No. 840,166

PATENTED JAN. 1, 1907.

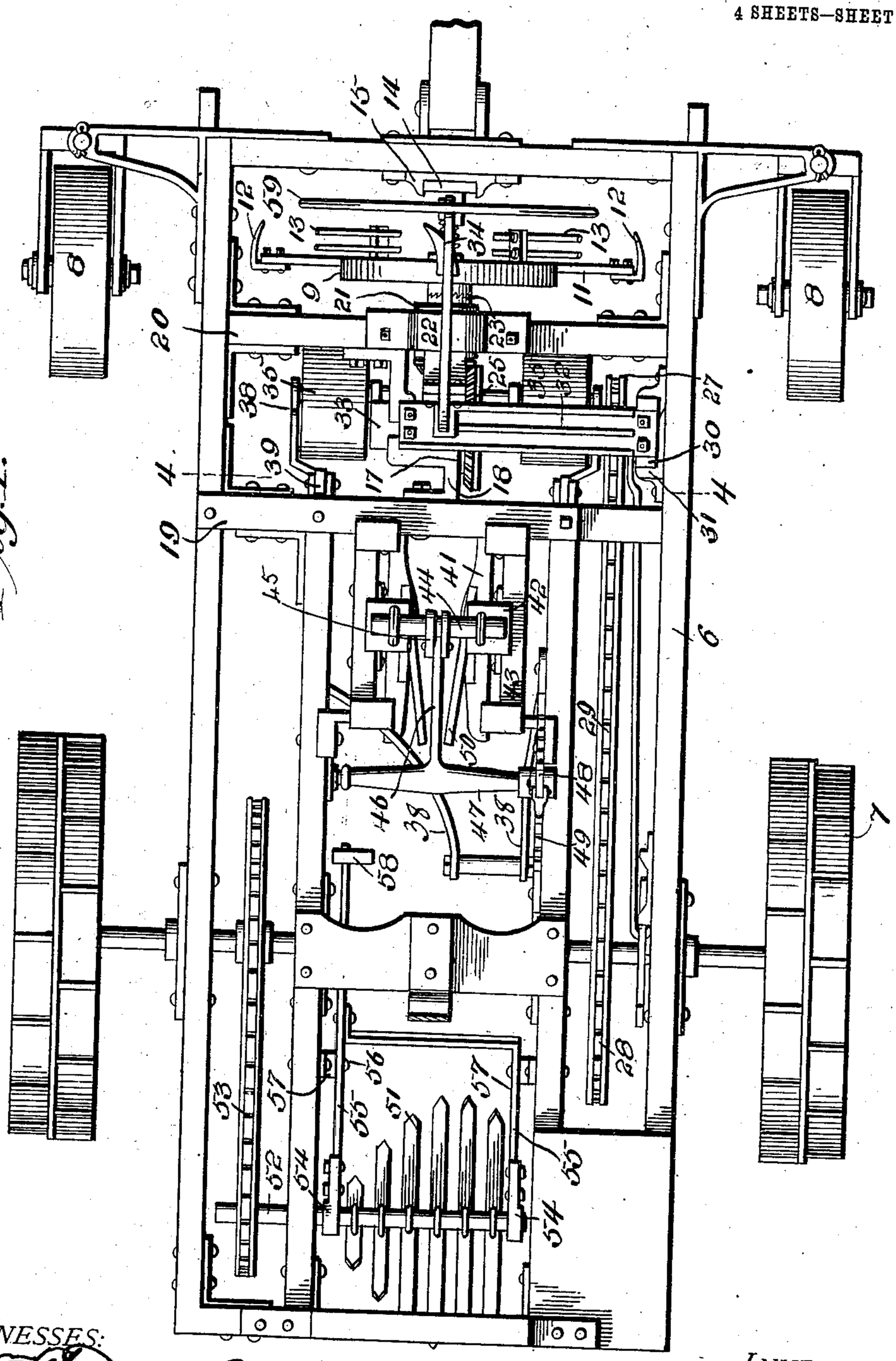
W. E. SLEIGHT.

BEET HARVESTER.

APPLICATION FILED NOV. 2, 1904. RENEWED JUNE 20, 1906.

4 SHEETS—SHEET 1.

Fig. 1.



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4 SHEETS—SHEET 2.

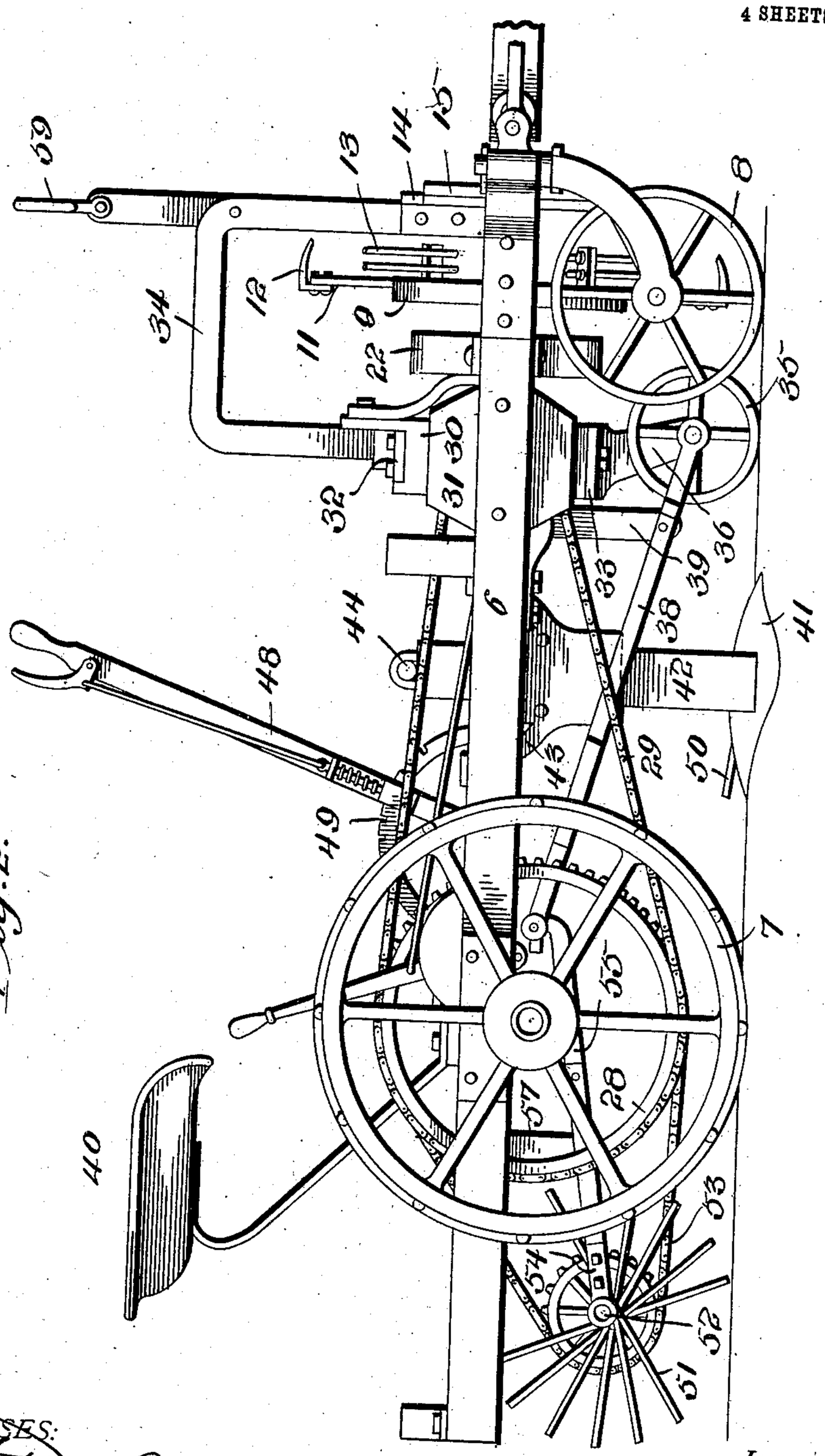

Fig. 2.

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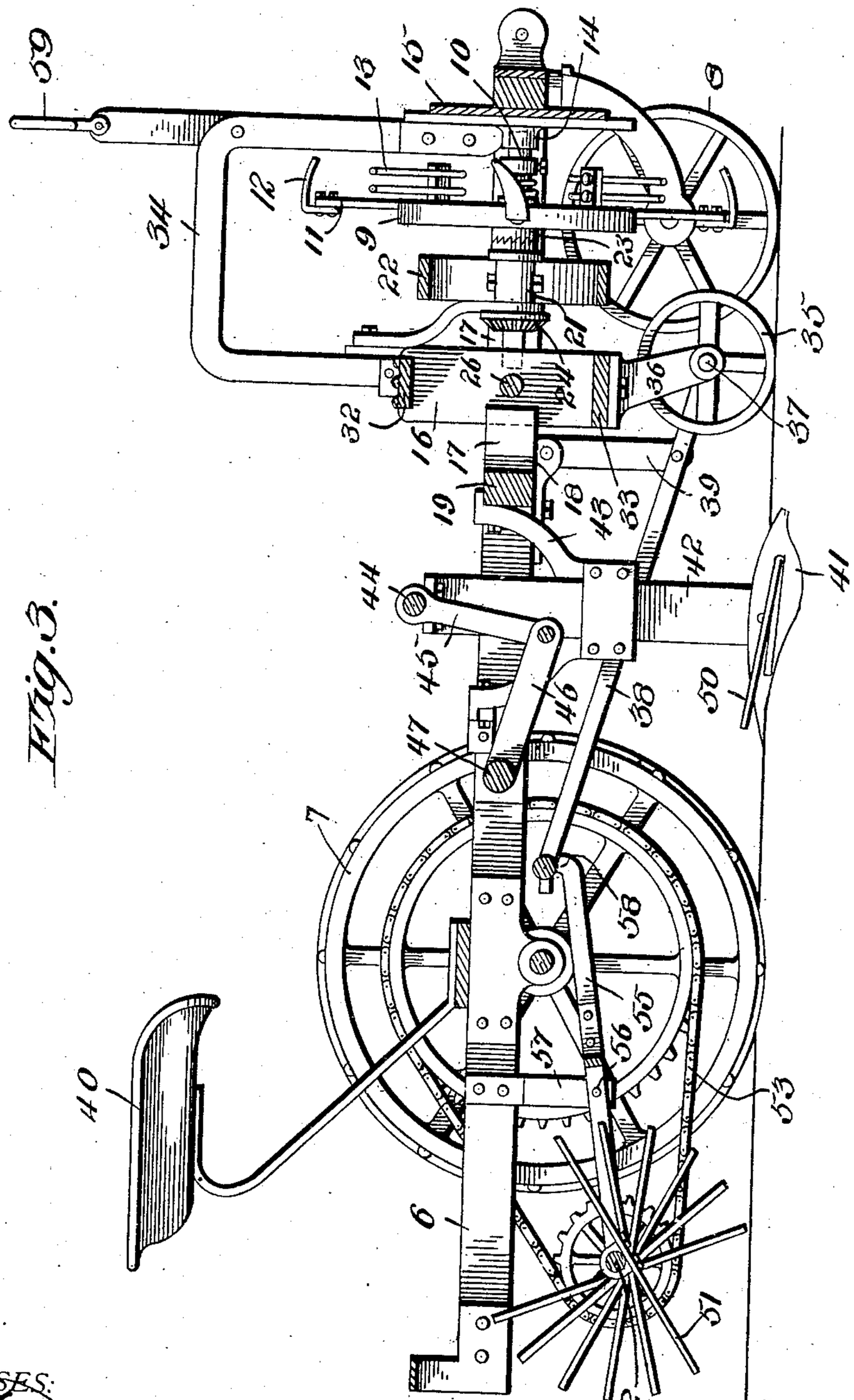
4 SHEETS—SHEET 3.

Fig. 3.



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4 SHEETS—SHEET 4.

Fig. 6.

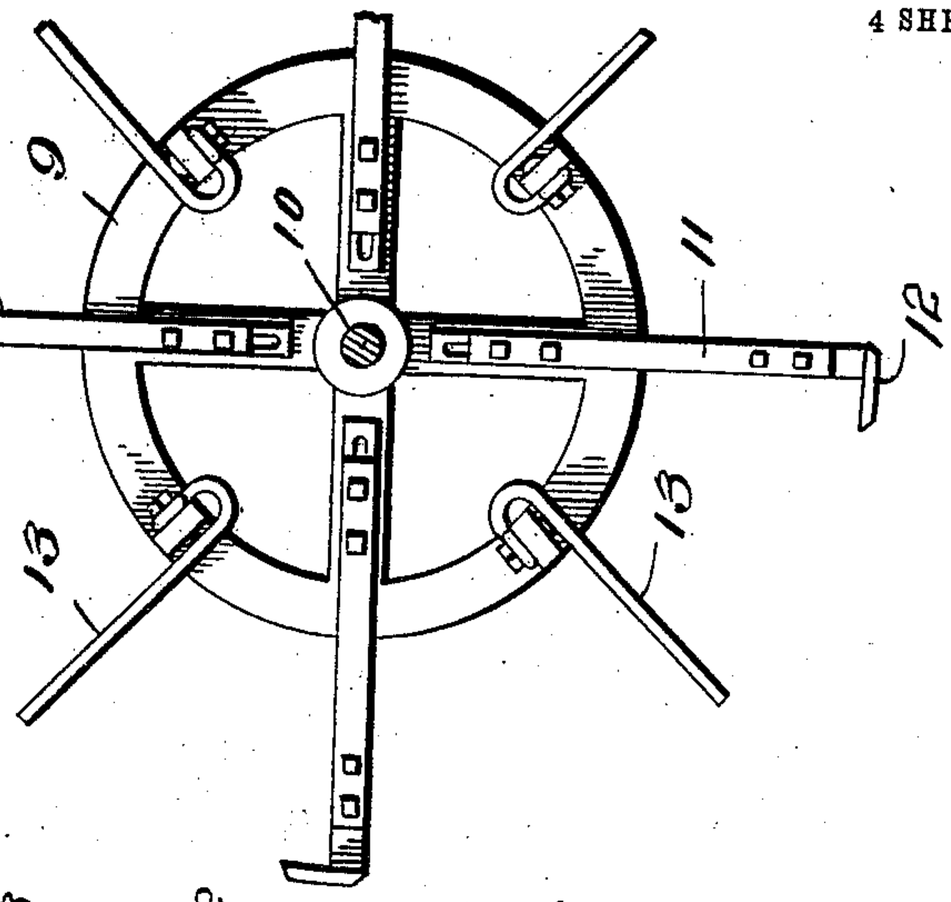


Fig. 5.

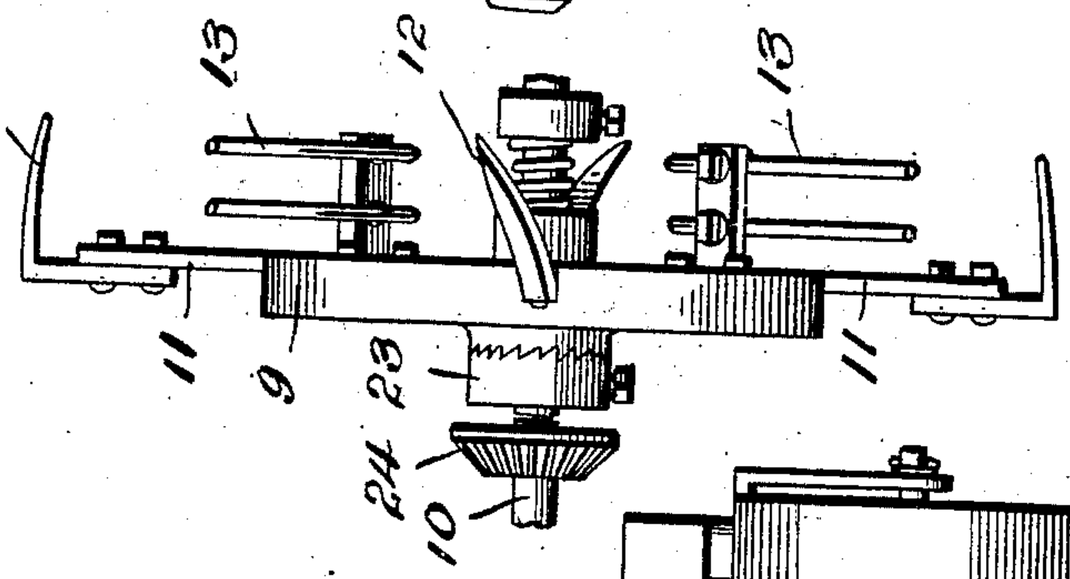
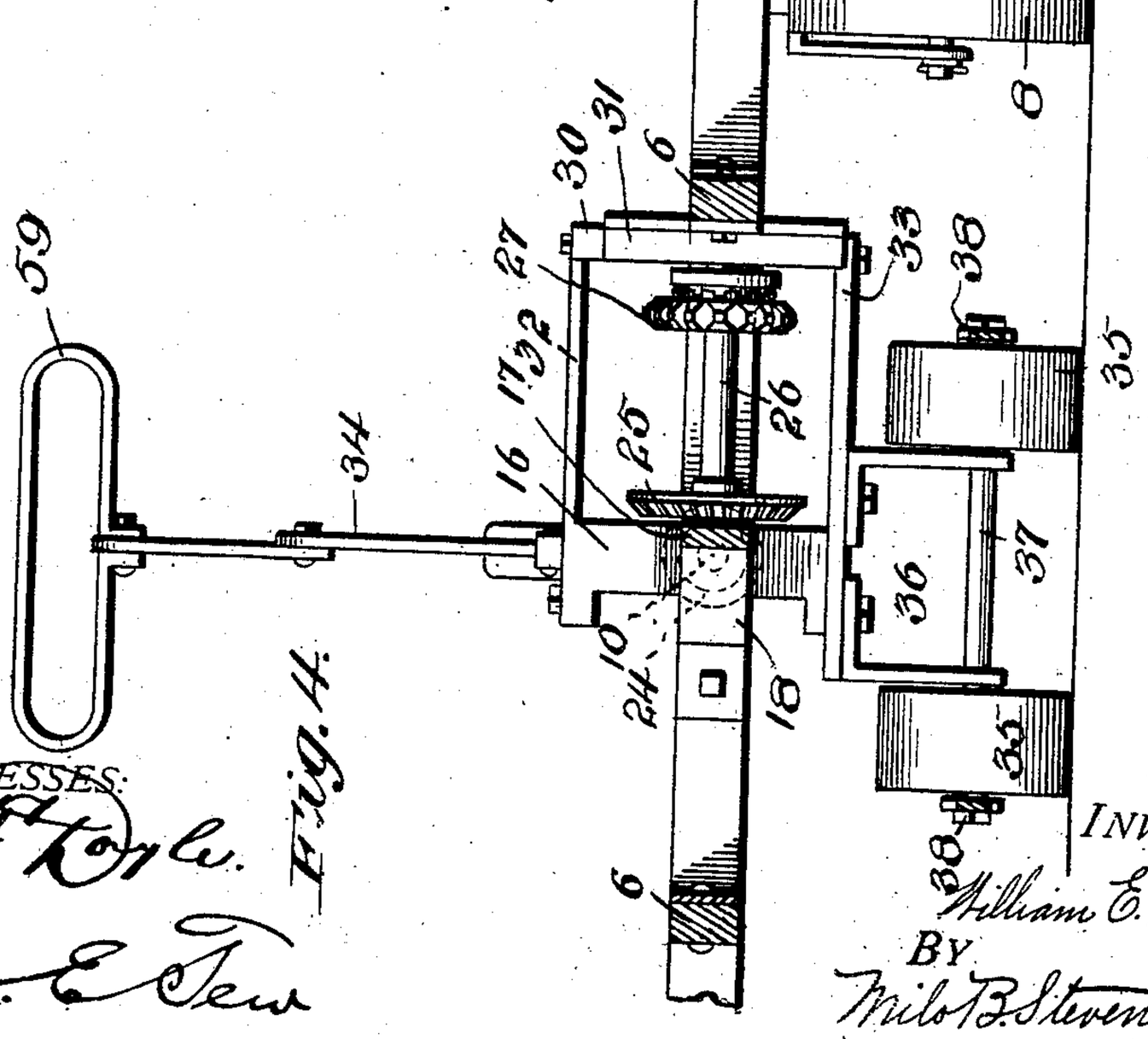


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM E. SLEIGHT, OF LANSING, MICHIGAN.

BEET-HARVESTER.

No. 840,166. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed November 2, 1904. Renewed June 20, 1906. Serial No. 322,607.

To all whom it may concern:

Be it known that I, WILLIAM E. SLEIGHT, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented new and useful Improvements in Beet-Harvesters, of which the following is a specification.

This invention is a beet-harvester constructed to pull beets and also capable of use as a blocker.

It comprises particularly a wheel carrying knives which cut across the row of beets and cut off the top thereof. Means are provided for vertical adjustment of the rotary knife-wheel.

The machine is illustrated in the accompanying drawings, wherein—

Figure 1 is a top plan view. Fig. 2 is a side elevation. Fig. 3 is a longitudinal section. Fig. 4 is a cross-section on the line 4 4 of Fig. 1. Fig. 5 is a side elevation of the knife-wheel. Fig. 6 is a front elevation thereof.

Referring specifically to the drawings, 6 indicates a suitable main frame mounted upon rear driving-wheels 7 and front caster-wheels 8. The knife-wheel is indicated at 9 at the front of the machine. This wheel is of sufficient size and weight to form a balance-wheel and is carried upon a shaft 10, which extends lengthwise of the machine at the middle line thereof. Said wheel carries adjustable arms 11, at the outer ends of which are the angularly-disposed knives 12, the cutting edges of which are presented horizontally and at an angle forwardly, so that as the wheel revolves over a row of beets the knives cut off the tops with a side cut. The arms 11 are adjustable lengthwise to vary the distance of the knives from the center. The wheel also carries in advance of each knife spring-fingers 13, which act to collect and lift the beet-tops sidewise just before the knife delivers its stroke, so that the tops are out of the way of the knives. Said fingers also act to knock and clear away stones and the like.

The front end of the shaft 10 is journaled in a box 14, which is slidable vertically in guides 15, secured to the front cross-bar of the frame. The rear end of the shaft finds its bearing in a box 16, which is slidable vertically in guides 17, supported by a frame 18, supported on cross-bars 19 and 20, forming part of the main frame. Between its ends said shaft 10 is also carried in a box 21, which is slidable in a guide-loop 22, carried in the cross-bar 20. A ratchet-clutch is indicated at 23, between the shaft 10 and the hub of the knife-wheel 9, which acts to let the wheel slip and continue rotating when the machine is suddenly stopped, to avoid undue strain.

The shaft 10 has thereon a pinion 24, which meshes with a bevel-gear 25 on the cross-shaft 26, which is driven from the rear axle by sprockets 27 and 28 and chain 29. The shaft 26 is also vertically adjustable, being carried at one end in the box 16 and at the other end in a box 30, which is slidable vertically in a guide 31 on the side frame of the machine. The boxes 16 and 30 form the uprights or vertical members of a rectangular frame, which is completed by upper and lower horizontal bars, (indicated at 32 and 33, respectively,) which are secured at their ends to said boxes, the whole forming a rigid vertically-movable frame, permitting the vertical adjustment of the gearing and the rotating knife-wheel. To accordingly lift the front bearing-box 14 of the shaft 10, said box is connected by an arch 34 with the upper cross-bar 32, so that the shafts, gearing, and rotating knife-wheel have vertical movement together, according to the lay of the ground, to cause the knives to follow the lay or line of ground. The said frame and the gearing carried thereby are supported upon wheels 35 by brackets 36, which project downwardly from the lower bar 33 and carry the axle 37, on which the wheels turn. Said wheels 35 normally travel on the ground along beside the row of beets, and as they follow the inequalities of the ground the knife-wheel is raised and lowered accordingly, whereby the line of cut of the knives follows closely the surface of the ground at the row quite irrespective of the position of the main supporting-wheels 7 and 8. In short, the rotating knife-wheel and its gear are supported upon the wheels 35 and have free vertical movement according to the surface of the ground, while the main frame simply acts to support the guides for such movement. Levers 38 are fulcrumed on brackets 39, depending from the main frame, and are connected to the ends of the axle 37, and the rear ends of these levers extend to a position in convenient reach of the foot of the operator on the seat 40, and by pressure on the levers the operator is enabled to lift the wheels 35 and the frame and knife-wheel carried thereby from the surface of the ground, so as to avoid cutting if and when necessary.

The toppers may be followed by lifters,

which, as shown, consist of a pair of plows or shares 41, which are carried at the lower ends of standards 42, which standards are slidable vertically in brackets 43, supported on the main frame. At the top the standards are connected by a cross-bar 44, which is connected by a link 45 to an arm 46, projecting from a rock-shaft 47, which is operated by the hand-lever 48, having a suitable catch and segment 49. By throwing the lever the lifters may be raised or lowered as desired. The lifters are so shaped that they form a tapering space therebetween, and as they run under the body of the beets on each side thereof the latter are dislodged or disengaged from the earth without cutting or breaking and are lifted or pulled out, the latter action being assisted by spring-bars 50, secured to the shares and inclined upwardly and backwardly therefrom. The lifters dislodge but little earth and serve to pull the beets without disturbing a great amount of earth, since they run directly under and close to the row of beets. The vertical adjustment permits variation in depth to suit local conditions or to lift the diggers out of the ground.

At the rear end of the machine behind the lifters is a set of rotating spring-fingers 51, projecting from a shaft 52, which is driven by chain-and-sprocket gearing 53 from the main axle. The shaft 52 is supported in hangers 54, carried at the rear ends of levers 55, which are fulcrumed at 56 to brackets 57, depending from the main frame, the levers 55 being connected together and terminating in a foot-piece 58, convenient to the seat. Normally the spring-fingers 51 rest upon the surface of the ground and act to beat or knock any adhering dirt from the beets. They may be lifted out of action by depressing the foot-piece 58 of the levers.

For use as a blocker the lifters and the beaters at the back are lifted out of action, and by the substitution of suitable sprockets or gears to give a slower motion the knives carried by the wheel act to block out beets accordingly.

At 59 is a rein-holder carried by the arch 34 to keep the lines out of the knives.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a beet-topper, the combination with a main wheeled frame having guides, of a minor frame slidable vertically in said guides, and supported on wheels which travel close beside the row, and a knife-wheel rotatable in said minor frame and driven by gearing from the wheels of the main frame.

2. In a beet-topper, a wheel carrying knives, and spring-fingers in advance of the knives, substantially as described.

3. In a beet-harvester, the combination with a main wheeled frame and diggers or lifters carried thereby, of a minor frame which has free vertical movement in the main frame and which travels on wheels adjacent the row, and topping-knives carried by the minor frame.

4. In a beet-topper, the combination with a main wheeled frame, of bearing-boxes slidable vertically in the main frame, and supported on independent wheels, a knife-wheel the shaft of which is carried in said boxes, and a driving-gearing between said knife-wheel and the main wheels.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM E. SLEIGHT.

Witnesses:

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