J. T. LEINBERGER AND J. L. ROTH.

COMBINED GRADER AND MATERIAL TRANSPORTING VEHICLE.

APPLICATION FILED MAR. 14, 1921.

1,415,880.

Patented May 16, 1922.

2 SHEETS—SHEET 1.

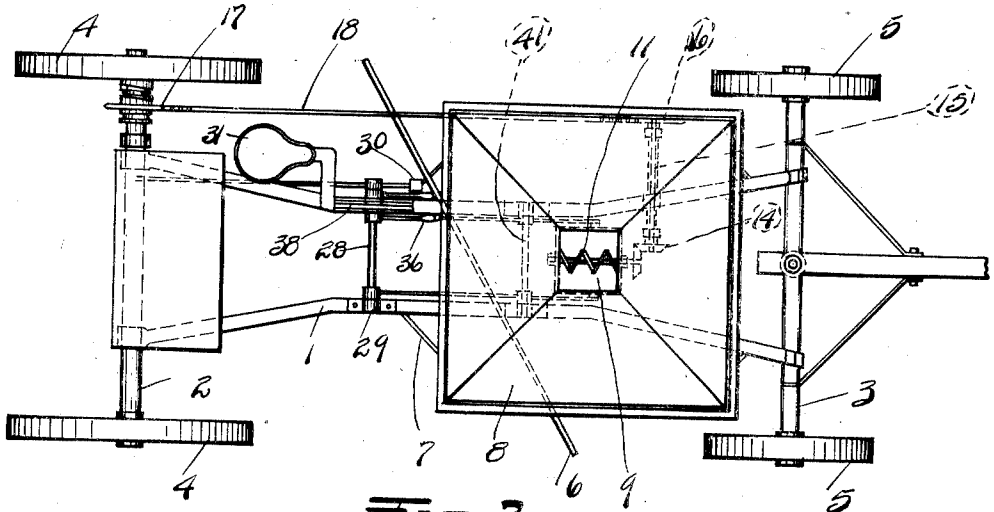


Fig-2-

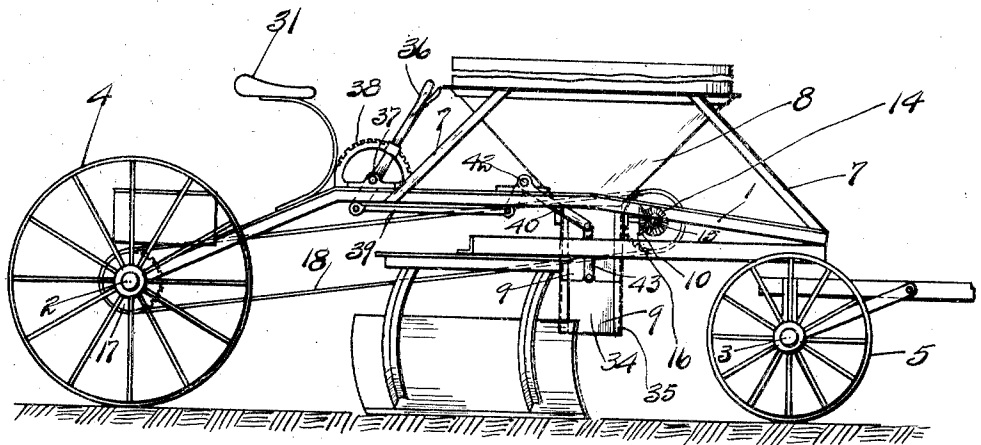


Fig-1-

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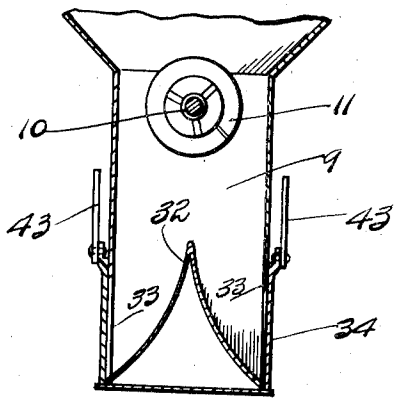


Fig-3-

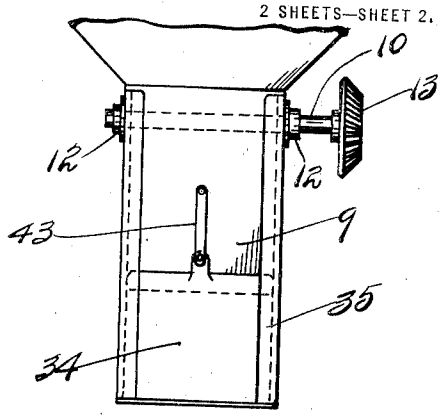


Fig-4-

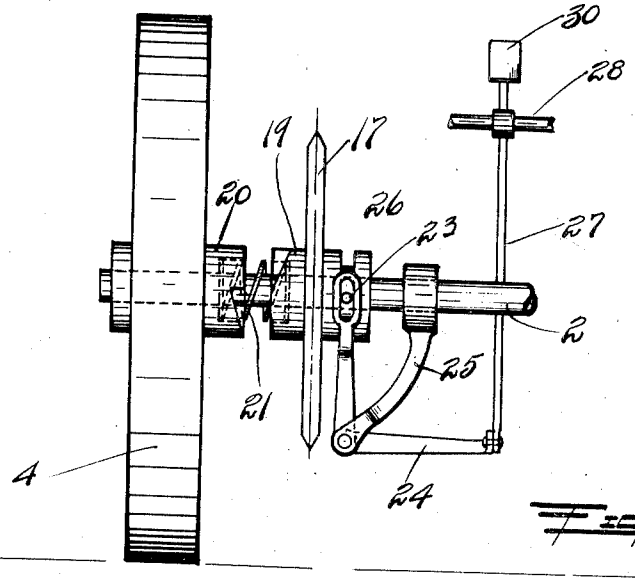


Fig-5-

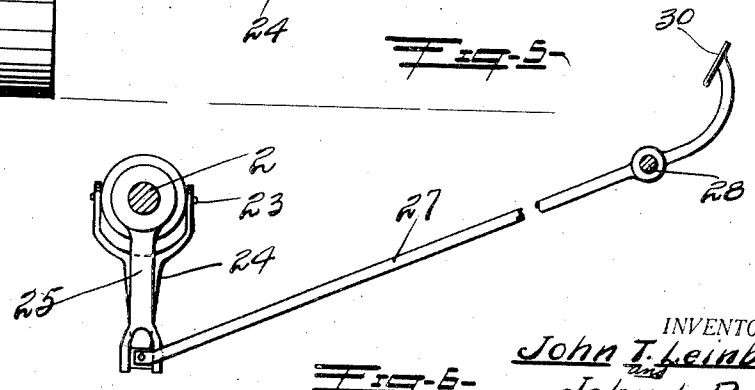


Fig-6-

WITNESS:

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UNITED STATES PATENT OFFICE.

JOHN T. LEINBERGER AND JOHN L. ROTH, OF MONITOR TOWNSHIP, BAY COUNTY, MICHIGAN.

COMBINED GRADER AND MATERIAL-TRANSPORTING VEHICLE.

1,415,880. Specification of Letters Patent. Patented May 16, 1922.

Application filed March 14, 1921. Serial No. 452,270.

To all whom it may concern:

Be it known that we, JOHN T. LEINBERGER and JOHN L. ROTH, citizens of the United States of America, residing at Monitor Township, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Combined Grader and Material-Transporting Vehicles, of which the following is a specification.

This invention relates to a combined grader and material transporting vehicle.

A large portion of the highways throughout the country are constructed of crushed stone, gravel and other material, which is loose thereon, and which rolls on the surface when subjected to the pressure of a heavy vehicle traveling over same, causing ruts and holes in the roadway, this is especially true where vehicles continuously travel in the same track, and in certain sections of the country, a grader is in continuous operation over certain sections of roadway, forcing and rolling the loose material to the center or crown of the road, ofttimes when the road is constructed under ideal conditions with certain materials, the material packs very hard and consequently it is necessary to transport material to the spot for filling the ruts and holes, usually it requires but a few shovelfuls of the material for each rut and it is very difficult to regulate the dumping of material from a dump wagon or the like, this also requires an extra wagon and we have therefore designed a combined grader and material transporting machine which is constructed substantially the same as the usual road graders, and from which the material can be discharged in any desired quantity and near either end of the grader bar, and this is the primary object of our invention, to mount the hopper on the grader, and be able to discharge the material in any quantity and to either end of the grader bar.

A further object is to provide means to agitate the material in the spout of the hopper to insure a steady flow of the material when the gates are open.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportion and minor details without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—

Fig. 1 is a side elevation of our improved machine.

Fig. 2 is a top plan view thereof.

Fig. 3 is a sectional side view of the hopper mount.

Fig. 4 is an opposite edge view.

Fig. 5 is an enlarged detail illustrating the means for shifting the sprocket into aud out of engagement.

Fig. 6 is an enlarged side view of the foot lever and shifting mechanism.

Referring now particularly to the drawing in which we have shown the preferred embodiment of our invention, and in which we have designated the frame of the machine by the numeral 1, and which is secured to the front and rear axles 2 and 3 respectively, the ground engaging wheels 4 and 5 are revolubly mounted on these axles and a grader bar 6 is adjustably secured beneath the frame, this is of the conventional type now in common use, and in this instance we have shown no means for adjusting this grader bar, as this is immaterial and forms no part of the present invention.

Securely stayed on the frame 1 by means of braces 7 or the like, is a hopper 8 having a downwardly depending spout 9 integral therewith, a longitudinally disposed shaft 10 extends through this spout 9 and is provided with a commercially named ribbon screw conveyor 11 mounted thereon, the shaft 9 is carried in bearings 12 secured to the outside of the spout, one end extending outwardly and having a bevel gear 13 mounted thereon, said gear meshing with a similar gear 14 seated on a transversely disposed shaft 15 carried in suitable bearings secured to the frame 1, a sprocket member 16 being mounted on the opposite end of the shaft and being connected to a sprocket loosely mounted on the rear axle 2 by means of a suitable chain 18, this sprocket 17 is rigidly mounted on a hub 19 slidably mounted on the shaft 2, one end thereof being formed as a clutch which is adapted to engage a similarly formed hub 20, integral with the rear wheel, a coiled spring member 21 embraces the axle 2 and is interposed between the two clutch members mentioned. The op-

posite edge of the hub 19 is formed with an annular groove 22 adapted to receive a collar provided with a laterally projecting lug 23 formed integral therewith. A bell crank 24 is journaled in a hanger 25 mounted on the axle, the lower end being formed with a yoke for pivoting the bell crank therein, the upper end of said crank being also yoke shaped to embrace the hub 19 and is slotted as shown at 26 to receive the lug members, the opposite end of this bell crank is pivotally attached to a rod 27, this rod extends forwardly and is loosely mounted on the transversely disposed shaft 28 journaled in boxes 29 secured to the frame, the end of said rod being formed as a foot pedal 30 to be manipulated from the driver's seat 31 which is secured to the frame, and it will be obvious that when the operator presses downwardly on this foot pedal the rod 27 will rock on the shaft 28 raising one end of the bell crank 24 and forcing the clutch 19 into engagement with the hub 20, rotating the shaft 15 and in turn transmitting motion to the ribbon conveyor 11 for agitating the material in the spout, this spout is formed with a division 32 converging in the center of the spout and curved outwardly to the bottom of the openings 33 which are adapted to be closed by gates 34 slidably set in ways 35 formed to receive them.

These gates are adapted to be operated by the driver by means of levers 36 pivoted at 37 to the well known quadrants 38 secured to the frame, a rod 39 connecting the end of the lever with a bell crank 40 one of which is keyed and the other loosely mounted on the shaft 41 set in bearings 42 in order that each gate may be independently operated, the opposite leg of this bell crank connecting to a link 43 pivoted to the gate and it will be obvious that as the lever 36 is operated the gate can be raised or lowered as desired.

It is not necessary that this conveyor be continuously operated, merely when the material sticks in the spout or in using wet material. The machine can be horse drawn or power operated if desired, but in this instance we have shown it provided with a draft pole for use with horses.

From the foregoing description it will be obvious that we have perfected a simple, convenient and inexpensive gravel spreading attachment for filling ruts in the roadway when the road-bed is being graded.

What we claim is:—

1. The combination with a grader, of a material hopper having a spout integral therewith, discharge openings in said spout and a ribbon conveyor transversely mounted therein, gates for closing said discharge openings, manually operated means for opening and closing said gates, and a foot lever for shifting a clutch into engagement for operating said screw conveyor.

2. The combination with a grader having a hopper attachment mounted thereon, a spout integral with hopper, openings in the sides of said spout, and curved plates connected to the bottom of the openings converging in the center of the spout for directing flow of material, gates slidably mounted on the sides of the spout, and means for raising and lowering said gates, a ribbon conveyor revolubly mounted in the spout above the discharge openings, and means for driving said conveyor.

In testimony whereof, we affix our signatures.

JOHN T. LEINBERGER.
JOHN L. ROTH.