

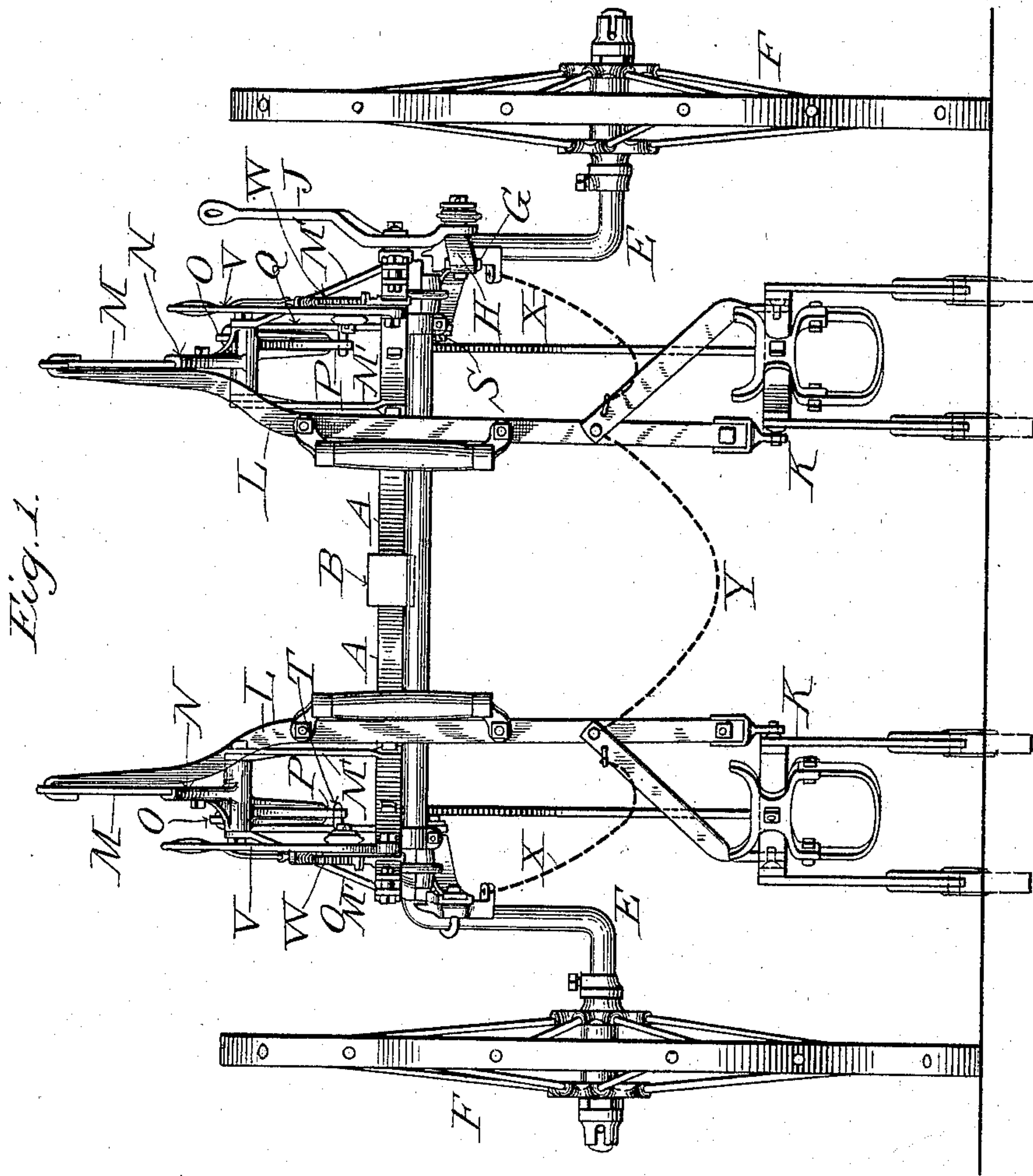
(No Model.)

N. O. STARKS.  
CULTIVATOR.

3 Sheets—Sheet 1.

No. 604,130.

Patented May 17, 1898.



Witnesses  
W. W. Brundine  
J. S. Fair

Inventor:  
Nils O. Starks,  
by Dodge and Sons  
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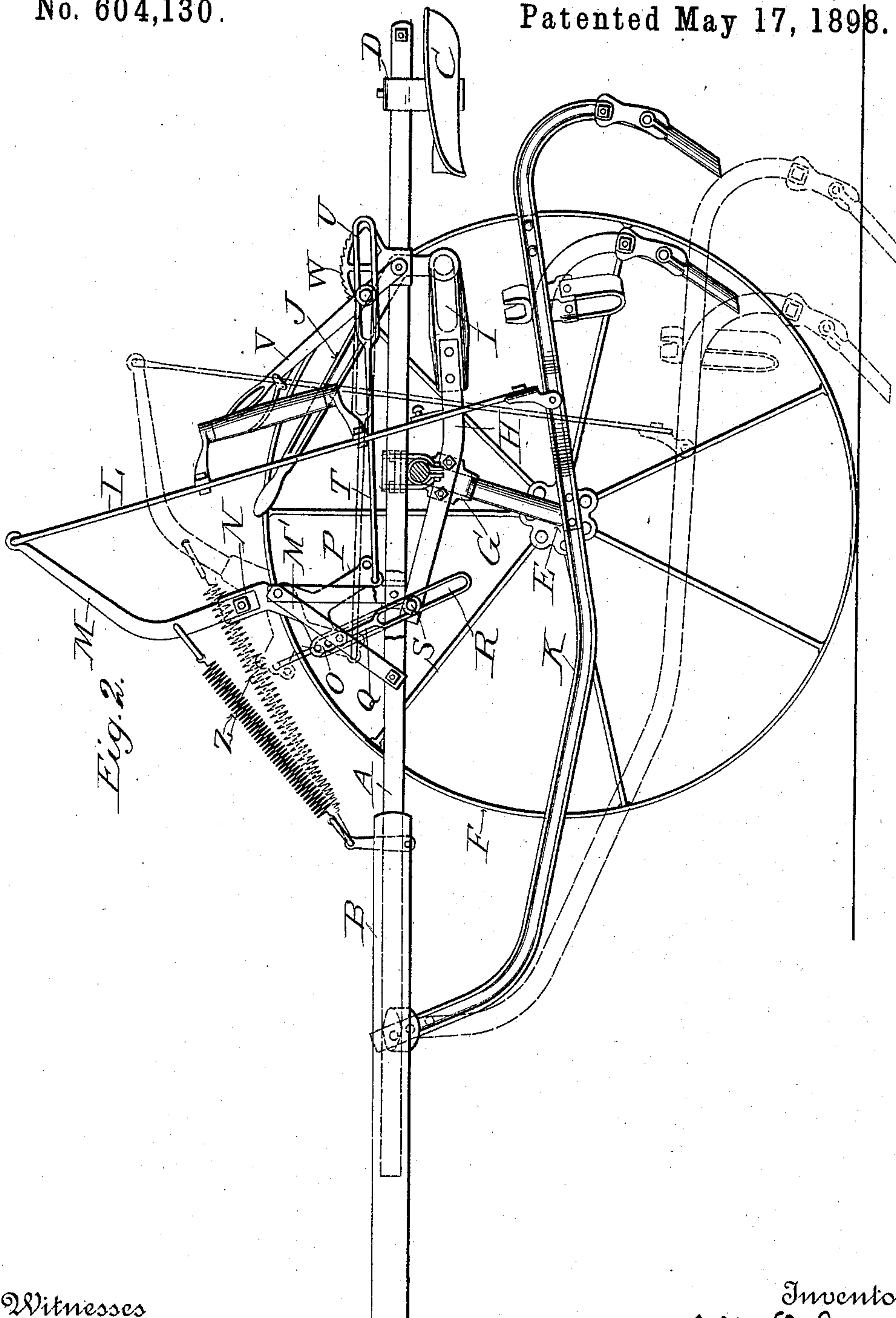
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3 Sheets—Sheet 2

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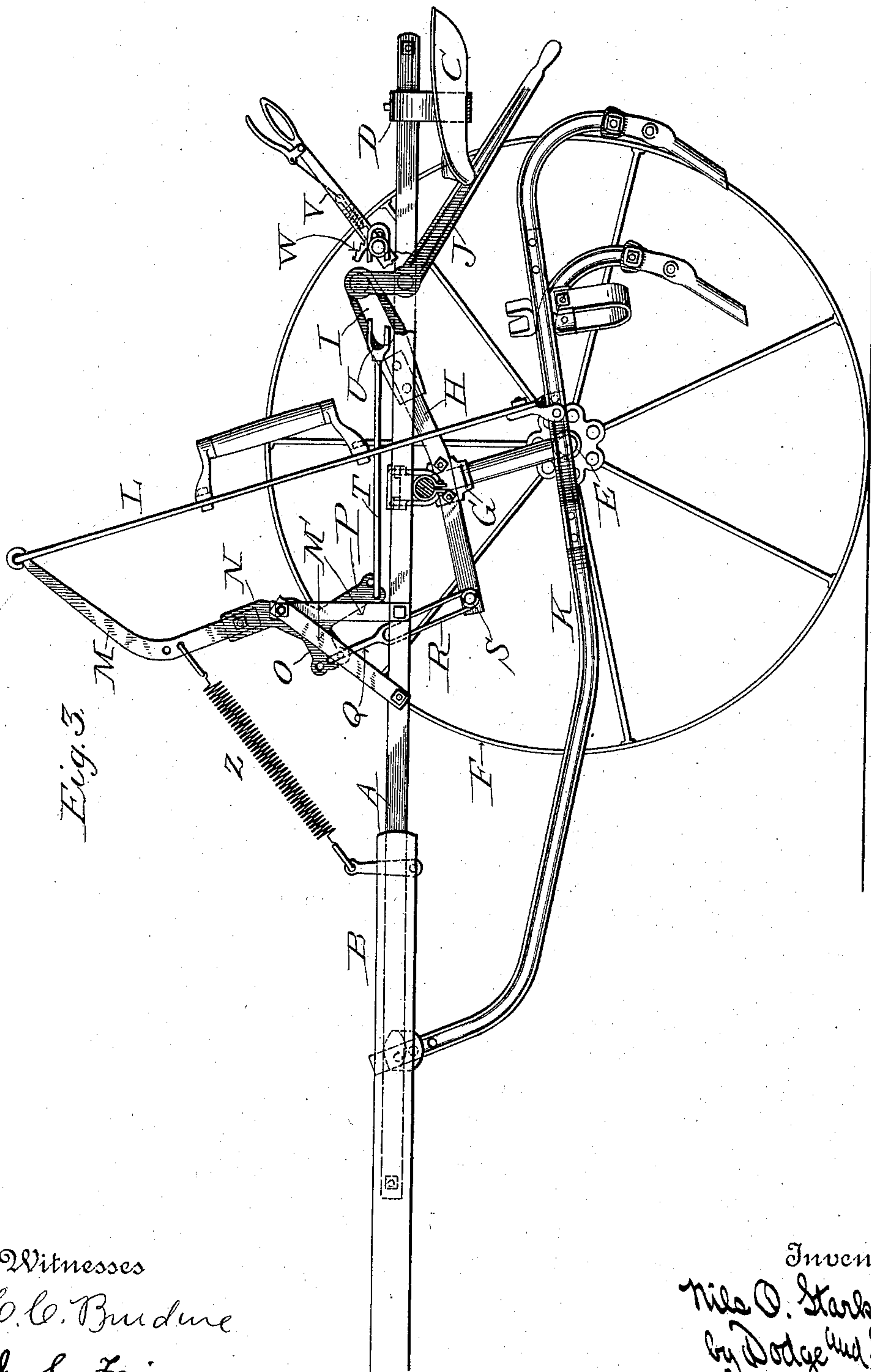
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N. O. STARKS.  
CULTIVATOR.

3 Sheets—Sheet 3.

No. 604,130.

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# UNITED STATES PATENT OFFICE.

NILS O. STARKS, OF MADISON, WISCONSIN, ASSIGNOR TO THE FULLER & JOHNSON MANUFACTURING COMPANY, OF SAME PLACE.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 604,130, dated May 17, 1898.

Application filed December 31, 1897. Serial No. 664,941. (No model.)

*To all whom it may concern:*

Be it known that I, NILS O. STARKS, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

My present invention relates to wheel-cultivators, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein—

Figure 1 is a rear elevation of the machine, and Figs. 2 and 3 longitudinal vertical sections showing the machine in different operative relations.

The object of the present invention is to provide means whereby the relative position of the axle to the frame and shovel-beams may be varied and said beams raised or lowered, as may be desired.

The frame of the machine, as shown, comprises two sections A A, connected at their forward ends to the pole B, the sections being composed of two or more iron bars and inclining or receding from each other toward the rear. A suitable seat C is provided, supported upon a cross-bar D, suspended between the ends of the frame-sections.

E indicates the axle, which, as shown, is journaled to the under side of the frame. The axle is of the well-known arched type and has mounted upon its ends wheels F, which support the machine.

Secured to one of the depending arms of the axle, just below the pivotal connection of the frame therewith, is a casting G, and connected to said casting is an arm or lever H, its rear end being provided with an elongated eye or opening I.

J denotes a bell-crank lever pivoted to the frame and connected to the lever H through a stud or a roller carried by the short arm of said lever J and working in the elongated eye I.

Pivoted to the forward part of the frame and extending rearwardly thereof beneath the axle are suitable shovel-bars or gangs K, carrying suitable plows or cultivators, each bar being suspended by a rod L, connected at its upper end to an arm M, said arm being bolted or otherwise secured to a member N,

pivoted between uprights M', extending up from the frame and having two depending arms O and P.

Connection is made between the member O and the forward end of arm or lever H through a link Q, adjustably secured to member O and having at its lower end an elongated opening or eye R, in which works a stud S, projecting from said arm H.

A rod T is adjustably connected to the end of member P and at its rear end, through elongated eye U, with a lever V, which is pivoted to the frame. A curved rack W is employed in conjunction with lever V to hold it in its adjusted position.

Both of the bars or gangs and their connections are alike in all details.

Chains X connect the bars to the frame, while a chain Y forms a connection between the two members themselves, the chain being adjustable, so as to limit the movement of the parts.

A spring Z extends forward from arm M and is connected to the frame, said spring serving to pull the arm forward and to elevate the plows.

The working position of the parts is indicated in full lines in Fig. 2, wherein it will be noticed that the lever J is thrown forward, the axle inclines forward, and the forward end of arm H is elevated. Lever V will then be adjusted, so as to limit the downward movement of the gangs K as may be desired, the stud carried by the link serving to limit the forward movement of the rod T through elongated eye U, and thus determining the swing or movement of the pivoted member N.

In the position indicated in Fig. 2 the plows may be inserted into the ground, as shown in dotted lines, in which position the lower end of eye R comes into contact with stud or roller S, or nearly so.

The operator can by proper manipulation of gangs K through the stirrups and handles regulate the direction of the plows and through adjustment of lever V the depth to which they work.

When it is desired to withdraw the plows from the ground, the operator throws lever J back into the position indicated in Fig. 3, throwing the forward end of arm H down and



drawing link or rod Q down, thereby causing the beams or gangs to be elevated through arm O, lever M, and rod L, and the axle to be thrown back. This is assuming, of course, that lever V is forward and the plows free to rise and fall. With the lever V back in the position indicated in Fig. 3 and the lever J down, as shown, there can be no downward movement imparted to the beams.

The parts are so arranged that the spring will just about hold the beams or gangs in their elevated or suspended position, so that little or no exertion is required to depress them. With the axle thrown forward the tendency of the plows is to enter the ground, while the reverse is true when the axle is thrown back.

Having thus described my invention, what I claim is—

1. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle; and a lever pivoted to the frame and connected to one end of said arm, substantially as described.

2. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle; a lever pivoted to the frame and connected to one end of said arm; a plow-beam pivoted to the frame; means for suspending said beam; and connections between said means and the opposite end of said arm for determining the position of the beams as the lever is raised or lowered.

3. In a cultivator or plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle extending forwardly and rearwardly thereof; a bell-crank lever pivoted to the frame and pivotally connected to one end of said arm; a plow-beam pivoted to the frame and extending beneath the axle; means for suspending the rear

end of the beam pivotally supported upon the frame; and connections between said means and the forward end of the arm.

4. In a cultivator-plow, the combination of a suitable frame; an arched axle journaled thereon; an arm secured to said axle extending forwardly and rearwardly thereof and provided with an elongated slot or eye at its rear end; a lever J pivoted to the frame having its short arm in operative connection with said eye; a beam pivoted to the frame; and connections between said beam and the forward end of the arm.

5. In a cultivator or plow, the combination of a frame; an arched axle journaled thereon; an arm H secured to said axle and provided with an elongated eye I at its rear end; a lever J pivoted to the frame and provided at its short end with a stud or roller working in said eye; a plow-beam pivoted to the frame and extending rearwardly beneath said axle; a member N pivoted on the frame; lever M extending upwardly therefrom; rod L connecting said arm and the beam; link Q connected to said member N and provided with an elongated eye at its lower end; a connection between said eye and the forward end of arm H; and means for adjusting the member N.

6. In a cultivator-plow, the combination of a suitable frame; an arched axle journaled thereon; a slotted arm secured to said axle; and a lever pivoted to the frame and connected to one end of said arm, substantially as described.

In witness whereof I hereunto set my hand in the presence of two witnesses.

NILS O. STARKS.

Witnesses:

W. R. BAGLEY,  
EDWARD F. APPLEBY.