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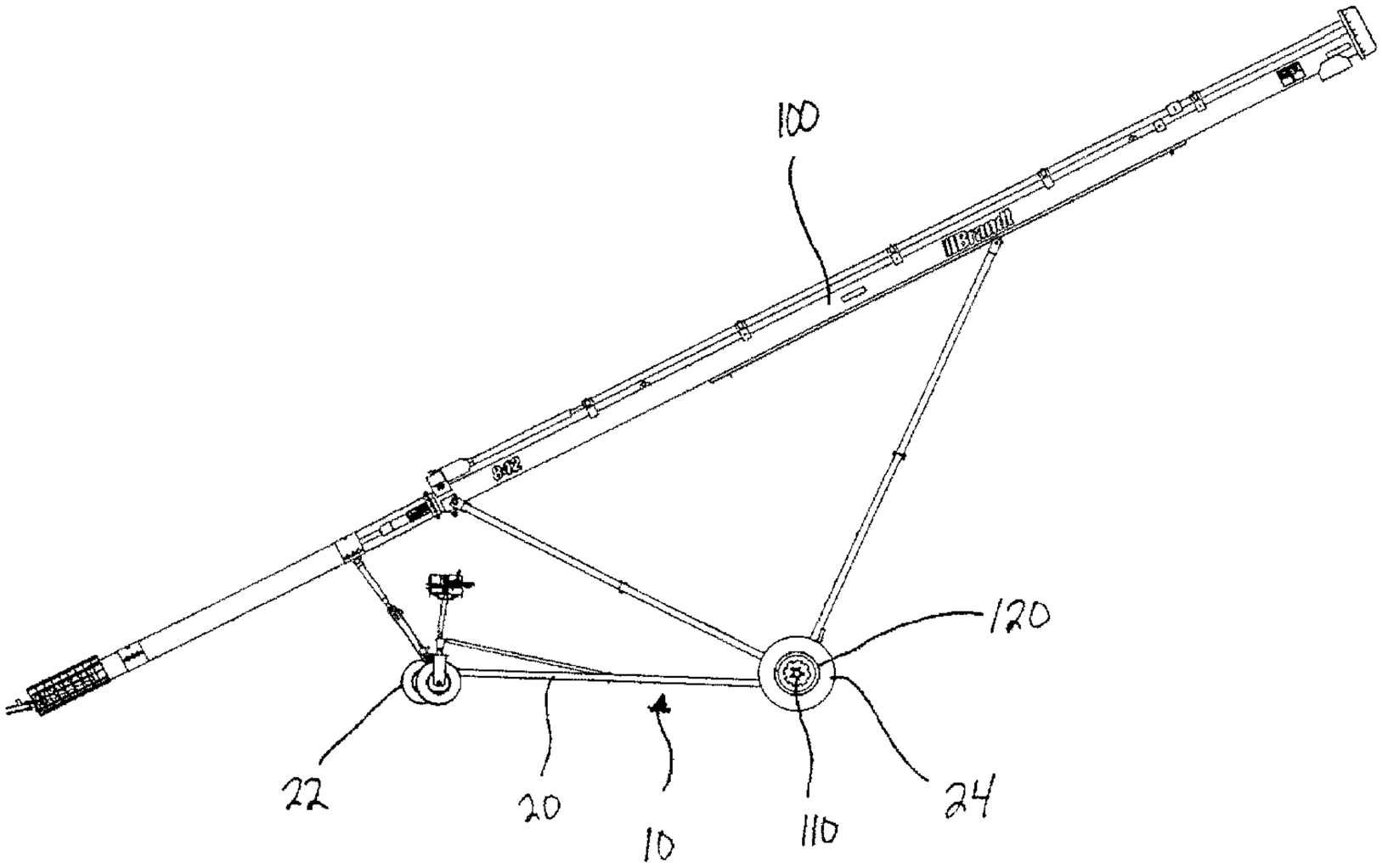
(71) Demandeur/Applicant:
BRANDT AGRICULTURAL PRODUCTS LTD., CA

(72) Inventeurs/Inventors:
PEUTERT, CHANCE, CA;
CARTERI, JONATHAN ROBERT, CA

(74) Agent: MLT AIKINS LLP

(54) Titre : APPAREIL DE DEPLACEMENT DE TARIERE DIRIGE MANUELLEMENT
(54) Title: MANUALLY STEERED AUGER MOVER



MANUALLY STEERED AUGER MOVER

The present invention relates to an auger mover and more particularly to a steering assembly to control the direction of travel of the auger mover.

BACKGROUND

Grain augers are used to carry grain and crop materials from near the ground to the top of a grain bin so that the grain or other crop material can be discharged from the end of the auger into the bin. Grain augers typically have an long tubular auger body with an intake end and a discharge end, the crop material enters the auger through the intake end where flighting inside the auger rotates and carries the crop material up the inside of the auger body to be discharged out of the auger at the discharge end of the auger. Typically, a pair of ground wheels are used to support and move the auger and the ground wheels are connected to the auger body by a framework.

Previously, when grain augers were relatively small because the bins to be loaded with the crop material were also relatively small, an operator would simply lift up the discharge end of the auger body, which would typically rest on the ground surface, and manually push the auger using the wheels to move the auger relatively small distances, such as from one grain bin that has been filled to an adjacent empty grain bin. However, as grain bins have gotten bigger, augers have too. Most augers these days are much larger than the first augers and they are too big and heavy for a person to simply lift the

discharge end of the auger body off of the ground and push the auger around using its wheels.

To allow these newer, larger and heavier augers to be moved, these augers often have driven ground wheels to move the auger and also some sort of steering system to allow an operator to steer the moving auger in a desired direction. However, these present systems can be complicated to operate and may not be as maneuverable or easy to operate as an operator might want.

DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the present invention is described below with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of an auger mover for connection to an auger to make it easier to move the auger from location to location;

FIG. 2 is a side view of the auger mover of FIG. 1 attached to an auger; and

FIG. 3 is a close up view of the pivotal wheels and steering assembly for the auger mover shown in FIG. 1.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

FIG. 1 shows a manually steered auger mover 10 for moving an auger around between locations. FIG. 2 shows the auger mover 10 attached to an auger 100.

The auger mover 10 can include: a frame 20; a first pivotal wheel 30; a second pivotal wheel 40; an auger connection assembly 50; a steering assembly 60; and a control panel 80.

The frame 20 can have a front end 22 and a rear end 24 and is used to support the different components of the auger mover 10. A pair of frame rails 26, 28 can extend along the length of the frame 20 from the front end 22 of the frame 20 to the rear end 24 of the frame 20. A first wheel member 32 and a second wheel member 42 can be provided at the front end 22 of the frame 20 and the first wheel member 32 and the second wheel member 42 can curve upwards before extending along a substantially horizontal portion. A first tube 34 can be provided on the end of the first wheel member 32 and a second tube 44 can be provided on the end of the second wheel member 42.

The first pivotal wheel 30 can be provided at a front end 22 of the frame 20 and can be connectable to the first tube 34 of the first wheel member 32 or the second tube 44 on the second wheel member 42. The first pivotal wheel 30 can be pivotally connected below either the first tube 34 of the first wheel member 32 or the second tube 44 of the second wheel member 42 by a kingpin or shaft 36 extending vertically upwards from the first

pivotal wheel 30. The shaft 36 can be positioned relative to the first pivotal wheel 30 so that a steering axis defined by the shaft 36 and passing downwards through the first pivotal wheel 30 will pass substantially through the center of the first pivot wheel 30. In this manner, the first pivot wheel 30 will rotate around the steering axis defined by the shaft 36 when the first pivot wheel 30 is turned. The shaft 36 will pivotally connect the first pivotal wheel 30 to the first tube 34 on the end of the first wheel member 32 so that the first pivotal wheel 30 is positioned below the first wheel member 32 and pivotally connected to the first wheel member 32. In one aspect, the shaft 36 may extend through the first tube 34 so that a portion of the shaft 36 extends above the top of the first tube 34.

The second pivotal wheel 40 can be provided at the front end 22 of the frame 20 on an opposite side of the frame 20 from the first pivotal wheel 30 and can be a castor wheel. The second pivotal wheel 40 can be pivotally connected below the second wheel member 42 of the frame 20 by a shaft 46 extending vertically upwards from the second pivotal wheel 40 and extending through the second tube 44 on the end of the second wheel member 42 so that the second pivotal wheel 40 is positioned below the second wheel frame 42 and pivotally connected to the second wheel member 42. A steering axis defined by the shaft 46 will be offset from the center of the second pivotal wheel 40 so that extending the steering axis downwards from the shaft 46, the steering axis will not pass through the center of the second pivotal wheel 40. In one aspect, the shaft 46 may

extend through the second tube 44 so that a portion of the shaft 46 extends above the top of the second tube 44.

A first bracing member 38 can extend between the first wheel member 32 proximate the end of the first wheel member 32 and the second frame rail 28 and a second bracing member 48 can extend between the second wheel member 42 proximate the end of the second wheel member 42 and the first frame rail 26. In this manner, the first bracing member 38 and the second bracing member 48 can be used to make the auger mover 10 more rigid.

The rear end 24 of the frame 20 can be attached to an auger axle 110 of the auger 100 so that the frame 20 extends from it rear end 24 connected to the auger axle 110 towards the front end 22 of the frame 20. The auger axle 110 can be connected to a first drive wheel 120 and a second drive wheel 130 which are attached to hydraulic motors that can drive the first drive wheel 120 and the second drive member 130.

The auger connection assembly 50 can be provided at the front end 22 of the frame 20 and connected to the body of the auger the auger mover 10 is connected to. The auger connection assembly 50 can include: a hydraulic cylinder 52; an extension member 54; and an auger body collar 56. The auger body collar 56 can connect around the body of the auger 10 and the hydraulic cylinder 52 can be used to raise and lower the auger body collar 52 and therefore the auger body relative to the frame 20 of the auger mover 10 in order to lift the discharge end of the auger 100 off of the ground so that the auger 100 can

be moved by the auger 100. The extension member 54 can be used to provide the desired length of the auger connection assembly 50 between the frame 20 and the auger body.

The steering assembly 60 can be removablely connected to the first pivotal wheel 30 so that moving the steering assembly 60 will pivot the first pivotal wheel 30. The steering assembly 60 can have a steering shaft 62 that is removably connectable to the shaft 36 connected to the first pivotal wheel 30 and extending above the first tube 34 on the first wheel member 32. so that rotation of the steering shaft 62 will rotate the first pivotal wheel 30. Because the first pivotal wheel 30 can be connected to either the first tube 34 of the first wheel member 32 or the second tube 44 of the second wheel member 42, the operator can decide which side of the auger 100 they would like to be on when using the auger mover 10 to move the auger 100. For example, if one side of the auger 100 will be moved close to the side of a bin or other structure, the operator can connect the first pivotal wheel 30 and the steering assembly 60 to the steering member 32, 42 on the other side of the auger 100. The second pivotal wheel 40 can then be connected to the steering member 32, 42 that the first pivotal wheel 30 is not connected to.

The steering assembly 60 can have a steering member 64 can extend generally laterally from the steering shaft 62 with the distal end of the steering member 64 connected to the steering shaft 62. On the proximal end of the steering member 64 a handle 66 and the control panel 80 can be provided. The handle 66 can be used by an operator to rotate the steering member 64, thereby rotating the steering shaft 62, the shaft 36 and thereby

rotating the first pivotal wheel 30 around the steering axis defined by the shaft 36 in the direction desired. By turning the first pivotal wheel 30, the direction of travel of the auger mover 10 can be altered. The second pivotal wheel 40 will simply pivot freely and because second pivotal wheel 40 is a caster wheel with the steering axis defined by the shaft 46 is offset from the center of the second pivotal wheel 40, the second pivotal wheel 40 will pivot to follow the travel direction of the auger mover 10.

The control panel 80 can control the operation of both the auger mover 10 and the auger the auger mover 10 is connected to. Typically, the control panel 80 will contain hydraulic control valves that control the flow of hydraulics on the auger in order to control the operation of the auger. For example, the control panel 80 could control the rotation of the flighting in the auger body, the operation of the first drive wheel 120 and the second drive wheel 130, the extension and retraction of the hydraulic cylinder 52 in the auger connection assembly 50 and/or any other functions performed by the auger and/or the auger mover 10. In one aspect, the control panel 80 can have a joystick to control some of the hydraulics on either the auger and/or the auger mover 10.

The control panel 80 can be provided at the proximal end of the steering arm 50 so that an operator can turn the auger mover 10 using the handle 66 on the steering arm 50, yet still have access to the controls provided on the control panel 80 to controlling the operation of the auger and the auger mover 10 while turning the auger mover 10 using the steering assembly 50. An operator can use one hand on the handle 66 to rotate the

steering arm 64 in either direction. Rotation of the steering arm 64 will in turn rotate the steering shaft 62, shaft 36 and thereby the first pivotal wheel 30, the rotated first pivotal will 30 will change the direction of travel of the auger mover 10. The second pivotal wheel 40will simply pivot and follow the travel direction of the auger mover 10 that is being directed by the first pivotal wheel 30 and the steering assembly 50. At the same time, the operator's other hand is free to operate any of the controls on the control panel 80 such as the controls regulating the amount of hydraulic fluid routed to the drive wheels 120, 130 to drive the auger mover 10. By placing the control panel 80 at the proximate end of the steering arm 64 close to the handle 66, the operator can simultaneously control the operation of the auger 100 using the control panel 80 and steer the auger mover 10 and the auger 10 using the handle 66.

Because the first pivot wheel 30 and second pivotal wheel 40 are not connected by any sort of steering linkages and the second pivotal wheel 40 is free to pivot freely in the direction of travel of the auger mover 10, the auger mover 10 is more maneuverable than one where the steering wheels are connected by linkages. The first pivotal wheels 30 and the second pivotal wheel 40 can pivot to the point where they are both positioned parallel or substantially parallel to the auger axle 119 allowing the auger 100 to be turned substantially perpendicular to the length of the auger 100 by the auger mover 10.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous changes and modifications will readily occur to those skilled in

the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all such suitable changes or modifications in structure or operation which may be resorted to are intended to fall within the scope of the claimed invention.

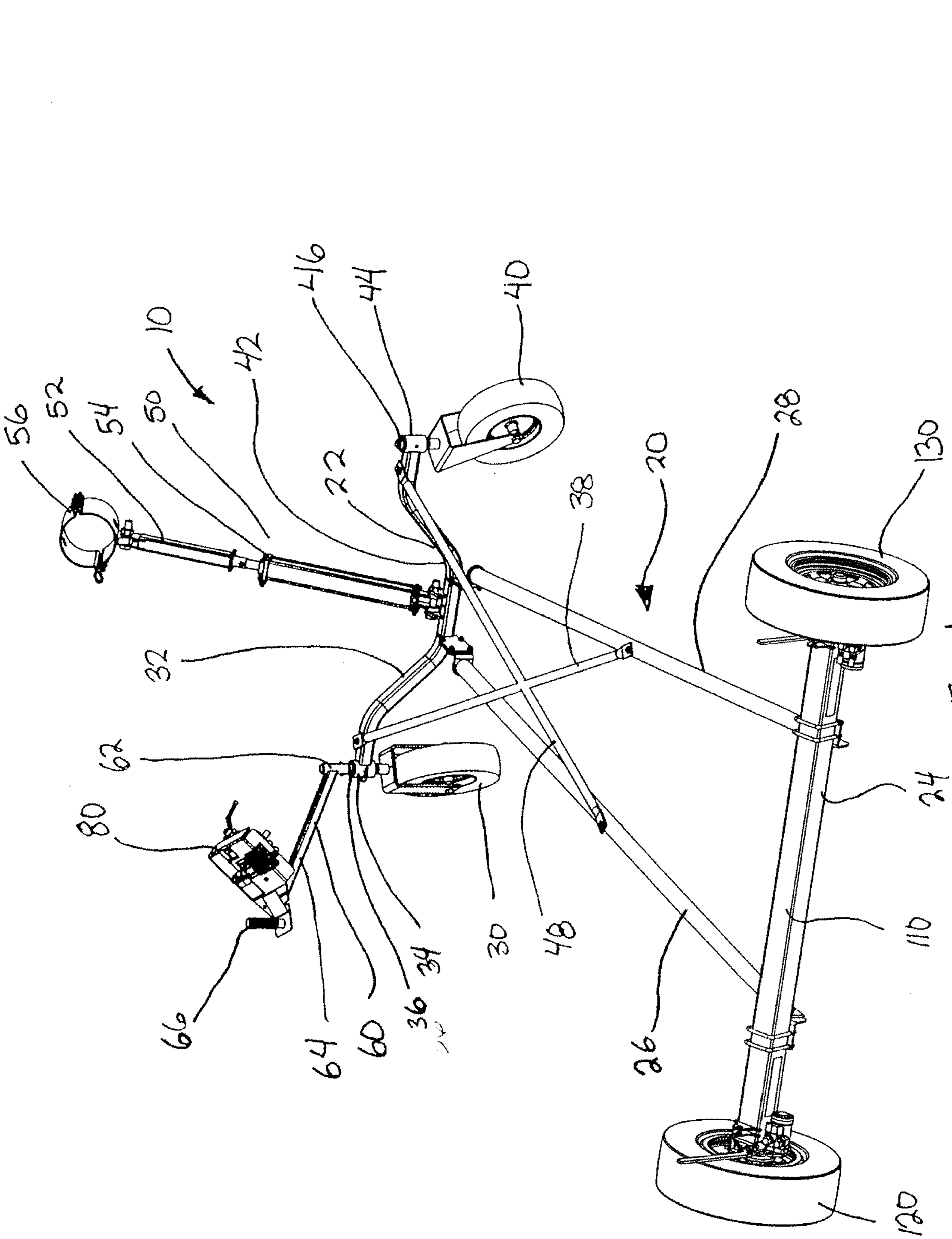

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FIG. 1

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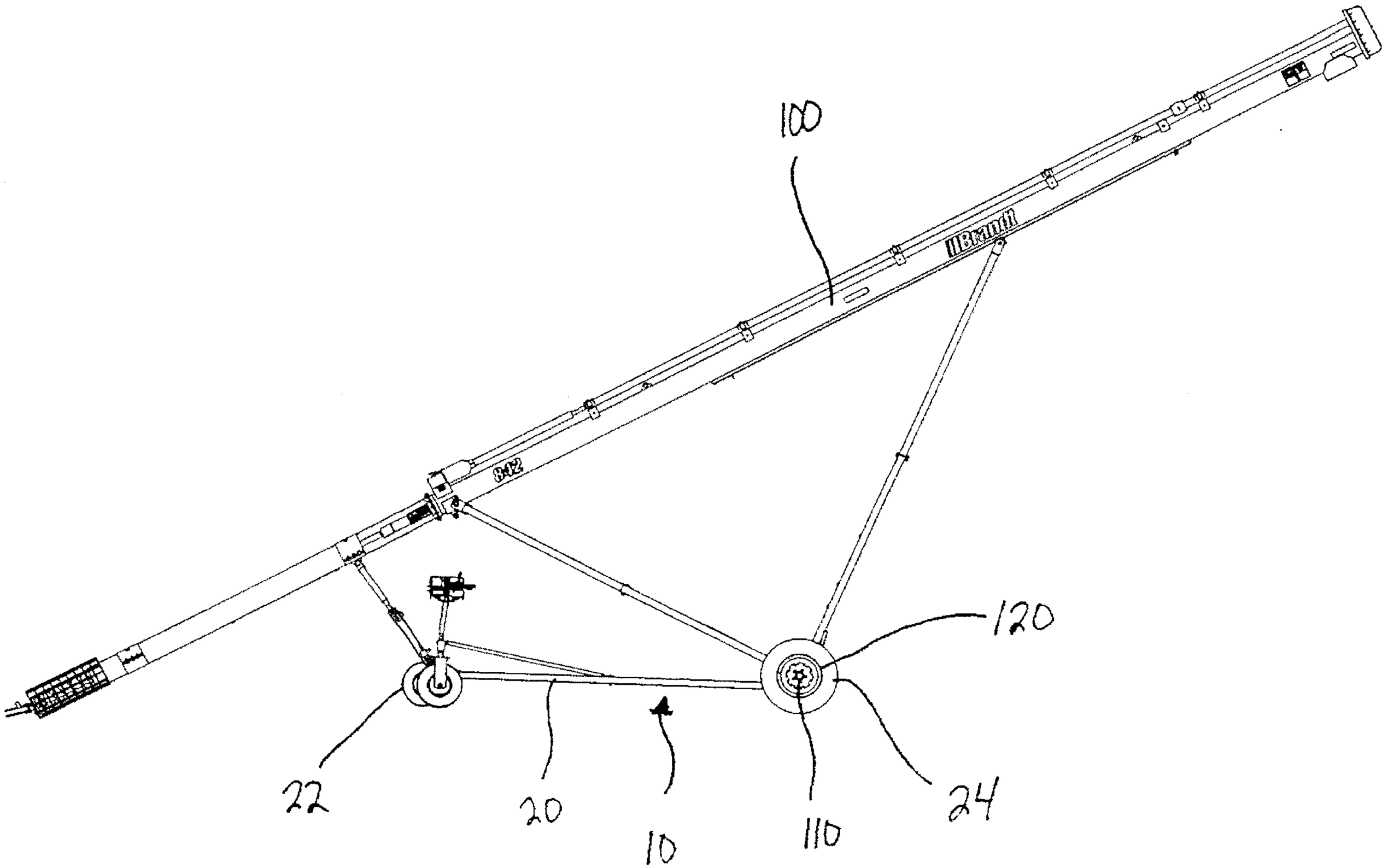

FIG. 2

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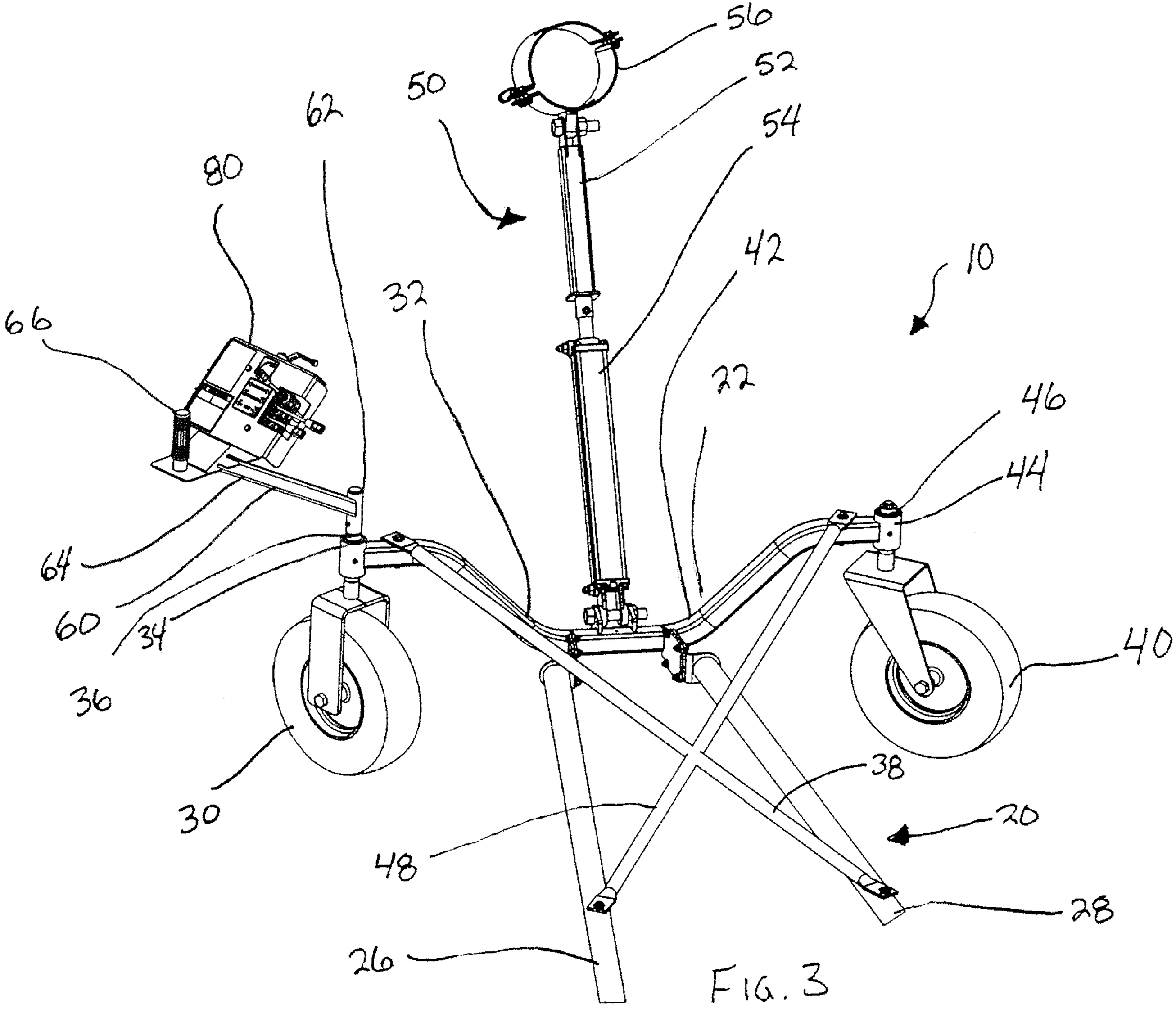

FIG. 3