No. 709,720.

Patented Sept. 23, 1902.

M. W. PALMER.

BEET TOPPER.

(Application filed July 2, 1902.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

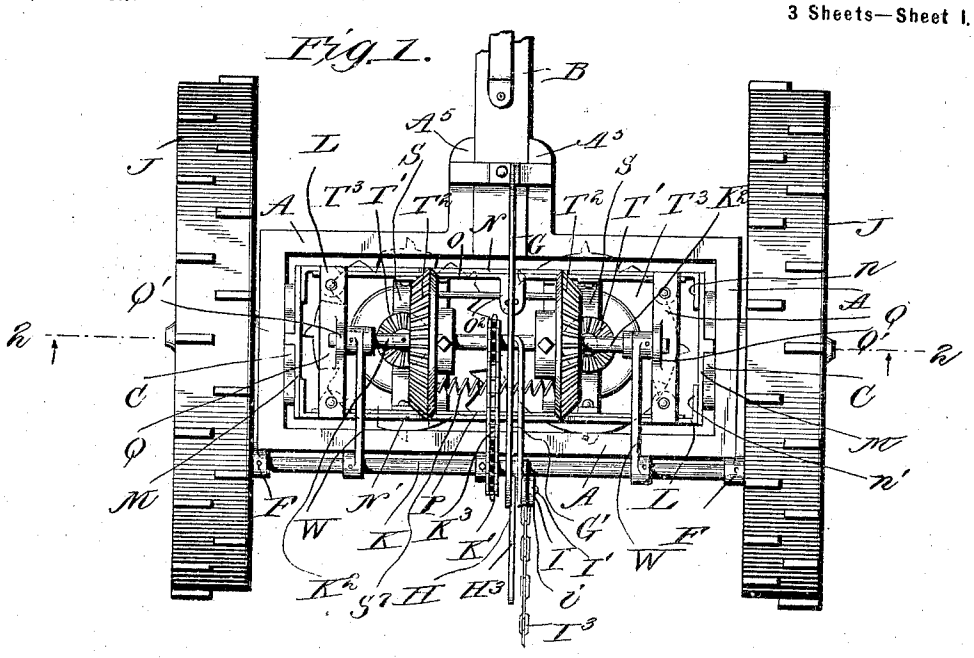
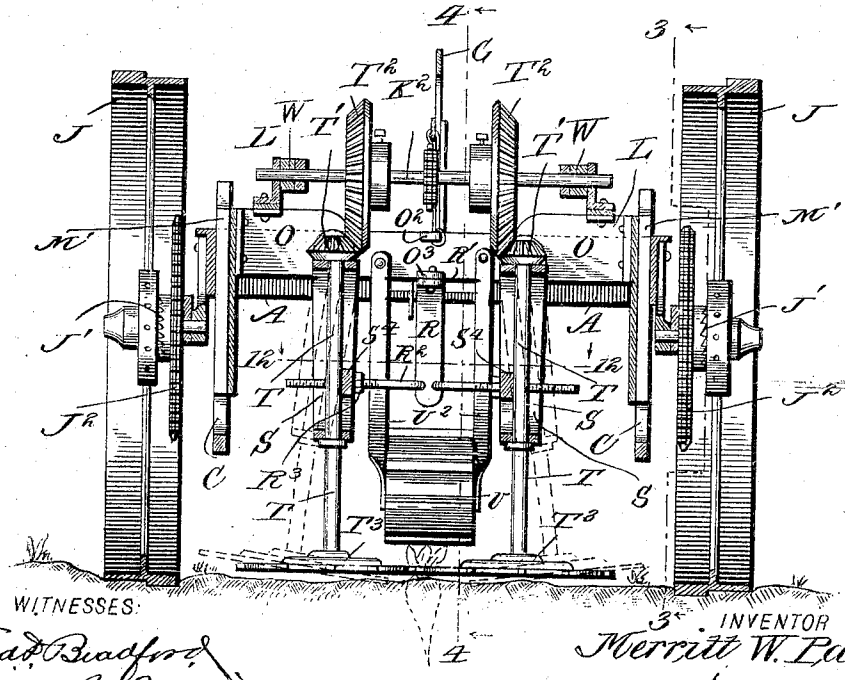


Fig. 2.



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Fig. 3.

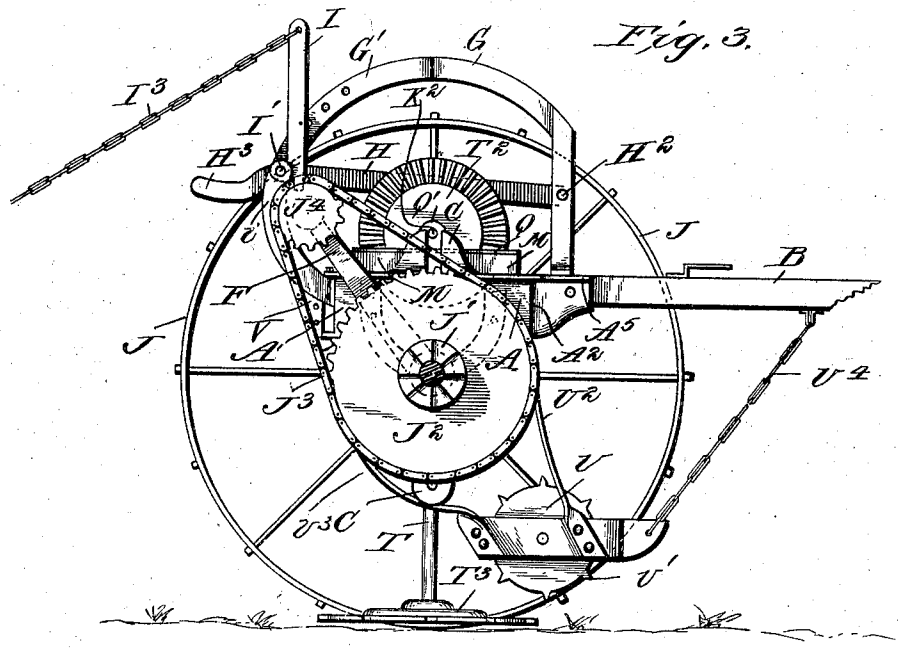
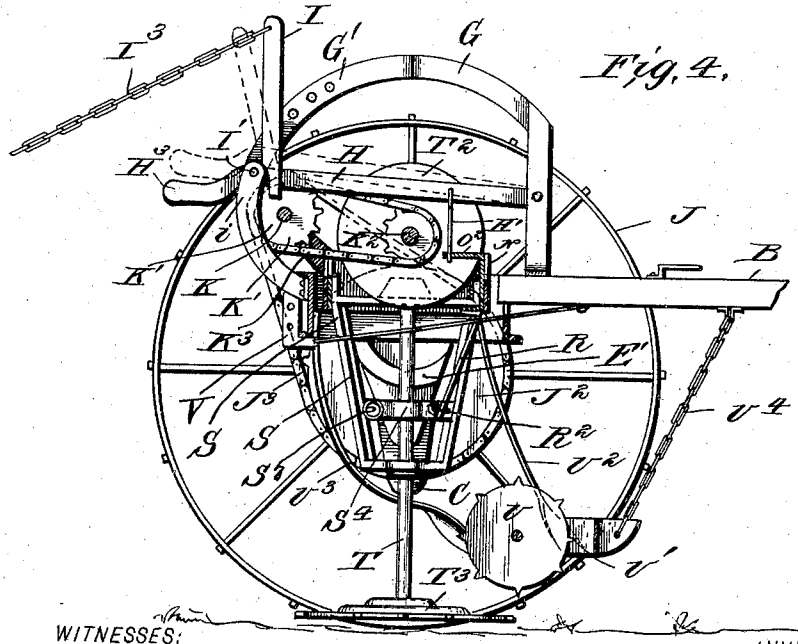


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

Fig. 5.

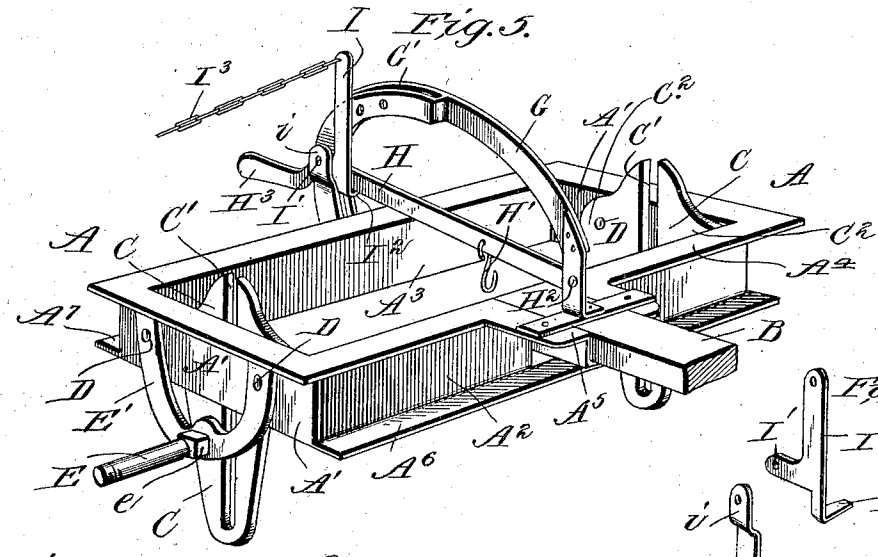


Fig. 10.

Fig. 11.

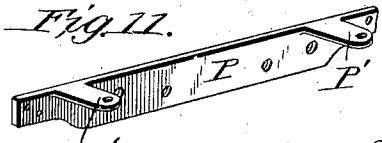


Fig. 6.

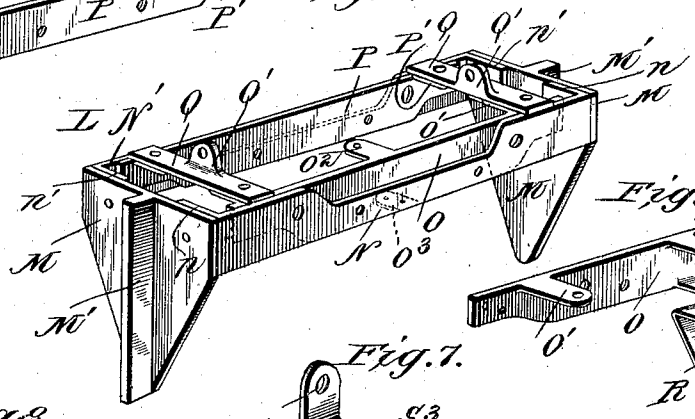


Fig. 9.

Fig. 8.

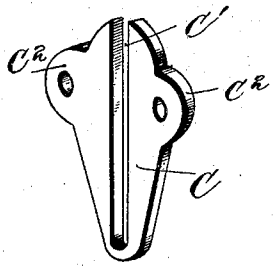


Fig. 7.

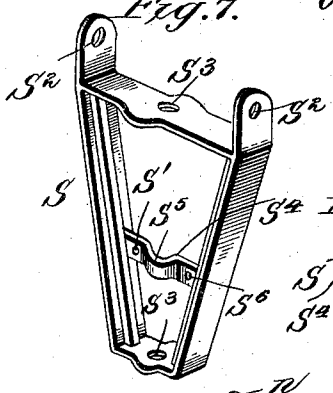


Fig. 12.

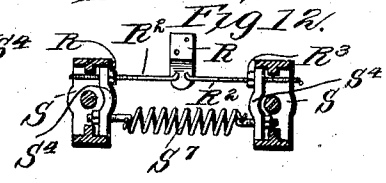
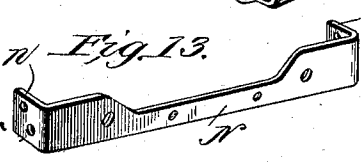


Fig. 13.



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BEET-TOPPER.

SPECIFICATION forming part of Letters Patent No. 709,720, dated September 23, 1902.

Application filed July 2, 1902. Serial No. 114,061. (No model.)

To all whom it may concern:

Be it known that I, MERRITT WESLEY PALMER, a citizen of the United States, and a resident of Hamilton, in the county of Allegan and State of Michigan, have made certain new and useful Improvements in Beet-Toppers, of which the following is a specification.

My invention is an improvement in beet-toppers; and it consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a top plan view. Fig. 2 is a vertical cross-section on about line 2 2 of Fig. 1. Fig. 3 is a sectional side elevation on line 3 3 of Fig. 2. Fig. 4 is a vertical longitudinal section on about line 4 4 of Fig. 2 of a machine embodying my invention. Fig. 5 is a detail perspective view of the main frame of the machine. Fig. 6 is a detail perspective view of the vertically-sliding frame which carries the topping and gage devices. Fig. 7 is a detail perspective view of one of the rocking frames for the cutter-shafts. Fig. 8 is a detail perspective view of one of the guide-plates for the vertically-sliding frame, and Fig. 9 is a detail perspective view of one of the lugged plates for application to the sliding carrier-frame and of some of the parts connected with said plate. Fig. 10 shows in perspective the lever for operating the lever from which the sliding carrier-frame is suspended, also the keeper-plate for said lever. Fig. 11 is a detail perspective view of the rear lugged plate. Fig. 12 is a detail cross-section on about line 12 12 of Fig. 2. Fig. 13 is a detail perspective view of one of the cross-plates of the sliding carrier-frame.

In carrying out my invention I employ a main frame A, (shown in detail in Fig. 5,) including the end bars A′, the front cross-bar A^2, the rear cross-bar A^3, a top flange A^4, extending outwardly from the end and cross bars A′, A^2, and A^3 and having the forwardly-projecting socket A^5 for the tongue B, and the base-flanges A^6 and A^7, projecting, respectively, from the lower edges of the cross-bars A^2 and A^3. This main frame A is provided at its opposite ends with the guide-frames C, secured to the inner sides of the end bars A′ and having the vertical central slots C′, open at their upper ends, and the lateral ears C^2, through which they are bolted to the main frame, the bolts D for such purpose being also extended through the axle-frames E′, which carry the stud-axles E, which latter project outwardly from their plates E′ and are provided at *e* with squared portions, on which fit the upwardly and rearwardly inclined arms F, which carry the counter-shaft presently described. The main frame A is also provided with an arc-shape bar G, arranged centrally between its ends A′ and extending from front to rear over the main frame and provided at its rear end with a keeper portion G′, in which operates the main lever H, and supports near its rear end the keeper *i*, in which is pivoted at I′ the lever I, which may be rocked on its pivot I′ to cause its lateral arm I^2 to operate beneath the lever H when it is desired to operate the lever H by means of a chain I^3, leading to the operator, who is walking behind the machine. It should be understood that the lever H carries the sliding frame shown in Fig. 6 and the parts carried thereby, such sliding frame being suspended by a hanger H′ or by other suitable means from the lever H, so the rocking of said lever H on its pivot H^2 may raise and lower the vertically-sliding carrier-frame. It will be noticed the lever H is provided with a handle H^3, so it can be operated directly whenever desired.

The sliding carrier-frame (shown in Fig. 6) operates within the main frame A and will be more fully described hereinafter. The drive-wheels J are mounted on the stud-axles E and are clutched at J′ to sprocket-wheels J^2, which are connected by sprocket-chains J^3 with sprocket-wheels J^4 on the counter-shaft K, which latter is mounted in the upper rear ends of the arms F and is provided at K′ with a sprocket-wheel, by which motion is imparted to the main shaft K^2 of the carrier-frame by means of a sprocket-chain K^3, as will be understood from Figs. 1 and 4.

The sliding carrier-frame L is formed with the end plates M, having upright ribs M′ on their outer sides to slide in the slots C′ on the guide-frames C, the front and rear plates N and N′ provided at their ends with the lugs

n and n', which are lapped along the inner sides of and secured to the end plates M. To the front and rear plates N and N′ are secured the front and rear lugged plates O and P, which are riveted to the inner sides of the plates N and N′, respectively, and are provided near their ends at their opposite edges with the inwardly-projecting lugs O′ and P′, to which are secured the plates Q, having boxes Q′ for the shaft K^2. The plate O is also provided at its middle with the upper and lower inwardly-projecting lugs O^2 and O^3, the upper lug O^2 furnishing convenient means for engagement by the hooked link H′ and the lower lug O^3 being arranged in position to support the depending bar R, which is provided at its upper end with the ear R′, secured to the lug O^3 and supporting at its lower end the laterally-extending threaded rods R^2, whose outer ends are threaded to receive the stop-nuts R^3 and extend beyond the said nuts R^3 through openings S′ in the rocking frames S. (Shown in detail in Fig. 7.) These rocking frames S are pivoted at their upper ends at S^2 to the front and rear bars of the carrier-frame L, are provided with the vertical bearings S^3 for the shafts of the cutters, and are provided between their upper and lower ends with the bar S^4, which is deflected at S^5 to permit the passage of the cutter-shaft T, and this cross-bar S^4 is provided with the opening S′, through which the stop-rods R^2 project and affords a connection at S^6 for the end of the spring S^7, which connects the opposite rocking frames S and draws the same toward each other and permits them to yield apart in order to pass unyielding obstructions. The shafts T are provided at their upper ends with bevel-pinions T′, which are meshed with the bevel-gears T^2 on the shaft K^2, so the turning of the shaft K^2 by the connections previously described will cause the shafts T to rotate and the cutters T^3 to operate upon the tops of the beets, as will be understood from Figs. 2, 3, and 4. A gage device comprising a ribbed roller U, mounted in a base-frame U′, having front and rear hanger-bars U^2 and U^3, supporting it from the front and rear bars of the carrier-frame L, operates to limit the descent of the cutters T^3. This gage-roller U operates in the central line of the machine slightly in advance of the points where the cutters T^3 come in contact, and a drag connection U^4 connects the front end of the base-frame U′ with the tongue B, extending upwardly and forwardly from the base-frame U′ to its connection with the tongue, as shown in Fig. 3.

At the rear of my machine and preferably on the rear bar, at the point midway between the ends thereof, I provide a bracket V, to which may be connected the beet-pulling devices—such, for instance, as that shown in my Patent No. 699,561, issued May 8, 1902—in order to top the beets and harvest them by the one operation of the machine.

As best shown in Fig. 1, swinging links W connect the counter-shaft with the main shaft, being provided at their ends with openings receiving the said shafts, as will be understood from Fig. 1.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The improvement in beet-harvesters substantially as herein described comprising the main frame having the end bars and the guide-frames secured to the inner sides of the end bars and having upright guide-slots for the carrier-frame, the axle-frames fitted against the outer sides of the end bars, the bolts securing the axle-frames and the guide-frames to said end bars, the stud-axles projecting from the axle-frames and having the non-circular portions adjacent to the axle-frames, the rearwardly-inclined arms fitting at their lower ends on the non-circular portions of the stud-axles and provided near their upper ends with bearings for the counter-shaft, the counter-shaft, the carrier-frame guided at its ends in the slots of the guide-frames and provided with the cutters, the shafts therefor and the main shaft geared with the cutter-shafts, and gearing between the main shaft and the counter-shaft, swinging links connecting the main shaft with the counter-shaft, means for suspending the carrier-frame from the main frame and means for operating the counter-shaft substantially as set forth.

2. In a carrier-frame for beet-harvesters the combination with the front and rear bars having at their ends inwardly-projecting ears, the end plates secured to said ears, the lugged plates secured to the inner sides of the front and rear bars and having at their upper edges near their opposite ends the inwardly-projecting lugs, and the bars secured on said lugs and provided with bearings for the main shaft, substantially as set forth.

3. The combination substantially as herein described with the carrier-frame and the devices operating therein, of the main frame having end bars, the guide-frames secured to the inner sides of the end bars and having guide-slots for the carrier-frame, the axle-frames secured to the main frame and having stud-axles, the arms secured to the stud-axles and extending upwardly and rearwardly therefrom, the counter-shaft, means for driving the counter-shaft, and connections between the counter-shaft and the devices operating on the carrier-frame substantially as set forth.

4. The combination of the topper-shafts, the main shaft geared with the topper-shafts and the swinging links having bearings for the main shaft substantially as set forth.

5. The combination with the main frame and the carrier-frame sliding therein and provided with the topping devices, of the gage devices consisting of the roller, the base-frame for said roller, hangers connecting the said frame with the sliding carrier, and connec-

tions between the base-frame and parts connected with the main frame substantially as set forth.

6. The combination of the main frame, the carrier-frame movable vertically therein, the main lever extending across the main frame and pivoted at one end, devices suspending the carrier-frame from the main lever, and the operating-lever arranged to operate upon the main lever substantially as set forth.

7. The combination with the main frame, of the counter-shaft, bearings for the counter-shaft supported on the main frame, the drive-wheels arranged to operate the counter-shaft, the carrier-frame movable vertically in the main frame, means for suspending and adjusting the carrier-frame in the main frame, the main shaft, the topping devices, and connections between the counter-shaft and the main shaft substantially as set forth.

8. In a beet-topper substantially as described the combination of the carrier-frame, the main frame in which said carrier-frame is slidably supported, the arc-bar supported on the main frame and extending from front to rear thereof and provided with the keeper portion at its rear end and with means for supporting the movable end of the main lever adjustably in said keeper, the main lever pivoted at one end and movable at its other end in the keeper portion of the arc-bar, the pivoted operating-lever engaging the main lever, and means connecting the main lever with the carrier-frame substantially as set forth.

9. The combination substantially as herein described of the main frame, the carrier-frame slidable vertically therein and having the front and rear bars, and the front and rear lugged plates, the front plate having between its ends the upper and lower lugs, the suspending devices for the carrier-frame connected with the upper lugs, the rocking frames supported in the carrier-frame, stop devices for the rocking frames, and the hanger R supporting the stop devices and secured at its upper end to the lower lug of the front lugged plate of the carrier-frame, the topping devices and means for operating the same substantially as set forth.

10. In a machine substantially as described, the combination of the main frame provided at its ends with the stud-axles and between its ends with the transversely-extending main lever, the arms secured to the stud-axles and extending upwardly and rearwardly therefrom, the counter-shaft journaled in the upper rear ends of the said arms, the drive-wheels geared with the counter-shaft, the sliding carrier-frame provided with the topping devices and with the main shaft geared therewith, devices suspending the carrier-frame from the main lever, the swinging links connecting the main shaft with the counter-shaft, gearing between the main shaft and the counter-shaft, and the operating-lever engaging the main lever substantially as set forth.

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Witnesses:
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