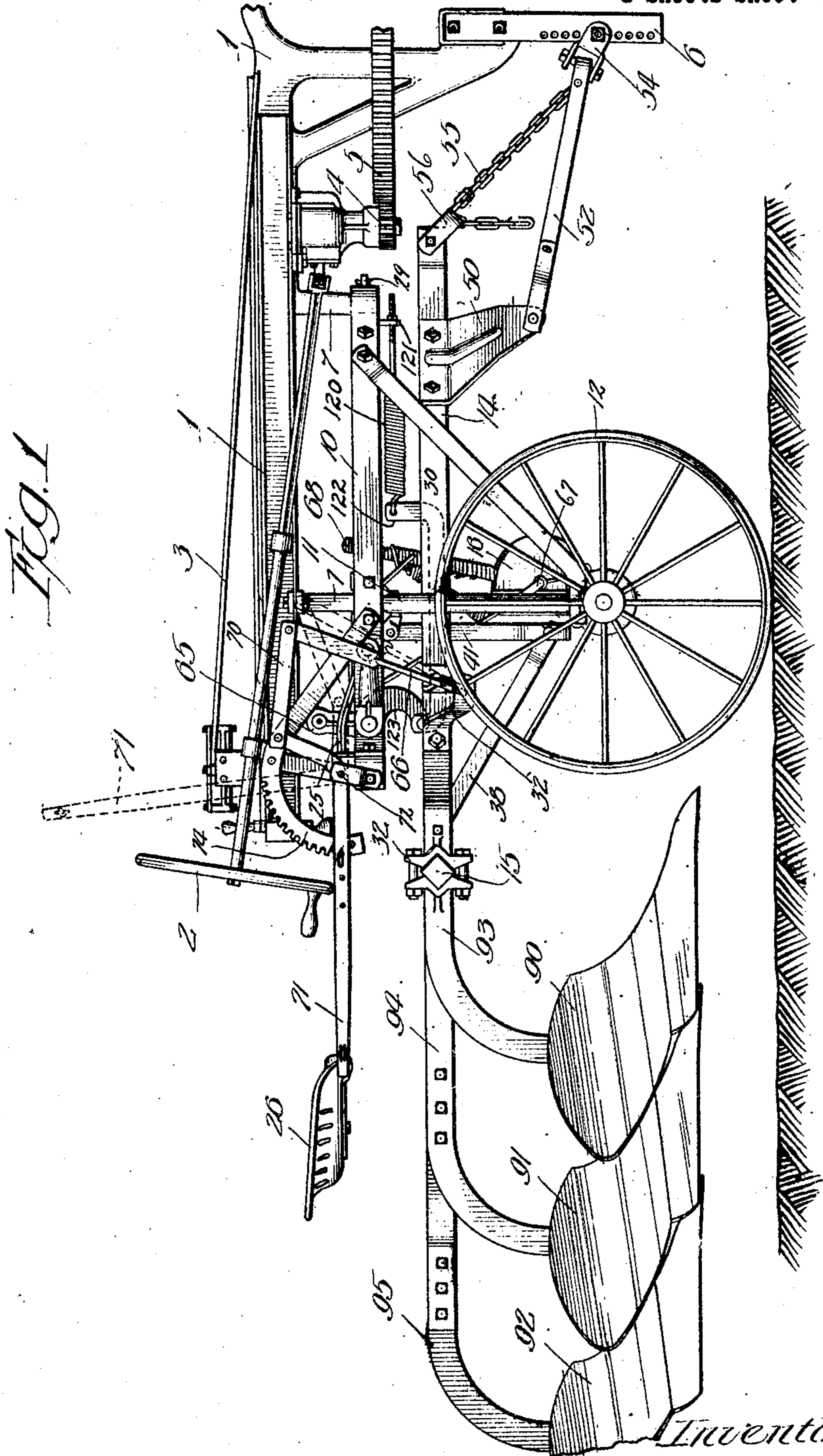
H. A. BECHTELHEIMER ET AL

1,683,017

POWER FARMING APPARATUS

Filed Feb. 9, 1922

8 Sheets-Sheet 1



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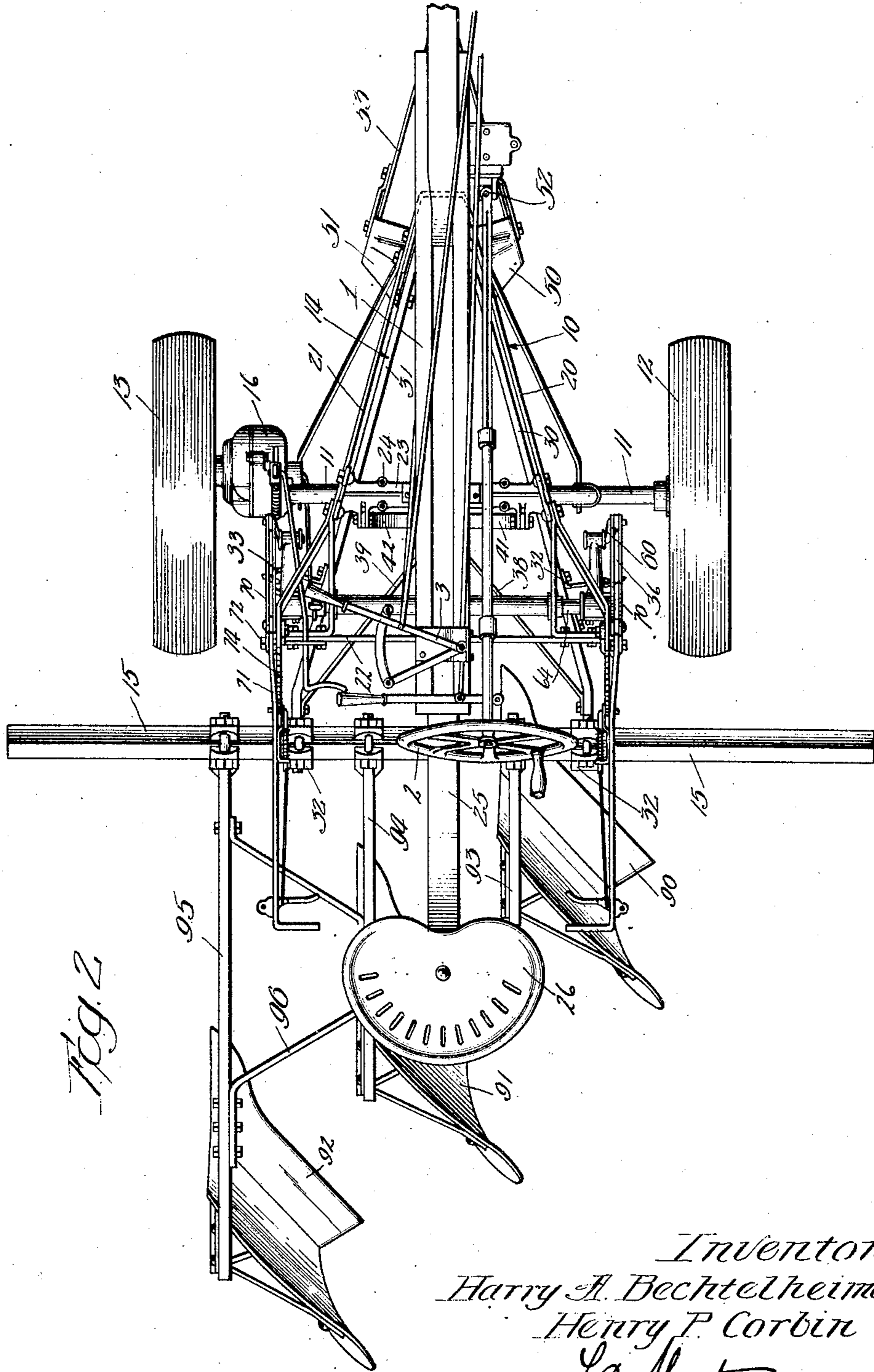
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8 Sheets-Sheet 2



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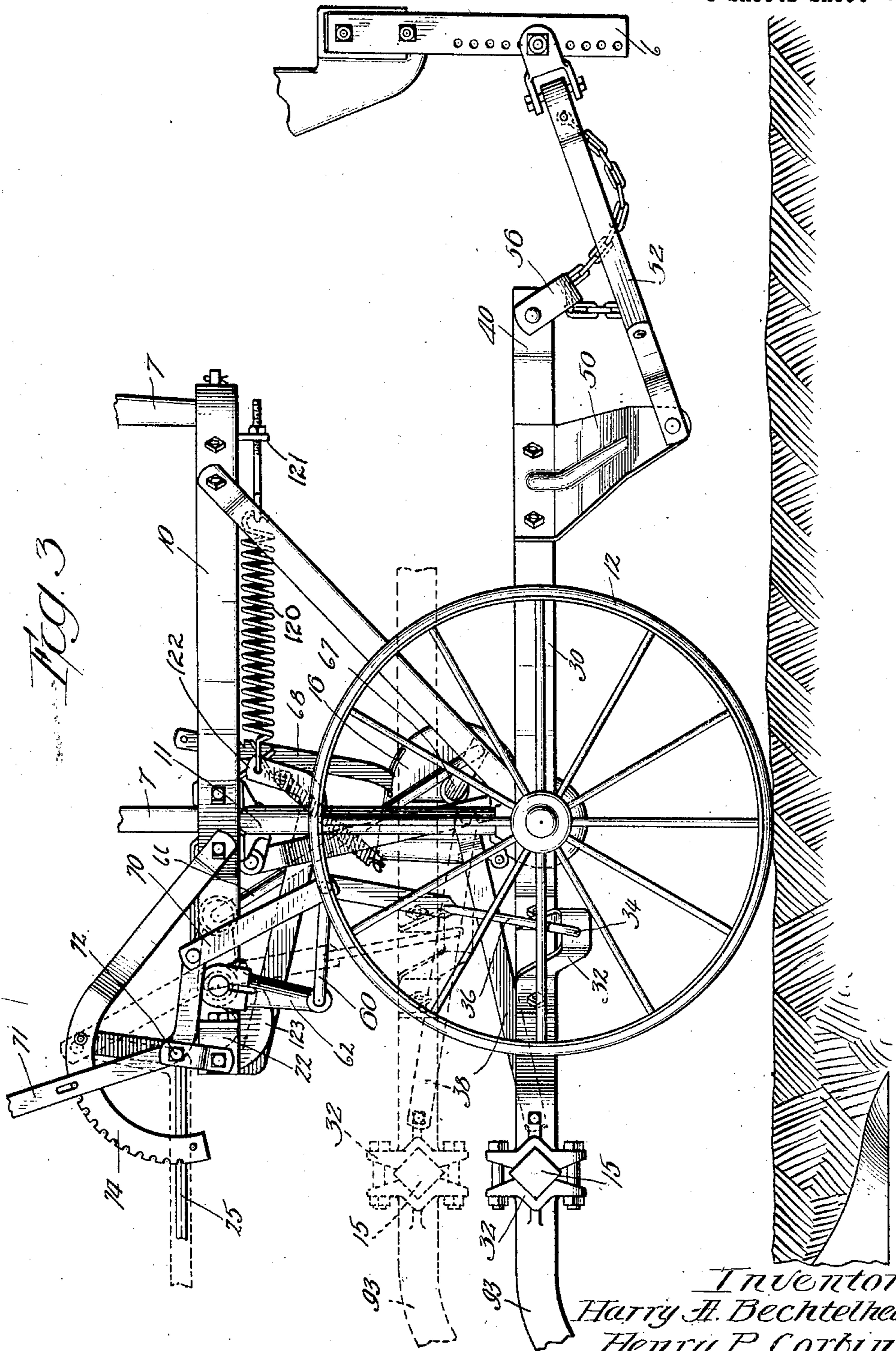
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8 Sheets-Sheet 3



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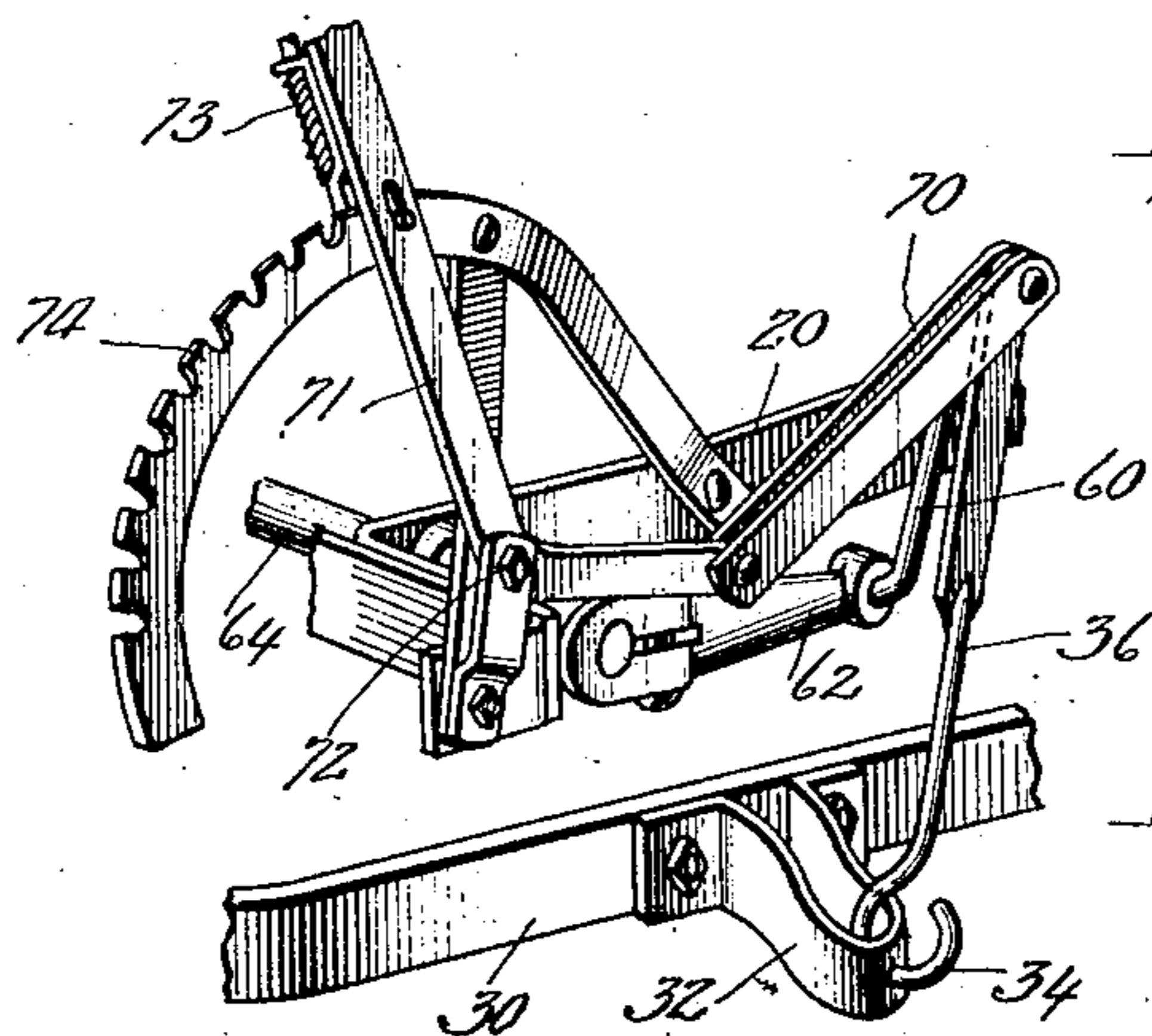
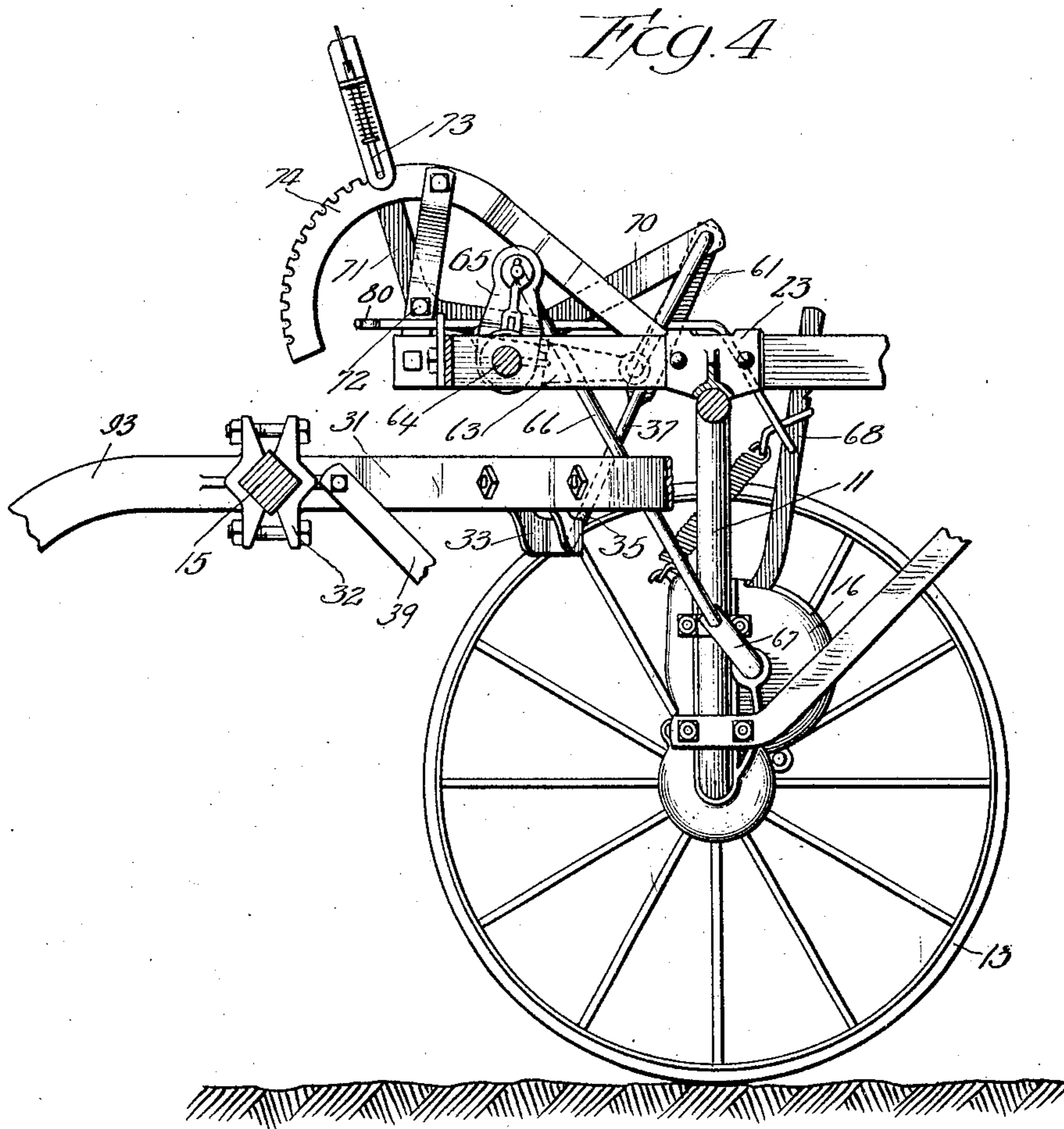
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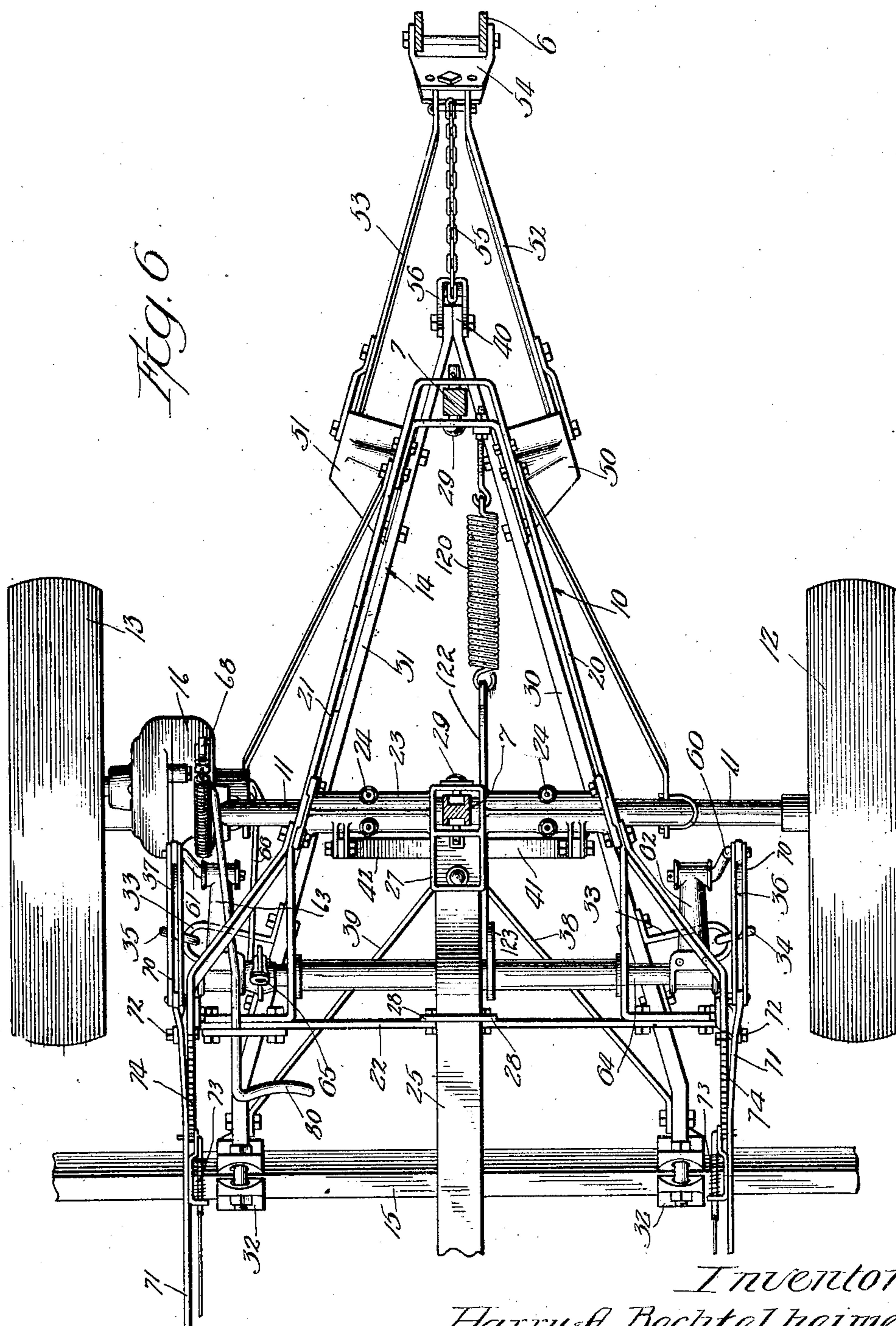
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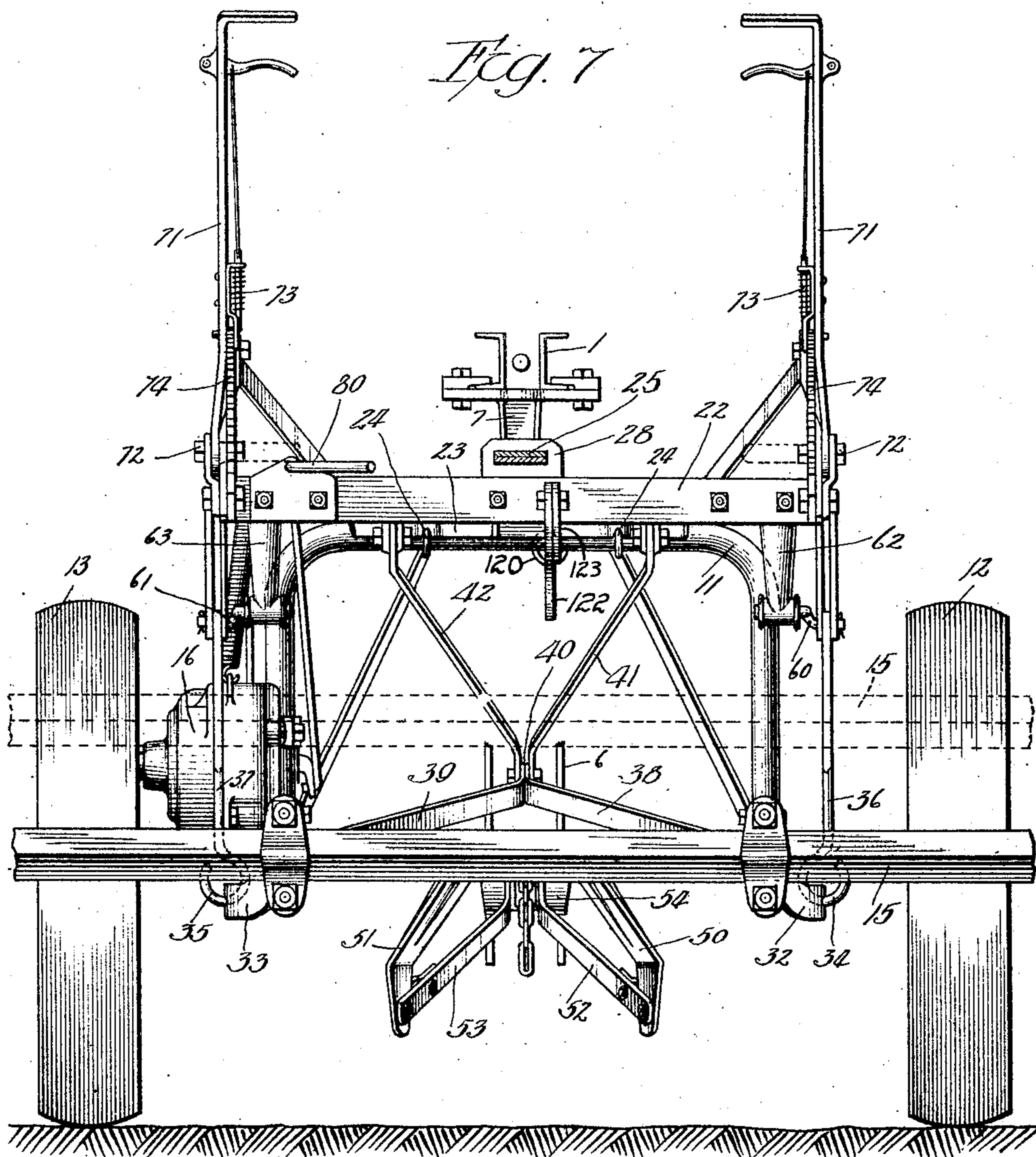
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8 Sheets-Sheet 6



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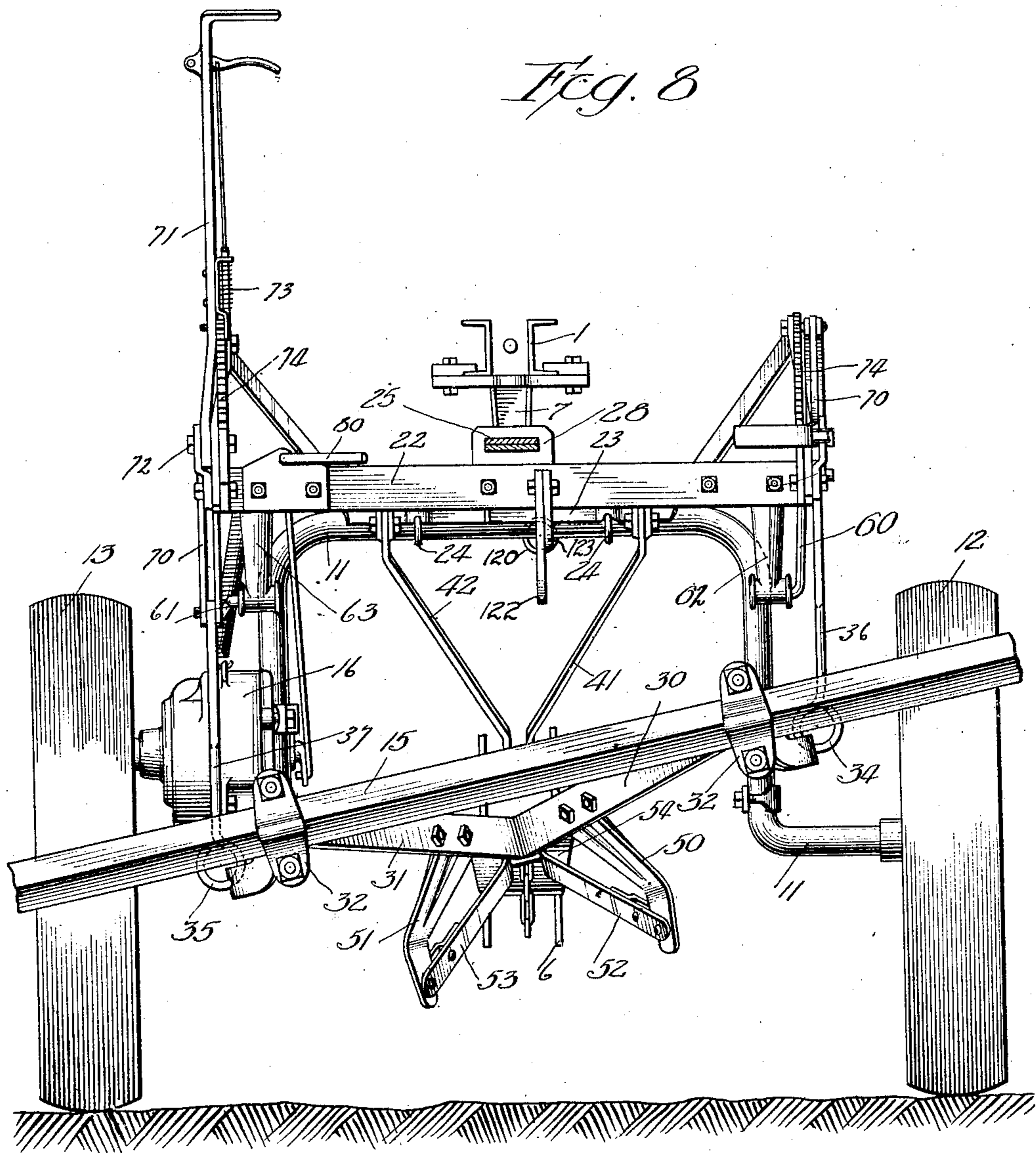
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POWER FARMING APPARATUS

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8 Sheets-Sheet 8

Fig. 9

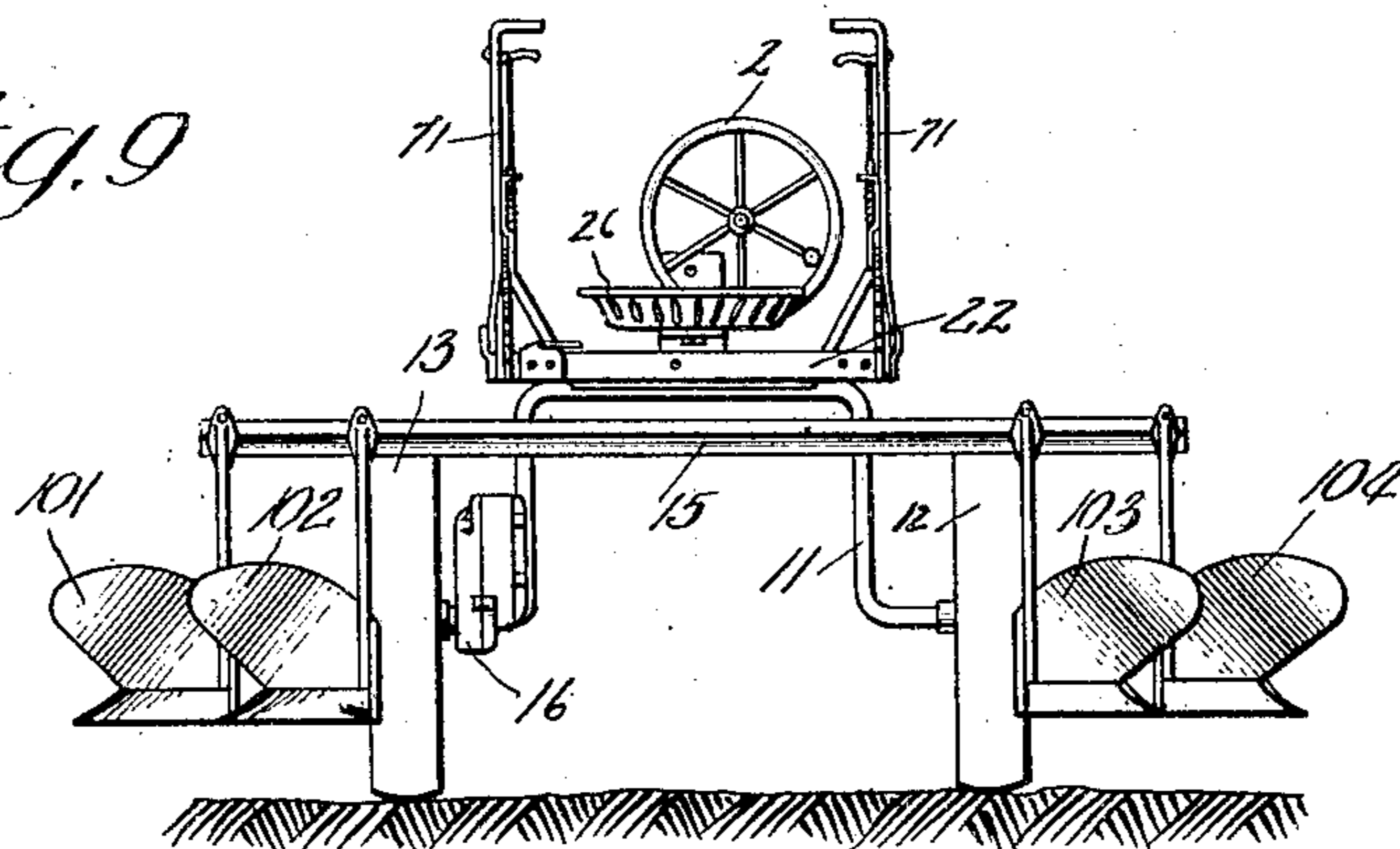


Fig. 10

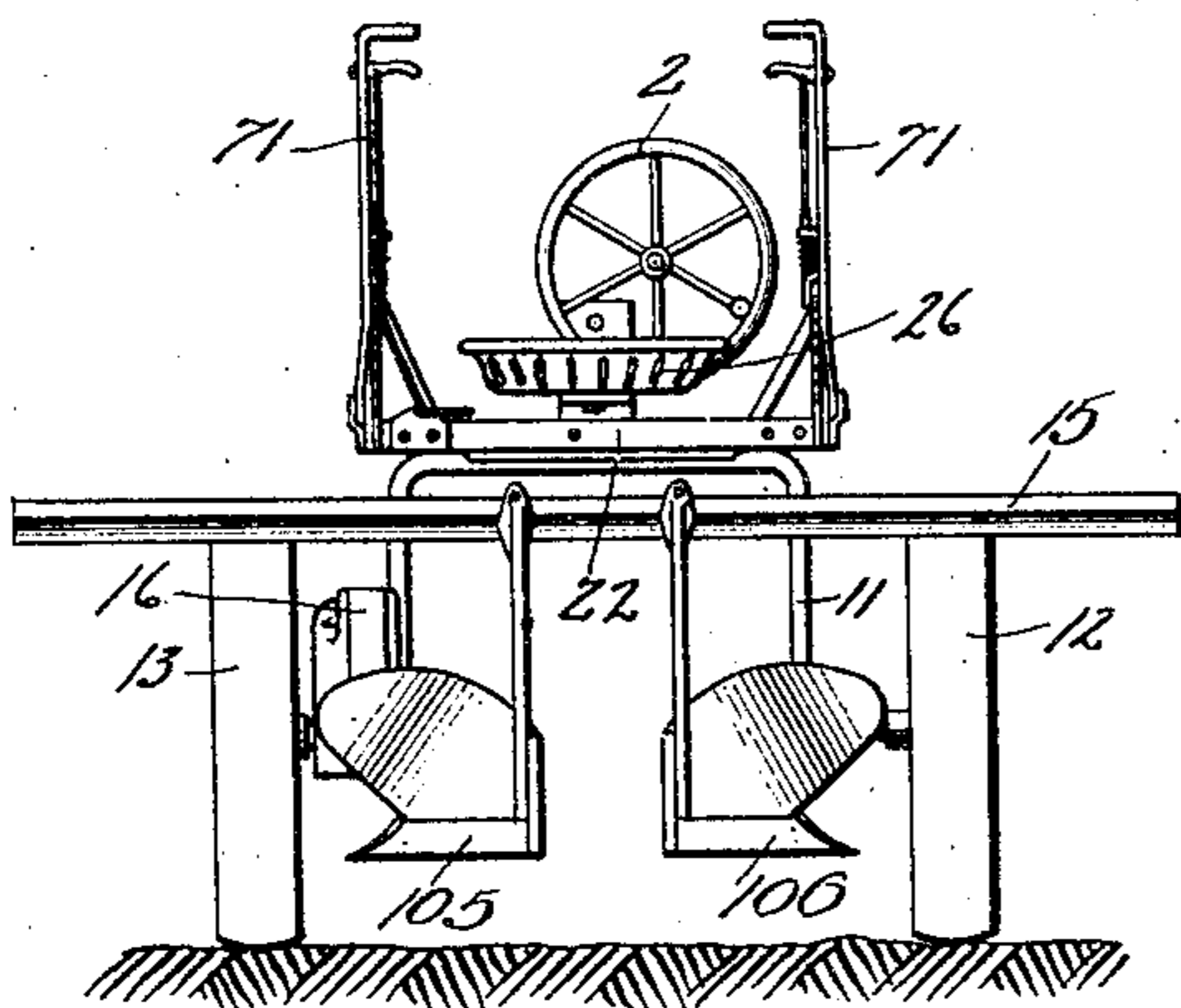


Fig. 11

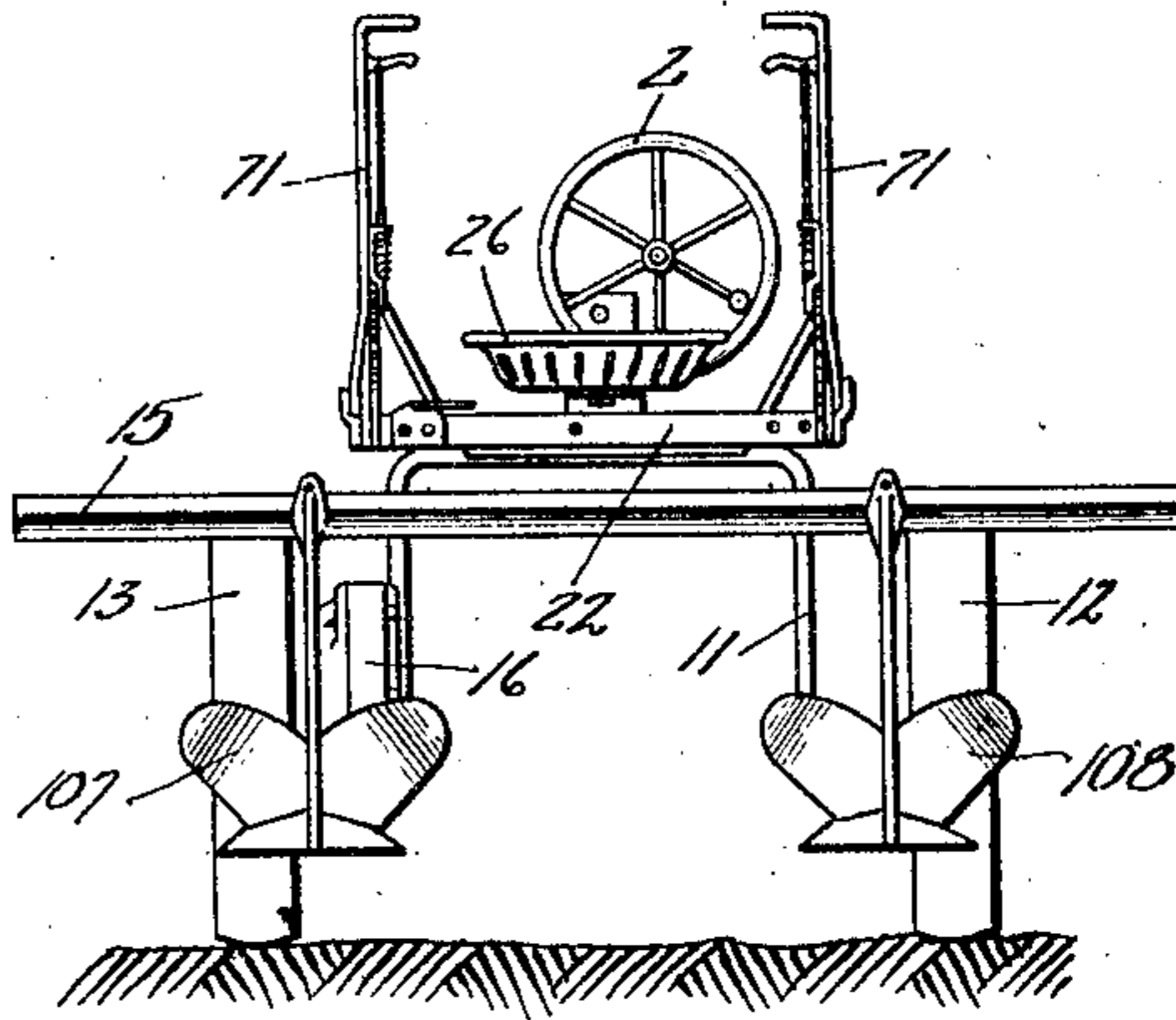
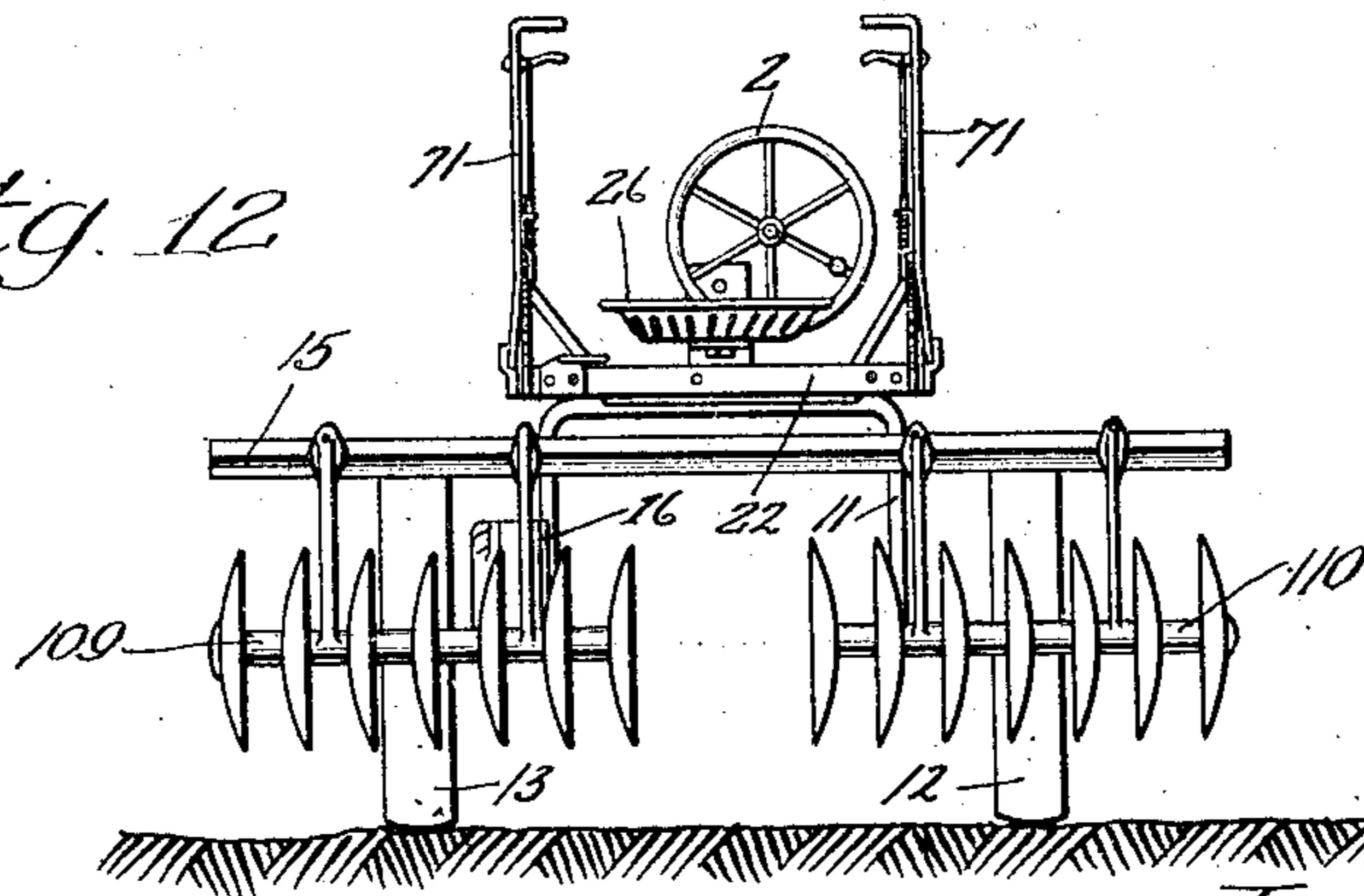


Fig. 12



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UNITED STATES PATENT OFFICE.

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POWER FARMING APPARATUS.

Application filed February 9, 1922. Serial No. 535,187.

This invention relates to power farming apparatus.

Mechanical power has been utilized for farming purposes in the form of tractors usually propelled by internal combustion engines. The advisability of using tractors is generally a matter of economics, that is, first cost and maintenance. Objections to this type of power from some sources have been its high cost and the fact that the tractors have not been suitable for use in all kinds of farm work, or, if suitable, as in the case of certain front wheel drive tractors, the implements for use with the tractor have been special and too expensive. The goal toward which many have been striving is to provide a relatively inexpensive tractor which can be used for all farming purposes, a tractor that can be operated by one man, and one that does not necessitate a large expenditure for special tools and implements. The present invention has been directed toward this end.

The general object of the invention is to provide an improved power farming apparatus.

More specifically, the object has been to provide a universal implement carriage for a front wheel drive tractor to which implement carriage can be attached a wide variety of simple devices capable of being used for performing the various functions required on a farm.

Other and more specific objects will appear from the specification and drawings.

An embodiment of the invention is illustrated in the drawings in which,

Figure 1 is a side elevation of the universal truck attached to a front wheel drive tractor, the implements being shown in raised position.

Figure 2 is a plan view of the apparatus.

Figure 3 is another side elevation with certain of the parts omitted.

Figure 4 is a side elevation and partial section.

Figure 5 is a perspective showing the adjusting mechanism in detail.

Figure 6 is a plan view with a number of the parts omitted to show the universal carriage construction more clearly.

Figure 7 is a rear elevation.

Figure 8 is another rear elevation with the parts shown in a different adjusted position.

Figure 9 is a small rear elevation illustrating how certain plows may be attached.

Figure 10 is another small rear elevation illustrating another method of attaching plows.

Figure 11 is a view similar to Figures 9 and 10 showing lister plows attached to the carriage.

Figure 12 is a view similar to Figures 9, 10 and 11 illustrating a disk harrow attachment.

The apparatus is illustrated as applied to a front wheel drive tractor of the type illustrated in reissue Patent No. 14,985, November 16, 1920. A tractor of this type usually has a rearwardly extending coupling frame 1 pivoted to the main body of the tractor to swing about a substantially vertical axis. The frame supports a steering wheel 2 and control devices 3, the steering wheel being arranged to rotate a steering pinion 4 cooperating with a rack 5 on the tractor frame for swinging the coupling frame relative to the tractor for steering purposes. Two brackets 7 extend downwardly from the frame to serve as attaching means for connecting the frame to a device to be drawn. The tractor also has a draw bar 6 which may either be attached to the main frame of the tractor or to the coupling frame as illustrated in Figure 1.

The universal implement carriage provided for attachment to the coupling frame comprises, in general, a frame 10 supported by a crank axle 11 carrying ground wheels 12 and 13, a floating draft frame 14 carrying an implement-attaching bar 15, and power-lift raising mechanism 16 for the draft frame.

The frame 10 is of triangular shape as illustrated in Figure 6 and comprises two side members 20 and 21 connected at their rear by a cross brace 22 and near their center by a second cross brace 23 to the latter of which the crank axle 11 is bolted by bolts 24. The frame supports a seat bar 25 carrying the seat 26. The front end of this bar is bolted to the under side of a bracket 27 on the cross brace 23, and it extends through a slot in a support 28 bolted to the rear cross brace 22. The support 28 extends above brace 22 in one of its positions as illustrated in Figure 7, in which case, the seat is in its highest location, but if it is desired to lower the position of the operator, the support 28 may be swung

around so as to extend down below the brace 22, the seat bar 25 having a curve in it as shown in Figure 1, to permit of these two positions.

5 The frame 10 is attached to the coupling frame 1 of the tractor by means of pins 29 which extend through the downwardly projecting brackets 7 on the coupling frame. This pin connection permits a slight move-
10 ment of the carriage frame relative to the coupling frame in a longitudinal direction and also permits the frame to swing about a substantially longitudinal, horizontal axis to adjust itself to inequalities in the surface of
15 the ground.

The crank axle 11 is rigidly attached to the frame in an upright position and the supporting wheels 12 and 13 are journaled on its ends. The shape of the crank axle and the
20 type of supporting wheels may be varied to suit the requirements, but the construction illustrated has been found desirable.

One of the most difficult problems is to provide mechanism to associate with the
25 frame to efficiently perform all the various functions required of an apparatus designed for universal use in power farming. The first thing is to provide a construction that will permit a wide variety of farm implement
30 attachments to be connected to it to perform the various farming functions. There enters into this problem the question of height and character of draft. For plows, the draft must be low and adjustable, while for certain
35 other implements, the draft should preferably be high. The carriage is frequently in an inclined position when operating, that is, one wheel will be in a furrow, but it is necessary to have the implements level. There
40 must be adjustments for depth and there must be some provision for raising the implements from working position. The construction must prevent wobbling of the implements, yet it must be flexible enough to
45 permit adjustments in various directions. All these results must be accomplished by mechanism that is relatively simple, mechanism that is durable, and mechanism that can be made without involving either a high first
50 cost or high maintenance cost. The problem has been solved in the present invention by the provision of a floating draft frame having various adjustments and associated mechanism which will now be described.

55 The draft frame has two forwardly converging side members 30 and 31 connected to each other at their forward ends and connected at their separated rear ends by an implement-attaching bar 15 to which they are
60 clamped by clamps 32. Fixed on the outer sides of the members 30 and 31 respectively are U-shaped members 33 which cooperate with the eyes 34 and 35 on the links 36 and 37. The draft frame is hung on these links
65 which are adjustable and which may be raised

in a manner which will be described in detail hereinafter. The location of the U-shaped brackets is such that the frame is approximately in balance when no implements are
70 connected to the bar 15, that is, it is in balance about an axis extending through the eyes 34 and 35. Preferably it is just slightly over balance to the rear so that the draft device in front will be held taut. By lifting
75 and lowering the links 36 and 37, either one or both sides of the frame may be raised or lowered and adjusted. In other words, the frame may tilt sidewise and it may move up and down, or it may swing about an axis
80 through the eyes 34 and 35. It is undesirable, however, to have the frame moved sidewise bodily when it is in operating position, and to prevent this there are provided two
85 arms 38 and 39, one pivoted to the member 30 and the other to the member 31 and the two converging forwardly to form a tongue 40. This tongue is positioned in a groove or slot
90 formed by the converging ends of two bars 41 and 42, which are pivoted to the frame and extend downwardly. The connection between the tongue 40 and the bars is relatively
95 loose so that the tool-attaching bar 15 may be tilted sidewise freely. The V-shape of the brace formed by these bars makes the construction very rigid. This arrangement prevents the floating frame from moving bodily
100 sidewise, but does not interfere with its being moved up and down, or with its being tilted, or inclined as shown in Figure 8, or with its being moved longitudinally a limited
105 amount.

The front end of the draft frame is connected to the tractor by a draft hitch which includes two downwardly extending arms 50 and 51 bolted to the draft frame to which are
110 pivoted draft bars 52 and 53 that converge forwardly and are attached to the clevis 54, that in turn, may be adjustably connected to the tractor draw bar 6. The forward end of the draft frame is connected to the converg-
115 ing ends of the draft bars by a chain 55, the length of which may be adjusted by changing the link which is inserted in a slot in the pivoted catch 56 attached to the front end of the draft frame. When the draft frame is
120 raised, the draft hitch is rigid as illustrated in Figure 1 and the front end of the draft frame is prevented from rising. When the draft frame is lowered, the draft hitch is in the position shown in Figure 3, in which posi-
125 tion, it is flexible, permitting a certain amount of relative movement between the tractor and frame. As the draft frame is raised from the position of Figure 3, the tendency is for its front end to raise first because more weight
130 is behind the axis of the eyes 34 and 35 when the implements are attached than is in front of this axis, consequently, the front end of the draft frame will tend to rise, but such rising action will be limited by the draft

hitch, which becomes taut, whereupon any further raising action upon the draft frame serves to raise its rear end. This type of draft hitch makes it possible to adjust the position of the forward end of the draft frame when it is raised without interfering in any way with the action of the hitch when the frame is in its lowered or operative position.

The raising and adjusting mechanisms which are combined, will now be explained.

The links 36 and 37 on which the draft frame is hung, are connected to the upper ends of links 60 and 61 that are pivoted in arms 62 and 63 fixed to a shaft 64 journaled in the frame of the truck. This shaft has another arm 65 which is connected to a link 66, that in turn, is connected to the crank 67 of the powerlift mechanism 16 operated by power from the ground wheel 13. This powerlift mechanism is thrown into operation by a movement of the lever 68. If, with the crank 67 in the position shown in Figure 4, the lever 68 is moved to the right momentarily, the clutch is thrown into operation with the crank moving clockwise and will continue to operate until automatically stopped in the position shown in Figure 3. If the lever 68 is actuated when the crank is in the position shown in Figure 3, the clutch will be set into operation with the crank 67 moving clockwise and will continue to operate until automatically stopped in the position shown in Figure 4. A more detailed description of the powerlift mechanism is contained in Patent No. 1,565,619, Dec. 15, 1925 to which reference is made.

When the crank 67 of the powerlift mechanism is in the position shown in Figure 3, the draft frame is lowered and the connecting links assume the position shown in full lines.

When the crank 67 of the lifting mechanism is in the position shown in Figure 4, the draft frame is raised and the connecting links occupy the position shown in full lines in Figure 4 and in dotted lines in Figure 3.

The movement of the links when the lifting mechanism operates is as follows:

When the crank moves in a clockwise direction from the position shown in Figure 3, the link 66 moves upwardly carrying with the arm 65, thereby rotating the shaft 64 in a counter-clockwise direction, which in turn rotates arms 62 and 63 in a counter-clockwise direction and swings the links 60 and 61 upwardly carrying with them the links 36 and 37 attached to the draft frame, thereby lifting the frame. The reverse action takes place when the crank 67 moves from the position of Figure 4 to that of Figure 3.

The adjusting mechanism is duplicated on each side of the machine and for the sake of simplicity, only one side will be described. It includes a link 70 pivoted to the joint between links 36 and 60 and connected to the

forward end of a bent lever 71 pivoted at a point 72 to the frame and having a latch 73 cooperating with the toothed segment 74 attached to the frame.

When the parts are in the position shown in Figures 1 and 4, that is, when the draft frame is raised, movements of the adjusting lever 71 will have very little, if any, effect upon changing the height of the frame. The difference in the position of the links is illustrated in dotted lines in Figure 1 where the adjusting lever is shown in dotted lines at one of its extreme positions and in full lines in its other extreme position. It will be noted that the link 66 is at the top of the arc so that the effect in raising or lowering the link and the frame connected to it is negligible.

On the other hand, if the adjusting lever 71 is moved when the parts are in the position shown in Figure 3, the link 66 will be moved a very substantial amount vertically. By moving the lever from its full line position shown in Figure 3 to the dotted line position, the links are moved from their full line to their dotted line position and the frame raised to the full height of its adjustment.

There is an adjusting mechanism of this kind on both sides of the carriage so that either side of the frame may be moved independently of the other.

An important feature of the construction of the adjusting mechanism is that the frame is lifted by the powerlift mechanism to substantially the same height above the ground and to a level position from all positions to which it may have been lowered or adjusted.

This action results from the fact that all the adjustments of the links 36 and 37, when they are in raised position as illustrated in Figures 1 and 4, leave the link in substantially the same position as far as height above the ground is concerned. For example, assume that the mechanism is adjusted so that when the draft frame is lowered, it is in its very lowest position. When it is raised, the links 36 and 37 will assume one position. If, on the other hand, the mechanism is adjusted so that when the draft frame is lowered, it is in its highest operative lowered position, the link 66 will be in another position when the frame is raised, but whether the link be in the first raised position, or the second raised position, it will be at substantially the same height above the ground, consequently, the draft frame will be at substantially the same height above the ground. This also results in the draft frame being level when raised because, even though one side is lowered more than the other when operating, nevertheless, when the mechanism is raised, the link 66 will occupy substantially the same vertical position regardless of how it may have been adjusted.

The implement hitching bar 15 is rectangular in shape, is considerably longer than the carriage is wide, and is mounted so that

two of its edges are in substantially vertical alignment. The bar is made longer than the width of the carriage so that implements may be attached out near its ends for work such as plowing in orchards and the like.

The position of the attaching bar, that is, with two of its edges in vertical alignment, permits the use of clamp brackets such as the brackets 32, that not only clamp the implement attachments in position, but prevent their turning in a vertical plane. This is an important advantage over a two-piece frame structure or similar devices depending upon two points of contact for support. The brackets 32 are made wide enough to prevent any twisting of the implement.

The general operation of the mechanism is as follows:

With the parts in the position shown in Figure 1, the operator is seated on the seat 26 where he is in a convenient position to steer the tractor, to manipulate its controls, to adjust the levers 71 and to set the lifting mechanism into operation. In this position, the draft frame is raised and the implements are clear of the ground. The tractor may be driven over the roads or through a field to its work.

When the operator desires to lower the frame he trips the lever 68 of the lifting mechanism, which may be done by pressing on a suitable foot lever 80. The draft frame is immediately lowered and the implements are in operative position. Their height may be adjusted to suit the requirements and, if the truck is tilted slightly, as it would be in the event that one wheel were running in a furrow, the operator can level the implements by adjusting the levers 71.

When the operator desires to raise the frame he again trips the lever 68, whereupon the draft frame is automatically raised by power to a level position. The frame is always lifted to substantially the same height above the ground regardless of the position to which it may have been adjusted for working. This insures that the implements will always be clear of the ground when the frame is raised. It also avoids the necessity for readjustment of the levers 71 when the frame is raised. The operator can set these levers for a certain depth adjustment and afterwards raise and lower the frame to and from its work and, in every case, the implements will be lowered to their proper adjusting position and always raised to the same level position above the ground.

A wide variety of implement attachments may be connected to the bar 15. In Figures 1 and 2, there is shown three regulation plow bottoms 90, 91 and 92. The beam 93 for bottom 90 is short and provided with a clamp bracket 32 by means of which it is connected to the attaching bar. The beams 94 and 95 of the bodies 91 and 92 are connected together

by a brace 96. Both beams in this case are relatively short but slightly longer than the first beam and both are attached to the bar 15. The amount of material in the plow beams is relatively small as compared with what would be necessary if a separate power-lift plow were employed. Much other mechanism is also eliminated. In view of the fact that the bar 15 can be raised and lowered, the plows can be raised out of the ground by power. They can be also adjusted for depth and the bar can be inclined so as to keep the plows level for various positions of the universal carriage.

The plow bottoms used may be spaced in any desired relation and either right or left bottoms may be employed.

In Figure 9 there is illustrated plow bottoms 101, 102, 103 and 104 attached to the outer extremities, of the bar 15, the bottoms in such case being used for vineyard work where it is desirable to plow close to the vines without damaging them by having portions of the tractor or carriage scraping against them.

Figure 10 illustrates plow bottoms 105 and 106 mounted so as to make a two-way plow. Here again, the bottoms may be spaced in any desired relation as may be necessary for cane work.

Figure 11 illustrates lister plow bottoms 107 and 108 which may be spaced as desired.

Figure 12 illustrates two disk harrow gangs 109 and 110 attached to the bar. These may be spaced in any desired relation. An important advantage in this case is that the gangs may be held free of the ground while being transported.

All these attachments may be connected by simply providing them with clamp brackets 32 and bolting these brackets in position on the bar 15. In every case the implement itself is simplified and a great deal of material is eliminated.

Various other implement attachments may be connected to the bar 15, such, for example, as cultivator shovels, rakes, disk plows, road graders, and other devices, all of which can be easily and simply bolted on to the bar 15.

It is also possible to use the draft frame and bar 15 as a means of attaching the tractor to a wagon, truck, or other drawn device, which is to be connected behind the universal truck. It is merely necessary to hitch the draft connection of the drawn device to the bar 15. The height of draft can be varied by manipulating the levers 71.

In order to prevent the floating draft frame with the tools attached from dropping suddenly when the clutch is tripped to lower the frame, there is provided a spring 120 attached at one end to a bracket 121 on the frame, and at its other end to a link 122 connected to an arm 123 fixed on the shaft 64. When the draft frame is raised, the parts oc-

cupy the position shown in Figure 1. As the frame is lowered, the parts move to the position illustrated in Figure 3. The shaft 63 rotates in a counter-clockwise direction carrying with it the arm 123 and the link 122. Movement in this direction is resisted by the tension of spring 120 which thereby resiliently opposes a downward movement of the draft frame. It prevents the frame from dropping suddenly with such force as to break the tools attached to it. The spring also serves to assist in raising the frame when the powerlift mechanism is operated for that purpose.

With a device of this kind, a farmer may use one power unit for all farming purposes without having to buy separate complicated implements for every class of work to be done. After having this power unit, he need only procure simple inexpensive attachments for the different kinds of work. The transition from horse-drawn implements to tractor-drawn may be gradual, that is, the device is constructed so that in case the farmer wishes to use an old drag-behind plow, for example, he may do so by simply hitching it to the bar 15, the same as with a four-wheel tractor.

It is to be understood that variations may be made without departing from the spirit and scope of the invention as defined by the claims.

We claim:

1. A universal implement carriage for front wheel drive tractors of the type having a rearwardly extending coupling frame, comprising a wheeled frame adapted to be positioned beneath a tractor coupling frame and having connections for attaching it to said coupling frame, tool supporting means to which a wide variety of agricultural tools, including heavy tools such as plows, may be adjustably and detachably connected, a draft structure connected to said means, means for supporting the draft structure on the wheeled frame so that it may be moved relative to the frame from a lowered or working position to a raised or transport position and vice versa, said supporting means including connections preventing the draft structure from moving laterally relative to the frame, hitch connections for connecting the draft structure to a tractor, and mechanical power-lift mechanism for raising and lowering the draft structure relative to the wheeled frame.

2. A universal implement carriage for front wheel drive tractors of the type having a rearwardly extending coupling frame, comprising an axle on which ground wheels are journaled, a frame supported by said axle and adapted to be positioned beneath the coupling frame of a tractor, said frame being provided with connections for connecting it to the coupling frame of a tractor, a pair of draft bars movable relative to the frame, hitch connections for connecting the front

ends of the bars to a tractor, a rectangular tool bar connected to the rear of the draft bars and positioned with two of its edges in a substantially vertical plane, means for raising and lowering the draft bars, and means for adjusting the height of the draft bars when in working position.

3. A universal implement carriage for front wheel drive tractors of the type having a rearwardly extending coupling frame, comprising an axle on which ground wheels are journaled, a frame supported by said axle and provided with connections for connecting it to the coupling frame of a tractor, a pair of draft bars having their rear ends arranged to adjustably and detachably receive a variety of agricultural tool units comprising a plurality of tools attached to a common supporting bar, a hitch connection for connecting the front ends of the draft bars to a tractor, means for raising the bars from working to transport position and vice versa, and means for adjusting the height of the draft bars when in working position.

4. A universal implement carriage for tractors comprising a wheeled frame having connections for connecting it to a tractor, tool supporting means to which a wide variety of agricultural tools, including heavy tools such as plows, may be adjustably and detachably connected, a draft structure connected to said means, means for supporting the draft structure on the wheeled frame so that it may be moved relative to the frame from a lowered or working position to a raised or transport position and vice versa, a hitch connection for connecting the draft structure to a tractor, means for adjusting the draft structure to incline it transversely relative to the wheeled frame while in working position, and powerlift mechanism for raising the draft structure including means for causing it to raise the draft structure to a level position relative to the wheeled frame from all its adjusted inclined positions.

5. A universal implement carriage for tractors having a wheeled frame provided with connections for connecting it to a tractor, tool supporting means to which a wide variety of agricultural tools, including heavy tools such as plows, may be adjustably and detachably connected, a draft structure connected to said means, hitch connections for connecting the draft structure to a tractor, a linkage mechanism for supporting the draft structure on the frame, means for adjusting the linkage mechanism to vary the working position of the draft structure, and powerlift mechanism having a definite cycle of movement for moving the linkage mechanism to raise and lower the draft structure, said linkage mechanism being coordinated so that the draft frame is raised to substantially the same height above the ground from all its working positions.

6. A universal implement carriage for tractors having a wheeled frame provided with connections for connecting it to a tractor, tool supporting means to which a wide
 5 variety of agricultural tools, including heavy tools such as plows, may be adjustably and detachably connected, a draft structure connected to said means, hitch connections for
 10 connecting the draft structure to a tractor, an oscillatable shaft supported by the frame, a powerlift mechanism for oscillating the shaft, linkage connections between each end of the shaft and its respective side of the
 15 draft structure, means for adjusting each linkage section to vary the height of its side of the draft structure, the links of said linkage connections being coordinated so that when the shaft is oscillated to raise the draft
 20 structure, said structure will be raised substantially the same height and to a level position from all its adjusted working positions.

7. A universal implement carriage for tractors having a wheeled frame provided with connections for connecting it to a tractor, a pair of draft bars, hitch connections for
 25 connecting the forward ends of the bars to a tractor, the rear ends of said bars being shaped to adjustably and detachably receive a variety of agricultural tool units comprising
 30 a plurality of tools connected to a common supporting bar, linkage mechanism supported by the frame and connected to the draft bars, means for adjusting the linkage mechanism to vary the height of the draft
 35 bars when in working position, and means for moving the linkage mechanism to raise and lower the draft bars, the links of said linkage mechanism being coordinated so that when the linkage mechanism is moved to raise the
 40 draft bars, it will raise them to substantially the same height and to a level position from all their adjusted working positions.

8. A universal implement-carriage having a wheeled frame provided with connections
 45 for connecting it to a tractor, a pair of draft bars movably supported by said frame, the rear ends of said draft bars being arranged to adjustably and detachably receive a variety of tool units comprising one or more
 50 plows or the like attached to a common supporting bar, hitch connections for connecting the draft bars to a tractor, and mechanical powerlift mechanism for raising and lowering the draft bars relative to the frame.

9. A universal implement-carriage having a wheeled frame provided with connections
 55 for connecting it to a tractor, a pair of draft bars movably supported by said frame, the rear ends of said draft bars having V shaped notches in them to adjustably and detachably
 60 receive a variety of tool units comprising one or more plows or the like attached to a common supporting bar, hitch connections for connecting the draft bars to a tractor, and
 65 mechanical power lift mechanism for raising

and lowering the draft bars relative to the frame.

10. A universal implement-carriage for tractors having a wheeled frame, a tool supporting draft structure to which a wide va-
 70 riety of agricultural tool units, comprising one or more plows or the like, may be adjustably and detachably connected, means for supporting the draft structure on the frame
 75 so that the draft structure may tilt about a transverse horizontal axis, may be raised and adjusted up and down, and may be adjusted to inclined positions, and means for preventing the draft structure from moving side-
 80 ways bodily relative to the frame.

11. A universal implement-carriage for tractors having a wheeled frame, a tool supporting draft structure to which a wide va-
 85 riety of agricultural tool units, comprising one or more plows or the like, may be adjustably and detachably connected, links for supporting the draft structure on the frame so that it may tilt about a transverse horizontal
 90 axis, may be adjusted and raised up and down, and may be adjusted to inclined positions, and means for preventing the frame from moving sideways relative to the frame.

12. A universal implement-carriage for tractors having a wheeled frame, a tool supporting draft structure to which a wide va-
 95 riety of agricultural tool units may be adjustably and detachably connected, means for supporting said draft structure on the frame so that it may tilt about a transverse horizontal axis, may be adjusted and raised
 100 up and down and may be adjusted to inclined positions, a V-shaped bracing device carried by the draft structure, a V-shaped bracing device carried by said frame, and connections between the apexes of the V-shaped
 105 bracing devices so that said bracing devices prevent the draft structure from moving sideways bodily without interfering with the other movements of the draft structure relative to the frame.

13. A universal implement-carriage for tractors, comprising a wheeled frame having connections for connecting it to a tractor, a single tool-bar positioned to the rear of the
 110 wheels and movable relative to said frame, draft connections for connecting the tool-bar to a tractor, means for adjusting the bar to vary its working position, mechanical powerlift mechanism for raising and lowering the bar relative to the frame, and means for pre-
 115 venting the tool bar from moving laterally relative to the frame.

14. A universal implement-carriage for tractors having a wheeled frame provided with connections for connecting it to a tractor, a rectangular tool supporting bar located
 120 to the rear of the wheels and positioned with two of its edges in a substantially vertical plane, means for movably supporting the tool-bar on the frame, draft connections for
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connecting said tool-bar to a tractor, means for adjusting the tool-bar to vary its working position, mechanical powerlift mechanism for raising and lowering the tool-bar relative to the frame, and means for preventing the tool-bar from moving laterally relative to the wheeled frame.

15. In combination, a tractor having front traction wheels, a rearwardly extending frame supported by ground wheels, a draw bar forward of the ground wheels, a draft frame connected to the draw bar and provided with tool supporting means at its rear end to which a wide variety of agricultural tools, including heavy tools such as plows, may be adjustably and attachably connected, means for raising and lowering the draft frame relative to the wheeled frame, and means preventing the draft frame from moving laterally relative to the rearwardly extending frame.

16. In combination, a tractor having front traction wheels, a rearwardly extending frame supported by ground wheels, a draw bar forward of the ground wheels, a draft structure connected to the draw bar and provided with a rectangular tool supporting bar at its rear end, said bar being positioned with two of its edges in a substantially vertical plane, means for raising the bar relative to the frame from working to transport position and vice versa, and means for adjusting the height of the bar when in working position.

In testimony whereof, we affix our signatures.

HARRY A. BECHTELHEIMER.
HENRY P. CORBIN.

CERTIFICATE OF CORRECTION.

Patent No. 1,683,017.

Granted September 4, 1928, to

HARRY A. BECHTELHEIMER, ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 7, line 17, claim 15, after the word "means" insert the words "operated by mechanical power"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 9th day of October, A. D. 1928.

(Seal)

**M. J. Moore,
Acting Commissioner of Patents.**