

No. 739,675.

PATENTED SEPT. 22, 1903.

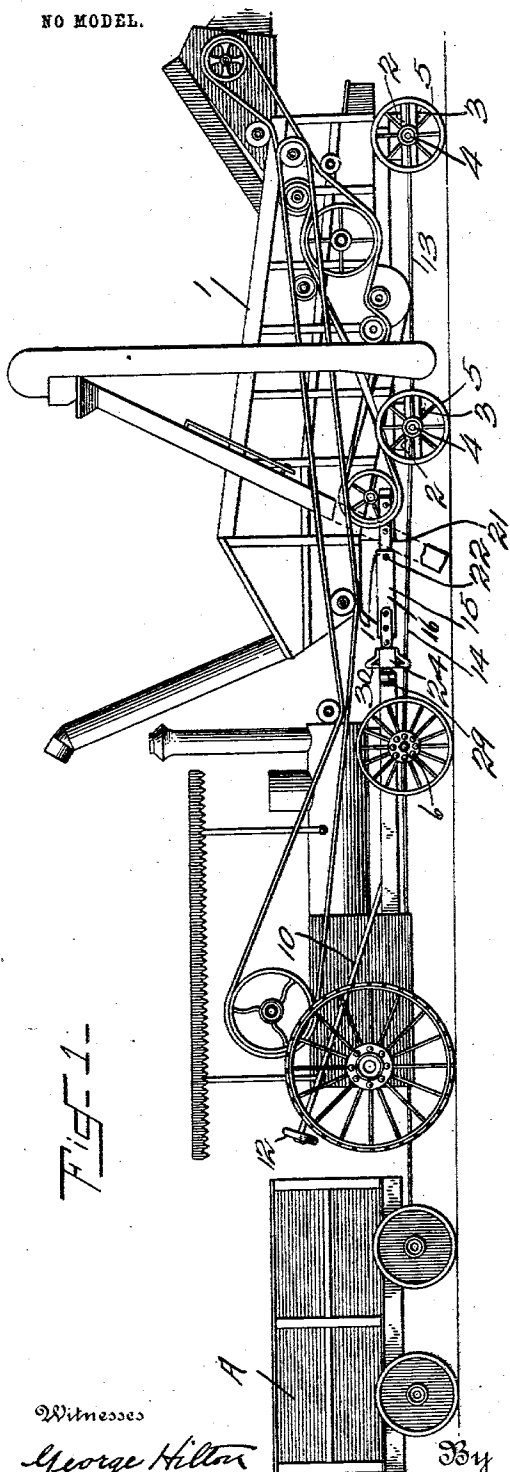
P. S. HOUGHTON.

MEANS FOR PROPELLING AND GUIDING THRESHING MACHINES.

APPLICATION FILED DEC. 27, 1902.

NO MODEL.

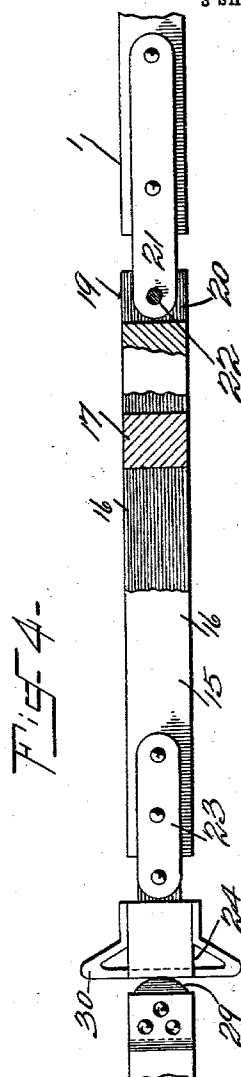
3 SHEETS--SHEET 1.



Witnesses

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L. Hilton

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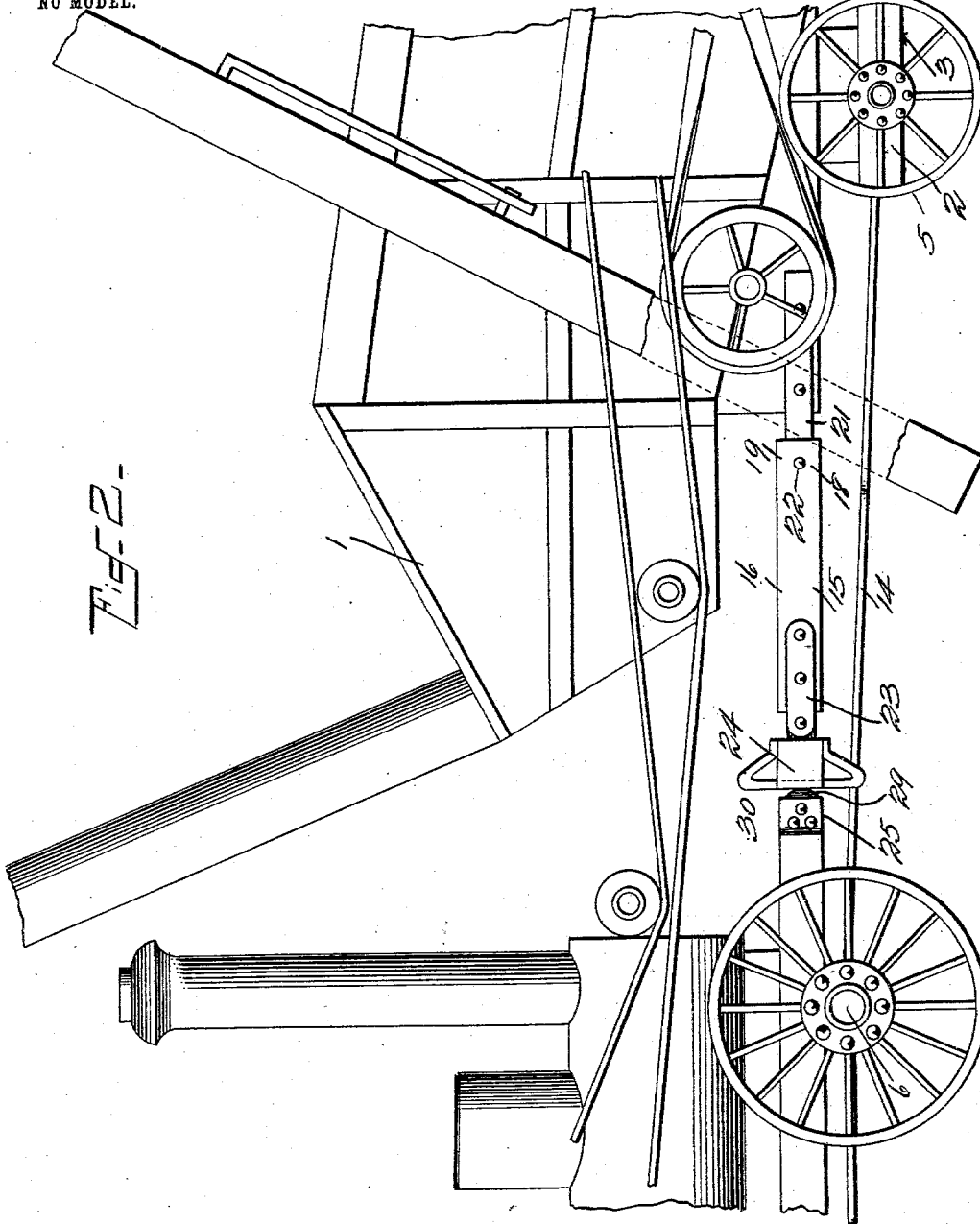
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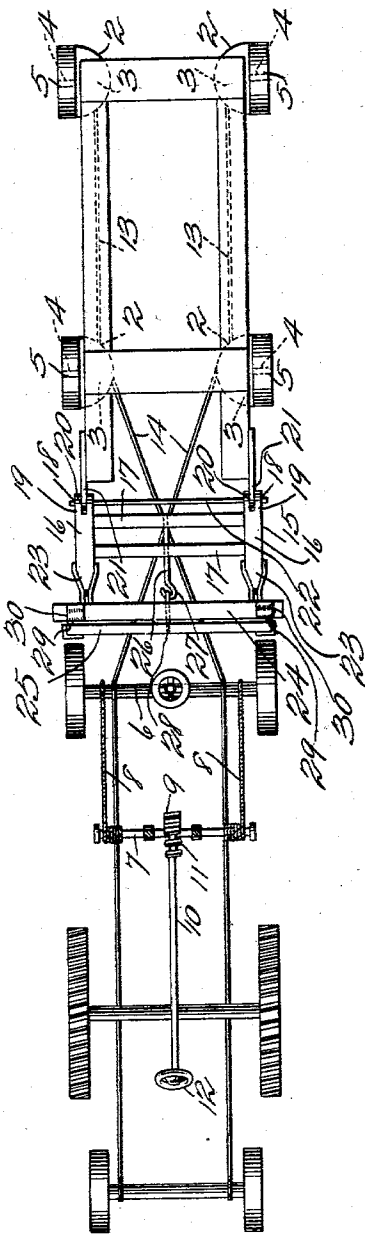
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

PHILIP S. HOUGHTON, OF GRAND FORKS, NORTH DAKOTA.

MEANS FOR PROPELLING AND GUIDING THRESHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 739,675, dated September 22, 1903.

Application filed December 27, 1902. Serial No. 136,771. (No model.)

To all whom it may concern:

Be it known that I, PHILIP S. HOUGHTON, a citizen of the United States, residing at Grand Forks, in the county of Grand Forks and State of North Dakota, have invented certain new and useful Improvements in Means for Propelling, Operating, and Guiding Threshing and Similar 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.

My invention relates to improvements in means for propelling, operating, and guiding or steering threshing-machines, whereby a traction-engine is coupled to one end of the threshing-machine and employed to move the machine from place to place and also employed to operate the machine while in motion, so that the machine may be moved parallel to windrows of wheat or other grain and employed to thresh the same while in motion, hence avoiding the necessity heretofore existing of carrying the wheat to the machine; and it consists in the peculiar construction and combination of devices hereinafter described and claimed.

One object of my invention is to provide means for coupling a threshing-machine to a traction-engine, whereby the machine may be moved by the traction-engine in either direction either forwardly or rearwardly and turned in any direction that may be required and whereby the threshing-machine may remain at all times coupled to the traction-engine, so that the latter may be employed not only for propelling the threshing-machine, but also for driving the same while in operation, thus dispensing with the necessity heretofore existing of disconnecting the driving-belt between the threshing-machine and the power-shaft of the traction-engine, obviating the necessity heretofore existing of moving the traction-engine from the front to the rear end of the threshing-machine and alining the engine therewith before putting the threshing-machine in operation and also enabling the threshing-machine and traction-engine to be simultaneously steered or guided in any direction when moving from place to place.

A further object of my invention is to ef-

fect improvements in the construction of the supporting-trucks for the threshing-machine to enable the axles carrying the supporting-wheels to be turned in the required direction to steer the threshing-machine and keep the same under all conditions in line with the traction-engine coupled thereto.

A further object of my invention is to provide means for coupling the threshing-machine to the traction-engine so that either the machine or the engine may rock when passing over obstructions or uneven ground independently of the other.

Further objects and advantages of my invention appear hereinafter.

In the accompanying drawings, Figure 1 is a side elevation of a threshing-machine, a traction-engine to propel and operate the same while in motion, and a water and fuel tender for the traction-engine, coupled together in accordance with my invention. Fig. 2 is an elevation, on a larger scale, showing the proximate parts of the traction-engine and threshing-machine and my improved coupling for connecting them together. Fig. 3 is a diagrammatic top plan view showing the trucks of the traction-engine and threshing-machine and my improved coupling for connecting them together to keep the machine and engine always in line with each other.

In the embodiment of my invention I provide the threshing-machine 1, which may be of any suitable construction or of any of the constructions well known to those skilled in machines of this class, with independently-pivoted supporting-trucks 2. As shown in Fig. 3, each of these independently-pivoted supporting-trucks comprises a stub-axle 3, having a pivot or king-bolt 4 and a supporting-wheel 5 on the spindle of said supporting-axle. The said supporting-wheels 5 are disposed on opposite sides of and near the ends of the threshing-machine, as shown.

The traction-engine, which may be of any suitable construction, is provided with a pivotally-mounted steering-axle 6, which is controlled and turned in either direction by a suitable steering-gear, here shown as a winch 7, having its respective ends connected to the end portions of the axle 6 by steering chains or cables 8, which are reversely wound

on the said winch and worm-wheel 9, with which the winch is provided, and a shaft 10, mounted in suitable bearings and having a worm 11 engaged with the worm-wheel 9, and a steering or tiller wheel 12, fixed to the said shaft and disposed appropriately on the traction-engine. The axles 3 on each side of the threshing-machine are connected together by suitable parallel links 13, which may be rods of any suitable construction pivotally connected to the said axles, and the latter are furthermore connected to the steering-axle 6 of the traction-engine by means of links 14, which may also be rods of any suitable construction. It will be apparent from the foregoing description and by reference to Fig. 3 of the drawings that when the steering-axle 6 of the traction-engine is turned by the steering-gear, hereinbefore described, to cause the traction-engine to move in any required direction the axles 3 of the threshing-machine will be simultaneously turned therewith to guide the threshing-machine in the same direction.

Heretofore, so far as I am aware, traction-engines have been employed to propel threshing and similar machines, but not to also operate the machines while the same are in motion, and, furthermore, it has been necessary to uncouple the engine from the threshing-machine when the latter has been carried to the place where it is to be operated and to then readjust and aline the traction-engine with the threshing-machine and connect its power-shaft to the drive-shaft of the threshing-machine by one or more belts, thus making it a laborious operation to prepare the threshing-machine for operation by the traction-engine after the machine has reached the place where it is to be operated. Furthermore, it has heretofore been the practice to convey the grain to the threshing-machine, the latter remaining in one place while threshing the grain, and this transportation of the grain to the machine is necessarily a very expensive and laborious operation.

To render it unnecessary to disconnect the traction-engine from the threshing-machine and to readjust it with reference thereto before starting the machine in operation, I have invented an improved coupling to permanently connect the threshing-machine to the traction-engine which enables the threshing-machine to be kept at all times in perfect alinement with the traction-engine, so that the power belt or belts do not require to be disturbed or shifted, which enables the machine to be operated while being moved or propelled by the traction-engine in either direction, so that the machine may be carried to the grain instead of having to carry the grain to the machine, as heretofore, to be threshed, and so that the grain when harvested may be left on the field in windrows until cured and the machine then run parallel with the windrows and the grain in the windrows fed to the machine and threshed

thereby while the machine is in operation and is being slowly moved, which coupling I will now describe: A frame 15, which is preferably rectangular in form and is here shown as comprising a pair of parallel side bars 16 and a pair of transversely-disposed bars 17, that connect them together, is flexibly coupled at one end to one end of the threshing-machine by hinge connections, as at 18, here shown as prolongations 19 of the bar 16, having vertical longitudinal slots 20, tongue-links 21 extending from the threshing-machine, rigidly secured thereto, as by bolts or otherwise, or formed as integral portions of the sills of the threshing-machine and with their ends disposed in said slots 20 and one or more pivot-bolts 22, extending through alined openings in the coengaging end portions of the said bars 16 and the tongue-links 21. The opposite ends of the side bars 16 of the frame 15 are flexibly coupled, as at 23, to the end portions of a yoke 24. The said yoke is here shown as pivotally connected to a cross-beam 25 on one end of the truck-frame of the traction-engine by a longitudinally-disposed bolt 26, which has an eye 27 at one end. The said eye of the said bolt is engaged by the similar eye of a bolt-rod 28, disposed longitudinally and centrally with reference to the coupling-frame 15 and which passes through and is secured to the central portions of the transverse bars 17 thereof. The yoke 24 is thus adapted to rock with relation to the truck-frame of the traction-engine, and thereby the latter and the threshing-machine are enabled to rock independently of each other when passing over obstructions and uneven ground, and the connection between the traction-engine and the threshing-machine is rendered flexible; but the yoke 24 cannot move pivotally in a horizontal plane and is maintained under all conditions parallel with the beam 25 of the traction-engine frame and perpendicular with reference to the line of draft. The same is true with reference to the connections between the coupling-frame 15, the yoke 24, and the threshing-machine, and hence the frame of the threshing-machine and the frame of the traction-engine are at all times kept exactly in line with each other and angular movement between them is prevented; but the connections hereinbefore described between the angularly-movable axles of the traction-engine and threshing-machine enable the traction-engine and threshing-machine to be directed in any desired course and to describe curves of varying radius, so that the engine and threshing-machine may be readily turned, as will be understood.

To reduce friction between the yoke 24, which is free to oscillate on its pivot 26 in a vertical plane, and the beam 25 of the traction-engine, I provide suitable antifriction-rollers 29, which may be carried either by the said beam or the said yoke. In the embodiment of my invention here shown the said

antifriction-rollers are carried by and disposed at the ends of the beam 25 and engage vertically-disposed wear-plates 30, with which the yoke 24 is provided on its side proximate 5 to the said beam 25. It will be understood that the pivoted connections between the coupling-frame, the traction-engine, and the threshing-machine enable the engine and the machine to move vertically independently of 10 each other to accommodate them to the road and facilitate traveling movement. It will be also understood that a fuel and water tender, such as indicated at A in Fig. 1, may be coupled to one end of the traction-engine and 15 its pivoted axle or truck connected to the traction-engine for guiding or steering purposes.

When the threshing-machine is operated, as hereinbefore described, parallel with wind- 20 rows of grain, it serves not only to thresh the grain, but to discharge the threshed straw, so that it will be disposed in similar parallel windrows on the ground, thus greatly facilitating the final disposition of the straw.

25 I do not desire to limit myself to the precise construction and combination of devices herein shown and described, as it is evident that modifications may be made therein without departing from the spirit of my invention and within the scope of the appended claims. 30

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In combination with an ambulant machine and a traction-engine, a coupling element pivotally connected to one of them for longitudinal vertical angular movement and restrained from horizontal angular movement with reference thereto, an element connected 40 to the other for transverse vertical angular movement and restrained from horizontal angular movement with reference thereto, and flexible connections between the coupling element and the last-mentioned element, substantially as described. 45

2. In combination with a motor and an ambulant machine propelled thereby, each having a pivoted supporting and guiding element, a coupling adapted for longitudinal vertical angular movement with reference thereto, restrained from horizontal angular movement with reference thereto, and also adapted for transverse vertical angular movement with reference to one of them, whereby said motor and trailer are maintained in line 50 with each other, and adapted for vertical and lateral rocking motion with reference to each other, substantially as described. 55

3. In combination with a motor and an ambulant machine propelled thereby, each having a pivoted supporting and guiding element, means to simultaneously direct said supporting and guiding elements, a coupling adapted for longitudinal vertical angular movement with reference thereto, restrained 60 from horizontal angular movement with reference thereto and also adapted for transverse vertical angular movement with reference to one of them, whereby said motor and trailer are maintained in line with each other, and 70 adapted for vertical and lateral rocking motion each independently of the other, substantially as described.

4. In combination with a traction-engine and a machine of the class described, a bar connected to one of them for rocking movement in a vertical plane and restrained from angular movement in a horizontal plane, anti-friction means for said bar, and a coupling means connected to said bar and to the other of 75 the first-mentioned elements for vertical angular movement, substantially as described. 80

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

PHILIP S. HOUGHTON.

Witnesses:

E. F. CAVERLY,
J. W. GARNER.