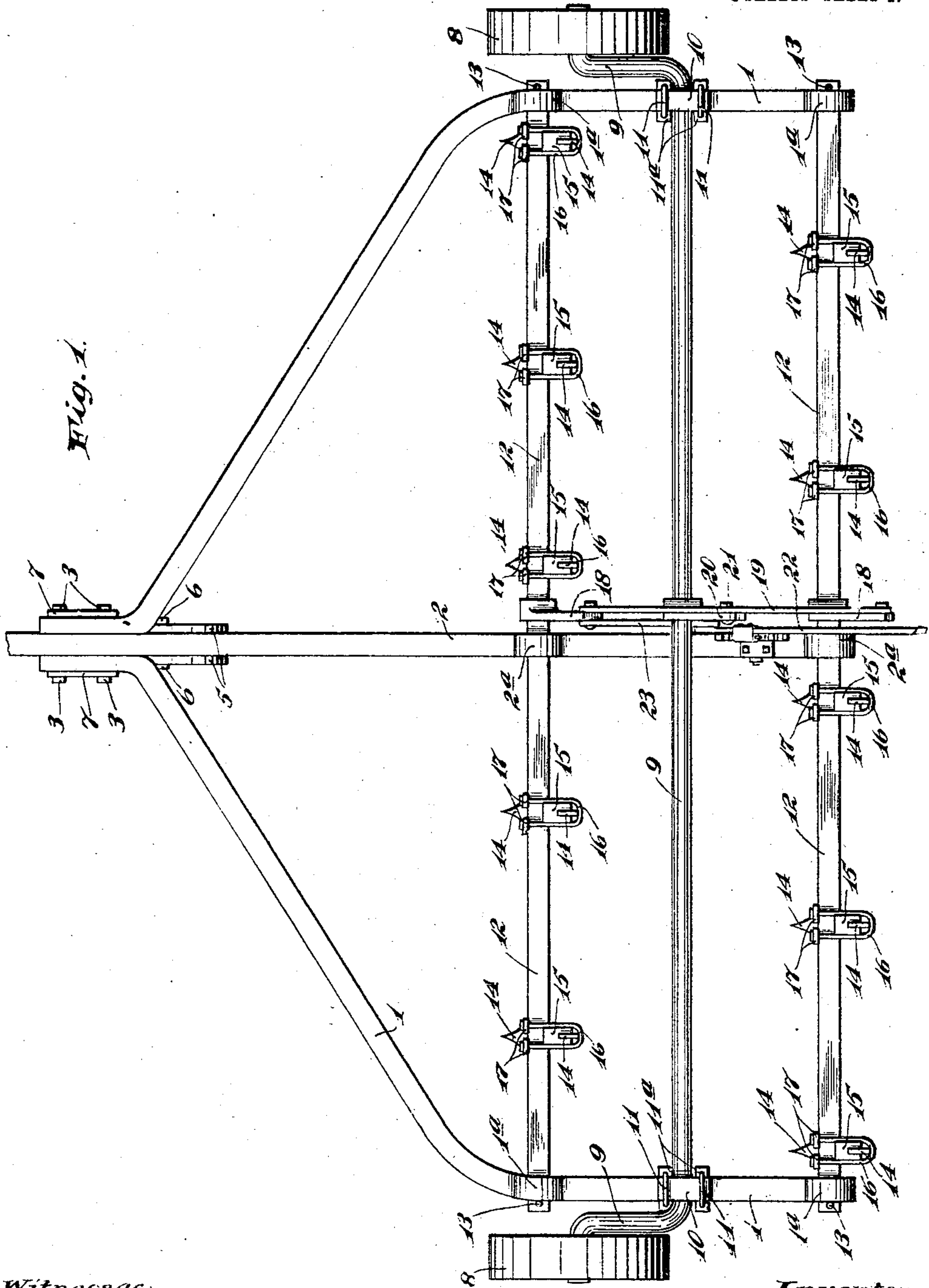


H. N. HANSON.
QUACK GRASS DIGGER.
APPLICATION FILED MAR. 5, 1910.

968,658.

Patented Aug. 30, 1910.

3 SHEETS—SHEET 1.



Witnesses:
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W. H. Souba.

Inventor:
Hans Nisson Hanson.
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3 SHEETS—SHEET 2.

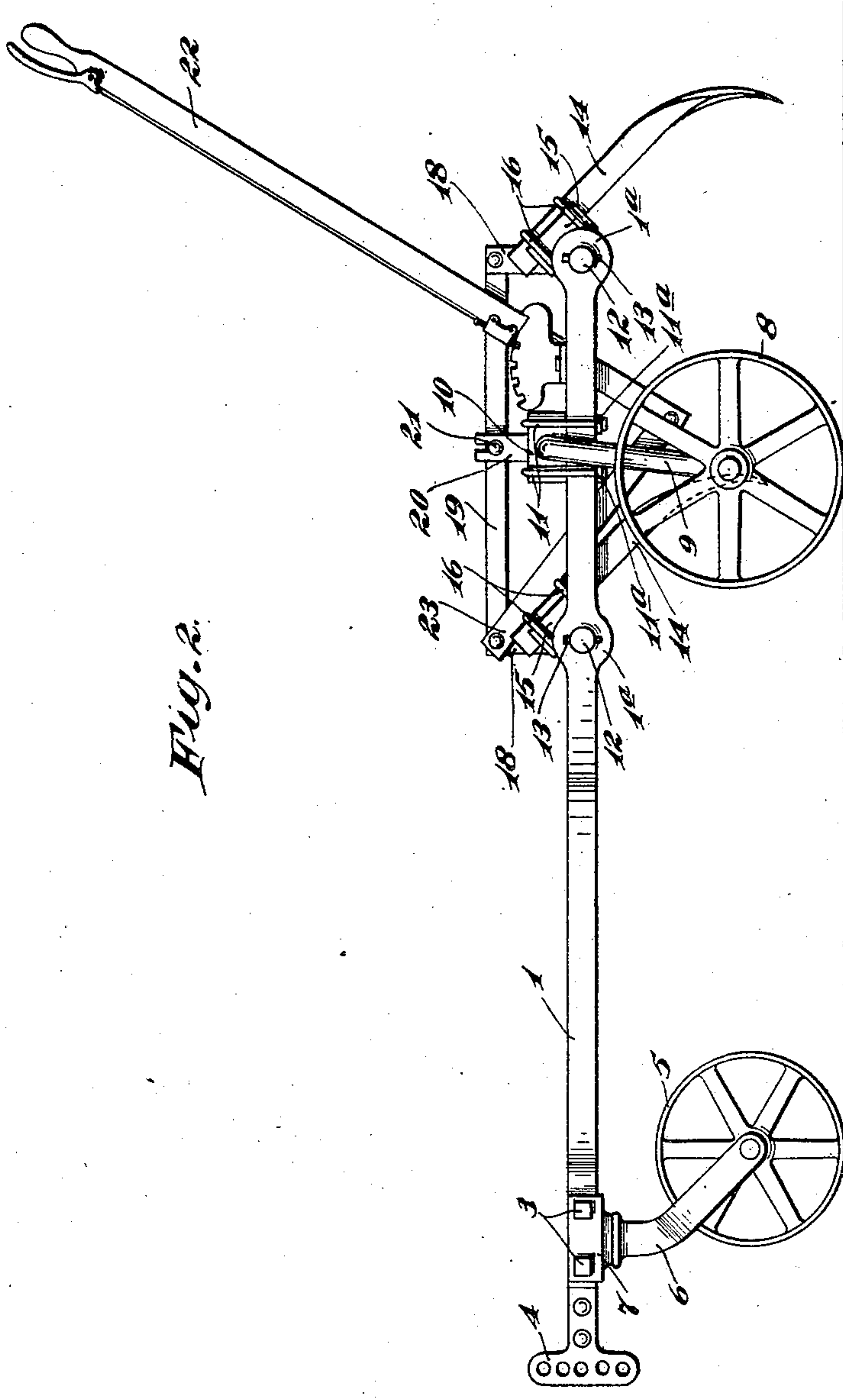


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

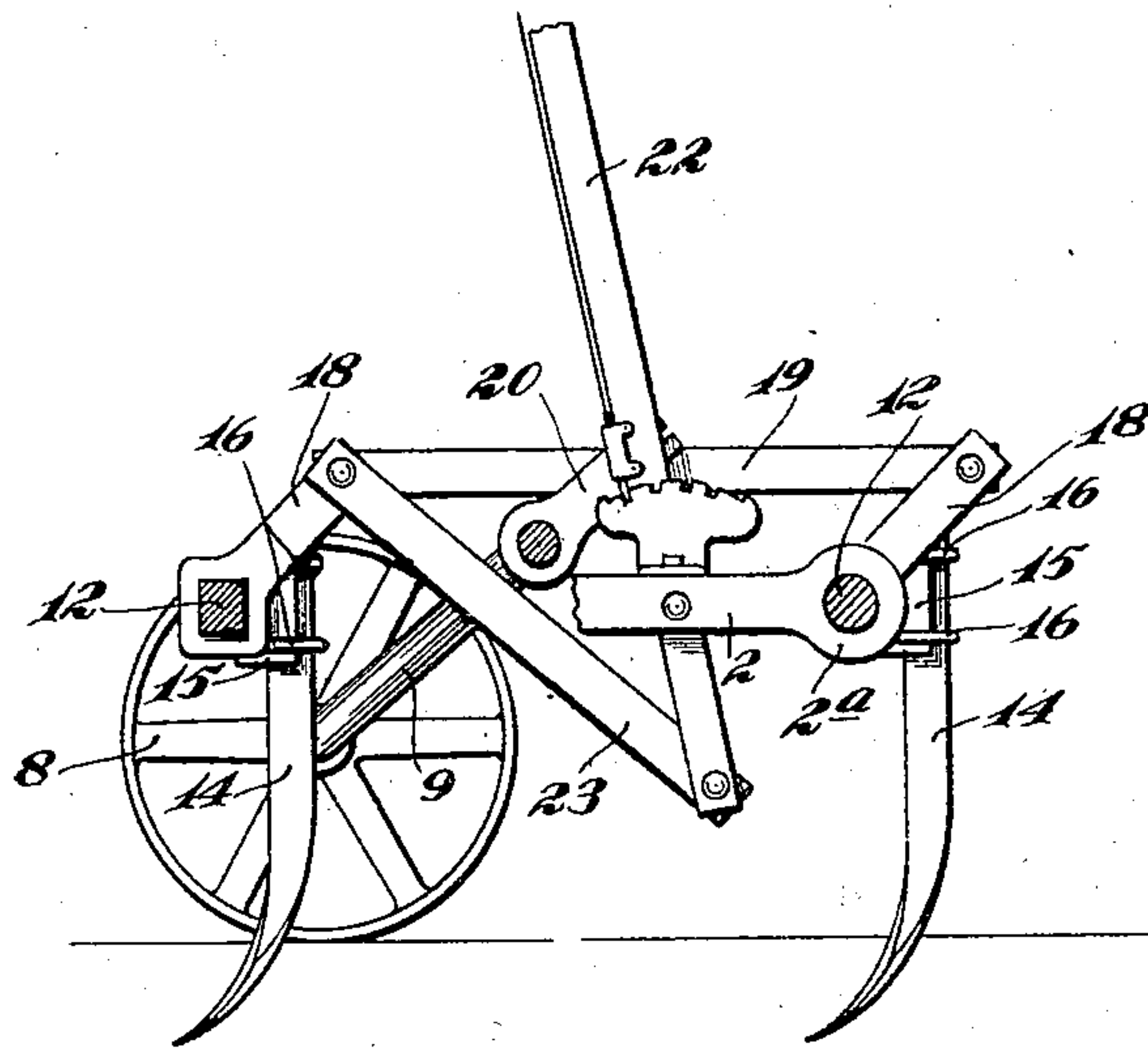


Fig. 4.

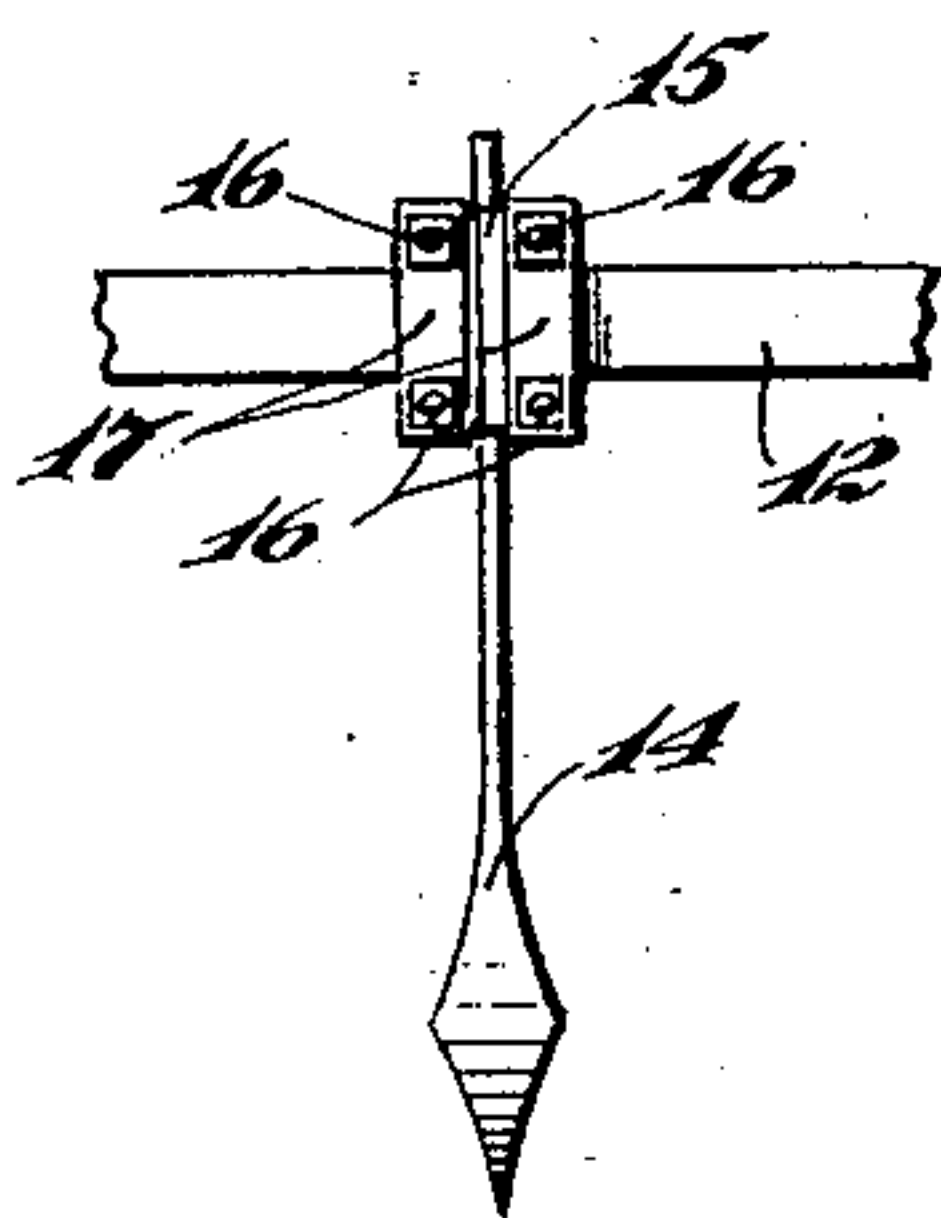
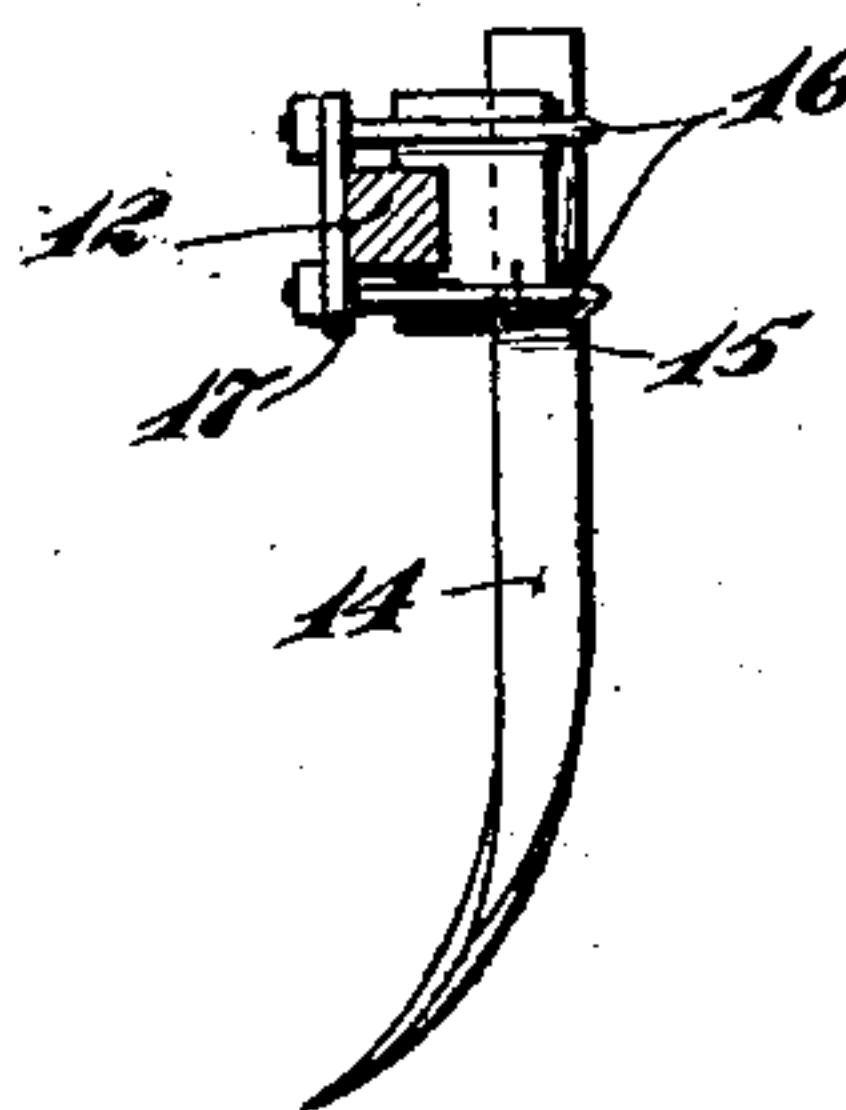


Fig. 5.



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UNITED STATES PATENT OFFICE.

HANS NISSON HANSON, OF HENRY, SOUTH DAKOTA.

QUACK-GRASS DIGGER.

968,658.

Specification of Letters Patent. Patented Aug. 30, 1910.

Application filed March 5, 1910. Serial No. 547,432.

To all whom it may concern:

Be it known that I, HANS NISSON HANSON, a citizen of the United States, residing at Henry, in the county of Codington and State of South Dakota, have invented certain new and useful Improvements in Quack-Grass Diggers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved quack grass digger and cultivator and which device is especially adapted for digging quack grass.

To the above ends, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a plan view of the improved machine, with some parts broken away. Fig. 2 is a side elevation of the same; Fig. 3 is a detail view of a portion of the improved machine with the parts thereof in a different position from that shown in Fig. 2; Fig. 4 is a view in front elevation of one of the teeth secured to a portion of one of the rock shafts; and Fig. 5 is a side elevation of the parts shown in Fig. 4.

The frame of the machine is, as shown, preferably constructed of a pair of side bars 1 and an intermediate bar 2. The forward converging ends of the bars 1 are rigidly secured by rivets 3 to the forward end of the intermediate bar 2. At the extreme forward end of the bar 2 is secured a clevis 4 to which draft animals may be hitched.

The forward portion of the frame is supported by means of a caster wheel 5 journaled between the prongs of a bifurcated bracket 6 and which bracket, in turn, is swiveled to a bearing block 7 secured to the frame by means of the rivets 3.

The rear portion of the frame is supported by means of a pair of truck wheels 8 journaled on the crank ends of a crank axle 9. The crank axle 9 is mounted in suitable bearings 10 secured to the upper surface of the side bars 1, by means of U-bolts 11 and clamping bars 11^a. On each side of the crank axle 9 is mounted, in the frame, a

square rock shaft 12. The ends and intermediate portions of the rock shafts 12 are reduced, made round and journaled in bearings 1^a and 2^a, respectively, formed by expanding the side bars 1 and 2. The bearings 2^a of the bar 2 have their upper halves made removable so as to permit removal of the crank shafts 12. Lock pins 13 are passed through holes in the projecting ends of the rock shafts 12, outside of the bars 1, to prevent the rock shafts 12 from becoming accidentally separated from the side bars 1. As is evident, any number of these rock shafts 12 may be provided, and each thereof is provided with a series of laterally spaced depending teeth 14 having forwardly curved lower sharp ends.

By reference to Fig. 1, it will be noted that the teeth of one of the rock shafts 12 are staggered with respect to the teeth of the other. Each tooth 14 is secured to its rock shaft 12 by means of a vertically and horizontally notched block 15 interposed between the tooth 14 and rock shaft 12. The vertical notch of the block 15 is adapted to receive the upper end of the tooth 14 and the horizontal notch of the block 15 is adapted to receive the rock shaft 12, thus rigidly securing the tooth 14 against lateral movement. U-bolts 16 are passed around the tooth 14 and block 15 and are secured to the rock shaft 12 by means of clamping bars 17.

To the intermediate portion of each rock shaft 12 is secured a laterally projecting arm 18 and the free ends of which arms are pivotally connected, one to the other, by means of a link 19. The crank axle 9 is also provided with a laterally projecting arm 20 which, at its free end, is bifurcated to receive a laterally projecting headed stud 21 secured to one side of the link 19. An operating latch lever 22 is intermediately pivoted to the bar 2 between the crank axle 9 and the rear rock shaft 12 and a lock segment is also secured to the bar 2 for cooperation with the latch lever 22. The lower end of the lever 22 is pivotally connected to the pivotal connection between the arm 18 of the forward rock shaft 12 and the link 19 by means of a crank rod 23.

The operation of the machine may be briefly stated as follows: As is evident, by operating the lever 22, the rear portion of the frame may be raised or lowered and, simultaneously with this movement, the rock

shafts 12 are rotated and the teeth 14 moved either from an operative or an inoperative position. This arrangement is highly important when the machine is used as a quack grass digger. When the machine is in an operative position, the teeth are turned into the ground and the frame lowered as shown in Fig. 3. As the quack grass is dug or pulled from the ground by the teeth 14, the gathered grass will be carried forward by the teeth 14 under the advance movement of the machine. The gathered grass may be released from the teeth 14, at will, by pulling the lever backward, as shown in Fig. 2, which operation simultaneously raises the rear end of the machine and throws the teeth into a position so as to point backward, thus permitting the teeth 14 to be pulled from the gathered grass under the advance movement of the machine. It is also evident that, by simultaneously raising the machine frame and throwing the teeth 14 backward, a much smaller movement of the teeth is required to release the gathered grass or for forcing the teeth into the ground or removing the same therefrom than would otherwise be required.

The above described device, while very simple and of comparative small cost, is thought to be highly efficient for the purposes had in view.

What I claim is:

1. In a machine of the kind described, the combination with a frame, of a crank

axle mounted on said frame and having a projecting arm, truck wheels journaled on said crank axle, said truck wheels arranged to engage the ground at all times, a rock shaft mounted on said frame and having a projecting arm, a link connecting said two arms, laterally spaced teeth having forwardly curved lower ends secured to said rock shafts, an operating lever pivotally mounted on said frame, and a crank rod connecting said lever and said link, substantially as described.

2. In a machine of the kind described, the combination with a frame, of a crank axle mounted on said frame and having a projecting arm, truck wheels journaled on said crank axle, said truck wheels arranged to engage the ground at all times, a multiplicity of laterally spaced rock shafts mounted on said frame and each thereof having a projecting arm, a link pivotally connecting all of said arms, laterally spaced teeth having forwardly curved lower ends secured to said rock shafts, a lever pivotally mounted on said frame, a cooperating latch segment, and a crank rod connecting said lever and said link, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HANS NISSON HANSON.

Witnesses:

H. H. PARLIAMENT,
E. J. GUNTHER.