(No Model.)

W. K. GIRD.

BEET HARVESTER.

No. 512,287. Patented Jan. 9, 1894.

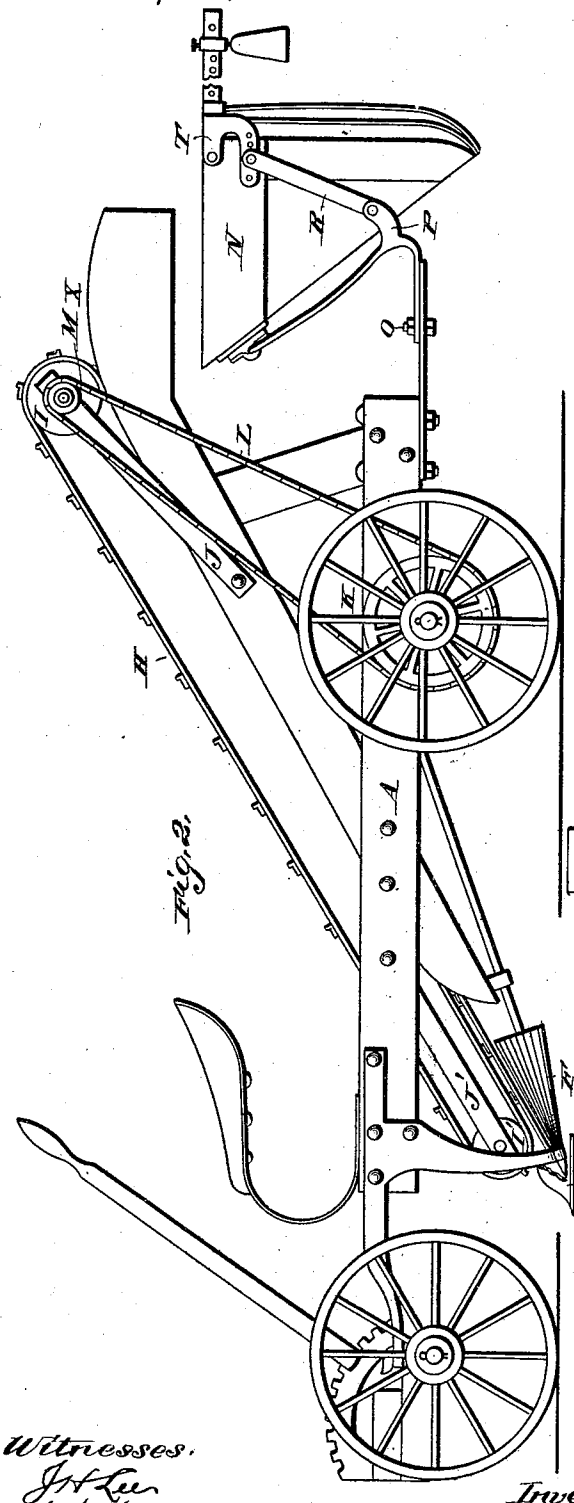

Fig. 2.

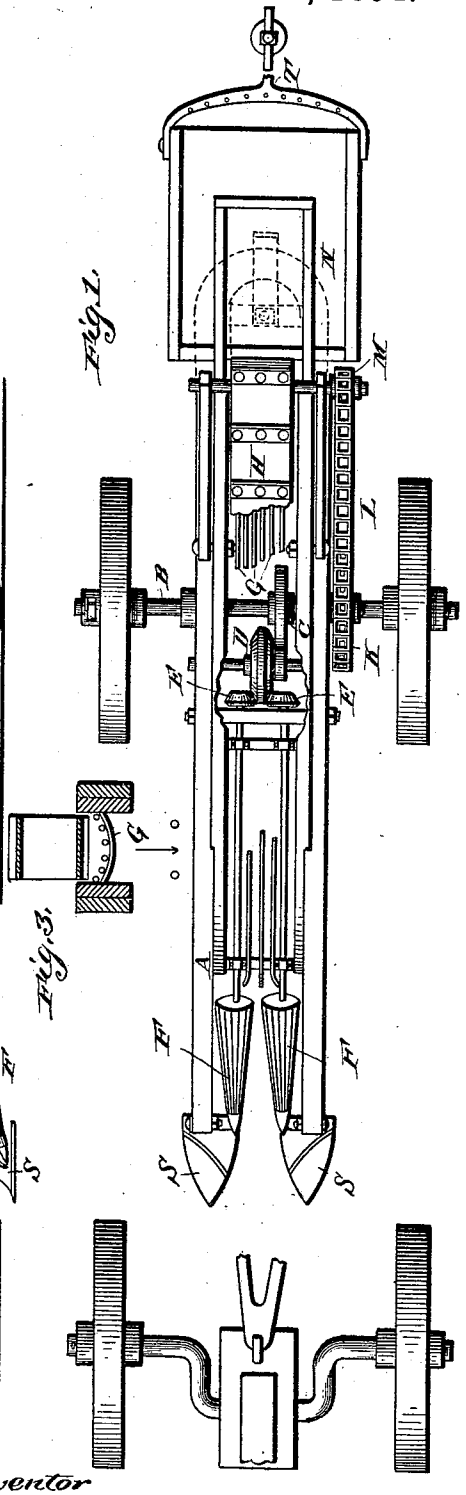

Fig. 1.

Fig. 3.

Witnesses.
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WILLIAM KING GIRD, OF CHINO, CALIFORNIA.

BEET-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 512,287, dated January 9, 1894.

Application filed February 21, 1893. Serial No. 463,243. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KING GIRD, a citizen of the United States, residing at Chino, in the county of San Bernardino and State of California, have invented a new and useful Improvement in Beet-Harvesters, of which the following is a specification.

The object of my invention is to produce a machine that shall pull and elevate beets, and deliver them automatically in quantities either upon the ground or in suitable receptacles, and to that effect I employ the combination shown in the accompanying drawings, forming a part of this specification, to which reference is made, in which—

Figure 1 is a plan of my improved beet harvester. Fig. 2 is a side elevation; and Fig. 3 is a transverse section of the same through the point indicated, showing a section of the belt above and below, a concave track or runway for the elevator and the position of the shafts of the rollers and bevel pinions at that point.

Corresponding letters representing corresponding parts.

A represents a frame mounted on wheels, to which are attached all the parts hereinafter described;—B an axle supporting the frame and is the main driving shaft;—C a spur wheel keyed on the axle B engaging with a pinion constituting a hub of a bevel wheel D;—D a double bevel gear, facing right and left, set on a shaft transverse to the machine and driving bevel pinions E, E;—E, E a pair of bevel pinions engaging with the double bevel wheel D, each set on a shaft longitudinal with the frame A, connecting them with cones hereinafter described;—F. F. a pair of fluted cone shaped rollers set at an angle of elevation of about twenty degrees, keyed on the said pinion shafts, with suitable bearings attached to the frame A;—S S, two plows to run before the rollers F F, to remove the earth from either side of the row to give clearance.

G, G, represent a series of rods curving downward at their lower ends, thence inclined upward, set so as to form a concave track or runway (as shown in Fig. 3) from the rollers F, F, to a point of delivery at X;—H, an endless belt inclined upward at an angle of about thirty degrees and rearward, that passes over the beets, with vertical projections to impinge against them to elevate them;—I, I′, the upper and lower pulleys for carrying the belt H, I, being the pulley and I′, an "idler." The bearings of I, and I′ are automatically adjustable through the radial action of the arms J, and J′.

J. J′ are arms on each side of the machine (but one side being shown) attached by a movable joint at the inner ends to the frame, and at their outer ends affording bearings for pulleys I, and I′ respectively.

K, is a sprocket wheel keyed on the main shaft B, to carry a chain for driving the belt;—L, a chain passing over the sprockets K, and M;—M, a small sprocket wheel on the shaft of the pulley J.

N, is a hopper provided with self emptying mechanism to operate whenever a sufficient weight accumulates to overcome the static resistance.

O. is a pivotal center attached to a projection on the frame A. around which the hopper may make half of a revolution, which enables it to be set so as to discharge the beets at either side or behind as preferred;—P. a bracket for the sole support of the hopper N. having a lug projecting on either side of the hopper below, with an arm extending behind to the middle of the upper part of the same and connecting therewith by a movable bearing. The lateral lugs are connected with the top of the hopper by means of connecting rods R. R. (but one of which is shown) forming a curved hinge connection with a weight bearer T. attached to the rear part of the hopper;—T. is a tilting bar or weight beam, held in position by a weight suspended from a graduated projection thereon, from which extending downward are a number of steel fingers which close the rear side of the hopper and opening periodically discharge the contents when sufficient to raise the weight.

Operation: The harvester being adjusted by the usual lever and segment, at a suitable depth, is driven along the row with a plow S. on each side of the same which removes the earth laterally,—the rollers F. F. following and impinging against each side of the beets pull them by their outward revolutions and bring them in contact with the under side of the belt H. which in turn, by the impact and

friction of its vertical projections, elevates the beets along the concave runway above described and discharges them at X. into the hopper N. The weight shown on the lever projecting from the weight beam T. may be so located as to afford any required resistance to the action of dumping apparatus, and when properly adjusted thereon will be lifted by the pressure of a given quantity of beets against the fingers projecting downward.

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

1. In a beet harvesting machine, the combination with an elevator belt and concave runway properly attached to a suitable frame, of a pair of conical fluted rollers F. F. substantially as described.

2. In a beet harvesting machine, the combination with a pair of conical pulling rollers properly attached to a suitable frame, of an elevator belt G. with vertical projections and running on automatically adjustable bearings J. J. substantially as described.

3. In a beet harvesting machine, the combination with a pair of conical pulling rollers, and an elevator belt on adjustable bearings attached to a suitable frame of a self discharging hopper N. substantially as described.

4. In a beet harvesting machine the combination with a pair of conical pulling rollers, an elevator belt on adjustable bearings and a self discharging hopper attached to a suitable frame, of the spur wheel C. pinion and bevel wheel D. bevel pinions E. E. with their respective bearings giving motion to the several parts, and being driven by the main shaft B: the whole constructed, arranged and operated substantially as and for the purposes set forth.

WILLIAM KING GIRD.

Witnesses:
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