H. D. PRATT.

WAGON LOADER.

APPLICATION FILED JUNE 12, 1918.

1,346,679. **Patented July 13, 1920.**

2 SHEETS—SHEET 1.

Fig. 2.

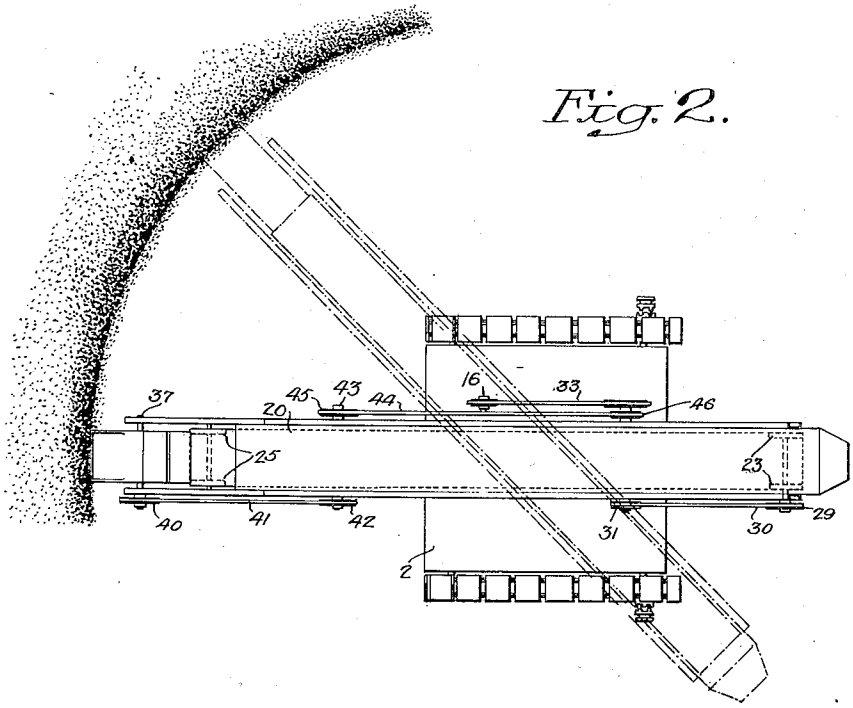
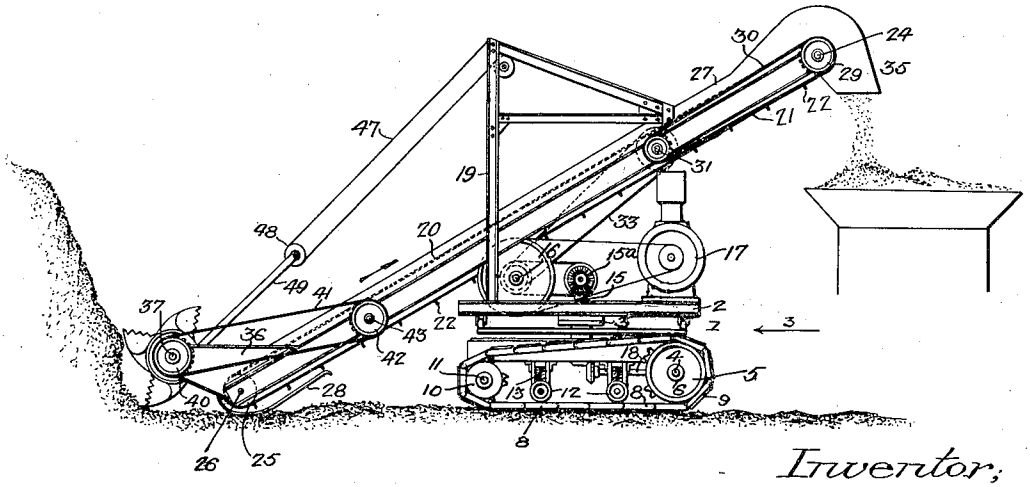


Fig. 1.



Inventor;
Howell D. Pratt,
by his Attorneys,
Howson & Howson

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2 SHEETS—SHEET 2.

Fig. 3.

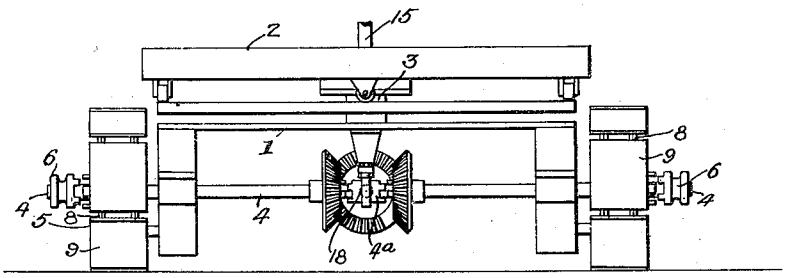


Fig. 5.

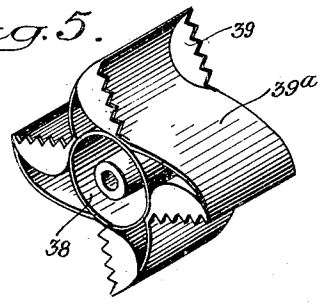
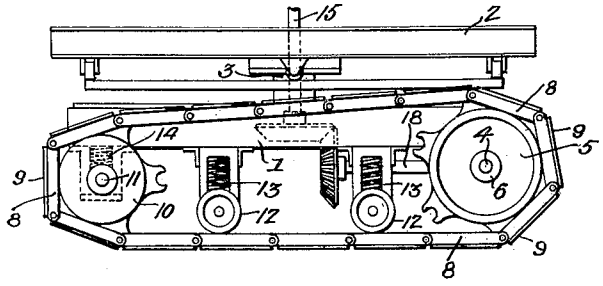


Fig. 4.



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UNITED STATES PATENT OFFICE.

HOWELL D. PRATT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO LINK-BELT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

WAGON-LOADER.

1,346,679. Specification of Letters Patent. **Patented July 13, 1920.**

Application filed June 12, 1918. Serial No. 239,521.

To all whom it may concern:

Be it known that I, HOWELL D. PRATT, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Wagon-Loaders, of which the following is a specification.

My invention relates to certain improvements in portable wagon loading devices, especially adapted for traveling on and digging into banks of sand and banks of other granular material.

One object of the invention is to design the loader so that it will dig into the bank and will carry the material to a point above a wagon and will discharge the material into said wagon.

A further object of the invention is to provide means so that the loader can be traversed over a bed of sand. This object I attain by mounting the machine on a tractor having wide bearing plates, which prevent the machine sinking in the sand.

A still further object of the invention is to provide a comparatively light machine which can be used for the above purpose and to provide means for continuously carrying a small amount of material to the discharge point in contradistinction to the type of machine using a single bucket, as I am enabled, by a continuous operation, to make a machine of a capacity equal to a much larger machine having a single bucket and one which would not only be more expensive, but which would also require a much heavier structure.

These objects I attain in the following manner, reference being had to the accompanying drawings, in which:

Figure 1 is a side view of my improved wagon loader;

Fig. 2 is a plan view;

Fig. 3 is an end view of the base portion of the loader looking in the direction of the arrow 3, Fig. 1;

Fig. 4 is an enlarged side view of part of Fig. 1, and

Fig. 5 is a perspective view of the digging wheel.

Referring to the drawings, 1 is a carriage on which the platform 2 is pivotally mounted, 3 being the pivot. 4 is a driven axle on which are loosely mounted sprocket wheels 5 and these sprocket wheels are coupled to the axle 4 by clutches 6 moved into or out of position by hand. 8 is a tractor chain adapted to the wheels and 9 are the bearing plates of any width desired, which are attached to the chains and which support the structure. These plates are preferably made of metal turned up at the edges, as shown. The chains 8 pass around sprocket wheels 10 loose on an axle 11, and between these two wheels are intermediate supporting wheels 12 which support the lower run of the chain between the wheels. The springs 13 are mounted between the boxes of these wheels and the frame and springs 14 are mounted between the axles 11 and the frame, but the axle 4 is adapted to fixed bearings in the frame. This construction allows a certain amount of flexibility to the tractor and permits a positive drive of the axle 4 from the motor carried by the platform 2. A vertical shaft 15 is geared to a shaft 15^a on the platform which is driven by the shaft 16 from the motor 17. The shaft 15 passes through the center bearing 3 and is geared to a longitudinal shaft 18 on the carriage 1 and this shaft is geared to the axle 4. In the present instance, a clutch 4^a is shown and the shaft 18 has a bevel gear wheel meshing with bevel gear wheels loose on the axle 4 so that the machine can be moved in either direction by operating the clutch. In some instances, a worm drive may be used instead of the bevel gearing.

It will be understood that the machine is moved slowly and is moved only at intervals from one section of a sand pile to another when the sand is out of reach of the loading mechanism.

I find by the use of the tractor chain that the plates will carry a comparatively light overhead structure and will not sink into the sand, or other material, as is the case with the ordinary wheels used on loading machines.

By connecting the wheels 5 to the axle 4 by hand operated clutches 6, the machine can be readily guided to any point desired and when both clutches are in engagement the machine will proceed straight ahead. When one clutch is out, then the tractor will turn toward the side and if the other clutch is out, it will turn to the opposite side, but when both clutches are out it will remain stationary.

Mounted on the platform 2 is the framework 19 which supports the endless elevator

20 consisting of a belt 21 having slats 22. The belt passes around a head wheel 23 on a shaft 24 at the upper end of the structure 19 and around a foot wheel 25 on a shaft 26 located near the ground. A frame 27 extends parallel with the belt and on each side thereof and forms part of the structure 19, supporting the bearings for the two shafts 24 and 26 and attached to the other end of the frame 27 are two flat plates 28 bent as shown which rest upon the ground or upon the bank of sand and prevent the downward movement of the end of the elevator and they also prevent the burying of the end of the elevator when the sand on the pile avalanches, as these plates are of sufficient width so that they can ride upon the sand.

In the present instance the shaft 24 has a sprocket wheel 29 thereon around which passes a chain 30 from a wheel on the intermediate shaft 31, which is driven from the shaft 16 by a chain 33. The shaft 16 is mounted in bearings on the platform 2 and is driven from the motor 17 which, in the present instance, is an internal combustion engine. A clutch connects the shaft 16 with the wheel around which the chain 33 passes so that the operator can connect or disconnect the elevator from the shaft. At the upper end of the frame 19 is a chute 35, which directs the material from the elevator to a wagon, or other suitable receptacle.

Mounted on brackets 36 projecting from the lower end of the frame 27 is a shaft 37 on which is mounted a wheel 38 having buckets 39. At the back of each bucket is a guard plate 39ª which prevents the wheel from digging into the sand to a greater depth than desired and these plates also act to direct material to the buckets. The shaft 37 has a sprocket wheel 40 around which passes a chain 41 from a sprocket wheel 42 on a shaft 43 carried by the frame 27 and this shaft is driven by a chain 44, which passes around a sprocket wheel 45 on the shaft 43 and around the wheel 46 on the shaft 31. The buckets 39 have toothed edges, as shown in Fig. 1, so as to disengage the sand, or other granular material, more readily. In the present instance, the frame 27 carrying the elevator and the bucket wheel is pivoted on the frame 19 at the shaft 31 and the lower end of the frame can be raised by the hoisting rope 47, which passes around a sheave 48 carried by a yoke 49 secured to the bracket 36. The lower portion of the frame 27 overbalances the upper portion so that there is a strain at all times upon the rope 47. By this construction, the bucket wheel can be located in any position desired and can be raised clear of obstructions when it is desired to move the apparatus from one point to another.

It will be seen by the above construction that the bucket wheel is arranged to dig into the sand bank and the buckets will carry the material over the top of the wheel, discharging it onto the belt 21 of the elevator, and the elevator carries the material up to a point above the wagon to be loaded and discharges it into the wagon through the chute 35. By making the apparatus in the manner described, I can build it of comparatively light material so that the apparatus can be readily shifted from one place to another on the sand bank, and being comparatively light and provided with wide traction plates it will not sink into the sand as would a heavier machine mounted on ordinary wheels. By pivoting the platform in the manner shown, the bucket can remove the sand on a comparatively large radius and by pivoting the frame carrying the elevator, the wheel can attack the pile at any point.

I claim:

1. In a wagon loader, the combination of a tractor; a turn-table mounted on the tractor frame; a main frame extending vertically upward from the forward end of the turn-table having a horizontally-extending arm at the upper end; a conveyer frame pivotally mounted on the main frame at an incline to said arm, and having an endless conveyer, said conveyer frame having brackets extending forward of its lower end; a digging-wheel mounted in said brackets; a hoisting appliance connected to and sustaining the weight of the lower end of the loader and adapted to vary the inclination of the conveyer; a motor on the turn-table, and connections from the motor for operating the conveyer, said conveyer frame having a delivery chute at its upper end.

2. A wagon loader having a tractor and turn table; a main frame extending vertically above the turn-table and having a horizontal arm at the upper end; a conveyer and a frame therefor said frame being pivotally mounted on the main frame at a point at one side of its longitudinal center and having a digging wheel at the lower end, and a delivery chute at the upper end; hoisting means for sustaining the weight of the digging end of the loader, and varying the inclination of the conveyer frame; means for propelling the tractor, and means for operating the conveyer.

3. A wagon loader having a tractor and turn-table; a main frame extending vertically above the turn-table and having a horizontal arm at the upper end; a conveyer and a frame therefor said frame being pivotally mounted on the main frame at a point at one side of its longitudinal center and having a digging wheel at the lower end, and a delivery chute at the upper end; hoisting means for sustaining the weight of the

digging end of the loader, and varying the inclination of the conveyer frame; means for propelling the tractor; and means for operating the conveyer; said digging wheel having buckets and a guard plate at the rear of each bucket adapted to control the depth the wheel may dig into the material being loaded.

4. The combination of a platform pivotally mounted on a carriage; an endless belt conveyer supported by the platform and having flat spring plates at the lower end which are arranged to support the end of the elevator on the material; and means for feeding the elevator so that the material will be carried up the elevator and discharged from the upper end thereof.

In witness whereof I affix my signature.

HOWELL D. PRATT.