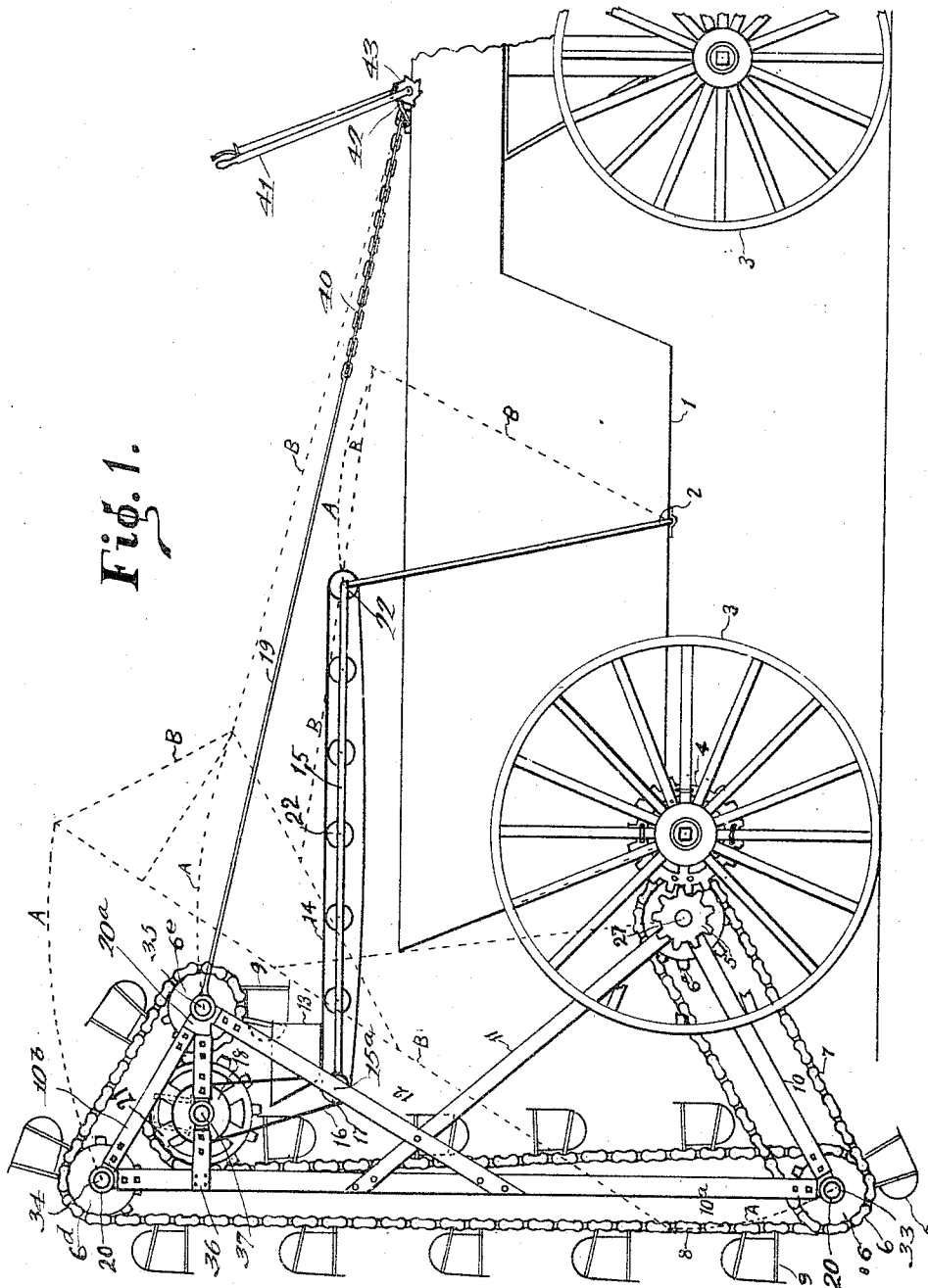


1,038,684.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

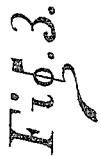


Fig. 2.

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EXCAVATING AND LOADING MECHANISM.
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Patented Sept. 17, 1912.

3 SHEETS—SHEET 3.

Fig. 6.

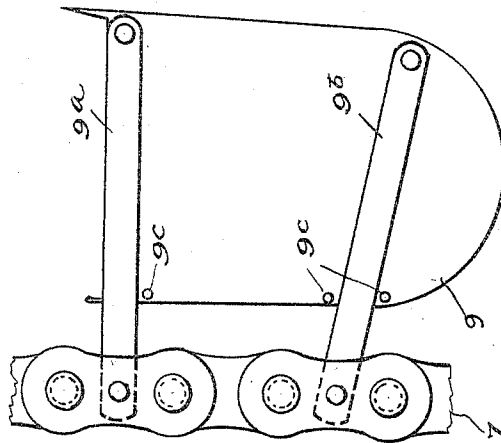


Fig. 5.

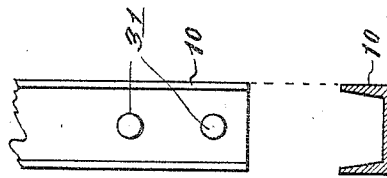
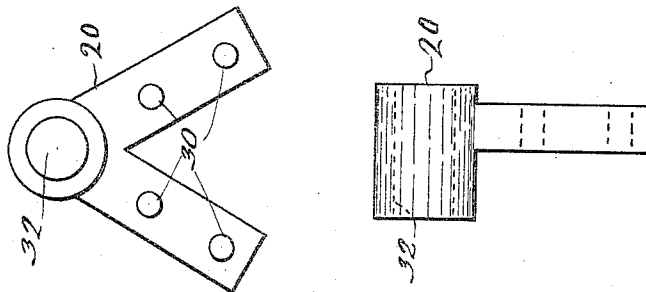


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOB SHERIDAN TINDALL, OF PUEBLO, COLORADO.

EXCAVATING AND LOADING MECHANISM.

1,038,684.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed August 2, 1910. Serial No. 575,146.

To all whom it may concern:

Be it known that I, JOB SHERIDAN TINDALL, a citizen of the United States, and a resident of Pueblo, in the county of Pueblo and State of Colorado, have invented a certain new and useful Improvement in Excavating and Loading Mechanism, of which the following is a full, clear, and exact description.

10 My invention is an improved excavating and wagon loading machine.

The object of my invention is to provide a simple and efficient device which may be attached to an ordinary wagon and which may be used for grading, wagon loading, or ditch digging as desired. I attain this object by means of the mechanism illustrated in the accompanying three sheets of drawings, in which:

20 Figure 1 is a side elevation of a wagon provided with my attachment, the device being in operative position; Fig. 2 is a rear elevation of the mechanism shown in Fig. 1; Fig. 3 is a plan of the device, showing it in inoperative position; Fig. 4 is a face and side view of the boxing on which the frame of the mechanism is mounted; Fig. 5 is a face view and cross-section of an end of the channel irons of which the frame is formed; and Fig. 6 is a side view of a bucket and a portion of the chain, showing the manner of mounting the buckets.

30 In the drawings 1 indicates the body of the wagon which is mounted on wheels 3, 3. Secured to the inner part of the hubs of the rear wheels are gears 4 meshing with gears 5 loosely mounted on the counter-shaft 27. The shaft 27 is journaled in brackets 28 bolted to the rear axle 29. The gears 5 have a dented inner shoulder 5^a which is in position to engage a correspondingly dented face on a clutch member 25 which clutch member is splined on the shaft 27 and forced toward engagement with the shoulder 5^a by a coiled spring 26. On the members 25 there is a cam ring 25^a, the purpose of which will later appear.

45 The excavating or loading mechanism proper is carried by a frame built up of channel irons. This frame has lower de-

pending members 10, vertical members 10^a and upper depending members 10^b. Crossed braces 11, 12 hold the members 10, 10^a and 10^b always in the same angular relation. The frame is pivotally connected to the counter-shaft 27 by means of a boxing 20 (shown in Figs. 4 and 5) which also forms a means of rigidly attaching the channel irons 10 and 11 by bolts or rivets passing through the holes 30, 30 in the boxing and 31, 31 in the channels. The shaft 27 fits easily in the opening 32 in the hub of the boxing. Boxings 20 also serve to connect the channels 10 and 10^a, 10^a and 10^b, and to journal the shafts 33 and 34. A similar boxing 20^a with three arms, join the channels 10^b and 12 and forms a mounting for the strut 36 and the shaft 35. The strut 36 is divided intermediate its length to receive boxing for the shaft 37.

70 Mounted on the counter-shaft 27 are a pair of sprockets 6^a and a corresponding pair of sprockets 6^b are mounted on the shaft 33. Driving chains 7 on the sprockets 6^a and 6^b transmit power from the shaft 27 to the shaft 33.

75 The excavating mechanism comprises sharp nosed buckets 9 mounted on sprocket chains 8. The buckets are pivoted on a pair of arms 9^a and 9^b, on each side of said buckets, which arms are pivoted on the inside of the inner members of the links of a chain 8. Stops 9^c, arranged as shown in Fig. 6 prevent displacement of the buckets 9 out of a position of substantial parallelism with the chains 8. The chains 8 run over the sprockets 6^c on shaft 33, 21 on shaft 37, 6^c on shaft 35, and 6^a on shaft 34. When the buckets pass over sprocket 21 they are inverted and dumped; the material excavated being guided by the open front hopper 13 onto the endless traveling belt 14 which delivers it into the wagon. The belt 14 travels over the pulleys 22 mounted in a frame 15. The side members of the frame are supported at the rear on a shaft 15^a journaled in the braces 12 and at the front by a link 2 pivoted to the bottom of the wagon bed. The belt 14 is driven by a belt 16 passing over the pulley 17 on the shaft 100

15^a which belt 16 is actuated from the pulley 18 on the shaft 37.

The excavating mechanism is shown in Fig. 1 lowered into operative position.

5 When the wagon is filled, or for any other reason it is desired to stop the excavating mechanism, it is swung about the shaft 27 as a center. This is accomplished by winding the chain 40, connected with the frame 10 by the rod 19, around a shaft upon which the ratchet lever 41 is mounted. This shaft is prevented from turning in the reverse direction by a dog 42 contacting with the ratchet wheel 43 and the lever 41 is provided with a ratchet also to engage the 15 ratchet wheel 43 for turning the shaft and winding up the chain. Through these means the frame may be raised through the dotted arcs A into the dotted line position B, in 20 which its lowest part will easily clear the ground.

I have provided mechanism for throwing the counter-shaft 27 out of gear when the excavator is in inoperative position, which 25 mechanism is as follows: A rod 23 is mounted in the frame so that as the frame is raised it will contact with the substantially horizontal arms 24, so mounted on the axle 29 as to be capable of limited movement around 30 said axle as a center. When the frame is raised the arms 24 come into the path of the cams 25^a, on the clutch member 25 and as the cams are rotated the inclination of the said cams draws the members 25 away from 35 and out of contact with the dentated shoulders of the gears 5—thus stopping the rotation of the clutch members 25 and the shaft 27 on which said members 25 are splined. When the frame is again lowered 40 into operative position the arms 24 pass out of contact with the cams 25^a and the springs 26 return the members 25 to contact with the shoulders on the gear 5.

Having thus described my invention, what 45 I claim is:

1. In an excavating machine, the combination with a driven counter-shaft, of a frame pivotally mounted thereon, sprockets mounted on said counter-shaft, a second counter-shaft journaled in said frame, driving 50 chains carried on said sprockets and transmitting motion to said second counter-shaft, an endless conveyer chain carrying buckets and driven by said second counter-shaft, 55 idler sprockets mounted in said frame, said conveyer chains passing up over said idler sprockets and inverting said buckets at the upper part of said frame, a hopper below the place where the buckets are inverted and 60 an endless traveling belt below said hopper in position to deliver material dropped by the buckets through said hopper.

2. In combination, a wagon, gears mounted on the hubs of the wheels of said wagon, 65 a counter-shaft journaled in the bearings on

said wagon, gear-wheels freely mounted on said counter-shaft in position to engage the gears on said hubs, clutches holding said gear-wheels to the counter-shaft, cams on said clutches, means for engaging said cams 70 to release the said clutches, a frame pivotally mounted on said counter-shaft, sprockets mounted on said counter-shaft, a second counter-shaft journaled in said frame, driving chains carried on said sprockets and transmitting motion to said second counter-shaft, an endless conveyer chain carrying 75 buckets and driven by said second counter-shaft, idler sprockets mounted in said frame, said conveyer chains passing up over said idler sprockets and inverting said buckets 80 at the upper part of said frame, a hopper below the place where the buckets are inverted, an endless traveling belt below said hopper in position to deliver material 85 dropped by the buckets through the said hopper, and means for swinging the frame about the first mentioned counter-shaft.

3. In combination, a vehicle, a power shaft mounted thereon, a frame journaled to oscil- 90 late on said power shaft, a plurality of shafts journaled in said frame, sprockets on said last mentioned shafts, a conveyer traveling over said sprockets, and means for transmitting power from said power shaft 95 to one of the shafts journaled in the frame.

4. In combination, a vehicle, a power shaft mounted thereon, an oscillatory frame journaled on said power shaft, a plurality of 100 shafts journaled in said frame, sprockets on said last mentioned shafts, a conveyer traveling over said sprockets, means for transmitting power from said power shaft to one of said shafts journaled in the frame, 105 a belt conveyer frame pivoted at one end to the oscillatory frame and at its other end to a pivotal link on the vehicle, sheaves carried by said belt conveyer frame, and a belt conveyer traveling over said sheaves.

5. In combination, a vehicle, a power shaft 110 mounted thereon, a frame journaled on said power shaft, a plurality of shafts journaled in said frame, sprockets on said last mentioned shafts, a conveyer traveling over said sprockets, means for transmitting power 115 from said power shaft to one of said shafts journaled in the frame, means for swinging the frame about the power shaft as an axis, and means operated by the frame as it is swung out of operative position for disengaging the power transmission. 120

6. In combination, a wagon, a frame mounted thereon, an endless conveyer excavating mechanism carried by said frame, a clutch transmitting power from the wagon 125 to said conveyer, means for raising and lowering the frame, and means carried by the frame for throwing the clutch out of engagement when the frame is raised.

7. In an excavating machine, a wagon, a 130

frame pivotally mounted thereon, said frame
being built up of channel irons secured at
their junctures to boxings, said boxings hav-
ing a hub for receiving a shaft and flat arms
5 projecting from said hub to which arms the
channel irons are attached, shafts in said
hubs, sprockets mounted on said shafts and

an endless conveyer carrying buckets travel-
ing over said sprockets.

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