

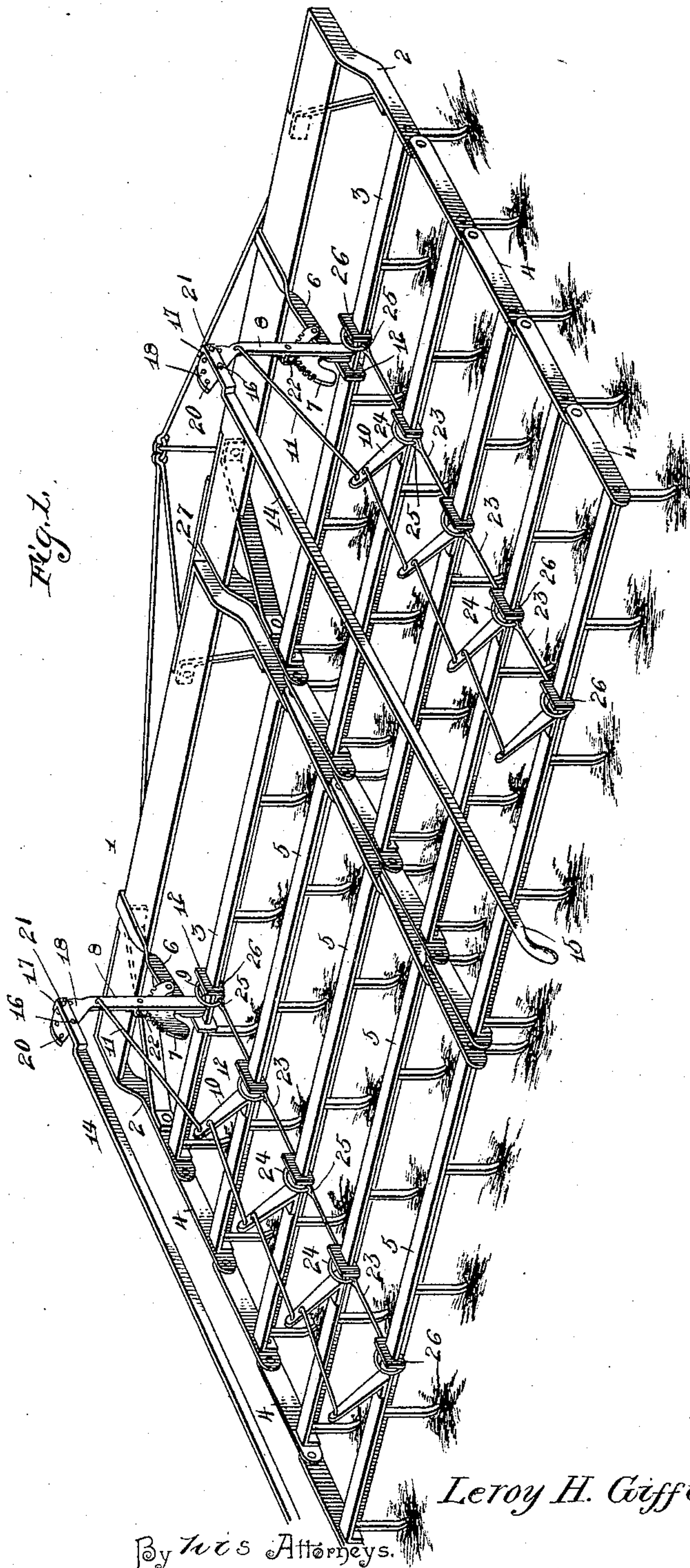
(No Model.)

2 Sheets—Sheet 1.

L. H. GIFFIN.
HARROW.

No. 575,642.

Patented Jan. 19, 1897.



Inventor

Leroy H. Giffin

Witnesses

John C. Shaw
J. D. [Signature]

By *W. C. S.* Attorneys.

Cashow & Co.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

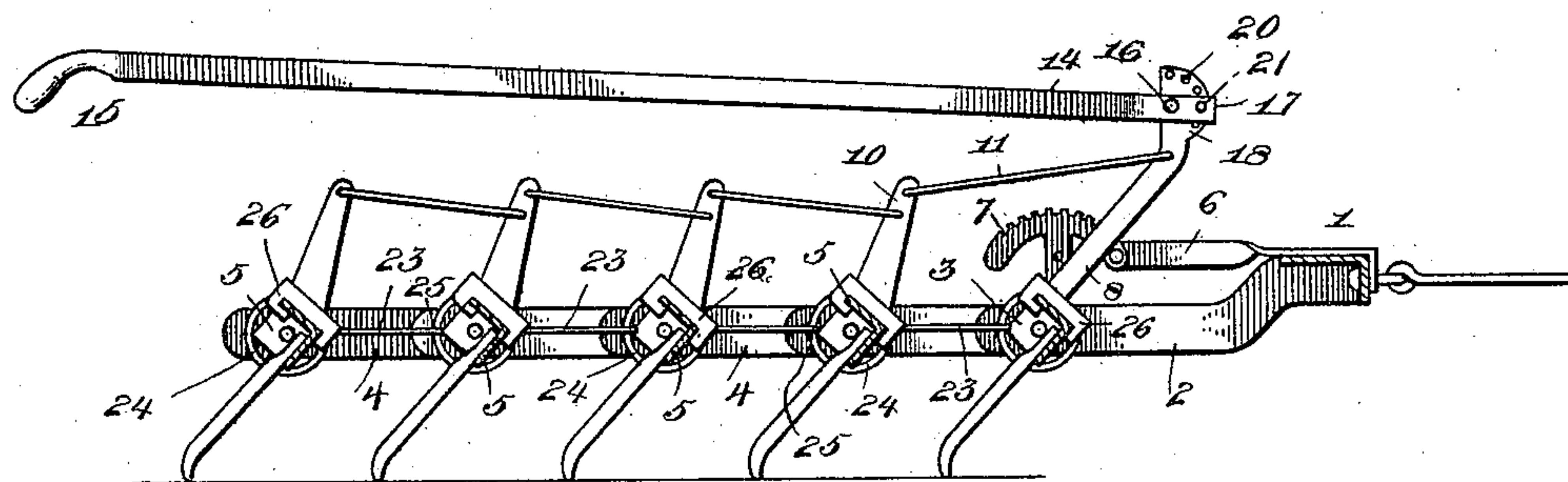
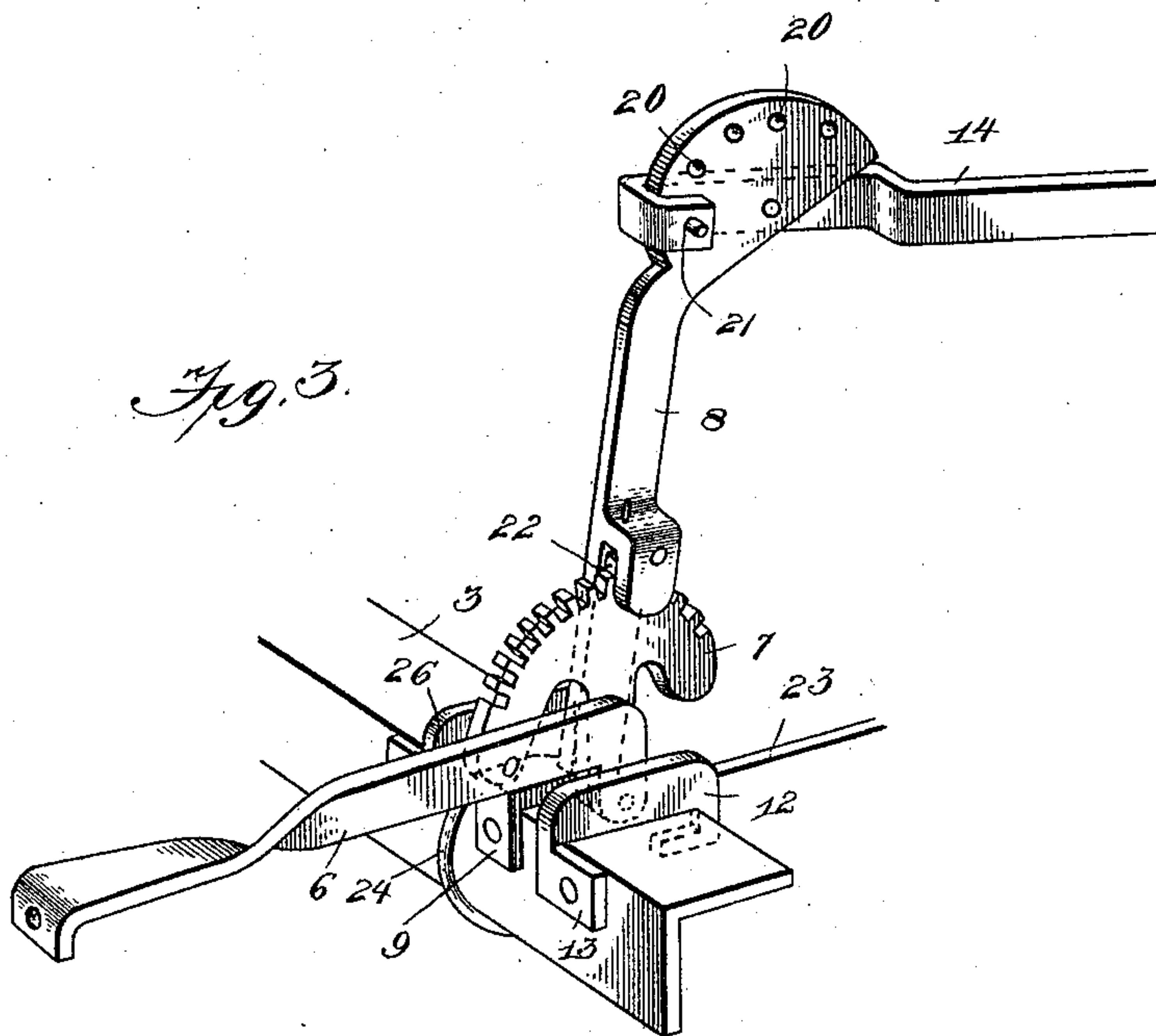


Fig. 3.



Inventor

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Witnesses

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By *his* Attorneys:

C. A. Shaw & Co.

UNITED STATES PATENT OFFICE.

LEROY H. GIFFIN, OF MOUNT IDA, WISCONSIN.

HARROW.

SPECIFICATION forming part of Letters Patent No. 575,642, dated January 19, 1897.

Application filed June 19, 1895. Serial No. 553,332. (No model.)

To all whom it may concern:

Be it known that I, LEROY H. GIFFIN, a citizen of the United States, residing at Mount Ida, in the county of Grant and State of Wisconsin, have invented a new and useful Harrow, of which the following is a specification.

My invention relates to harrows; and the object in view is to provide a simple and efficient construction and arrangement of parts whereby flexibility of the frame is secured to allow the device to follow irregularities in the surface of the soil traversed, and to provide means for adjusting the tooth-bars, said means including a lever so constructed as to be readily accessible by the operator in all positions of the tooth-bars.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a harrow constructed in accordance with my invention. Fig. 2 is a vertical longitudinal section of the same, showing the parts adjusted to throw the harrow-teeth back. Fig. 3 is a detail view in perspective of the lever and connected parts.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The harrow comprises a front frame-bar 1 and rigid side bars 2, attached to the extremities of the front bar, the front tooth-bar 3, which is journaled in the rear extremities of said side bars, a series of pivotally-connected side links 4, the foremost links being pivotally connected to the rear ends of the side bars 2, and a series of tooth-bars 5, arranged parallel with the tooth-bar 3, a tooth-bar being arranged at each joint between connected links. Thus each tooth-bar is capable of vertical movement independently of the others, while all the tooth-bars are mounted for rotation to provide for the adjustment of the teeth to suit the character of the soil and the immediate use of the apparatus.

Secured to the front frame-beam 1 is an arm 6, which supports a toothed segment 7, and 8 is a lever having a lateral ear 9, which is fixed rigidly to the front tooth-bar 3, said lever being connected at an intermediate point to the upper extremity of an arm 10 on the

foremost tooth-bar 5 by means of a rod 11. Similar arms rise from the succeeding tooth-bars and are connected in series by rods, whereby the movement of the lever to change the inclination of the tooth-bar 3 correspondingly changes the inclination of the other tooth-bars to arrange the teeth in the desired positions. Pivotally connected to the segment in alinement with the pivotal connection of the lever with said segment is a bracket 12, having depending ears or extensions 13, which are secured, respectively, to the front and rear sides of the front tooth-bar 3, said bracket serving to brace and firmly connect the parts to prevent looseness.

The hand-lever is sectional in construction and comprises a pivotally-connected stock 14 and handle 15, the pivotal point of connection being shown at 16, which is removed from the extremity of the handle. This extremity 17 of the handle traverses a quadrant 18, which is concentric with the pivotal point 16 and is provided with a series of perforations 20, to be engaged by a pin inserted through a perforation 21 in the extension 17 of the handle, whereby the handle may be locked at any desired angular position with relation to the stock. A pawl 22 is employed to lock the stock of the lever in any desired position with relation to the segment 7, to hold the tooth-bars in the desired position, any suitable means (not shown in the drawings) being employed for disengaging the pawl, when desired, from the teeth of the segment, this feature forming no part of my invention.

From the above description it will be seen that the harrow is adapted to pass flexibly over the soil and that the tooth-bars may be simultaneously inclined to the rear by the manipulation of the lever. When the teeth are inclined to the rear, as shown in Fig. 2, it is obvious that a rigid lever would throw the extremity of the handle out of the reach of the operator, but by use of the jointed lever this disadvantage is avoided.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

The tooth-bars are connected at intermediate points by means of brace-rods 23, which

are provided at opposite ends with rings 24, encircling the tooth-bars, and eyes 25, engaging the rings. Said braces are held from lateral displacement by clamps 26. The sections 5 of the harrow are secured together by means of a connecting-plate 27, and by means of this or similar means three sections may be similarly arranged to operate simultaneously.

Having described my invention, what I 10 claim is—

1. In a harrow, the combination of a front beam, fixed side bars 2 secured to the extremities of the front beam and extending rearwardly therefrom, a front tooth-bar journaled 15 in the rear ends of the side bars, a series of revoluble flexibly-connected tooth-bars arranged in rear of the front tooth-bar, a sectional hand-lever having a stock secured to the front tooth-bar, and a handle pivotally 20 connected to the stock and terminating near the rear tooth-bar whereby it may be reached by an attendant walking in rear of the harrow, connections between the stock of the lever and the tooth-bars in rear of that to 25 which said lever is secured, whereby they may be simultaneously adjusted to arrange the teeth in the desired positions, a locking device for securing the handle and stock at the desired relative adjustment, and means 30 for locking the stock to hold the tooth-bars at the desired adjustment, substantially as specified.

2. The combination with a harrow having rotary tooth-bars and a fixed front beam, of 35 a supporting-arm 6 secured to and extending rearwardly from the front beam, a segment 7 carried by said supporting-arm, a hand-lever operating contiguous to the segment and secured to the front tooth-bar which is mounted 40 in rigid arms extending rearwardly from the front beam, the hand-lever comprising a stock

carrying a perforated quadrant 18 and having means to engage the segment, and a handle pivotally connected to the stock and having a perforated extremity traversing the quad- 45 rant, means for engaging registering perforations of the extension and the quadrant, and flexible connections between the hand-lever and the tooth-bars in rear of that to which said lever is secured, substantially as speci- 50 fied.

3. The combination of harrow-sections, each section having a front beam, fixed side bars secured to the extremities of the front beam, a series of tooth-bars connected by piv- 55 otal links, the front tooth-bar being mounted in bearings in said side bars, a lever secured to the front tooth-bar, means for locking the lever at the desired adjustment, connections between the hand-lever and the tooth-bars in 60 rear of the front tooth-bar, said connections including arms attached to the tooth-bars, rods connecting the arms in series, rings encircling the tooth-bars contiguous to said arms and arranged between the arms and contigu- 65 ous clamps secured to the tooth-bars, and brace-rods connecting the rings, said arms being arranged upon the tooth-bars at points between the journals of the latter and the brace-rods being adapted to prevent yielding 70 of the tooth-bars when the teeth carried thereby come in contact with obstructions, without preventing the free rotary movement of the tooth-bars, substantially as specified.

In testimony that I claim the foregoing as 75 my own I have hereto affixed my signature in the presence of two witnesses.

LEROY H. GIFFIN.

Witnesses:

SAMUEL STEWART,
CHAS. A. WILLISON.