

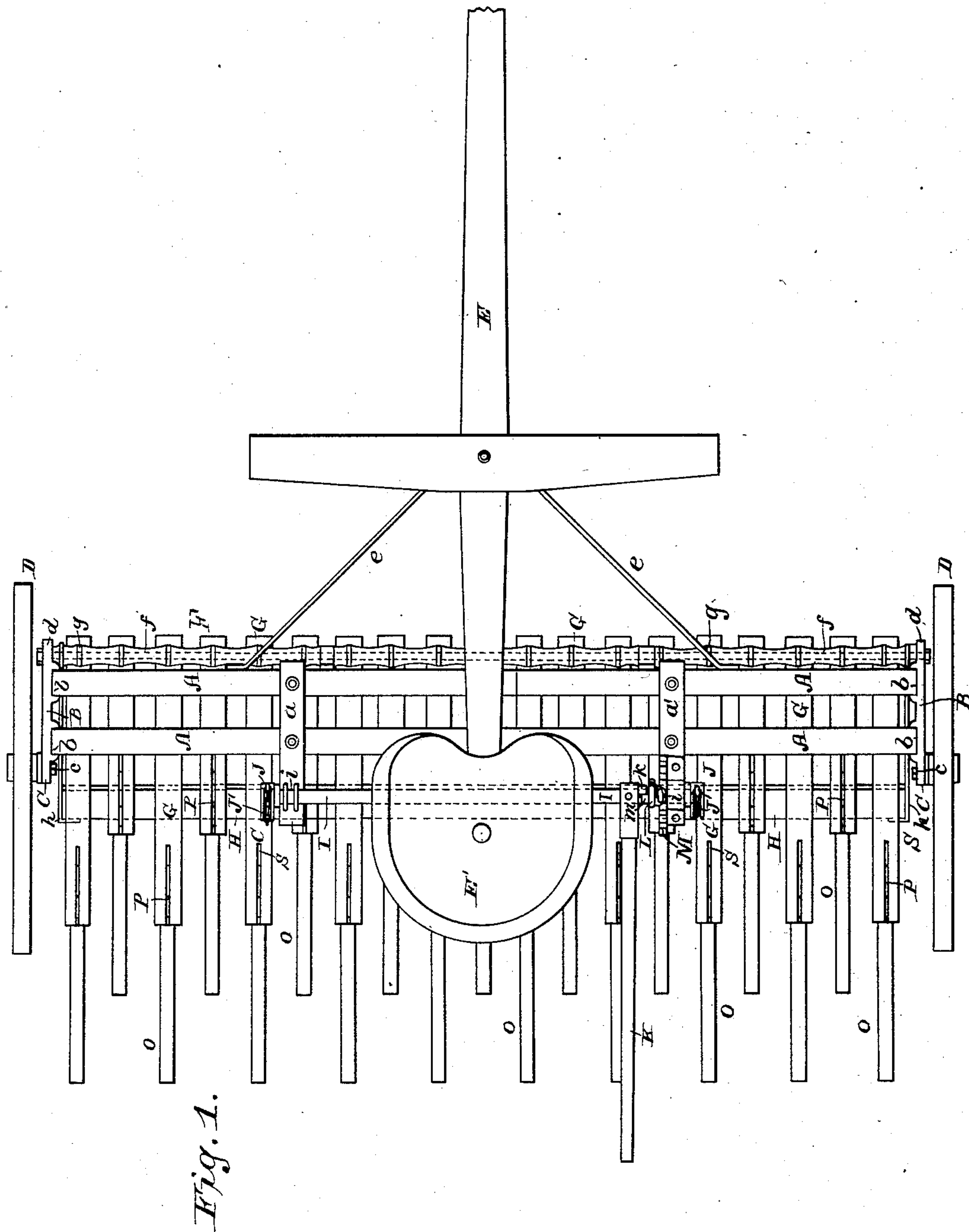
(No Model.)

2 Sheets—Sheet 1.

G. SWEET.
WHEEL HARROW.

No. 367,462.

Patented Aug. 2, 1887.



WITNESSES

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C. M. Newman.

INVENTOR

George Sweet,

By his Attorneys

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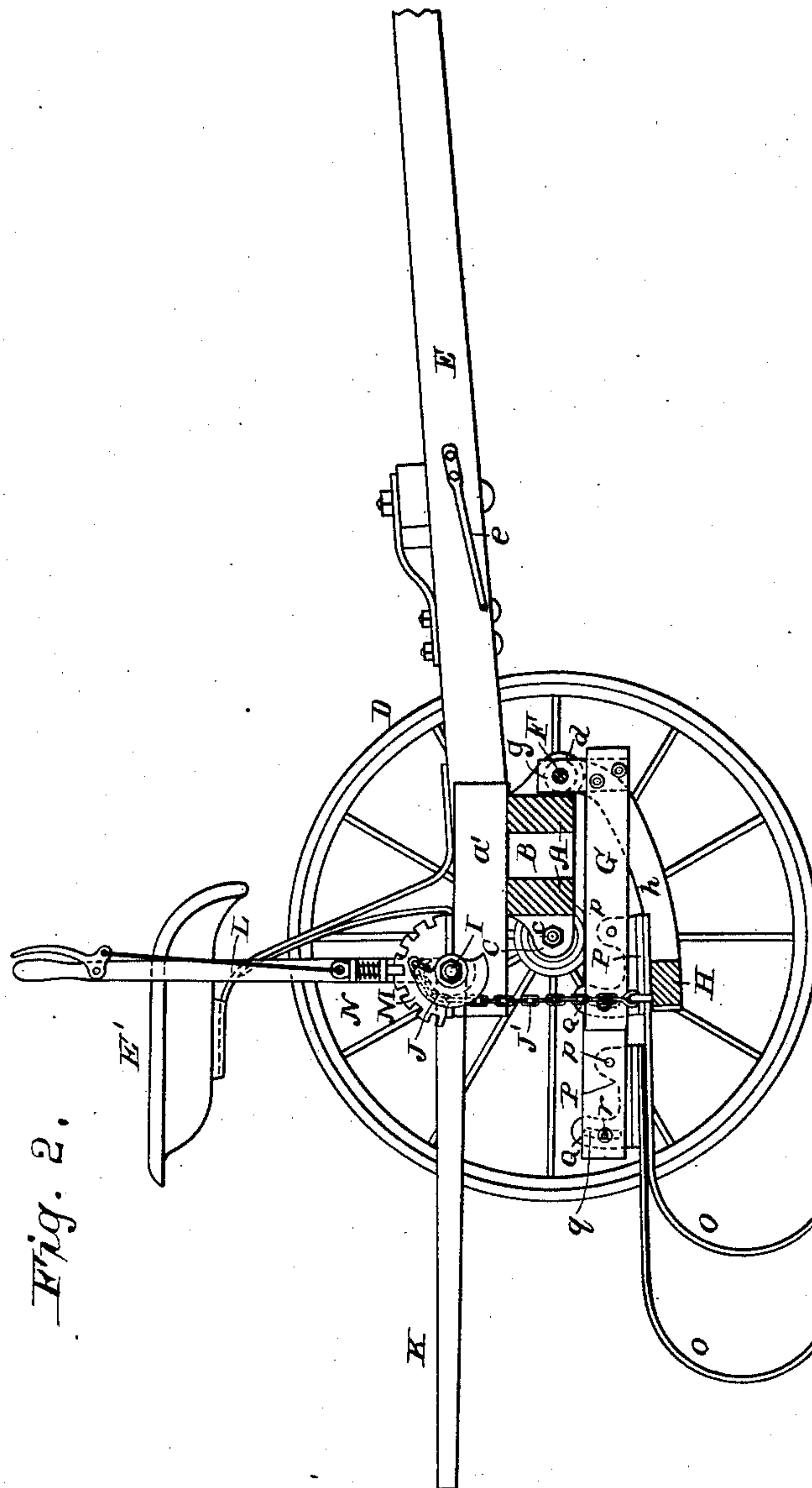
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UNITED STATES PATENT OFFICE.

GEORGE SWEET, OF DANSVILLE, NEW YORK.

WHEEL-HARROW.

SPECIFICATION forming part of Letters Patent No. 367,462, dated August 2, 1887.

Application filed April 18, 1887. Serial No. 235,178. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SWEET, of Dansville, in the county of Livingston and State of New York, have invented certain new and useful Improvements in Wheel-Harrows, of which the following is a specification.

My invention relates to improvements applicable to wheel-harrows of the class having curved spring-teeth carried by pivoted drag-bars, which may be simultaneously raised or lowered to regulate the depth of work, or to throw the teeth into or out of action, while leaving each tooth free, when at work, to rise independently of the others by the upward movement of its respective drag-bar, to pass obstructions and avoid breakage of parts.

My objects are to provide a strong, durable, inexpensive, simply-constructed, and easily-operated harrow in which provision is made for enabling the driver to raise and lower the teeth either while in his seat or walking in rear of the harrow.

In the accompanying drawings, Figure 1 is a plan view, and Fig. 2 a view partly in side elevation and partly in vertical section.

The axle-tree is shown as constructed in sections, being composed of two beams, A A, bolted together by connecting-bars *a a'* and strongly united at their ends by socketed brackets B B. The ends of the axle-tree beams are received into the sockets *b b* of the brackets and bolted thereto. The brackets are provided each with a rearwardly-projecting lug, C, and to these lugs are secured stud axes or spindles *c c* for the supporting-wheels D D. The tongue E is secured at its rear end to the axle-tree in suitable way, and upon the heel of the tongue the seat *E'* is mounted by its supporting-spring in a well-known way. Braces *e* pass from the axle-tree to the tongue. The socketed brackets B B have each a forwardly-projecting lug, *d d*, perforated to receive a rod, F, for pivoting the drag-bars G. Distance-pieces or long-spacing washers *f* are interposed between the respective eyes *g*, by which the drag-bars are pivotally connected at their front ends to the rod F.

A lifting-bar, H, is pivotally connected at its opposite ends by cranks *h* with the pivoting-rod F. This lifting-bar extends from side to side of the machine beneath the drag-bars

in rear of the axle-tree, and can be swung up and down by vibrating it about its pivotal connections to raise the drag-bars or permit them to descend at their rear ends. In order that the driver, either when occupying his seat or walking in rear of the machine, may operate the lifting-bar, the following lifting mechanism is provided:

A rock-shaft, I, is mounted at its opposite ends in suitable bearings, *i i*, upon the rear ends of the connecting-bars *a a'*. This rock-shaft is provided with segment-sheaves J J at its ends, which are flexibly connected, as by chains J', with the lifting-bar. A rearwardly-projecting lever, K, is fixed to the rock-shaft, near one end thereof, and has a laterally-projecting lug, *k*, at its heel end. An upwardly-projecting lever, L, is loosely mounted upon the rock-shaft, and is provided with a laterally-projecting lug, *m*, in rear of the lug upon the lever which is fixedly connected with the rock-shaft. A fixed detent-rack, M, on the connecting-bar *a'*, together with the detent N of the upwardly-projecting lever, serves to secure this lever in any desired position in a well-known way.

From the above description it will be understood that the upwardly-projecting or detent lever has connection with the rock-shaft through or by way of the rearwardly-projecting lever, and that the driver while in his seat may raise or lower the drag-bars and lock the rock-shaft in the desired position for regulating the work of the teeth carried by the drag-bars or for holding them up for transportation of the machine. It will further be seen that the drag-bars may be lifted by means of the rearwardly-projecting lever without interference with the detent-lever. The downward movement of the teeth upon the release of the rearwardly-projecting lever is limited by contact of the stop-lug upon this lever with the corresponding lug on the detent-lever. In this way easily-operated and inexpensive means are provided, whereby the machine is placed thoroughly under the control of the driver, enabling him, when walking, to quickly raise the teeth in turning corners or to pass obstructions.

The drag-bars are made alternately long and short, and each one has adjustably secured to

it a curved spring-tooth, O. As shown, each tooth has fixedly attached to its upper end a securing-bracket, P. These brackets are riveted to their respective teeth, and each has an upwardly-projecting front lug, *p*, and a longer upwardly-projecting rear lug, Q. The front lug is a pivoting-lug, serving, by means of a bolt, to pivot the tooth in the slot S at the rear end of its drag-bar, and the rear lug, Q, which enters the slot in the drag-bar, is formed with a curved slot, *q*. A clamping-bolt, *r*, passing through the drag-bar and through this slot *q* of the bracket, serves to hold the tooth in its adjusted position in an obvious way. It will be seen that only a slight movement of the tooth about its pivot is needed in adjusting it, while a very strong connection is secured.

I am aware that it is not broadly new to employ lifting mechanism comprising two levers to enable the driver to raise and lower the teeth, either while riding upon or walking in rear of a harrow, and I do not therefore unqualifiedly claim mechanism for this purpose; neither do I unqualifiedly claim either the combination of drag-bars, a swinging lifting-bar, and means for raising and lowering the lifting-bar, or the combination of a slotted drag-bar and a tooth adjustably and pivotally supported in the slot of the drag-bar, as, broadly considered, such combinations are older than my invention.

I claim as my invention—

1. The combination of the axle-tree, its end brackets having the rear and front lugs, the stud-axles secured to said rear lugs, the supporting-wheels, the drag-bars, their pivoting-rod supported by said front lugs, the lifting-bar, and its cranks carried by said pivoting-rod, substantially as and for the purpose set forth.

2. The combination of the axle-tree beams, their connecting-bars, the socketed brackets at the ends of said beams, provided with the rear and front lugs, the stud-axles, the drag-

bars, their pivoting-rod, the lifting-bar, and its cranks, substantially as and for the purpose set forth.

3. The combination of the axle-tree, the supporting-wheels, the pivoted drag-bars, the teeth, the swinging lifting-bar beneath the drag-bars, the rock-shaft having flexible connection with the lifting-bar, the detent-rack, the detent-lever loose on the rock-shaft, and the rearwardly-projecting lever fast on the rock-shaft, and through or by way of which the detent-lever acts on the rock-shaft, substantially as and for the purpose set forth.

4. The combination of the axle-tree, the supporting-wheels, the pivoted drag-bars, the swinging lifting-bar, the rock-shaft, its segment-sheaves, the chains connecting them with the lifting-bar, the detent-rack, the detent-lever provided with the side lug and loose on the rock-shaft, and the rearwardly-projecting lever fast on the rock-shaft and having the side lug in front of that on the detent-lever, substantially as and for the purpose set forth.

5. The combination of the curved tooth and the bracket rigidly attached to the upper end thereof and having the upwardly-projecting front and rear lugs perforated and slotted, respectively, substantially as and for the purpose set forth.

6. The combination of the drag-bar slotted at its rear end, the curved tooth, the bracket rigidly secured to the upper end of the tooth and having the upwardly-projecting front lug, by which it is pivoted in the slot of the drag-bar, and the upwardly-projecting slotted rear lug entering the drag-bar slot, and the clamping-bolt, substantially as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

GEORGE SWEET.

Witnesses:

T. T. BRETTLER,

J. C. WHITEHEAD.