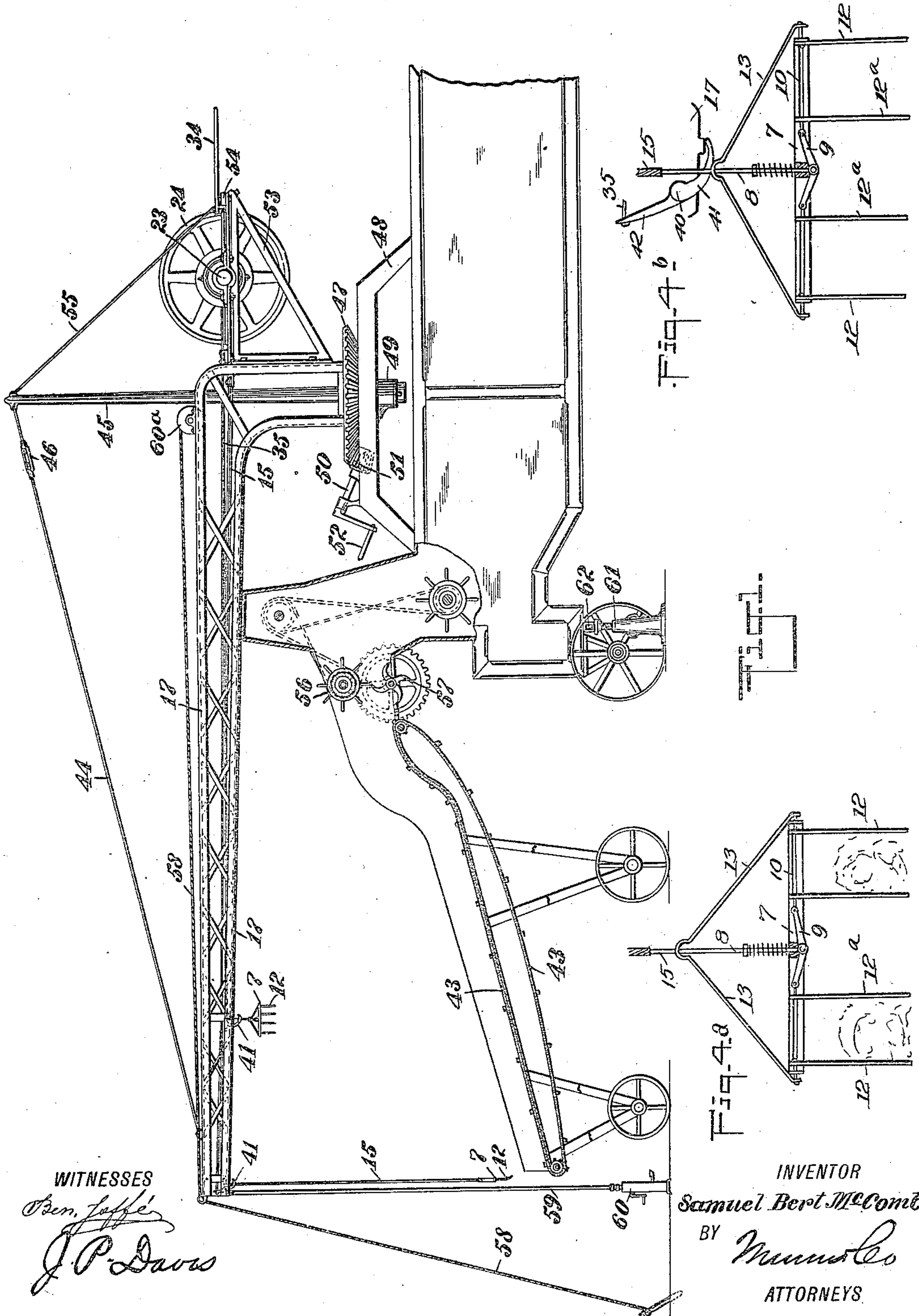


S. B. McCOMB.
FEEDER FOR GRAIN BEARING STRAW.
APPLICATION FILED JUNE 9, 1909.

962,238.

Patented June 21, 1910.

3 SHEETS—SHEET 1.



WITNESSES
Ben. Jaffe
J. P. Davis

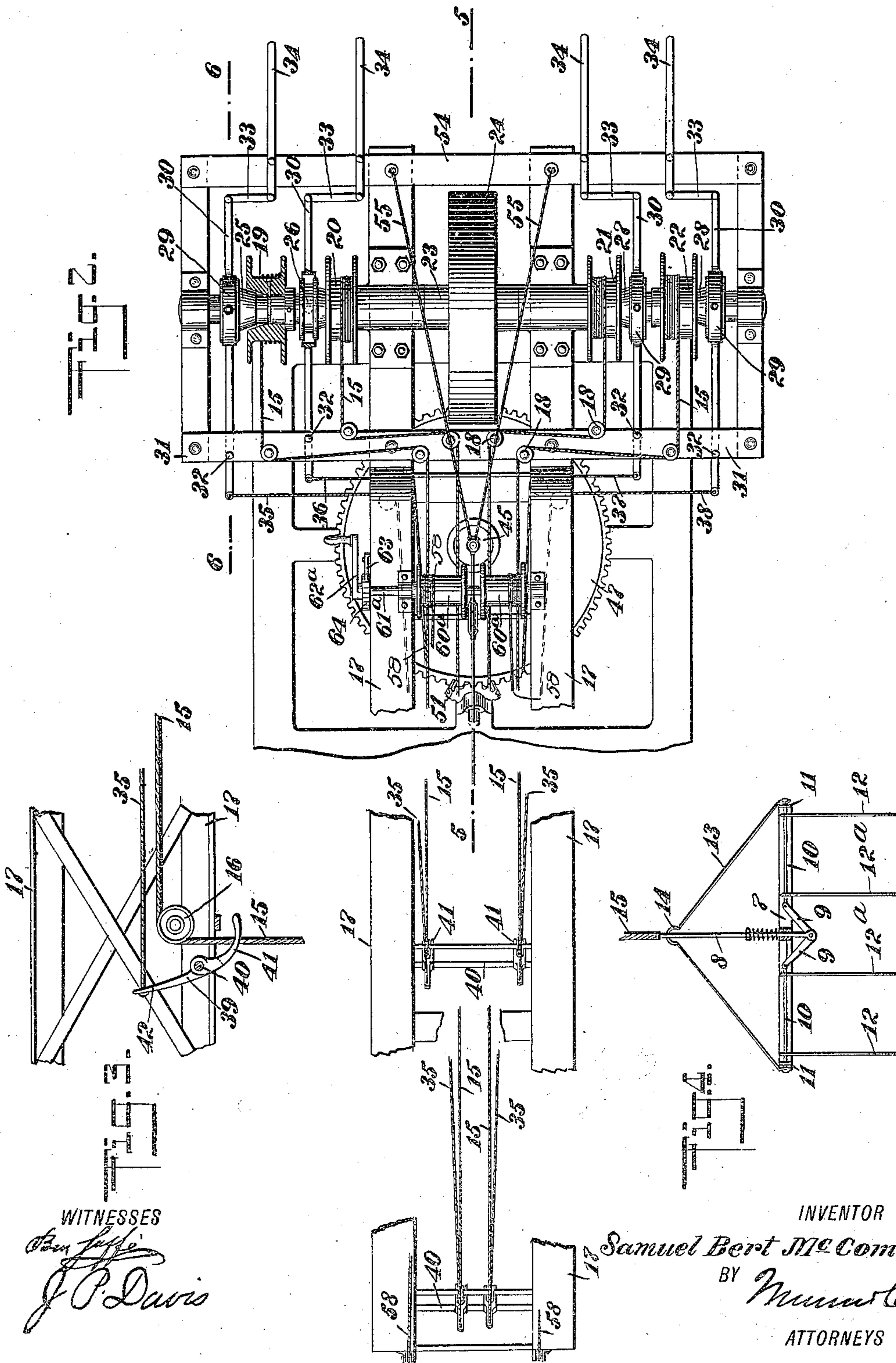
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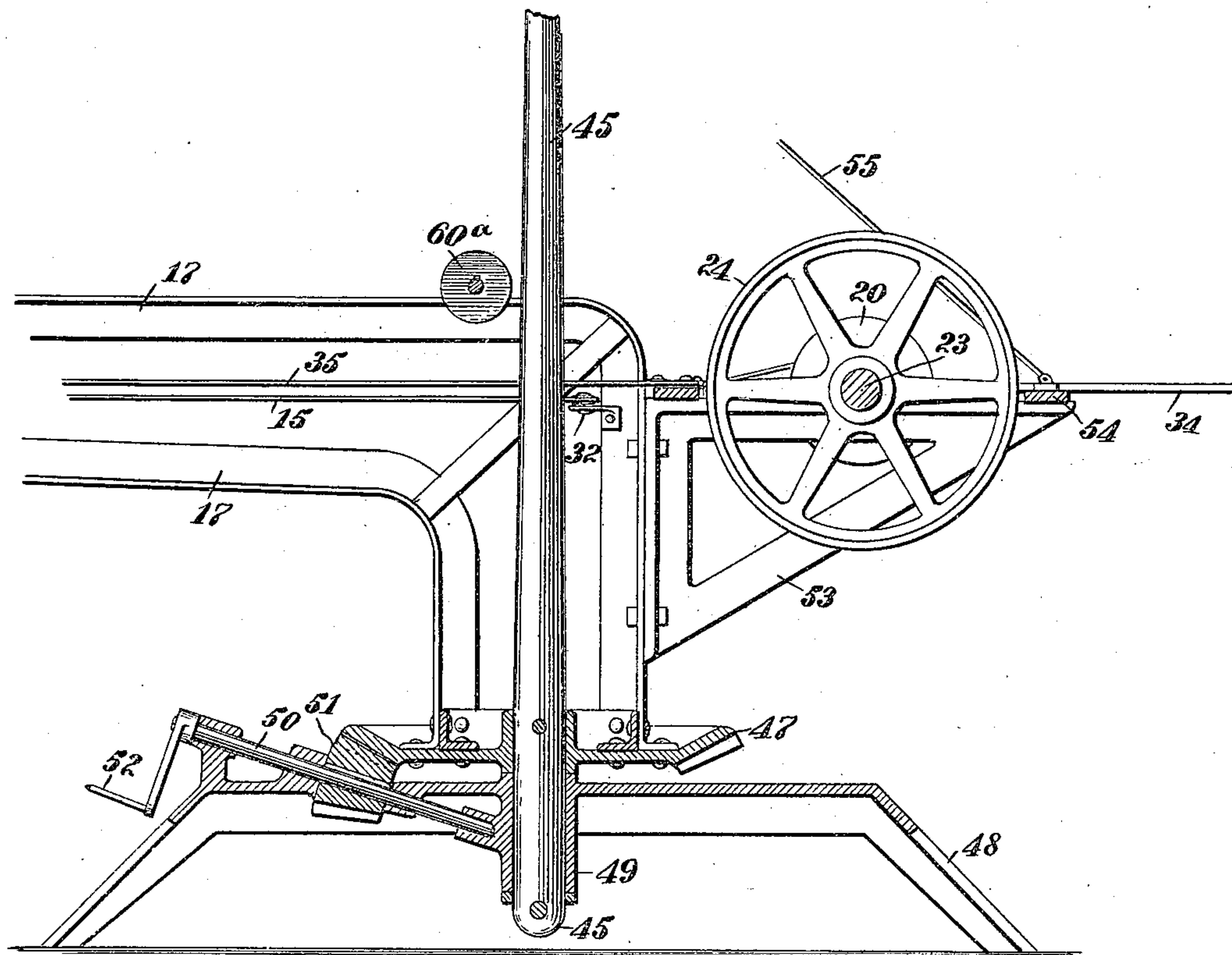


Fig. 5.

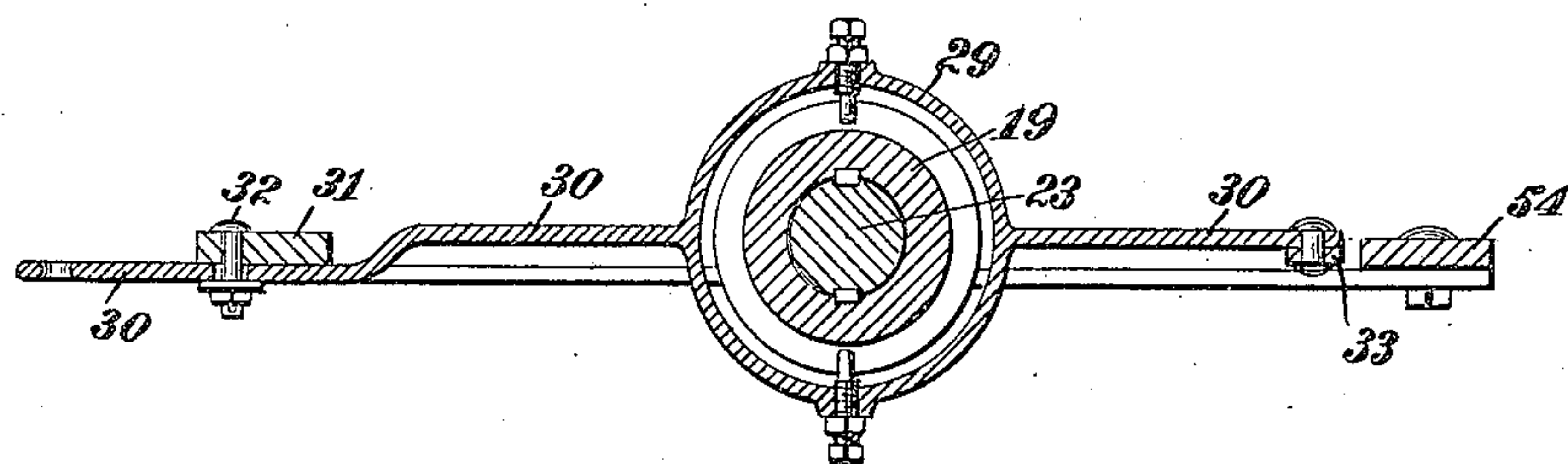


Fig. 6.

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UNITED STATES PATENT OFFICE.

SAMUEL BERT McCOMB, OF ZENITH, KANSAS.

FEEDER FOR GRAIN-BEARING STRAW.

962,238.

Specification of Letters Patent. Patented June 21, 1910.

Application filed June 9, 1909. Serial No. 501,016.

To all whom it may concern:

Be it known that I, SAMUEL BERT McCOMB, a citizen of the United States, and resident of Zenith, in the county of Stafford and State of Kansas, have invented a certain new and useful Feeder for Grain-Bearing Straw, of which the following is a full, clear, and exact description.

The principal objects which the present invention has in view are: to provide a mechanism for extracting wheat or other grain from a stack and delivering it to a threshing machine; to provide a mechanism for delivering the wheat from a stack to a threshing machine, which may be operated on either side of the said threshing machine; and to provide a construction for accomplishing the above-mentioned objects, which is light, durable and simple.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, wherein like characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a machine constructed in accordance with my invention, shown in its application to a threshing machine; Fig. 2 is a plan view of the boom of this machine, said view being broken into segments and contracted lengthwise; Fig. 3 is a detail view, enlarged, showing a hoisting sheave and a trip for throwing the clutch for operating the hoisting drums out of engagement therewith; Fig. 4 is a detail view of the lifting fork; Fig. 4^a is a side view of the lifting fork showing the parts thereof disposed in their holding position; Fig. 4^b is a similar view illustrating the parts of the lifting fork in an extended or emptying position. Fig. 5 is an enlarged detail view partly in section, of the mounting for the boom, and the driving shaft, taken on the line 5—5 in Fig. 2; and Fig. 6 is an enlarged detail sectional view of the clutch and clutch yoke, taken on the line 6—6 in Fig. 2.

The present invention more particularly has in view the provision of hoisting devices to replace manual labor. There is here employed a mechanism which engages the material to be handled by pressing upon the same, the pressure being released at the delivery station of the lifting members. These members consist in the construction illustrated more particularly in Fig. 4 of the drawings, and comprise a fork body 7, through a central perforation in which is

extended a lifting rod 8, which at the lower end, is pivotally connected to toggle arms 9, which at their outer ends are pivotally connected to rods 10, threaded through perforations formed in ears 11 set out from the ends of the fork body 7.

In Fig. 4 is shown the normal position of the tines 12 of the lifting member or fork. The ends of the rods 10, 10, are fixedly mounted in the ends of a flexible bail 13, constructed from spring material, and provided with a curved middle section 14 to induce the spreading action to transpire at this point. In its action the lifting fork is operated by the central tines 12^a being laterally extended by the spread of the toggle arms 9. This is caused by the pull on the cable 15 and rod 8. In this position the tines 12^a are moved outwardly toward the tines 12, imprisoning any straw which at the time of the spread is held between them. When the fork is raised to the upper end of its travel, the bail 13 contacts with the finger 41 and is thereby depressed, spreading the lower ends of the said bail. The bail is connected with the outer tines 12 and when said bail is spread the tines 12 are removed outwardly from the tines 12^a, as shown at Fig. 4^b, thereby releasing any supported or carried straw.

To the rod 8 is connected a lifting cable 15, which is extended over a sheave 16 fixedly mounted on a boom 17. From the sheave 16 the cable 15 is threaded backward along the boom around the guide sheaves 18, 18, to one of the drums 19, 20, 21 and 22. The said drums are loosely mounted upon a driving shaft 23 on which a suitable driven pulley 24 is mounted. The pulley 24 is adapted to receive a driving belt connected with the driving mechanism of the thresher upon which this mechanism is mounted. The drums 19, 20, 21 and 22 are thrown into operative engagement with the driving shaft 23, by the clutches 25, 26, 27 and 28. These clutches are of the usual cone-friction type, having suitable annular clutches, wherein pins or antifriction devices are extended from a surrounding ring or yoke. In the present instance the said pins are mounted in the rings 29, fixedly secured on levers 30, 30, which are pivotally mounted in cross framing members 31 at 32. At the other end of the levers, secured thereto by the links 33 are the levers 34, which are manually operated to throw the

clutches 25, 26, 27 and 28 into engagement with their respective drums.

The levers 30 are provided with an extension at the side of the pivots 32 opposite that upon which the rings 29 are mounted. To these extensions are connected various cables 35, 36, 37 and 38, which are guidably mounted upon suitable sheaves, and connected at the far end with trips 39. The trips 39 are illustrated more particularly in Figs. 2 and 3 of the drawings, they being pivoted at 40 upon the boom 17 and normally held in a substantially vertical position. Their lower ends are bifurcated to form fingers 41 which straddle the hoisting cable 15 in such manner that when the fork is raised, carrying the load, the bail 13 strikes upon the fingers 41, causing the trip 39 to rock in such manner as to throw the free arm 42 to draw upon the cables 35, 36, 37 or 38. The effect of this pull upon the trips is to cause the levers 30 to remove the clutches from engagement with the winding drums, thereby arresting the pull upon the hoisting cables 15.

When the bail 13 of the fork, shown in Fig. 4 of the drawings, is raised, after having been provided with its load, by the hoisting cable 15, it is moved upward until the bail 13 strikes under the fingers 41, producing the action above described to arrest the pull upon the cable 15. Before the cable 15 is fully arrested, however, the pull of the said cable upon the rod 8 and the arms 9, 9 connected therewith, raises the said rod 8 and spreads the arms 9, 9 and the tines 12, 12 connected therewith, causing the said tines to release the straw held between the same. By the same action the spring bail 13 is flattened and extended, drawing outward the tines 12, 12 with which the ends of the bail are connected. This separation of the various tines 12, 12 releases the load carried by the said forks and permits the same to drop upon the draper or conveyer belt 43.

While I have herein described the fork illustrated in Fig. 4 of the drawings, I do not wish to be understood as confining myself to the employment of such a device. Any of the well known trip operated forks may be used in connection with the trip 39 and the transmission mechanism connected therewith.

When this action transpires, it will be found that the forks are disposed over a draper or conveyer belt 43 which is operated to advance the material when thus deposited upon its upper surface, to the separating and feeding device with which this machine or the thresher is provided.

In the present instance, I have shown a rigging for four lifting members or forks. It will be understood, however, that I am not limited to this number, but may increase the same at will.

The boom 17 is constructed in the lightest possible manner commensurate with strength. The construction employed by me, preferably, is that shown in Fig. 1 of the drawings, wherein a bridge truss method of construction is employed. The boom 17 is extended laterally, and is supported by a tie rod 44 secured to the upper end of a mast 45, the tie rod being provided with a swivel 46 whereby the said rod is tightened. At the inner end, or the end adjacent to the mast 45, the angle irons from which the boom is constructed, are bent downward, and are securely mounted upon the frame of a large bevel cog wheel 47, provided with a suitable bearing within a base frame 48; as shown in the present drawings, the mast 45 constitutes the pivot for the said wheel, and is stepped in a socket 49 in said base frame 48. Suitably pivoted in the base frame is an inclined shaft 50, upon which is mounted a pinion 51 held in toothed engagement with the large bevel cog wheel 47. The shaft 50 is provided with a crank handle 52, by means of which and of the pinion 51, the boom 17 is moved circularly from side to side of the vehicle upon which it is mounted.

The driving mechanism connected with and operated by the driving shaft 23, is suspended upon the framework of the boom by brackets 53, the outer ends of which are connected by a framing member 54, upon which are pivoted the levers 34, 34. The mast is supported against the pull on the rod 44 by guys 55, 55, connected to the top of the mast and to the framing member 54. The arrangement of the guys is illustrated best in Figs. 1 and 2 of the drawings.

The conveyer 43, shown, is the draper of the usual threshing machine. At the upper end thereof are distributing wheels 56 and 57, each provided with propelling extensions, adapted to deliver the grain bearing straw from the conveyer 43 into the hopper of the threshing machine. In the present arrangement, I prefer to drive the wheel 56 at a much higher rate than the wheel 57, causing the wheels to separate the massed or matted straw as it is delivered to the threshing machine.

The outer end of the boom 17 is steadied by suitable guys 58 and 59. The latter is shown with a suitable device 60 of any suitable construction for winding up the slack of the guy 59.

In operating the present machine where there is considerable side thrust, due to the extension of the boom 17, I prefer to lift the end of the thresher from the ground by means of jacks 61, which are of the ordinary construction and are adapted to lift the end of the vehicle by means of a cross rod 62, which is sufficiently heavy to carry the weight of the vehicle.

With an apparatus constructed as herein disclosed, and as shown in the accompanying drawings, the operation of "pitching" wheat or other grain, is as follows: The

5 thresher is placed in position between the stacks or ricks of the grain bearing straw. The boom 17 is extended over one of the ricks by adjusting the same by the crank 52 and the gears 51 and 47. Having placed

10 the end of the boom in proper position, it is held there by driving the stake of the guy rope 58 into the ground, and by anchoring the device 60 on the opposite side of the extended line of the boom, and then taking up

15 the slack in the guy 59; the boom is thus held reasonably firm. The winding drums 19, 20, 21 and 22 are released to permit the various forks 7 to descend to the ground. Here the tines 12, 12, are inserted into the

20 grain bearing straw, and so held until the forks are lifted by the cable 15. The cable 15 pulling against the toggles 9, 9, extends the inner tines 12, 12, against the outer tines holding the straw between them. The op-

25 erator on the deck of the thresher having thrown the lever 34 to engage the clutches 25, 26, 27 and 28 with their respective drums, the remainder of the operation is automatic. The cable 15 draws the fork upward, until

30 the bail thereof strikes upon the fingers 41 of the trip 39, which releases the clutch for the particular winding drum drawing the particular fork. By the same action which trips the said clutch the load carried by the

35 fork, is dumped on the conveyer 43 as above described. The clutch having been released, the weight of the fork immediately returns the fork to the ground, in position to reengage the straw, and where an operator in-

40 serts the tines within the stack or rick to again initiate the operation above described. It will be seen by the drawings, and from the above description, that, as shown in the present instance, there are four forks, oper-

45 ating to deposit loads on different points of the conveyer 43. When, now, the straw has been transferred from the stack or ground within the radius of operation of the boom, as formerly placed, the guys 58 and

50 59 are slackened, and the boom 17 is swung to a desired position, where it is again secured by the guys 58 and 59 as above described. The operation again is pursued as described. In this new position, however,

55 it will be necessary to provide a conveyer for the threshing machine which will accommodate the throw of the boom 17. To tighten the guys 58 they are carried back over the boom 17 and wound upon the drums

60 60^a—60^a which are mounted upon a shaft 61^a on the upper framing of the boom 17. The shaft 61^a is propelled by the handle 62^a, and is held against return by a pawl 63, which engages a ratchet 64. After the an-

65 chors for the guy rods 58 have been placed,

the drums 60^a—60^a are wound to take up the slack of the said guy rods.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A feeder for grain bearing straw, comprising a boom adapted to be mounted upon the receiving end of a threshing machine, a mechanism for moving the said boom about a rotary center, and a hoisting mechanism 70 mounted upon said boom and embodying a plurality of straw lifting members. 75

2. A feeder for grain bearing straw, comprising a boom mounted upon a turn-table at the receiving end of a threshing machine, a mechanism for moving the said boom on the said turn-table, and a plurality of hoisting mechanisms, embodying a plurality of cables guidably extended to various stations upon said boom, and having engaging and 80 carrying members adapted to hold the grain by the lifting strain of said cables. 85

3. A feeder for grain bearing straw, comprising a boom mounted upon a turn-table at the receiving end of a threshing machine, a mechanism for moving said boom on the said turn-table, a plurality of hoisting mechanisms, embodying a plurality of cables and straw engaging devices adapted to engage 90 and hold the straw, suitable guiding means 95 for supporting said cables on the said boom, and tripping means disposed at various stations on said boom, to release the grasp of said engaging devices and to arrest the said hoisting mechanism. 100

4. A feeder for grain bearing straw, comprising a boom mounted upon a turn-table at the receiving end of a threshing machine, a mechanism for moving the said boom on the said turn-table, anchoring devices for 105 holding the said boom in its adjusted position, a plurality of winding drums mounted upon a common shaft, a plurality of clutch members to engage said drums with said shaft, a manually-operated mechanism for 110 engaging said clutches with said drums, a plurality of hoisting cables adapted to be wound upon said drums and extended therefrom to fixed stations on the said boom, engaging devices mounted upon the ends of 115 said cables, adapted to engage the straw, and automatic means for releasing the said clutches from said drums when raised under said boom.

5. A feeder for grain bearing straw, comprising a boom mounted upon a turn-table at the receiving end of a threshing machine, a large beveled gear wheel concentrically mounted on said turn-table, a small beveled gear wheel rotatively set in said turn-table 120 and engaged with said large wheel, anchoring devices for holding the said boom in its adjusted position, a plurality of winding drums mounted upon a common shaft, a plurality of clutch members to engage said 130

drums with said shaft, a manually operated mechanism for engaging said clutches with said drums, a plurality of hoisting cables adapted to be wound upon said drums and
 5 extended therefrom to fixed stations on the said boom, engaging devices mounted upon the ends of said cables to engage the straw, and automatic means for releasing said clutches from said drums when the said
 10 engaging devices are raised under said boom.

6. A feeder for grain bearing straw comprising a boom mounted upon a turn-table at the receiving end of a threshing machine, a supporting mast vertically extended from
 15 said turn-table and from the center thereof, a tie rod extended from the upper end of said mast to the outer end of said boom, a large beveled gear wheel concentrically mounted about said mast, a small beveled
 20 gear wheel rotatively set in said turn-table and engaged with said large wheel, anchoring devices for holding the said boom in its adjusted position, a plurality of winding drums mounted upon a common shaft, a
 25 plurality of clutch members to engage said drums with said shaft, a manually operated mechanism for engaging said clutches with said drums, a plurality of hoisting cables adapted to be wound upon said drums and
 30 extended therefrom to fixed stations on the said boom, engaging devices mounted upon the ends of said cables to engage the straw, and automatic means for releasing the said clutches from said drums when the said en-
 35 gaging devices are raised under said boom.

7. A feeder for grain bearing straw comprising a boom mounted upon a turn-table at the receiving end of a threshing machine and provided with a centrally located pivot
 40 socket, a vertically extended mast pivotally mounted in said socket, a large beveled gear wheel fixedly mounted upon said shaft to turn therewith, a small beveled gear wheel rotatively set in said turn-table and en-
 45 gaged with said large wheel, supporting tie rods extending from the upper end of said

mast to the outer end of said boom to support the same, anchoring devices for holding the said boom in its adjusted position, a plurality of winding drums mounted upon a
 50 common shaft, a plurality of clutch members to engage said drums with said shaft, a manually operated mechanism for engaging said clutches with said drums, a plurality of hoisting cables adapted to be
 55 wound upon said drums and extended therefrom to fixed stations on the said boom, engaging devices mounted upon the ends of said cables to engage the straw, and automatic means for releasing the said clutches
 60 from said drums when the said engaging devices are raised under said boom.

8. A feeder for grain bearing straw comprising a boom mounted upon a turn-table at the receiving end of a threshing machine,
 65 a manually operated mechanism for rotating said boom on said turn-table, guy cables guidably mounted on said boom passing from the end thereof to a suitable anchorage in the ground, a manually operated winch
 70 mounted on said boom to draw on said cable, a plurality of winding drums mounted upon a common shaft, a plurality of clutch members to engage said drums with said shafts, a manually operated mechanism for engag-
 75 ing said clutches with said drums, a plurality of hoisting cables arranged to be wound upon said drums and extended therefrom to fixed stations on said boom, engaging devices mounted upon the ends of said cables
 80 adapted to engage and hold the straw, and automatic means for releasing the said clutches from said drums when the said engaging devices are raised under said boom.

In testimony whereof I have signed my
 85 name to this specification in the presence of two subscribing witnesses.

SAMUEL BERT McCOMB.

Witnesses:

HARRY BERBE,
 FRANK BURNS.