March 6, 1951 E. B. SNEAD 2,544,113

TURNTABLE ROAD MACHINE

Filed Sept. 4, 1945 3 Sheets-Sheet 1

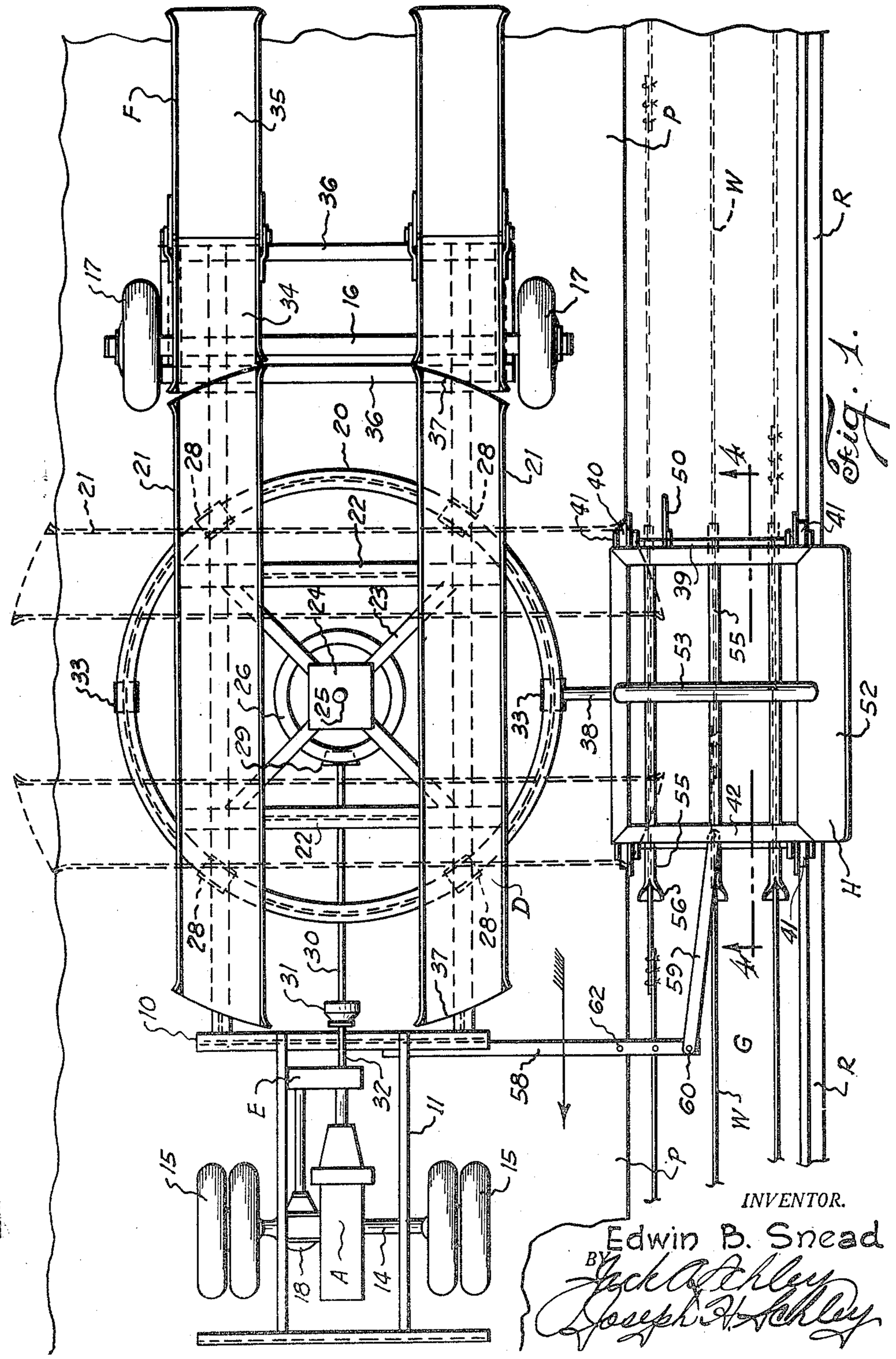

Fig. 1.

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3 Sheets-Sheet 2

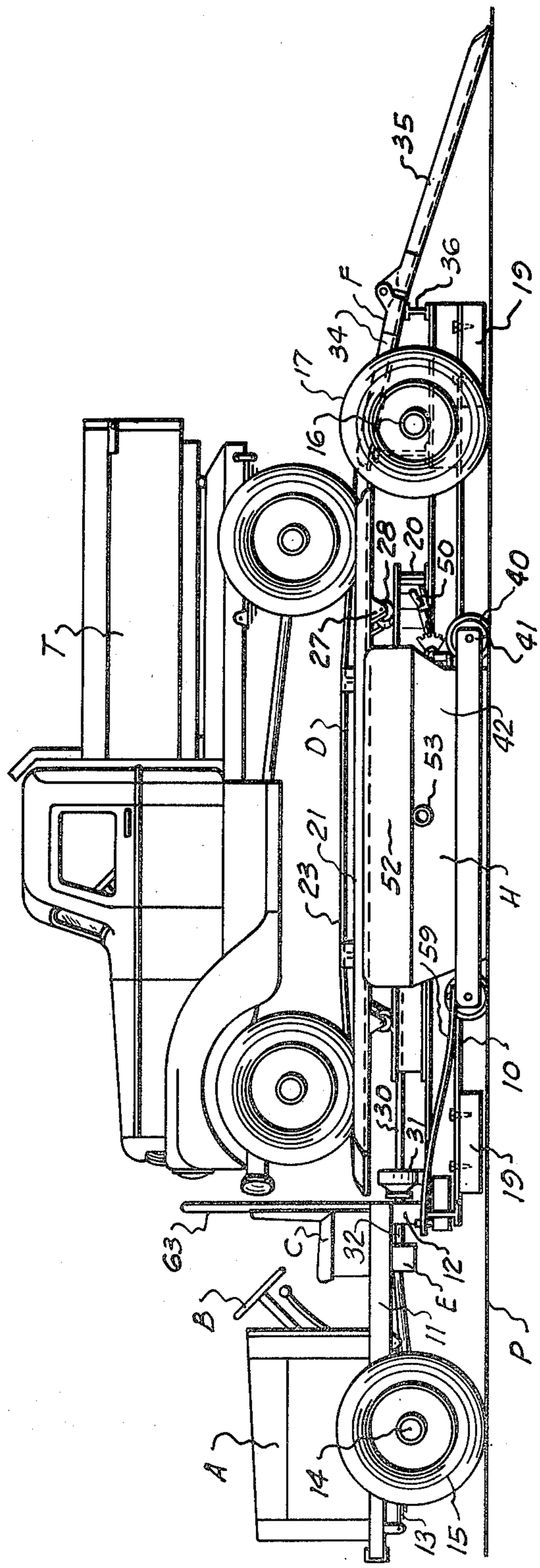

Fig. 2.

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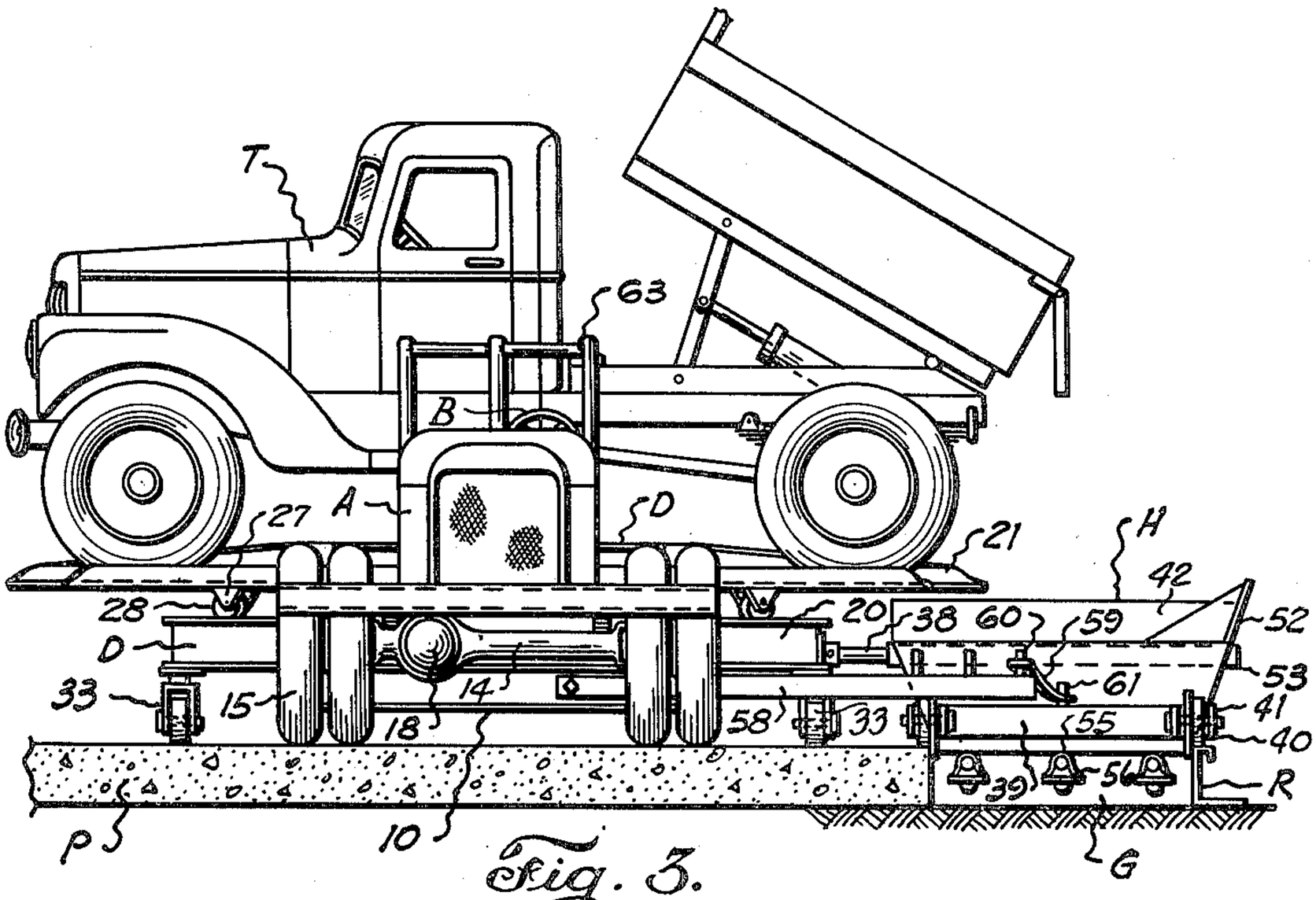

Fig. 3.

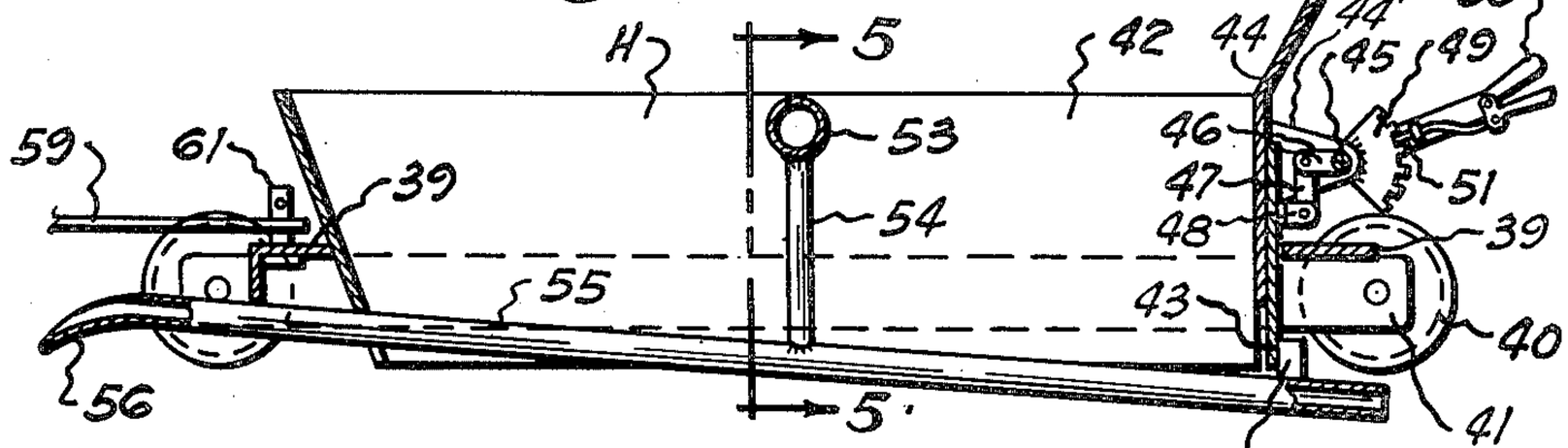

Fig. 4.

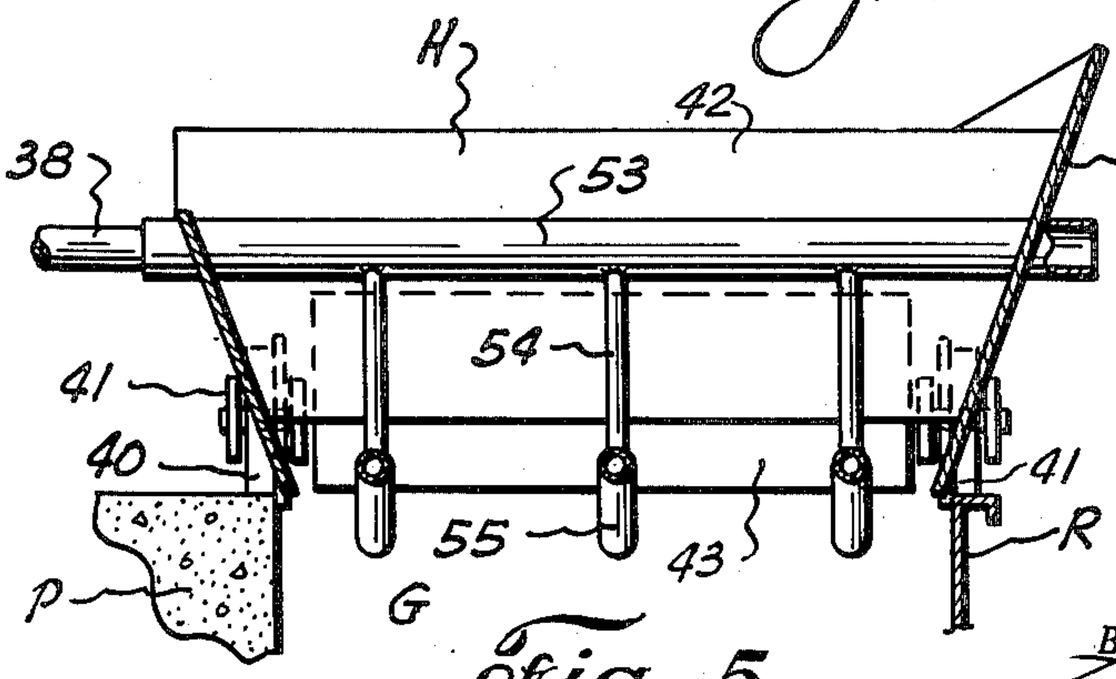

Fig. 5.

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UNITED STATES PATENT OFFICE

2,544,113

TURNTABLE ROAD MACHINE

Edwin B. Snead, Austin, Tex.

Application September 4, 1945, Serial No. 614,141

4 Claims. (Cl. 94—44)

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This invention relates to new and useful improvements in turntable road machines.

One object of the invention is to provide a self-propelled road machine having a turntable thereon.

A particular object of the invention is to provide a self-contained road machine having propelling means, a turntable thereon and means for operating the turntable while the machine is immobile.

A further object of the invention is to provide a self-propelled road machine including an elongate frame supported by front and rear ground wheels and provided with ramps immovable thereon, in combination with a turntable adapted to support a loaded truck, which turntable is mounted to rotate with respect to said ramps, whereby the loaded truck may be swung with the table, returned to its first position, and driven from the table and down said ramps, while said ramps are stationary.

Another object is to provide a road machine, as herein set forth, equipped with a hopper at one side to overhang an excavation contiguous to a pavement, whereby a loaded truck driven onto the turntable may be swung and its load dumped in said hopper, so that when said truck is driven off of the machine the latter may move forwardly, under its own power, and spread the contents of the hopper along the excavation.

Still another object of the invention is to provide a road machine of the character described having a hopper overhanging an excavation and equipped with spaced guides for laying reinforcing rods as the hopper is moved along the excavation and as the paving material is spread to cover said rods.

A construction designed to carry out the invention will be hereinafter described together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, wherein an example of the invention is shown, and wherein:

Fig. 1 is a plan view of a road machine constructed in accordance with the invention;

Fig. 2 is a side elevation of the same with a truck driven thereon,

Fig. 3 is a front elevation with the turntable rotated and a truck in dumping position,

Fig. 4 is a longitudinal sectional view of the hopper, and

Fig. 5 is a transverse, sectional view, taken on the line 5—5 of Figure 4.

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In the drawings, the numeral 10 designates an elongate frame which is hung at its forward end from the rear end of a chassis 11, by means of transverse hangers 12, which chassis is supported on springs 13 mounted on a front axle 14 carried by ground wheels 15 in the usual manner. The rear end of the frame is underslung from a rear axle 16 supported on ground wheels 17. The chassis has a suitable motor plant A mounted thereon; a steering wheel B and a driver's seat C. The front axle 14 is equipped with a differential 18 of the four wheel-drive type which is suitably driven by the motor plant.

The underslung frame 10 is close to the pavement P upon which the wheels 15 and 17 travel. A plurality of elongate blocks 19, of wood or other suitable material, are secured to the under sides of the side frame members and have a reasonable clearance above the surface of the pavement. When a loaded truck T (Fig. 2) is driven onto the machine, the frame will yield downwardly sufficiently for the blocks to engage the surface and thus sustain a portion of the load and whereby, the machine becomes immobile. When the truck is dumped and driven off of the machine, the frame 10 raises and the machine then becomes mobile.

A turntable D is mounted to rotate on the frame and may be of any suitable construction. Preferably the turntable includes a circular track 20 secured on the frame and formed of a channel member with its flanges directed outwardly. The platform of the table is formed of a pair of flanged runways 21 mounted on transverse bolsters 22, braced by radial arms 23, extending from a head 24 having a king pin 25 secured in the hub of a ring gear 26. The runways are supported on casters 27 secured to their under sides and having flanged rollers 28 rolling on the track; the flanges of the rollers engaged on the upright inner circular wall of said track, whereby said runways are held against lateral displacement.

The ring gear is secured to the undersides of the braces and is driven by a beveled pinion 29 mounted on the rear end of a tail shaft 30 suitably journaled longitudinally of the frame 10 and connected at its front end with a universal coupling 31. A drive shaft 32 extends from the transmission E of the motor plant A and is journaled in the front end of the frame 10, having its rear end secured to the universal coupling. By this arrangement the runways may be rotated to dispose them across the frame and further rotated to return them to their original position.

The track 20 may be provided with dolly wheels 33 to engage the surface of the pavement P, when the frame is loaded and depressed.

On the rear end of the frame, a pair of flanged ramps F are provided. Each ramp includes an inclined stationary section 34 and an extension 35 hinged thereto, with its lower end flared and adapted to rest upon the surface of the pavement P. The sections 34 are fastened on transverse beams 36, fastened on the frame and of different heights, to give said sections the proper inclinations. It will be observed that the ends of the runways 21 are curved in an arc concentric to the king pin 25, as is indicated at 37, and the forward ends of the sections 34 underlie the rear ends of said runways, when a truck is driven thereonto.

A hopper H, is attached at one side and medially of the frame 10 by a cylindrical bracket arm 38 extending radially from the web of the track 20. The hopper includes, a rectangular frame 39 which carries at its front and rear ends, flanged wheels 40 adapted to roll on the edge of the pavement contiguous to an excavation G. It is customary, in widening a pavement, to set form rails R along the outer edge of the excavation and the hopper frame is provided with outer flanged wheels 41 to roll on these rails. The frame 39 surrounds a hopper body 42, having an open bottom and extending above and below the surface of the pavement.

At the rear end of the body, a transverse spreader gate 43 is mounted for vertical adjustment; the tail board 44 terminating short of the bottom of the body (Fig. 4) so that the gate may extend therebelow and regulate the spread of material escaping from the open bottom of said body.

For adjusting the gate, a pair of brackets 44' secured to the tail board at each end of the gate, support a transverse rock shaft 45. Arms 46 secured to the shaft extend toward the gate and the upper ends of short links 47 are pivoted to the ends of said arms; while the lower ends of said links are pivoted to ears 48 attached to the gate. A toothed locking segment 49 is fastened to one of the brackets and a lever 50 secured to the shaft, has a locking dog 51 engaging said segment. It will be observed that the sides of the hopper flare upwardly and the outer side 52 extends above the upper edge of said hopper so as to prevent paving material dumped into the hopper from spilling over the outer side of the excavation G.

The bracket arm 38 telescopes a sleeve 53 extending medially across the top of the hopper and by this means, the hopper is supported for lateral movement to compensate deviation in the traction of the wheels 15 and 17 of the machine; it also permits lateral adjustment of the hopper with respect to the frame 10. The sleeve 53 is rigidly secured in the sides of the hopper which are preferably made of metal, thus permitting the sleeve to be welded thereto. It is pointed out that the arm 38, being of heavy construction and rigidly attached to the circular track 20, maintains the hopper H in a central position with respect to the track. Hangers 54, having their upper ends rigidly secured to the sleeve 53, depend therefrom in spaced order, as is clearly shown in Figs. 1 and 5. Tubular rod guides 55, extending longitudinally through the hopper, have their medial portions rigidly secured to the lower ends of the hangers. These guides incline upwardly from a point in rear of and below the bottom of the hopper, to a position above the bottom of the hopper at the forward end thereof. The front ends of the guides are longitudinally split and flared outwardly to form downwardly curved bills 56.

When the machine is in use, reinforcing rods W extend through these guides and it is obvious that the rear ends of the guides being below the bottom edge of the spreader gate, the rods will be imbedded in the paving material which is spread under said gate. In order to sustain the lower end of the gate against rearward displacement, upstanding lugs 57 are welded on top of each guide so that the rear face of the gate may rest against the front sides of said lugs, as is clearly shown in Fig. 4. A lead boom 58, secured to the front end of the frame 10, extends laterally so as to overhang the excavation. A drag link 59 has its forward end pivoted on a pin 60 at the outer end of said boom. The rear end of the link is pivoted to a post 61 mounted at the center of the front end of the hopper frame 39. This link is disposed at an angle directed inwardly toward the frame 10, with respect to the line of forward travel of the machine. This arrangement tends to urge the hopper H toward the pavement P so that the wheels 40, which roll on the edge of the pavement P, take the side thrust, and this prevents outward lateral displacement of the hopper, which might upset the rails R. It is obvious that the members 58 and 59, primarily act to urge the hopper toward the pavement; while the arm 38 is primarily the motivating and centering means for the hopper H. If the track R should turn over or dip, the arm 38 would support the hopper.

In using the machine, the hopper H is placed in position with its outer wheels 41 resting on the form rails R and its inner wheels 40 engaging on the edge of the pavement P. The rods W are threaded through the guides 55 so as to trail out behind the hopper. The vehicle is then driven up and manipulated so that the bracket arm 38 may be inserted in the sleeve 53. The link 59, which has previously been detached from the boom 58, is then connected thereto, additional pins 62 being provided at the end of the boom for the purpose of making adjustments. When the parts are in proper position, the machine is ready for operation. The runways 21 are in position longitudinally of the frame overlapping the stationary ramp sections 34; the extensions 35 having been swung downwardly to rest upon the pavement.

A loaded truck T is driven up the ramps F onto the runways 21, which are long enough to accommodate such truck. In back of the driver's seat, an upright guard 63 is disposed transversely of the chassis 11 so as to protect the driver and prevent the truck from being driven forwardly off of such runways. The driver then manipulates the transmission E whereby motion is imparted to the tail shaft 30 and the turntable D is rotated substantially 90° to bring the runways 21 to the position shown in dotted lines in Fig. 1 and in full lines in Fig. 3, so as to dispose the truck across the machine. The transmission is shifted to arrest the table and the truck is then dumped in the usual manner. The load of paving material is dumped into the hopper H. The transmission E is again operated to rotate the table 90° clockwise (Fig. 1) whereby the front ends of the runways are brought into alignment with the ramp sections 34 so that the truck is now

directed rearwardly and may be driven down the ramps F of the machine.

When the loaded truck is driven onto the machine, the frame 10 will yield downwardly sufficiently to cause the blocks 19 to rest on the surface of the pavement P and also to cause the casters 33 to engage such surface, whereby the weight of the truck will be sustained by the pavement, and a major portion of the load taken off of the frame and the turntable.

The gate 43 is adjusted by swinging the lever 50 so as to bring the lower edge of the gate to the proper elevation to establish the grade of the strip of pavement which is being laid. The machine is then shifted into gear and driven forwardly so that the paving material which has been dumped into the hopper is spread in the excavation G; the lower edge of the gate scraping over said material, as will be obvious. It will be noted that the gate has a length substantially equal to the width of the excavation and when such width is altered, gates of different lengths may be substituted. The hopper extends some distance above the pavement P and is large enough to accommodate a truck load of material. As the machine moves forwardly and spreads the paving material, the rear ends of the guides 55, by which the rods are laid, will cause such rods to be imbedded in the new pavement. Tests have shown that approximately 20 feet of new pavement can be laid with each forward travel of the machine. Just as soon as the hopper H is empty, another loaded truck may be driven onto the machine and dumped, as hereinbefore explained.

The road machine herein set forth has many advantages, and in actual use, has demonstrated a great saving in time and labor. Turntable machines have been used heretofore, but so far as I am aware, they have not been self-propelled, and therefore require a separate motivating means. By making the machine self-propelled, it may be more compactly constructed and its mechanism simplified. The attachment of the hopper H to the side of the machine is of great advantage and simplifies the construction because the paving material may be dumped from a truck on a turntable directly into said hopper. Just as soon as the truck has been driven off of the machine, the latter is ready to move forwardly and lay the pavement. The rod guides not only keep the rods in properly spaced order, but speed up the laying of the pavement.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. As a sub-combination in a road paving machine, a hopper having an open bottom, an adjustable spreading gate at the rear end of the hopper, a longitudinally adjustable transverse support carried by the hopper for attaching it to the frame of the road machine, and a plurality of elongate tubular guides extending through and supported by the hopper and inclined upwardly and forwardly thereof.

2. In a concrete pavement stripping machine, the combination of a movable carrier adapted to move on a concrete pavement, a rigid member extending from the carrier and adapted to overhang the side edge of the pavement, a concrete spreading hopper having an open bottom and movable means for supporting it on the edge of the pavement and on the usual guide rail, a suspending member medial of the hopper directly engaging the carrier member, and rod guides extending through said hopper and supported thereby.

3. A concrete spreader including, a rectangular hopper, a transverse suspending member at the medial portion of the hopper, hangers depending from the member, and tubular rod guides having their medial portions attached to the hangers and extending longitudinally through said hopper.

4. A concrete spreader including, a rectangular hopper having inclined side walls, one of which side walls extends above the other side wall, a sleeve member extending through the side walls transversely of the hopper and supported thereby, hangers depending from the member, and tubular rod guides having their medial portions attached to the hangers and extending longitudinally through said hopper.

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