

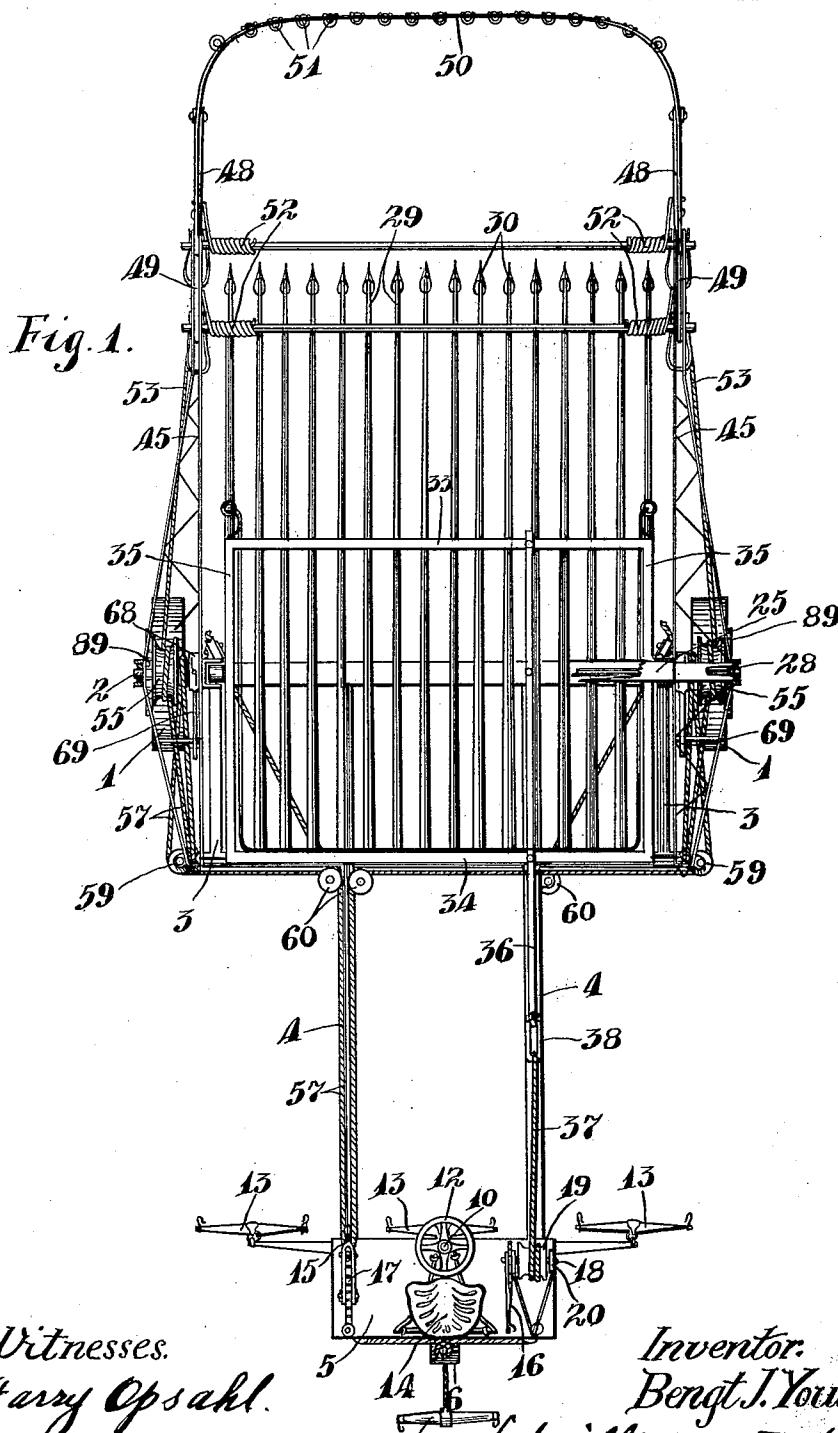
B. J. YOUNG.  
SHOCK LOADER.

APPLICATION FILED JUNE 18, 1910.

Patented Oct. 31, 1911.

4 SHEETS—SHEET 1.

1,007,408.



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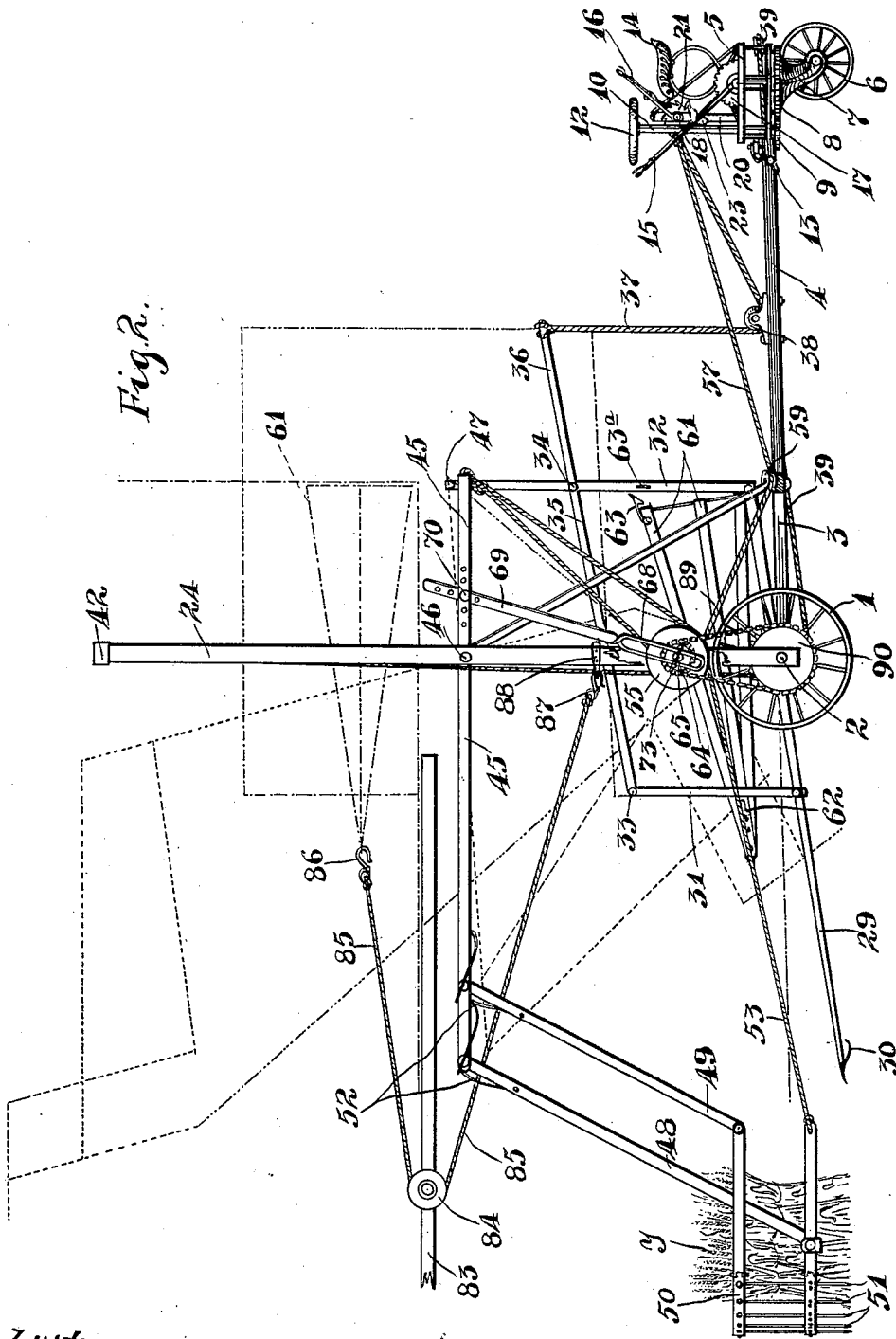
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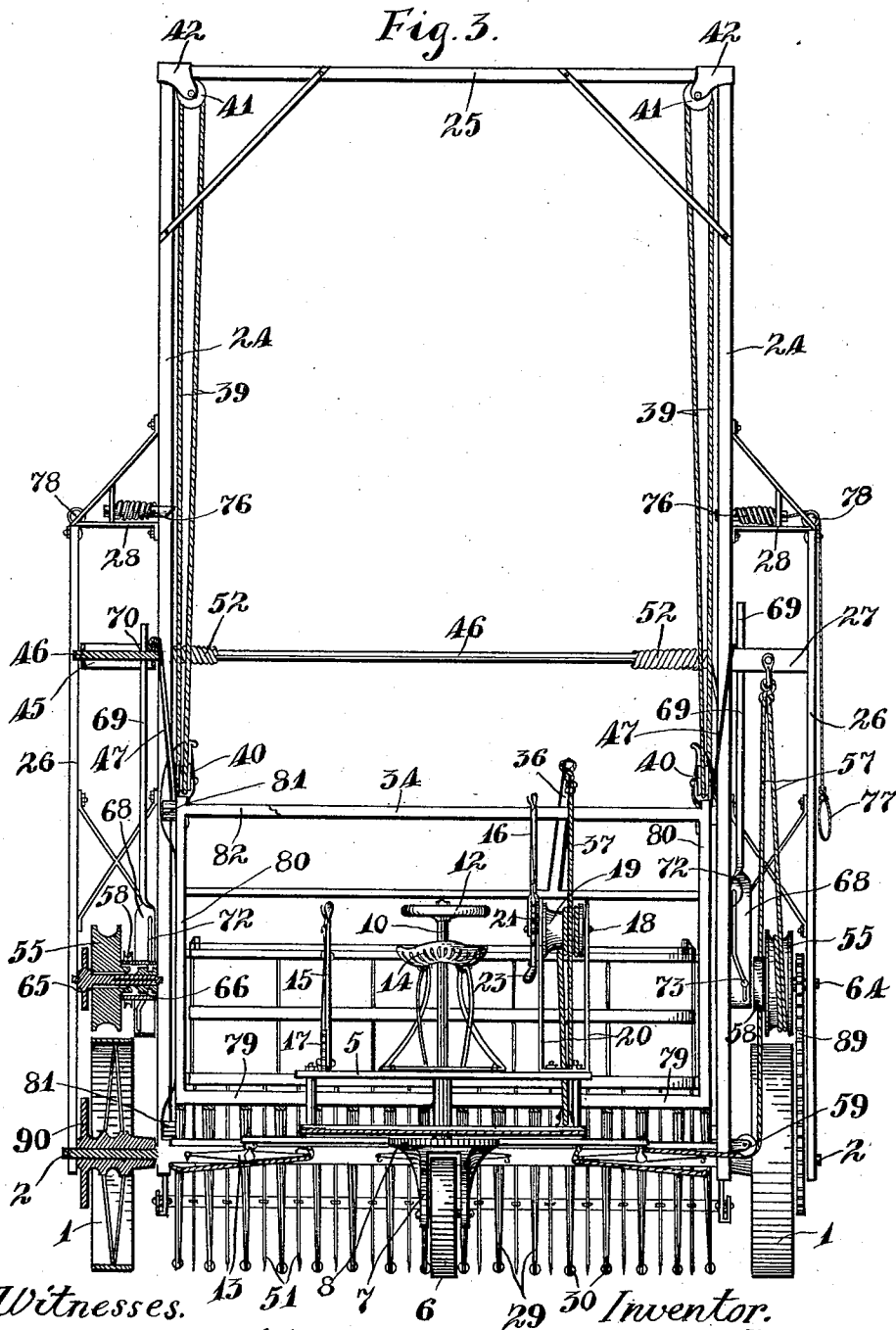
4 SHEETS—SHEET 2.

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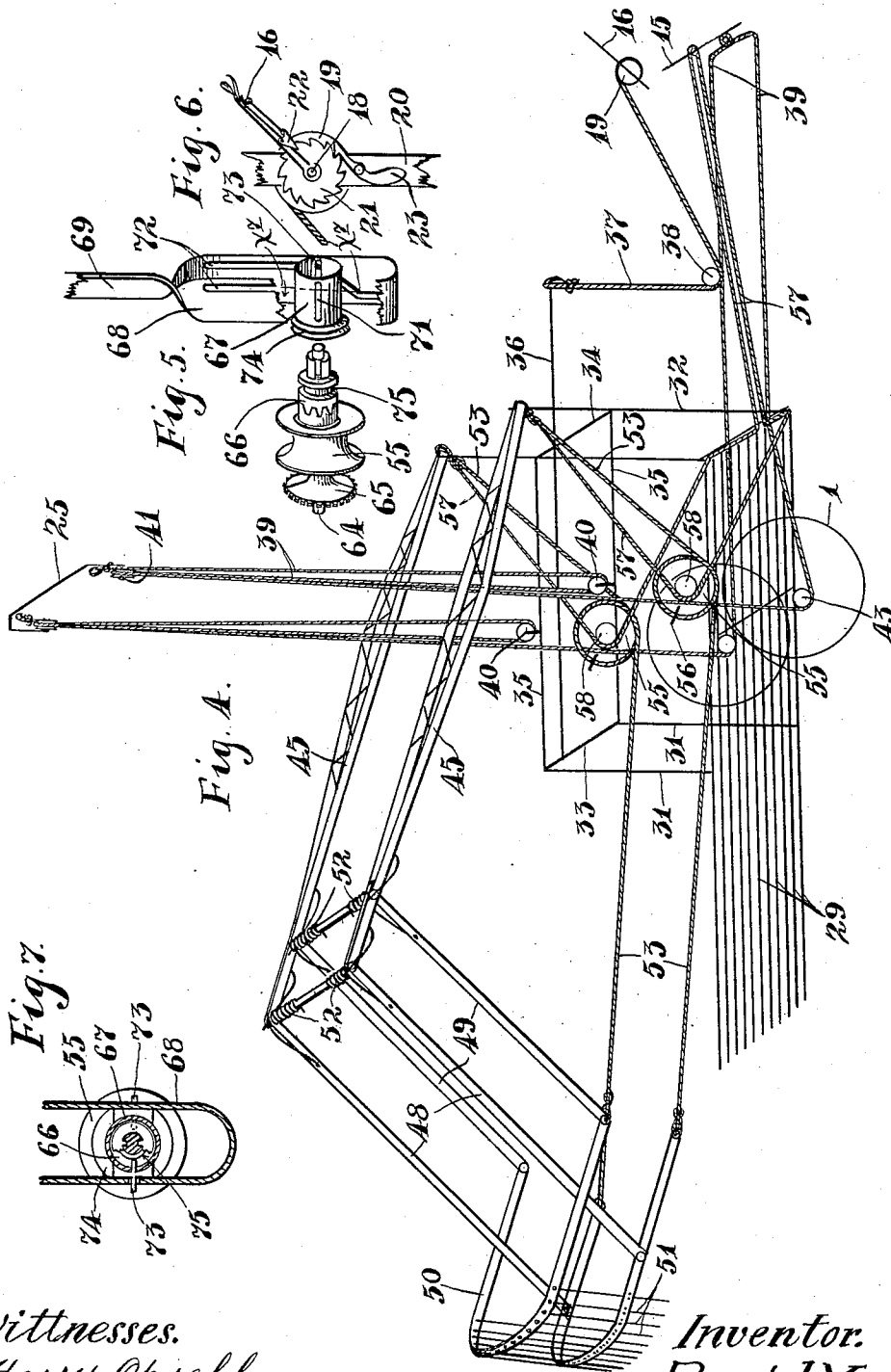
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4 SHEETS-SHEET 4.



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# UNITED STATES PATENT OFFICE.

BENGT J. YOUNG, OF MINNEAPOLIS, MINNESOTA.

## SHOCK-LOADER.

1,007,408.

Specification of Letters Patent.

Patented Oct. 31, 1911.

Application filed June 18, 1910. Serial No. 567,604.

*To all whom it may concern:*

Be it known that I, BENGT J. YOUNG, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Shock-Loaders; 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.

My invention has for its object to provide an efficient shock loader adapted to pick up shocks of grain in the field and carry the same to a threshing machine, or elsewhere.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a plan view of the improved machine, some parts being broken away; Fig. 2 is a side elevation of the machine, some parts being broken away, and different positions of the parts being indicated by dotted lines, and showing, also, a portion of the elevated table or platform, onto which the shocks of grain may be delivered; Fig. 3 is a rear elevation of the machine some parts being sectioned and some parts being broken away; Fig. 4 is a diagrammatic perspective of the machine, some parts being removed; Fig. 5 is a perspective view, some parts being broken away showing one of the clutch mechanisms of the machine, some parts thereof being separated; Fig. 6 is a detail in side elevation showing one of the actuating levers of the machine and a pawl or ratchet device which coöperates therewith; and Fig. 7 is a detail in horizontal section taken approximately on the line *xx' xx'* of Fig. 5.

The main portion of the machine is supported by a pair of traction wheels 1, that are journaled to projecting axles or trunnions 2, of a horizontally disposed rectangular frame 3, that is provided with rigidly secured rearwardly extended push bars 4, tied at their rear ends by a small platform structure 5. The platform structure 5 is supported by a caster wheel 6, journaled to depending prongs of a heavy wheel bracket

7, which at its upper portion is provided with a large spur gear 8, and is suitably swiveled to the platform structure 5 by a vertical pivot, which adapts the machine to be steered by horizontally oscillatory movements of the said caster wheel. The gear 8 meshes with a spur pinion 9 secured to the lower end of an upright steering rod 10 suitably journaled in the platform structure 5 and provided at its upper end with an end piece, as shown, in the form of a wheel 12.

A three-horse evener 13, suitably connected to the platform structure 5 with its swingle-trees so located that one horse will travel between the push bars 4 and the other two horses adjacent to but on the outside of the said push bars. The driver's seat 14 is supported from the platform 5 just at the rear of the steering wheel 12. Two operating levers 15 and 16 are also carried by the platform 5 and are located within easy reach of the operator from the seat 14. The lever 15 is pivoted to a latch segment 17 secured on the platform 5, and is provided with a latch that coöperates with the said segment to secure the said lever in different positions. The lever 16 is pivotally mounted on the shaft 18 of a windlass drum 19 that is journaled to a standard 20 secured on the platform 5. The shaft of the drum 19 carries a ratchet wheel 21 that is engaged by a latch 22 of the lever 16. A gravity actuated retaining dog 23 is pivoted to the standard 20 and normally engaged with a ratchet wheel 21. The purpose of this pawl and ratchet actuated drum 19 will hereinafter appear.

A pair of vertically extended columns 24 which are tied together at their upper portions with a cross bar 25 are rigidly secured at their lower ends to the sides of the rectangular truck frame 3. The said parts 24 and 25 afford a suitable hoisting frame which is rigidly secured to the truck frame and extends high above all other parts of the machine. The columns 24 are preferably formed from channel iron or steel and they are reinforced and stiffened by auxiliary columns 26 connected thereto by suitable ties 27 and 28, and at their lower ends journaled on projecting ends of the trunnions 2.

The shocks of grain may be picked up by a so-called platform 29, shown as made up of a multiplicity of laterally spaced bars, rigidly connected by suitable cross ties and

provided at their front ends with ground engaging shoes 30 that are pointed so that they may be readily forced through the butt ends of the bundles Y.

5 A pair of laterally spaced vertically extended links 31 are pivotally attached at their lower ends to the intermediate portions of the sides of the platform 29, and a similar but longer pair of links 32 are pivotally attached at their lower ends to the sides of the rear end of said platform. The upper ends of the links 31 are connected by a cross tie bar 33 while the intermediate portions of the rear links 32 are similarly connected by a suitable cross tie bar 34. The end portions of the cross tie bars 33 and 34 are connected by horizontal links 35, and the intermediate portions of the said tie bars are connected by a beam or lever member 36 the rear end of which projects considerably to the rear of the said cross tie bar 34. The rear end of said beam or lever 36 is attached to one end of an operating cable 37 the other end of which is connected to and mounted upon the heretofore noted windlass drum 19. The intermediate portion of the cable 37 runs under a guide sheave 38 which, as shown, is journaled to a suitable bearing on the right hand push bar 4.

30 As a means for raising and lowering the platform 29 bodily, hoisting cables 39 are employed. These cables 39 at one end are attached to a swingletree 44, and at the other ends they are attached to the top bar 25 of the upright hoisting frame. The intermediate portions of the said cables 39 run under sheaves 40 on the top links 35, over sheaves 41 journaled to corner brackets 42 on the upper corners of frame 24—25 and under lower guide sheaves 43 on the sides of the platform 29.

A pair of laterally spaced beams 45, preferably of trussed form, are intermediately pivoted approximately to the central portions of the frame columns 24, by means of a pivot bolt 46. The upper ends of the upright links 32 are formed with laterally projecting lugs or hooks 47 that overlie the rear end of the beams 45. To the front end of each beam 45 is pivotally connected a pair of depending arms 48 and 49 the lower ends of which are pivotally attached, to sides of a pair of vertically spaced U shaped gathering yokes 50. These gathering yokes 50 are preferably made somewhat flexible and this may be done either by means of joints or by the use of spring metal bars. The front portions of these yokes 50 are secured to laterally spaced vertically extended teeth 51 afforded preferably by short small iron rods the lower ends of which are sharpened and adapted to enter the ground. The said parts 50 and 51 constitute, as herein designated, a grain or bundle gatherer. Springs 52 applied to the arms 48 and 49 and to the beams

45, exert sufficient force to raise the bundle gatherer when the latter is relieved from the tension of a pair of operating cables 53. These cables 53 are extended rearward, are lapped around driven drums 55, are attached thereto at 56 (see Fig. 4), and, from thence, are extended and attached to the rear ends of the beams 45. Other cables 57 are also attached to the rear ends of the beams 45 and, from thence, are extended over guide sheaves 58 and over guide sheaves 59 and 60, respectively, on the rear portion of the truck frame 3 and on the front portion of the left hand push bar 4. The extreme rear ends of the said cables 57 are attached to the operating lever 15.

A grain or bundle discharger in the form of approximately U shape skeleton or frame 61 is positioned, normally, just above the rear portion of the lifting platform 29, with its forwardly extended prongs located just inward of the front links 31 and provided with stops 62 that are engageable with said links to limit the rearward movement of the said sheaf discharger. The upper portion of said sheaf discharger 61 is provided with a latch hook 63, which normally stands just forward of, but is adapted to be engaged with a cross bar 63<sup>a</sup> that connects the intermediate portions of two rear links 32.

The drums 55, above described, are located, one on each side of the machine and each is loosely journaled on a shaft 64 which, near its outer end, carries a sprocket 65. The shafts 64 at the ends are journaled in the columns 24 and 26. On each shaft 64 just inward of the drum 55 is a clutch sleeve 66 provided with clutch teeth that are engageable with clutch teeth carried by the cooperating drums 55. The clutch sleeves 66 are mounted to slide upon, but are keyed to rotate with the shaft 65 (see Fig. 5) and are adapted to be actuated by connections, best shown in Figs. 2, 3 and 5. Referring thereto, the numeral 67 indicates a collar which normally fits over the clutch sleeve 66, and upon which the above noted guide sheaves 58 are loosely journaled. The collars 67 are embraced by the looped lower ends 68 of clutch actuated bars 69, the upper ends of which are adjustably pivoted at 70 to the rear end portions of the corresponding beams 45. The collar 67 is provided with longitudinal slots 71 that are transversely intersected by cam slots 72 forward in the cooperating looped end 68. Short pins 73 (see Fig. 7) are extended through the transversely intersecting slots 71 and 72, and are provided between the said members 67 and 68 with retaining flanges 74. Furthermore, said pins 73 are arranged in pairs, and their inner ends engage an annular groove 75 of the cooperating clutch 66.

Mounted for sliding movements in a suit-

able bearing on uppermost pedestal ties 28, and extending through the pedestals 24 are inwardly spring pressed latch bolts 76 which are adapted to engage and temporarily hold the platform structure 29 in an elevated position shown by the broken dotted lines in Fig. 2. For releasing said last bolts 76 in the said platform structure they are shown as provided with depending trip ropes 77 which run over small guide sheaves 78 on the upper ends of the pedestals 26.

In addition to the platform supporting connections already described, the platform bars 29 are, preferably, all yieldingly connected to the transverse bar 79 (see Fig. 3) which, in turn, is rigidly secured to the lower ends of a pair of upright bars 80. These bars 80 are provided with projecting guide rollers 81 which work in the channels of the columns 24. The upper ends of the vertical bars 80 are preferably also tied together by a transverse bar 82, shown in part in Fig. 3. The upper transverse rod 82 is also preferably passed loosely through or pivotally connected to the upper side bars 35 before described.

In Fig. 2, the numeral 83 indicates an elevated table which may be assumed to be located adjacent to and on the proper level to deliver the bundles to the threshing machine. This table 83 may be supported by any suitable means which is independent of the machine described. On the sides of the table 83 are guide sheaves 84 over which cables or ropes 85 are adapted to be passed. These cables are provided at their ends with hooks 86 and 87 adapted to be engaged respectively with the front ends of the sides of the bundle discharging frame 61, when the platforms 29 are raised as indicated by broken dotted lines in Fig. 2. The hooks 87 are adapted to be engaged with brackets 88 secured on the pedestals 24.

The sprockets 65 and the shafts 64 to which they are secured are adapted to be positively driven under the advance movements of the machine, and this, as shown, is accomplished by sprocket chains 89 that run over the said sprocket 65 and over larger sprockets 90 carried one by each of the traction wheels 1.

The operation of the machine described is substantially as follows: When the platform 29 is turned downward as indicated by full lines in Fig. 2, and when the grain or bundle gatherer 50—51 is properly raised so as to clear the bundles and the machine is then driven forward, the said bundle gatherer may be passed over the shock or bundles and then brought into contact with the ground, as shown in Fig. 2, just in advance of the said shock. Then under continued advance movement of the machine the bars of the platform will be forced under or through the butts of the bundles and the shock or bundles will be

delivered onto the said platform. The points of the teeth 51 will serve to hold the bundle collector stationary while this is taking place, under ordinary conditions, but to insure against slippage the cables 53 are wound upon the drum 55. When the bundles are properly delivered upon the platform 29 the said platform may be rocked into a horizontal position, by manipulation of the lever 16 which operates the windlass drum 19, through the pawl or ratchet device 21—22. When the platform is thus rocked into a horizontal position the hooked upper ends of the bars 32 engage the rear ends of the beams 45 (see Fig. 2) and raise the bundle collector high enough to make the same pass over the next shock of bundles; and when the said platform 29 is again rocked back to the inclined position shown in full lines Fig. 2, the said bundle collector will be automatically dropped into contact with the ground in advance of the shock of bundles to be picked up. It is sometimes desirable to allow the platform 29 to remain in its inclined position, and when this is so the bundle collector may be raised by manipulation of the lever 15 which draws upon the cable 57 which, it will be remembered, is also attached to the rear ends of the beams 45. Whenever, by the one means or the other, the bundle collector 50—51 is raised into a position shown in Fig. 4, the bars 69 are forced downward and the cam slots 72 of the hoods 68 operate on the pins 73, force the clutch sleeve simultaneously through the two clutch sleeves or collars 66 out of engagement with the clutch teeth of the pulleys 55. When, however, the front ends of the beams 45 are moved downward and the bundle collector is thrown into contact with the ground in advance of the shock of bundles, the said cam grooves 72 operating on the said pins 73 force the clutch collar 66 into engagement with the teeth of the pulleys 55 and causes the latter to be rotated under further advancement of the machine. This winds the cables 53 upon the said pulleys or drums 55 at the same rate of speed that the machine is caused to advance and thereby holds the bundle collector in a stationary position while the bundles are being delivered onto the platform 29. When the bundles have been forced as far as is desirable onto the platform the upper portions of the cables 53 which are extended to the rear ends of the beams 45 will commence to wind upon the said drums 55 and will raise the bundle collector into an inoperative position. When the platform 29 has been loaded with bundles and the machine has been driven to a threshing machine and just in front of the elevated table 83, or at any other time for that matter, a horse may be hitched to the swingletree 44 of the cable 39 and then by driving the horse rearward while the ma-

chine is stationary, the loaded platform may be raised into the elevated position indicated by broken dotted lines in Fig. 2. The spring pressed latch bolts 76 will then serve temporarily to hold the platform in its elevated position. It may be here stated that when the loaded platform was rocked from its inclined position, shown in Fig. 2, into a horizontal position the hooks 63 on the bundle discharging frame 61 engaged with the bar 63<sup>a</sup> and thereby held the said frame 61 in position while the loaded platform was raised. Before the loaded bundles can be discharged from the raised platform 29 on the table 83 the hooks 63 must be disengaged from the said bar 63<sup>a</sup>. Then when the cables 85 are applied and attached, as shown, by full lines in Fig. 2, the machine is backed up. The bundle discharging frame 61 will be moved forward on the receding platform 29 and will scrape or force the bundles off from the latter and onto the said table 83. After the platform 29 has been unloaded it may be again dropped to its lowered position by pulling on the ropes 77 so as to thereby release the latch bolts 76 from the said platform structure. The bars 29 which make up the body of the bundle receiving platform are advisably made tubular and of metal, preferably, from strips of sheet steel.

The bundle loader is, of course, adapted for use to pick up bundles or shocks of bundles from the field and to carry the same to a suitable point or place where it is desired to dispose of the same.

When the fork or platform 29 is to be raised bodily, the cable 37 must, as is evident, be given slack, so that the lever 36 may move vertically with the said platform, and this may be done simply by releasing the lever 16 from the drum ratchet wheel 21.

What I claim is:

1. The combination with a truck having a grain receiving platform, of a yoke-like grain gathering device engageable with the ground in front of the said platform, and means for connecting said gathering device to said truck and for lifting the same over the bundles of grain.

2. The combination with a truck having a grain receiving platform, of a toothed yoke-like grain gathering device engageable with the ground in front of said platform, lever connections supporting said gathering device on the frame of said truck, and means for operating the said lever connections to lift said gathering device over the bundles of grain.

3. The combination with a truck having a grain receiving platform and uprights extending above the same, beams pivoted to said uprights, links connected to the front ends of the said beams, and a grain gathering device supported by the lower ends of said links and engageable with the ground

in front of said platform and adapted to remain stationary while said platform is moved under the grain held thereby.

4. The combination with a truck having a grain receiving platform and uprights extending above the same, of beams having intermediate pivots connecting the same to said uprights, links pivotally applied to the front end of said beams and a yoke-like grain gathering device having teeth engageable with the ground, substantially as described.

5. The combination with a truck having a grain receiving platform, and uprights extending above said platform, of means for raising said platform with its load, and a toothed yoke-like grain gathering device connected to and supported from said truck, but engageable with the ground in front of said platform.

6. The combination with a truck having a grain receiving platform, and uprights extending above the same, of beams having intermediate pivots connecting the same to said uprights, links pivoted to and depending from the front ends of said beams, springs tending to force said links forward, a gathering yoke applied to the lower ends of said links, and an operating cable extending rearward from said gathering yoke to said truck, substantially as described.

7. The combination with a truck having a grain receiving platform, and uprights extending above the same, of beams having intermediate pivots connecting the same to said uprights, links pivoted to and depending from the front ends of said beams, springs tending to force said links forward, a gathering yoke applied to the lower ends of said links, and an operating cable extending rearward from said gathering yoke to said truck, and a cooperating drum and clutch device on said truck for winding said cable, substantially as described.

8. The combination with a truck having a grain receiving platform mounted for tilting or angular movements in respect to the ground, of means for bodily moving said platform vertically, a grain gathering device engageable with the ground in front of said platform, and means for raising said gathering device bodily and for moving the same bodily forward over the bundles of grain into engagement with the ground in front of said bundles, substantially as described.

9. The combination with a truck having a grain receiving platform and columns extending above said platform, and lifting cables movable over suitable guides in the upper portions of said columns and connected to said platform for raising the same bodily, substantially as described.

10. The combination with a truck having a grain receiving platform, and uprights

extending above the sides thereof, of beams having intermediate pivots connecting the same to said uprights, depending links pivotally connected to the front ends of said beams, springs tending to force said links forward, a gathering yoke carried by the lower ends of said links, drums and cooperating driving clutches on said truck, cables attached at one end to said gathering device, at their other ends the rear ends of the beams and at their intermediate portions the said drums, substantially as described.

11. The combination with a truck having a grain receiving platform, of a grain gathering device of yoke-like form engageable with the ground in front of said platform, levers supporting said lever device from said truck, an operating connection arranged to pull rearward on the said gathering device when the truck is moved forward, and connections operating on said levers to raise said gathering device and to project the same forward into engagement with the ground in front of the bundles of grain, substantially as described.

12. The combination with a truck having a receiving platform and laterally spaced uprights extending above the same, of beams having intermediate pivots connecting the same to said uprights, a gathering device engageable with the ground in front of said beams, and lever and clutch actuated connections operative independently on said beams to lift the said gathering device over the grain bundles.

13. The combination with a truck having a tilting platform, of a gathering device engageable with the ground in front of said platform, levers supporting said gathering device from the frame of said truck, connections for oscillating said receiving platform, and connections between said tilting platform and the said levers whereby said gathering device will be raised when said platform is tilted, substantially as described.

14. The combination with a truck having a tilting platform, of a yoke-like toothed gathering device engageable with the ground in front of said platform, levers supporting said gathering device from the frame of said truck, connections for oscillating said receiving platform, and connections between said tilting platform and the

said levers whereby said gathering device will be raised when said platform is tilted, substantially as described.

15. The combination with a truck having a vertically movable platform and means for vertically moving the same, of a bundle discharger normally located above said platform but entirely removable therefrom, and connections for drawing the said bundle discharger and the load completely off from said platform.

16. The combination with a truck having a grain receiving platform, of a grain gathering device engageable with the ground in front of said platform, levers supporting said gathering device from the truck frame, lever connections operated automatically under forward movement of the truck to raise said gathering device and an automatic controlling device operated by said gathering device when the latter has reached a predetermined rearward position in respect to said platform, to throw the said automatic lifting means into action, substantially as described.

17. The combination with a truck having a platform and means for vertically moving said platform, of a yoke-like bundle discharger detachably seated on said platform and provided with means for normally securing the same on said platform and provided with connections for drawing the same and the load off from said platform, substantially as described.

18. The combination with a truck having a platform, of levers intermediately pivoted to the truck frame, a grain gathering device supported by the front ends of said levers with freedom for forward and rearward movements, a pair of windlass drums carried by the truck frame, and cables intermediately wound upon and attached to said drums, the front ends of said cables being attached to said gathering device and the rear ends of said cables being attached to the rear ends of said levers, substantially as described.

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

BENGT J. YOUNG.

Witnesses:

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