

F. HOSFORD.

HARROW.

APPLICATION FILED APR. 16, 1908.

923,845.

Patented June 8, 1909.

2 SHEETS—SHEET 1.

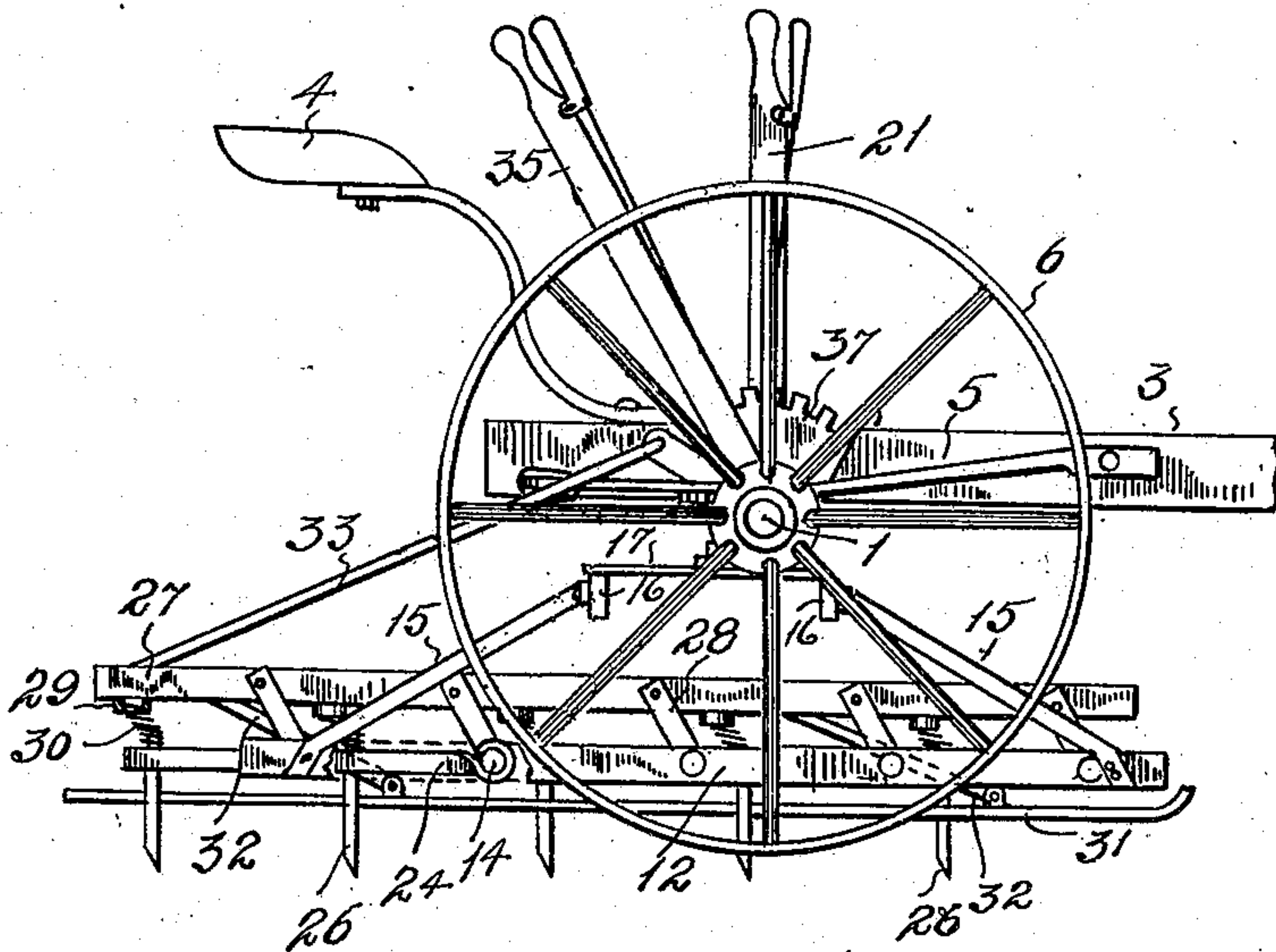
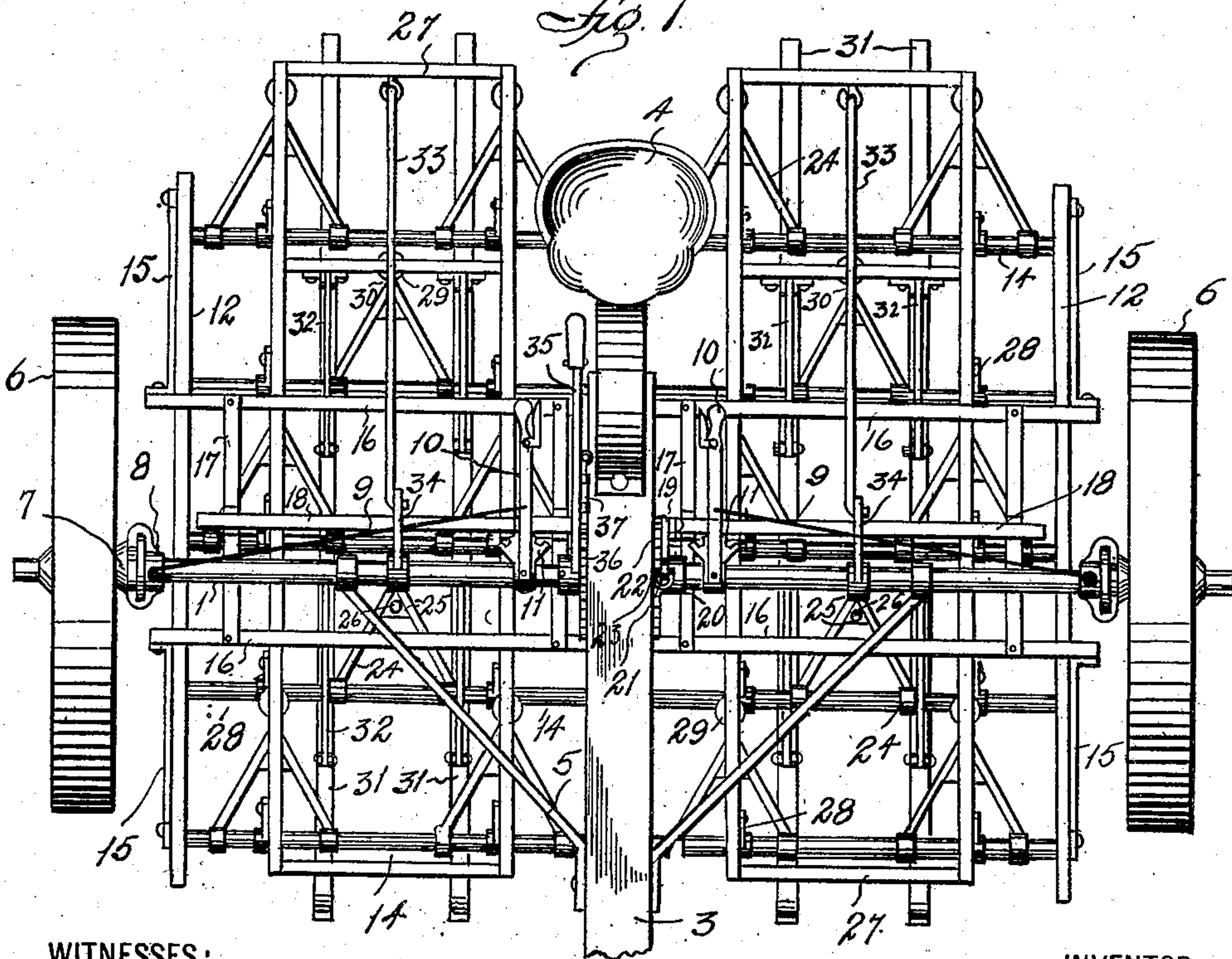


Fig. 1



WITNESSES:

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Fig. 2

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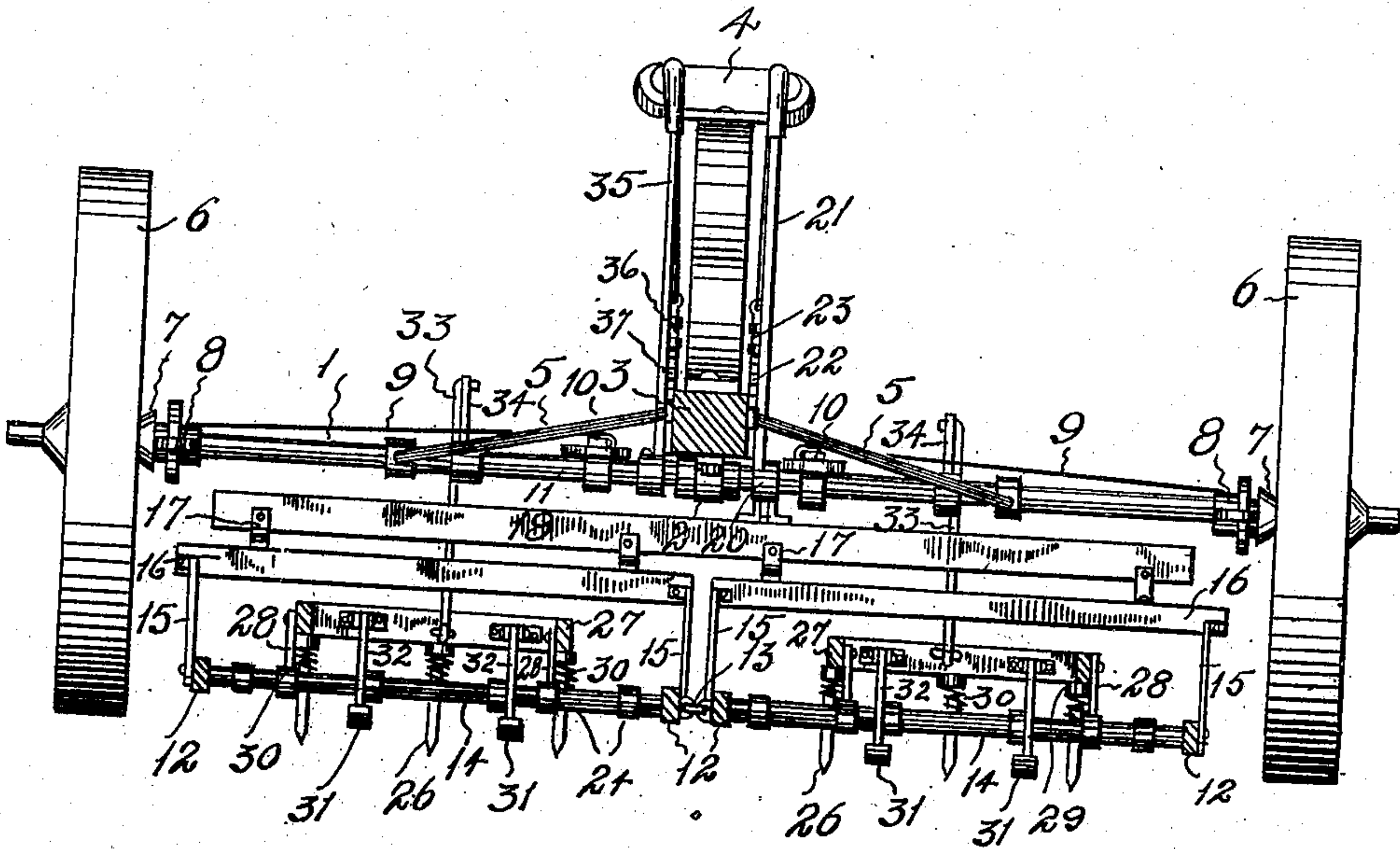


Fig. 3.

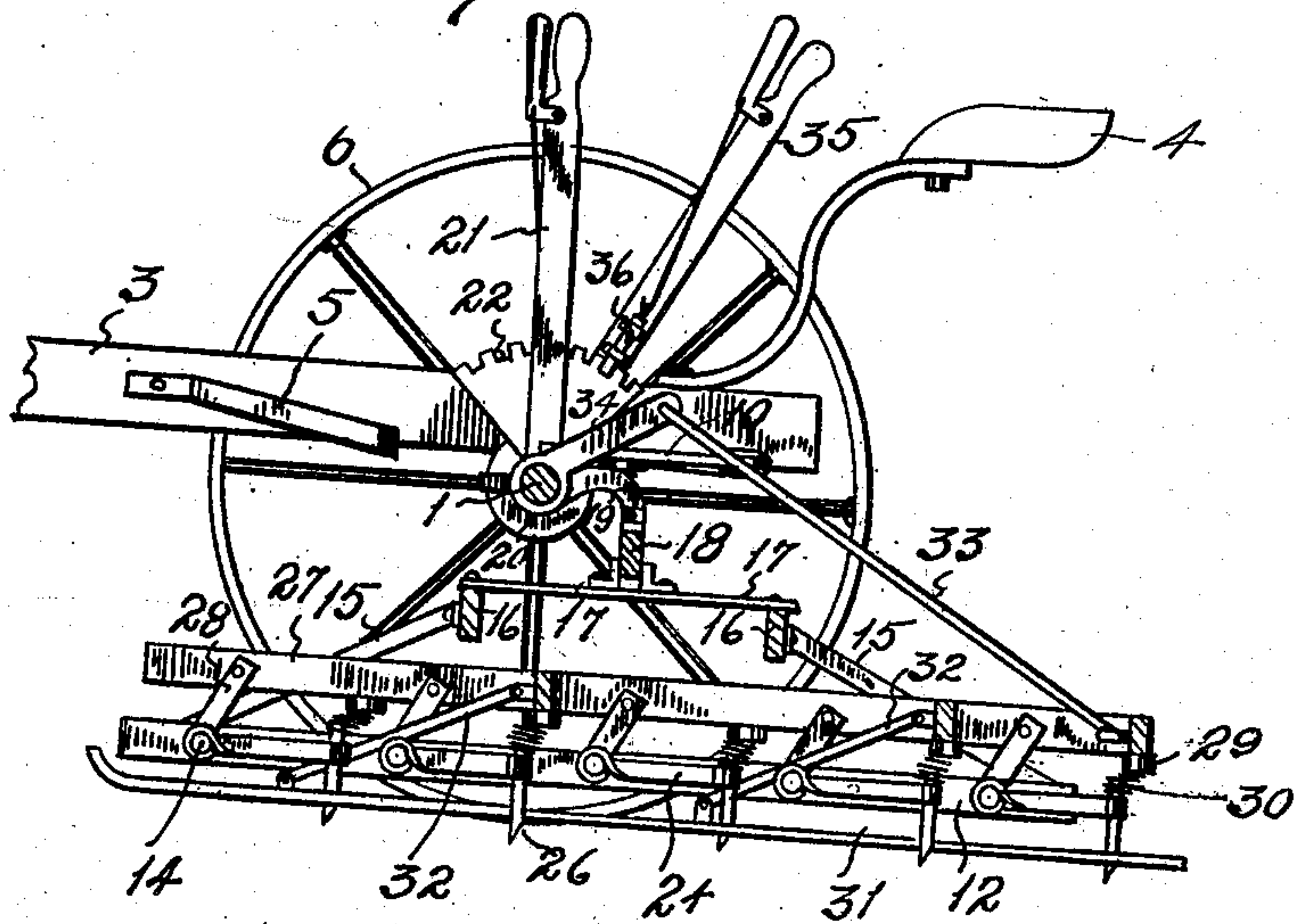


Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANK HOSFORD, OF STERRETT, TEXAS.

HARROW.

No. 923,845.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed April 16, 1908. Serial No. 427,471.

To all whom it may concern:

Be it known that I, FRANK HOSFORD, citizen of the United States, residing at Sterrett, in the county of Ellis and State of Texas, have invented certain new and useful Improvements in Harrows, of which the following is a specification.

My invention relates to new and useful improvements in harrows and more particularly to that class designed for collecting stalks after the same have been cut.

The object of the invention is to provide a harrow embodying certain improvements over the harrow set forth in Letters Patent No. 877,647 issued to me on January 28, 1908, whereby the harrow will be rendered more practical and efficient in performing its work.

Among the particular features of the improvement are, the simplification of the raising, lowering and swinging means.

Finally the object of the invention is to provide a device of the character described that will be strong, durable, efficient and simple, and comparatively inexpensive to construct, also one in which the several parts will not be liable to get out of working order.

With the above and other objects in view, my invention has relation to certain novel features of construction and operation, an example of which is described in the following specification and illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of the improved harrow, Fig. 2 is a plan view, Fig. 3 is a front elevation, and Fig. 4 is a longitudinal section therethrough.

In the drawings, the numeral 1 designates a transverse axle-shaft which is supported to turn in a bearing bracket 2 secured to the under side of a central tongue 3 which suitably supports a driver's seat 4. The axle is braced by forwardly converging braces 5 having suitable connection with the axle and the tongue.

Ground wheels 6 are mounted on suitable hub-sleeves arranged to slide longitudinally on the axle 1 at each end thereof and transversely of the harrow. These sleeves have rotatable connection with hook-collars 8 which in turn have pivotal connection with the ends of rods 9 extending to levers 10 pivotally connected to sectors 11 suitably fixed on the axle at each side of the tongue. By swinging these levers, which carry means for locking them in place, the collars are

moved longitudinally on the axle which causes the wheels 6 to be moved in or out transversely of the harrow as will be apparent. Either wheel can be moved and the harrow thus maintained in the proper position with relation to the row and each wheel retained in its respective furrow.

Disposed longitudinally of the harrow and beneath the axle two pairs of side bars 12 are arranged, the central bars which lie under the tongue being attached by flexible connections 13. Each pair of bars rigidly supports transverse rods 14. The side bars are supported by straps 15 extending upward toward the axle and secured to transverse hanger bars 16, which in turn are connected to longitudinal flat springs 17 secured on opposite sides of a transverse supporting bar 18. This bar is pivotally supported on the end of a curved arm 19 projecting from a collar 20 loosely mounted on the shaft 1 and forming the bottom of a vertical hand lever 21. This lever projects in juxtaposition to the tongue 3 which carries a sector 22 adapted to be engaged by a plunger 23 mounted on the lever 21 and by which the parts are locked in position.

V-shaped yokes 24 having their forward ends loosely bent about the rods 14, carry at their apexes, a suitably secured block 25, in each of which a spiked tooth 26 is fastened in any desired manner. These yokes are positioned so as to stand in staggered relation from front to rear of the harrow. It is obvious that two gangs of teeth are carried, those supported on the rods 14 between one pair of side bars 12 constituting one gang and those supported on the rods between the other pair of side bars constituting the other gang.

A frame 27 is supported over each gang by pivotally connected arms 28 loosely mounted on each rod 14, the said arms tilting or inclining rearwardly and the yokes lying horizontally as shown in Fig. 4. These frames carry on their under sides suitably secured cups 29 each normally hanging slightly in rear of one of the teeth 26 and a coiled spring 30 extending from the cup to the upper end of the adjacent tooth and connected thereto. These springs resiliently hold the teeth and yokes in position and when placed under tension tend to force the teeth and yokes downward.

A pair of longitudinal runners 31 extending below the rods 14 are supported from

each frame 27 by links 32 having pivotal connection with the frame and the runners and extending forward and downward, said links resting on the rods 14 as best shown in Fig. 4. It is obvious that the runners are held elevated by the engagement of the links with the rod and when the frames 27 are moved forward the links will force the runners downward on the accumulated material and below the teeth 26. When the frames are moved forward, they will swing on the arms 28 which will raise them and owing to the coiled spring connections, swing the teeth 26 and the yokes upward. The combined downward movement of the runners and upward movement of the teeth, serves to project the runners well below the ends of the teeth and free them from the accumulated material. This forward movement of the frames 27 is carried out by means of rods 33, one attached to the central rear portion of each frame at its lower end and to an arm 34 at its upper end. Each arm 34 is rigidly secured to the axle and projects upwardly at an angle therefrom. On the opposite side of the tongue from the lever 21, a lever 35 projects upward and rearward from the axle 1 on which it is secured and carries a plunger 36 which engages a toothed sector 37 secured to the side of the tongue. By pushing this lever forward, and rocking the axle 1, the arms 34 are swung upward and the frames 27 swung forward which depresses the runners and raises the teeth as above described. It is obvious that this operation may be expeditiously carried out and the accumulated material readily discharged.

By reason of the flat springs 17 it is obvious that each gang is resiliently supported as a unit so as to absorb any severe shock or jar. By pushing the lever 21 forward the gangs are raised, while by pulling the said lever rearward the gangs are lowered. It is also to be observed that the farther back the lever 35 is pulled, the lower the frames 27 are swung and the tension or compression of the springs 30 and the depression of the teeth 26 increased proportionately.

What I claim, is:

1. In a riding harrow, the combination with an axle and wheels movably mounted on the ends thereof, of a harrow frame resiliently hung from the axle, runners disposed beneath the harrow frame, means for rocking the axle, and means operated by the movement of the axle for shifting the runners vertically.

2. In a riding harrow, the combination with a wheel supported axle, of a harrow frame resiliently hung from the axle, runners disposed beneath the harrow frame, means for rocking the axle, means operated by the movement of the axle for shifting the runners vertically, and means for bodily

raising and lowering the harrow frame and the runners.

3. In a riding harrow, the combination with a wheel axle, of a harrow frame, teeth movably connected to the frame, means for placing the teeth under spring tension, runners disposed beneath the frame and extending thereunder, and means for simultaneously moving the teeth and runners in opposite directions toward and from the axle.

4. In a riding harrow, an axle, ground wheels loosely mounted on the ends of the axle, frames hung from the axle, a gang of movable harrow teeth carried by each frame, means arranged over the teeth adapted to swing the same when swung, and runners having direct connection with said means so as to be shifted vertically thereby.

5. In a riding harrow, an axle, ground wheels loosely mounted on the ends of the axle, frames hung from the axle, a gang of movable harrow teeth carried by each frame, means arranged over the teeth adapted to swing the same when swung, runners having immediate connection with said means so as to be shifted vertically thereby, means for rocking the axle, and means establishing connection between the axle and the first named means for swinging the same when the axle is rocked.

6. In a riding harrow, the combination with a wheel supported axle, of a plurality of movably supported teeth, means arranged over the teeth adapted to swing the same when swung, and runners having immediate connection with said means so as to be shifted vertically thereby.

7. In a riding harrow, the combination with a wheel supported axle, of a plurality of movably supported teeth, means arranged over the teeth adapted to swing the same when swung, runners having immediate connection with said means so as to be shifted vertically thereby, means for rocking the axle, and means establishing connection between the axle and the first named means for swinging the same when the axle is rocked.

8. In a riding harrow, the combination with a wheel supported axle, of supports disposed beneath the axle, teeth movably carried by said supports, a swinging device arranged over the supports and having connection with the teeth, runners supported from said swinging device so as to be shifted vertically thereby, and means for operating said swinging device to simultaneously move the teeth and the runners in opposite directions.

9. In a riding harrow, the combination with a wheel supported axle, of supports hung from the axle, teeth movably carried by said supports, a frame pivotally supported by the supports and above the same, said frame having connection with the teeth,

runners supported from the frame below the supports, and means for swinging the frame to simultaneously move the teeth and the runners in opposite directions.

5 10. In a riding harrow, the combination with a wheel supported axle, of supports hung from the axle, teeth movably carried by said supports, a frame pivotally support-
10 ed by the supports and above the same, said frame having connection with the teeth, runners supported from the frame below the supports, means for swinging the frame to simultaneously move the teeth and the runners in opposite directions, and means for
15 bodily raising and lowering the teeth and the runners and their supporting parts.

11. In a riding harrow, the combination

with a wheel supported axle, of supports hung from the axle, teeth movably carried by said supports, a frame pivotally support- 20 ed by the supports and above the same, spring connections between the frame and the teeth, runners supported from the frame below the supports, and means for swinging the same to simultaneously move the teeth 25 and the runners in opposite directions.

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

FRANK HOSFORD.

Witnesses:

C. W. EDMONDS,
W. M. CROW.