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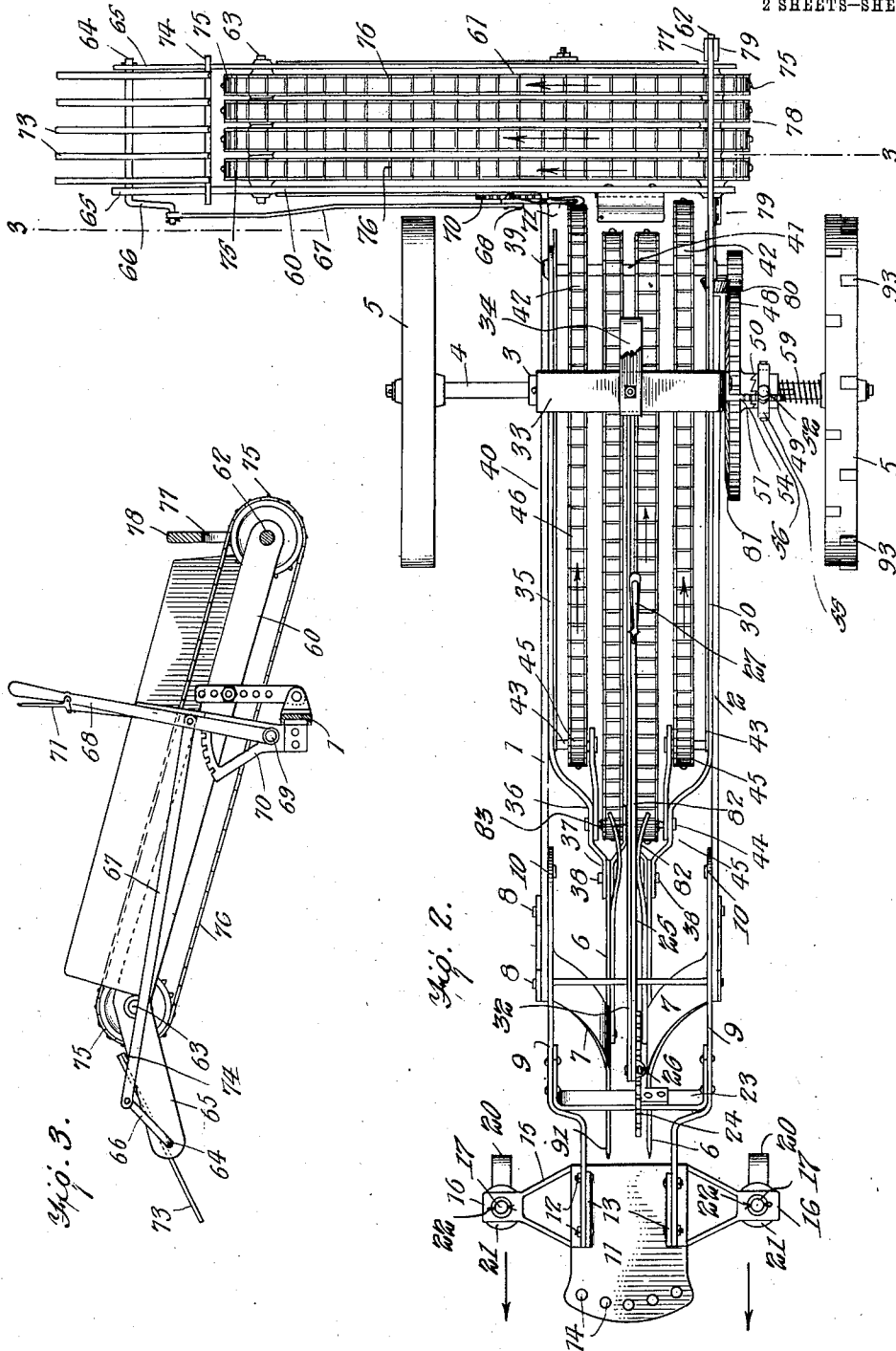
BEET DIGGER, CLEANER, AND ELEVATOR.

APPLICATION FILED MAR. 4, 1911.

1,046,998.

Patented Dec. 10, 1912.

2 SHEETS—SHEET 2.



WITNESSES:

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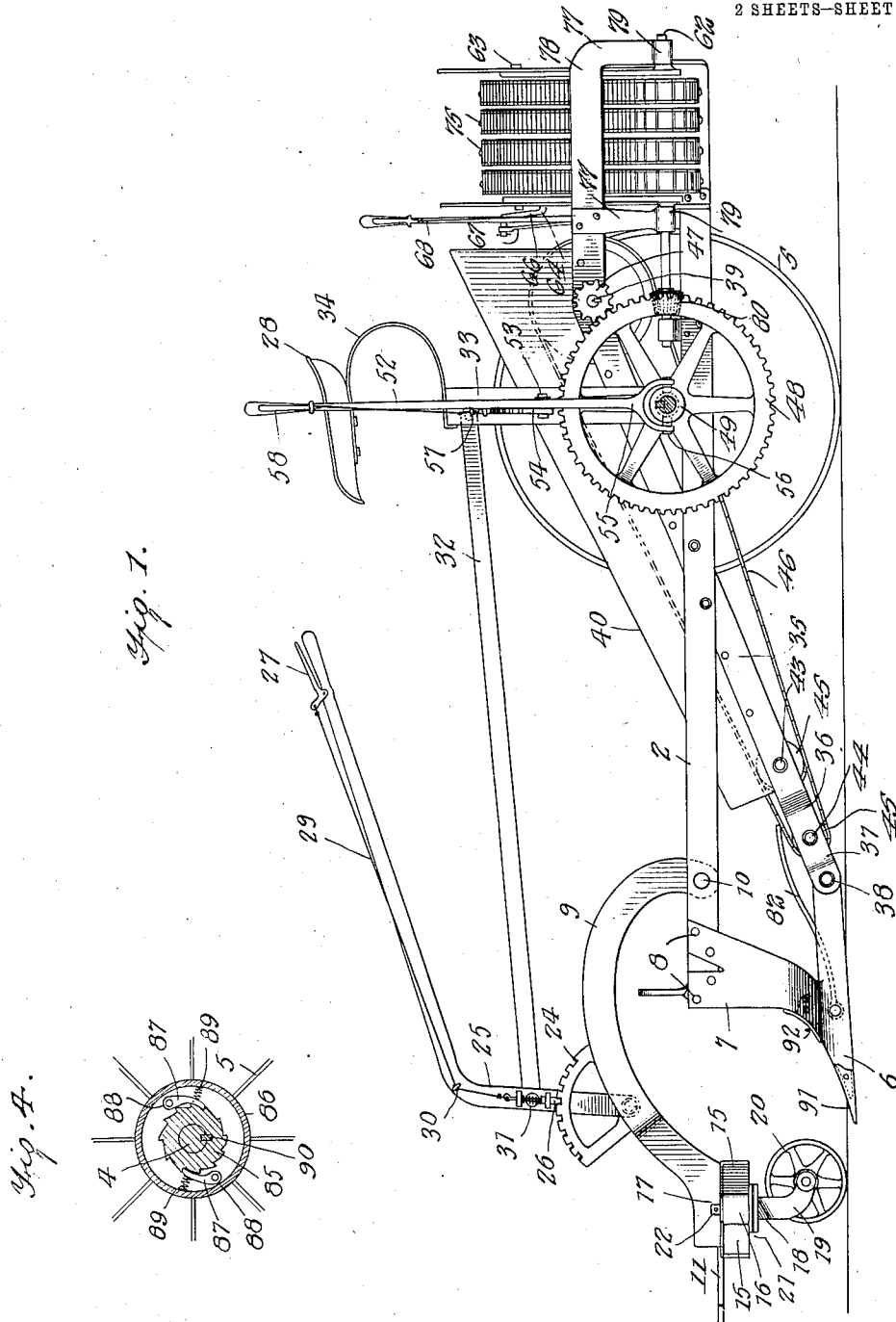
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WITNESSES:
L. H. Schmidt
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UNITED STATES PATENT OFFICE.

JOHN DEVEY, OF LEHI, JOHN DEVEY, JR., OF GARLAND, AND WALTER AVERY DEVEY,
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BEET DIGGER, CLEANER, AND ELEVATOR.

1,046,998.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed March 4, 1911. Serial No. 612,178.

To all whom it may concern:

Be it known that we, JOHN DEVEY, JOHN DEVEY, JR., and WALTER AVERY DEVEY, respectively of Lehi, in the county of Utah, State of Utah; Garland, in the county of Boxelder and State of Utah, and American Fork, in the county of Utah and State of Utah, have invented certain new and useful Improvements in Beet Diggers, Cleaners, and Elevators, of which the following is a specification.

Our invention is an improvement in beet diggers, cleaners and elevators, and consists in certain novel constructions and combinations of parts, hereinafter described and claimed.

The object of the invention is to provide a device for use in connection with our improved topper and digger, shown and described in our copending application Serial No. 612,179 of even date herewith, for lifting, cleaning and loading the beets topped and dug or loosened from the soil by our said improvement.

Referring to the drawings forming a part hereof, Figure 1 is a side view of the improvement, Fig. 2 is a plan view, Fig. 3 is a section on the line 3—3 of Fig. 2, and Fig. 4 is a sectional view of the pawl and ratchet connection between one of the wheels and the axle.

The present embodiment of our invention comprises a main frame composed of side plates 1 and 2, each of which is provided with a bearing 3 near its rear end, and an axle 4, provided at each end with a wheel 5, is journaled in the bearings. A lifting and digging device is secured to the front end of each plate, each of the said devices comprising a blade or share 6 and an outwardly curving mold board or bracket arm 7, whose upper end is held to the side plate by rivets 8.

The shares 6 extend substantially parallel with each other, on each side of the longitudinal center of the machine, and an arch bar 9 is pivoted by one end at 10, to the forward end of each of the side plates. Each of the arch bars extends upwardly and forwardly, and the front end is bolted to a side plate 13 of a clevis 11 by bolts 12. The clevis is provided with an arc shaped series of openings 14. The clevis is provided at

each side with outwardly extending arms 15 converging toward each other and integral with a bearing block 16. A journal pin 17 is journaled in the block and each pin extends upwardly from a yoke body 18, having arms 19, between which is journaled a wheel 20. A collar 21 is provided between the pin and the yoke body, upon which collar the bearing block bears, and a cotter pin 22 passes through the pin for holding it in place. A cross bar 23 connects the arch bars, which are offset inwardly toward each other in front of the cross bar, and a notched segment 24 is secured to the cross bar. A lever 25 is pivoted to the one arch bar adjacent to the segment, and a tooth 26 is slidable on the lever into and out of engagement with the segment, and is operated by a latch lever 27 on the lever. The lever is bent angularly backward at its upper end, the free end extending adjacent to the seat 28, and the latch lever is connected to the tooth by a wire 29. The wire passes through an eye 30 on the lever and a spring 31 forces the tooth toward the segment. A bar 32 is pivoted at one end to the lever near its connection with the quadrant, and at the other end to a substantially U-shaped cross bar 33, which connects the side plates 1 and 2 near their rear ends. A spring plate 34 connects the seat 28 with the cross bar and it will be evident that when the lever is swung on the bar 32, the arch bars 9 will be swung on their pivotal connection 10 with the side plates, to raise or lower the front end of the main frame.

An elevator or carrier is arranged directly behind the devices 6—7, for receiving the beets therefrom. The said carrier comprises spaced side plates 35, each of which is offset inwardly near its front end at 36, and again at 37, and is pivoted at 38 to the rear end of the adjacent share. The rear ends of the plates 35 are pivoted on a shaft 39, and each plate is provided with a side board 40 extending above the plate. A plurality of series 41—42 of sprocket wheels is secured to the shaft 39, the members of the series 41 being at the center of the shaft, and the members of the series 42 at the ends thereof. A stub shaft 43 is arranged adjacent to the offset portion 36 of each plate, and a shaft 44 connects the offset

portions 37 of the side plates. A sprocket 45 is journaled on each shaft 43, and a pair of similar sprockets 45 is journaled on each shaft 44. An endless chain 46 is supported on each pair of wheels, it being understood that the wheels on the stub shaft are in alinement with the wheels 42, and the wheels on the shaft 44, with the wheels 41. Each chain is composed of a plurality of rectangular links pivoted or hinged together as shown. By arranging the wheels 41 as shown, a carrier is provided trough shaped in cross section, at the rear end, and the spaces between the links and between the chains, permit the dirt to fall, thus cleaning the beets.

A pinion 47 is secured to the one end of the shaft 39, and meshes with a gear wheel 48 journaled loosely on the axle 4. The gear wheel may be clutched to the axle, by means of a sleeve 49, slidable on the axle and keyed thereto, and having ratchet teeth 50 on its inner end. The hub 51 of the gear wheel is provided with ratchet teeth coöperating with the teeth of the sleeve, and the sleeve is moved by a lever 52, pivoted at 53 to a toothed segment 54 extending laterally from the cross bar 33.

The lever is provided with a fork 55 having radial pins 56 engaging an annular groove in the sleeve, and the said lever is held in adjusted position by the usual latch 57 operated by the latch lever 58. A spring 59 encircles the axle between the adjacent wheel 5 and the sleeve 49, and forces the sleeve into engagement with the hub of the gear wheel. The teeth of the clutch parts are so arranged, that the wheels are free to move rearwardly without affecting the gear wheel, but move the said wheel with them when moving forwardly.

The carrier just described delivers to a second carrier arranged at right angles thereto, and comprising side plates 60-61, connected at their outer end by a pair of shafts 62 and 63. The outer end of each of the side plates is bent angularly downward as shown at 65, at its free end, and the shaft 64 is journaled at the junction of the angular portion with the main portion. A shaft 62 is journaled in the inner ends of the side plates 60, 61 and a carrier to be described is supported by the said shafts 62 and 63. The shaft 64 is provided at its inner end with a crank arm 66, which is connected by a link 67 with a lever 68, pivoted at 69 to a toothed segment 70 on the adjacent side plate 1 of the main frame. The lever is provided with the usual latch engaging the segment for holding the lever in adjusted position, and the latch is operated by the latch lever 71. A plurality of spaced parallel strips or bars 73 are arranged transversely of the shaft 64, and the inner ends of the shafts normally rest upon and are

connected to a cross bar 74 arranged transversely of the side plates. The ends of the cross bars 74 are adapted to engage with portions 65 of the side plates, to limit the downward movement of the inner ends of the bars 73. By means of the lever 68, the angle of the bars with respect to the side plates may be varied. A plurality of wheels 75 is secured to each of the shafts 62 and 63, and an endless chain 76, similar to those on the other elevator, is supported on each pair of wheels.

The shaft 62 is supported in bearings 79 in the arms 77 of a substantially U-shaped extension 78 of the side plate, and the inner end of the shaft is provided with a bevel gear wheel 80, meshing with an annular series 81 of bevel gear teeth, on the inner face of the gear wheel 48 before mentioned. Guard fingers 82 are connected with the shares 6 before mentioned, and extend above the adjacent wheels on the shaft 44, and other guard fingers 83 are secured to the rear ends of the said shares and extend above the inner ends of the pulleys on the shafts 44 adjacent to the fingers 82.

In operation, the improvement above mentioned follows the belt topper through the field. After the beets are topped, the subject of the present invention digs the beets by means of the shares 6, and the mold board 7, and passes them onto the first carrier. The said carrier passes the beets rearwardly, the soil falling through the carrier, and delivers the beets to the transverse carrier which delivers them to a vehicle at the side of the machine or drops them in a windrow. When the vehicle is loaded, the strips 73 are swung upwardly, and the beets are held from movement until another vehicle can be driven into place.

The wheels 5 are preferably journaled loosely on the axle 4 and are connected thereto by a pawl and ratchet mechanism shown in Fig. 4. A ratchet wheel 85 is secured to the axle within the hub 86 of the adjacent wheel, and a plurality of pawls 87 are pivoted at 88 within the hub and are normally pressed into engagement with the ratchet wheel by springs 89. The ratchet wheel is secured to the axle by a key 90. The arrangement is such that when the wheels are moving forwardly, the axle will be carried therewith, but when the wheels move backwardly the pawls will slip idly over the ratchet wheels.

It will be noticed that a detachable point 91 is detachably connected with each blade or share, and a shin piece 92 connected with the share or bracket arm 7.

It will be noticed that the driving wheels 5 are provided with lugs 93 on their periphery, the said lugs being arranged in spaced relation and in two series, one near each side of the periphery of each wheel. The

lugs are detachably connected with the wheels and are adjustable thereon.

We claim:

1. In a machine of the character specified,
5 an endless carrier comprising spaced side
plates, said plates being offset inwardly
toward each other at one end, a shaft jour-
naled transversely of the plates at the op-
posite end, a sprocket wheel near each end
10 of the shaft, a stub shaft at each side of the
frame near the front thereof, a pulley wheel
on each of the stub shafts, an endless chain
connecting each of the pulley wheels with
the adjacent sprocket wheel on the first-
15 named shaft, a plurality of sprocket wheels
arranged between the said first-named
wheels on the first-named shaft and of lesser
diameter than the said wheels, stub shafts
between the offset portions of the side
20 plates, a pulley wheel on each of the said
stub shafts, and endless chains connecting

the said wheels with the last-named wheels
on the first-named shaft.

2. In a machine of the character specified,
a carrier for the beets comprising spaced 25
endless chains, a common supporting means
for the chains at one end, and a common
supporting means for the innermost chains
at the opposite end, and an independent sup-
porting means for each of the outermost 30
chains, said chains being spaced to form a
passage for the tap roots of the beets be-
tween the chains and between the independ-
ent supporting means and the common sup-
porting means.

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