

1,027,125.

L. E. GUIDINGER.
QUACK GRASS DIGGER.
APPLICATION FILED DEC. 13, 1910.

Patented May 21, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

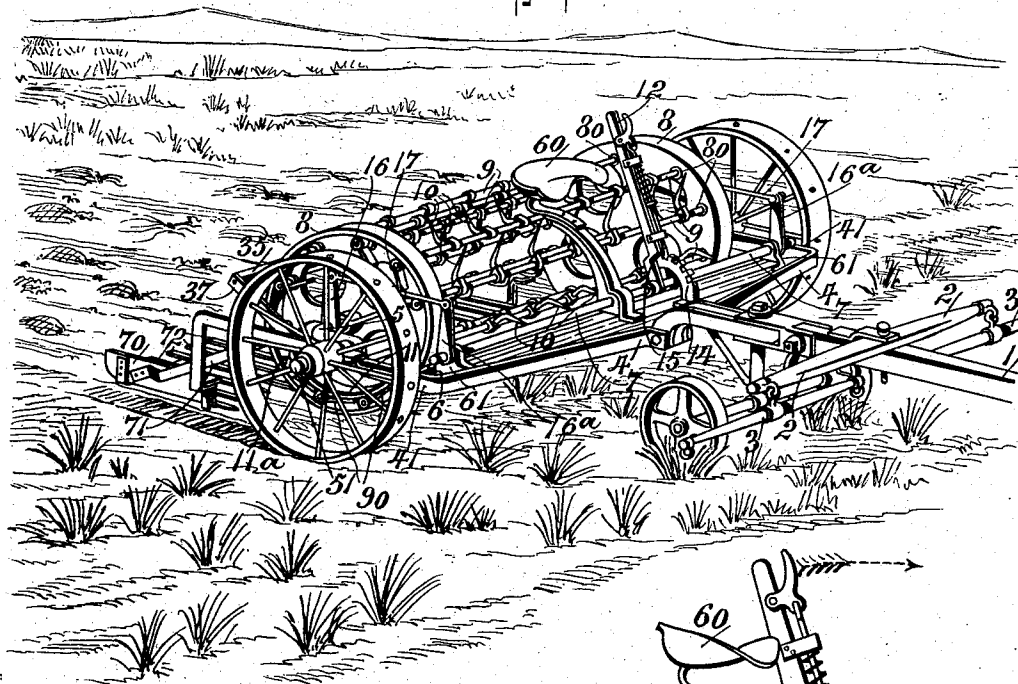
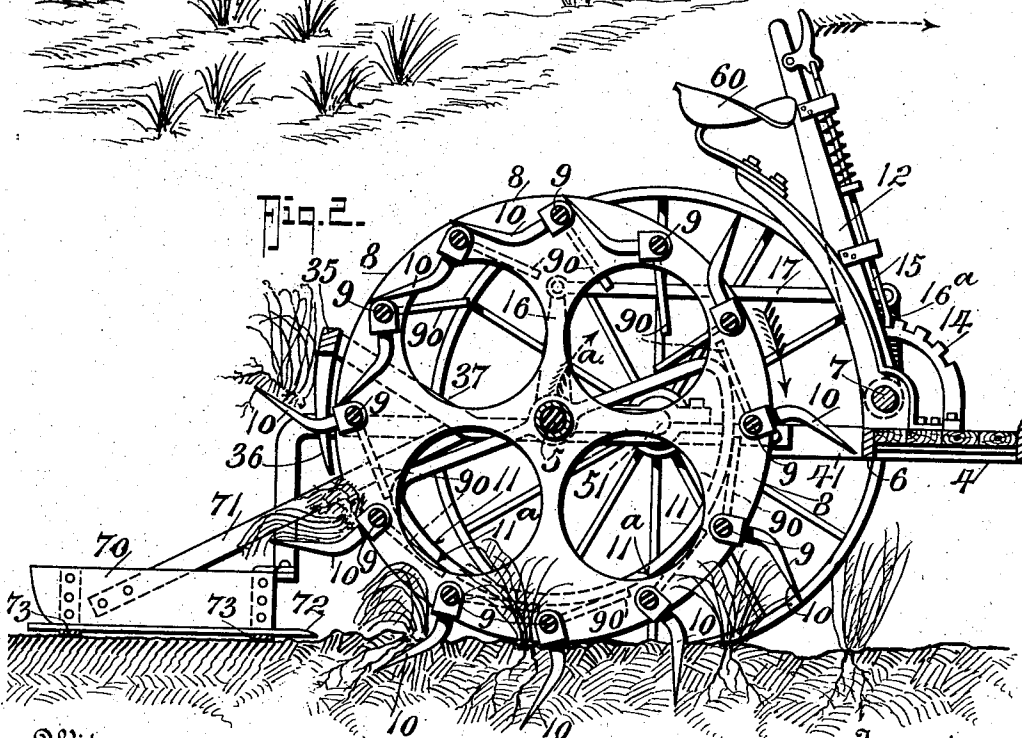


Fig. 2.



Witnesses

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Ray C. Immich

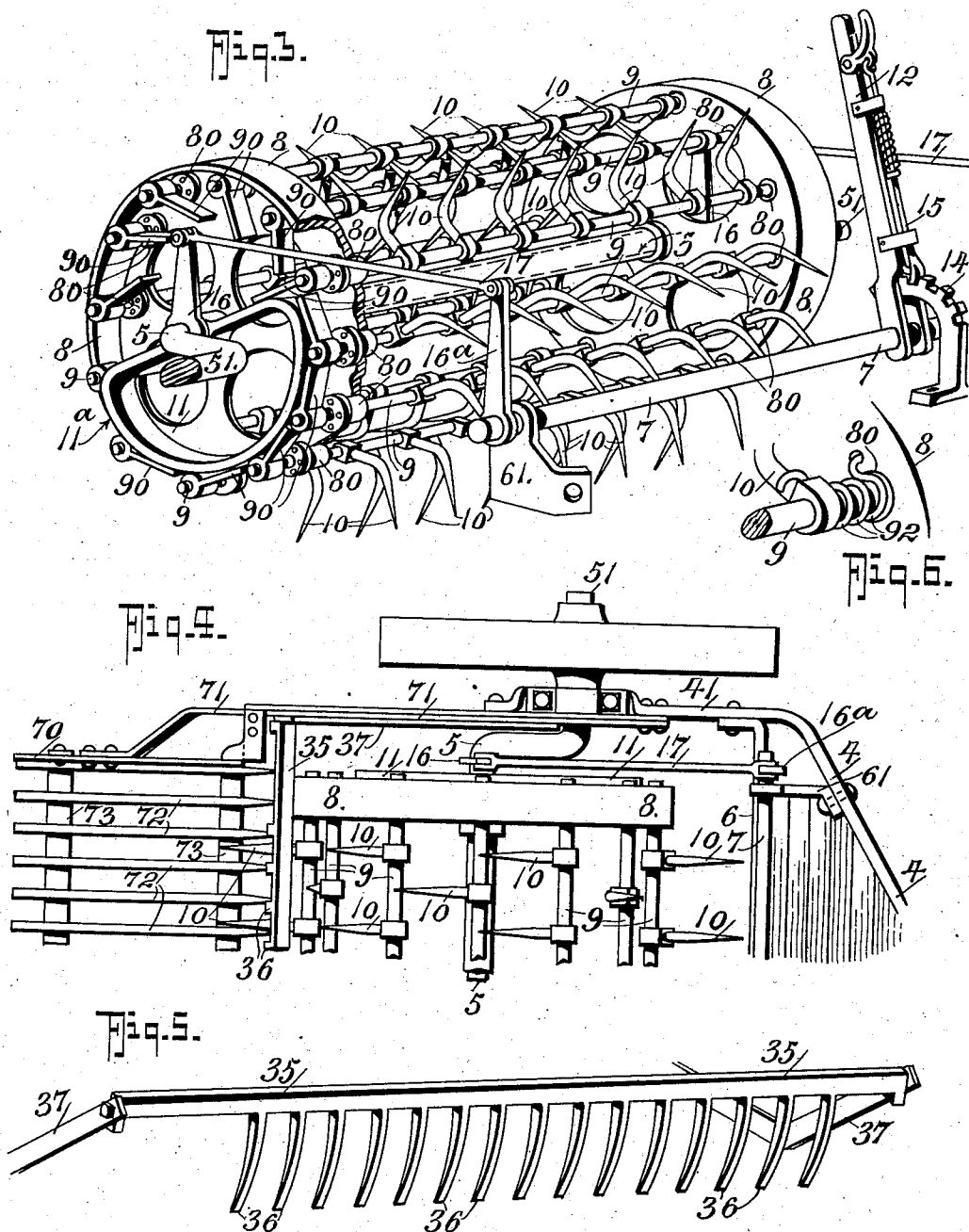
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John T. Schrotte
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UNITED STATES PATENT OFFICE.

LOUIS E. GUIDINGER, OF ROLLING STONE, MINNESOTA.

QUACK-GRASS DIGGER.

1,027,125.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed December 13, 1910. Serial No. 597,017.

To all whom it may concern:

Be it known that I, LOUIS E. GUIDINGER, residing at Rolling Stone, in the county of Winona and State of Minnesota, have invented a new and Improved Quack-Grass Digger, of which the following is a specification.

My invention has for its object to provide a simple, easily made and operated machine for digging and destroying quack grass, breaking up weeds, breaking up sod earth and other analogous purposes, and it consists in the peculiar construction and novel arrangement of parts, all of which will be hereinafter fully described, specifically pointed out in the appended claims and illustrated in the accompanying drawings, in which:—

Figure 1, is a perspective view of my complete machine. Fig. 2, is a vertical section of the same and shows one of the segmental cam devices for holding the digger teeth to their fixed position as they pass over the soil and grass. Fig. 3, is a detail perspective view that illustrates a part of the digger body or roller and the means for shifting the adjustment of the cam devices, hereinafter referred to. Fig. 4, is a plan view of a portion of my invention. Fig. 5, is an enlarged detail perspective view showing the tooth cleaner comb hereinafter referred to. Fig. 6, is a detail perspective view of a modification in which springs 92 are provided to tend to hold the bars 9 from chattering.

In the practical construction, my quack digger comprises essentially a draft frame that includes a tongue 1 on which is mounted the swingletree 2 carrying the doubletrees 3—3 as best shown in Fig. 1, to the rear end of the tongue are secured hound-like strap bars 4 bent to form rearwardly projected arms 41 for straddling the digger cylinder and for engaging with the spindles 51 of the axle 5 which, in my construction, is of the double crank end kind. The side arms 41—41 are braced by a cross bar 6 on which is mounted the driver's seat 60 and the said bar 6 has bearings 61 for a rock shaft 7, the purpose of which will presently appear. Upon the axle 5 is mounted a digger cylinder, consisting of wheel-like ends 8—8 freely rotatable on the axle, and a series of cross bars or rods 9—9, the ends of which are rockably mounted in suitable bearings

80—80 on the peripheral edges of the wheel-like ends of the cylinder.

Any desired number of the rods 9—9 is provided and each rod has a series of uniformly spaced prong-like digger teeth 10 that are normally radially projected from the cylinder and each rod 9 has an inwardly extended heel 90 that form levers for co-operating, at predetermined times, with fixedly held cams 11—11 mounted within the cylinder, as best shown in Figs. 2 and 3.

As shown in the drawings, the cams 11—11 are of like segmental shape and each has a bearing edge 11^a concentric with the circumferential edge of the cylinder ends, whereby to provide narrow segmental passages for the lever portions of the rockably mounted prong carrying rods. The cams 11 are stationed on the shaft 5 at a definite angle and they and the end members 8 may be vertically so adjusted that a greater or lesser soil penetration may be obtained through the medium of the prongs 10, such end being accomplished by the positioning of the aforesaid parts on the offset shaft 5 which when swung on its spindles 51 in the direction of the arrow *a* Fig. 2, will raise the prong carrying parts out of contact with the ground, and for such purpose the shaft 7 heretofore referred to is arranged to be rocked by a lever 12 pivotally mounted on the cross bar 6 of the frame of the machine adjacent the driver's seat 60, the said lever 12 having the usual rack and pawl connections 14—15, as shown.

Shaft 7 is connected with the crank axle by two pairs of crank levers 16—16^a, the levers 16^a being rigidly attached to the shaft 7 and the others 16 to the crank axle 5, and the two levers are pivotally joined by rods 17 in such manner that by rocking the shaft 7 the crank axle is swung with respect to the disk to lift the digger cylinder off the ground for regulating the penetration of the digger teeth 10.

By reason of the peculiar arrangement of the cam members 11 with respect to the cylinder, it being understood the cams 11 are stationary, it follows that as the cylinder revolves, the heel or lever-like portions 90 of the tooth carrying rods come into contact with the segmental cams and rock the rods 9 so their prong teeth project radially to the maximum degree to form positive diggers for engaging with and rooting up the

grass or weeds or breaking the sod, it being also apparent by referring to the drawings that during the passing of the members 90 over the edges of the cams 11 the said teeth 5 are held locked to their digging position, and so soon as the heels pass by the said cams 11, the rods 9 are rocked (the heels 90 being weighted) backwardly to such a position that the hanging weeds or grass slide 10 off and drop back onto the ground.

While for some kinds of surface digging, the automatic dropping back of the teeth tends to clear them of the hanging grass or weeds, to provide for positively cleaning 15 the teeth of that kind of weeds, roots, etc., that incline to adhere to the teeth as they pass upwardly, a cleaner comb 35 is mounted at the upgoing side of the cylinder at that point where the teeth drop back, the said 20 comb being so disposed that the digger teeth pass between the comb teeth 36, said teeth being fixedly held, by reason of the side arms 37 of the comb straddling the cylinder and being fixedly secured to the axle ends, 25 see Fig. 5.

The operation of my machine is substantially as follows: When the machine is drawn forward the toothed cylinder is rotated in the direction of the arrow on Fig. 30 2 and as the teeth approach the ground they are turned out to a digging position and held locked to such position while passing through the soil from the front of the cylinder to the rear, and as they begin the ascent the teeth drop back to permit the 35 hangings thereon to slide off and pass through the comb 35 which frees the teeth of all roots of the uplifted quack grass, which, after being pulled and rooted up, 40 falls on top of the ground to be raked up or allowed to remain, as fertilizer.

To provide for spreading the picked and dropped grass over the field, after the digger has pulled and deposited the same, a 45 member 70 is supported by strap iron arms 71 that project rearwardly from side bars of the digger frame, and the said member includes a series of horizontal and parallel disposed teeth 72 joined and braced by the 50 cross members 73.

It will be noticed that the comb 35 has its teeth 36 curved to conform approximately to the curvature of the cylinder, and is held in a substantially vertical position adjacent 55 to the cylinder so that the cylinder may be adjusted up or down to regulate the penetration of the teeth 10 into the ground without disturbing the operative function of the comb.

What I claim is:—

1. A shaft, tractor wheels on the ends thereof, a cylinder rotatable on the said shaft, said cylinder including cupped wheel-like end members, a set of tooth carrying rods mounted within the said ends, levers 65 on the ends of the said rods within said cupped like end members, and cams within the said cupped like members fixedly mounted on the shaft to be engaged by said levers to rock the said tooth carrying rods, 70 said cupped wheel-like member including rim portions that protectively surround the said levers and cams.

2. A shaft, tractor wheels on said shaft, a cylinder rotatable on said shaft, said cylinder including cupped wheel-like end members, a set of tooth carrying rods mounted in said end members, levers on said rods within said cupped wheel-like end members, 75 cams within said end members, relatively fixed on said shaft to be engaged by said levers to rock said rods, a relatively fixed comb curved to conform to the curvature of said cylinder between which said rod teeth are projectable at times, substantially as 85 shown and described.

3. A shaft, tractor wheels on said shaft, a cylinder rotatable on said shaft, said cylinder including wheel-like end members, a set of tooth carrying rods mounted in said 90 end members, levers on said rods, cams relatively fixed on said shaft to be engaged by said levers to rock said rods, a relatively fixed comb curved to conform to the curvature of said cylinder between the teeth of 95 which comb said rod teeth are projectable at times, and means for raising and lowering said cylinder to regulate the penetration of the teeth into the ground without disturbing the operative function of said comb. 100

4. A shaft, tractor wheels on said shaft, a rotatable cylinder on said shaft, digging teeth mounted on said cylinder, means for projecting and withdrawing the teeth through said cylinder as said cylinder turns, 105 a relatively fixed comb curved to conform to the curvature of said cylinder, and between the teeth of which comb said cylinder carried teeth are projectable at times, together with means for raising and lowering 110 said cylinder to regulate the penetration of the teeth into the ground without disturbing the continuous operative function of said comb.

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Witnesses:

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