(No Model.)

2 Sheets—Sheet 1.

A. LINDGREN.

WHEEL CULTIVATOR.

No. 358,210. Patented Feb. 22, 1887.

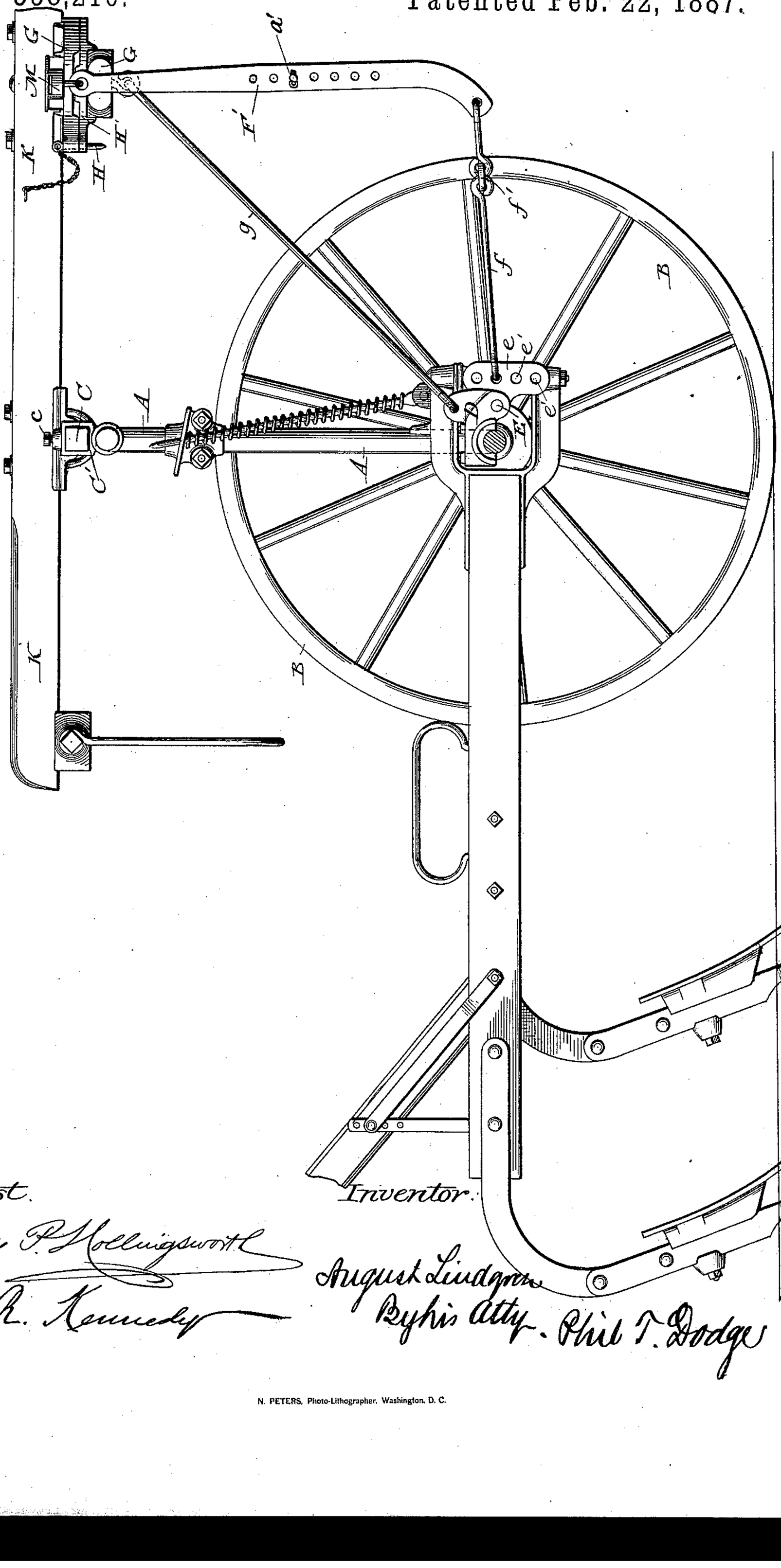

Fig. 1.

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Sidney P. Hollingsworth

W. R. Kennedy

Inventor.

August Lindgren

By his Atty. Phil T. Dodge

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Fig. 3.

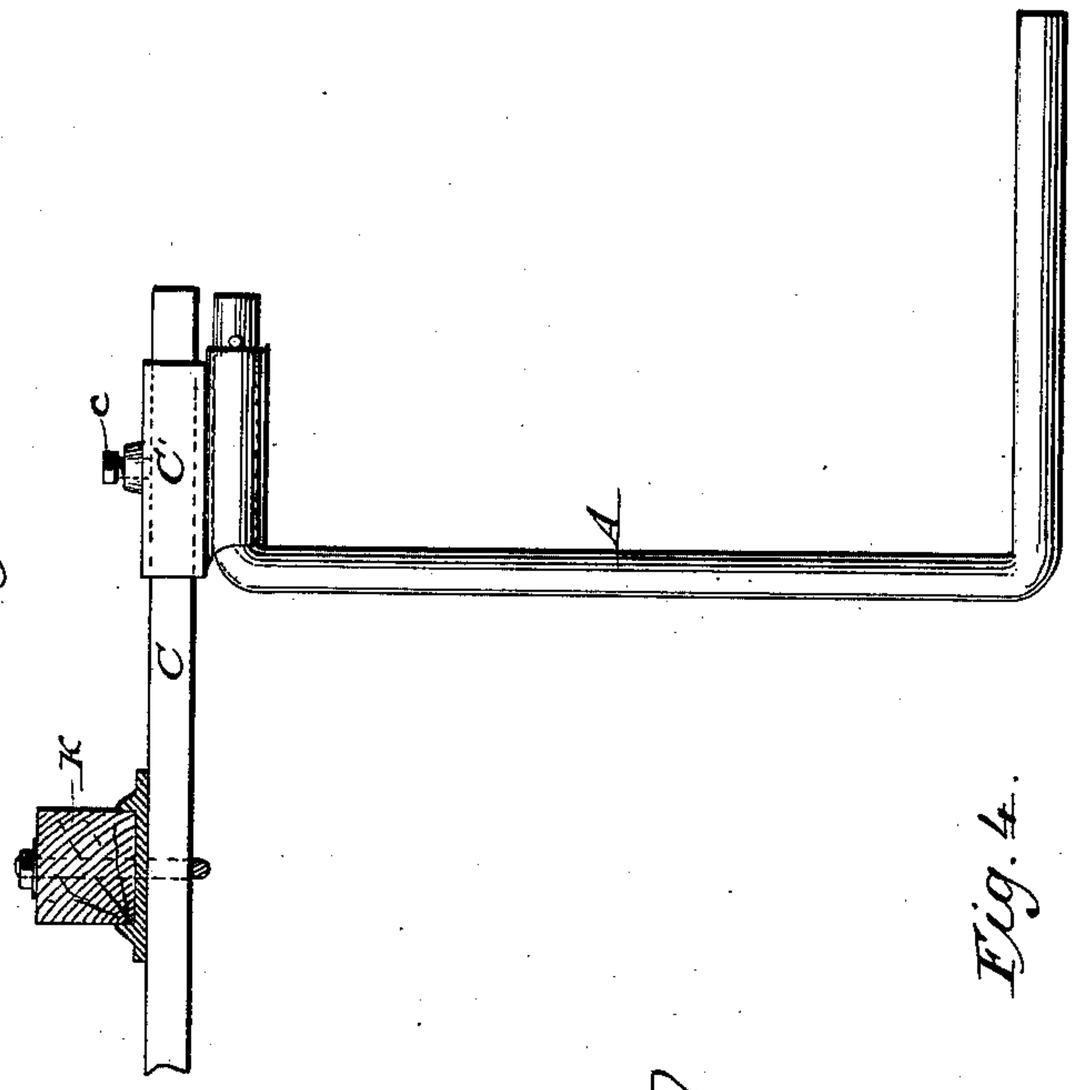


Fig. 4.

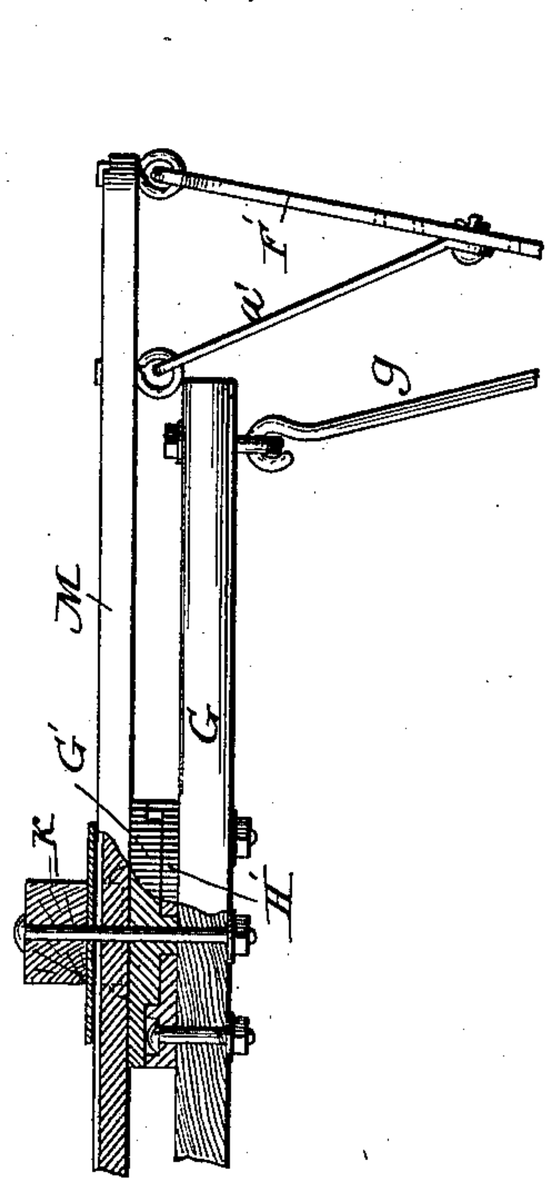
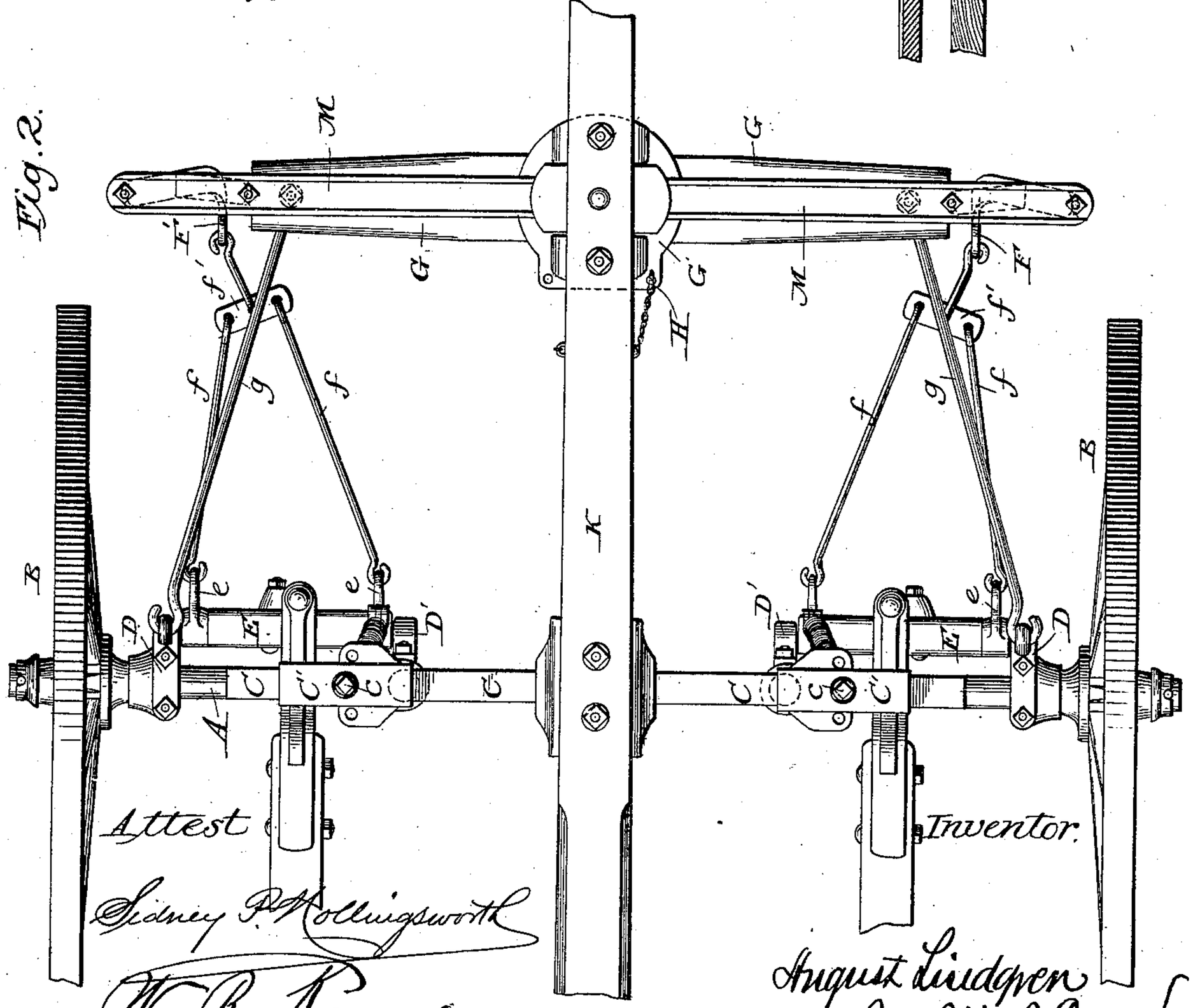


Fig. 2.



Attest

Sidney P. Hollingsworth

W. R. Kennedy

Inventor:

August Lindgren

By Phil T. Dodge Atty.

UNITED STATES PATENT OFFICE.

AUGUST LINDGREN, OF MOLINE, ILLINOIS.

WHEEL-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 358,210, dated February 22, 1887.

Application filed November 9, 1886. Serial No. 218,400. (No model.)

To all whom it may concern:

Be it known that I, AUGUST LINDGREN, of Moline, in the county of Rock Island and State of Illinois, have invented certain Improvements in Wheeled Cultivators, of which the following is a specification.

This invention relates to that class of wheeled straddle-row cultivators, frequently known as "arch-cultivators," in which the plow-beams are coupled to wheel-carrying arms jointed to the frame in such manner that each beam may move backward and forward independently of the other, and in which a double-tree or evener jointed to the tongue is connected at opposite ends through draft devices to the respective plows.

The objects of my invention are to provide convenient means for changing the distance between the beams, for equalizing the draft, in order that the frame may be relieved from torsional strains, and to provide means for adjusting the beams so that they may be fixed to travel side by side, if demanded.

In the accompanying drawings, Figure 1 is a side elevation of my machine, one of the main wheels being removed to expose other parts to view. Fig. 2 is a top plan view of the machine, the rear ends of the drag-bars or beams being broken away. Fig. 3 is a rear elevation showing one end of the wheel-carrying axle and its connection with the other parts. Fig. 4 is a rear elevation of the draft and equalizing devices, the middle portion being shown in vertical section.

Referring to the drawings, A A represent two upright arms, the lower ends of which are extended outward horizontally, forming axles to receive the ground-wheels B, while their upper ends are also extended outward horizontally to form journals, which are seated in coupling heads or blocks C′, mounted and arranged to slide laterally on opposite ends of a cross-bar, C, bolted or otherwise fixed rigidly to the draft-pole or tongue K. The sliding motion of the couplings permits the distance between the ground-wheels to be changed, thus changing the distance between the plow-beams, which are coupled to the respective axles, as shown, and as hereinafter explained. The adjustable couplings are secured to the supporting-bar by set-screws *c*, or other suitable means whereby they may be fixed firmly in position when properly adjusted.

The horizontal journals at the upper ends of the wheel-carrying arms afford a long and secure connection between the cross-bar and arms, thus holding the latter securely against lateral motion and giving to the frame the requisite stability, while permitting the arms to swing freely forward and backward.

The lower end of each wheel-carrying arm or axle is provided with forwardly-extending arms or brackets D D′, in which are journaled the ends of a horizontal rock shaft, E, to which the forward end of the plow-beam is coupled by devices which will permit the beam to swing laterally. This rock-shaft and its connections with the beam, as shown in the drawings, are of a form well known in the art, and are not claimed as any part of the present invention.

The rock-shaft is provided at each end with clevis-plates *e*, provided with a series of holes, *e′*, at different heights. Instead of connecting the draft devices to one end of the rock-shaft, as usual, I connect them with both ends, thus relieving the parts of the side strains to which they are commonly subjected in ordinary machines, and permitting the parts to be made lighter than would otherwise be admissible.

As shown in the drawings, the two draft-rods *f*, connected at their rear ends to the plates at the opposite ends of the rock-shaft, are extended forward in converging lines and connected at their front ends to a link, *f′*, which is in turn connected by an intermediate link or otherwise to the lower end of a draft-arm, F′. The two draft-arms F′, at opposite sides of the machine, are jointed at their upper ends to the extremities of a double-tree or evener, M, lying horizontally across the tongue or draft-pole and pivoted at its middle thereto. The single-trees or other devices to which the draft-animals are attached will be connected to the draft-arms F′ in any ordinary manner.

It will be observed that under the above arrangement of parts the two axles and beams are permitted to move forward and backward independently, while at the same time the double-tree and its connections tend to equalize the draft and to divide the labor properly between the two animals. It will be further observed that the propelling power is applied

to each axle at two points, one near the wheel and the other near its inner end on opposite sides of the plow-beam. This feature, which relieves the arms or axles from torsional strain, I believe to be original with myself in this class of implements, and it is manifest that the details of construction may be modified without departing from the limits of my invention, which consists, essentially, in this regard in connecting the draft devices on each side of the machine at two points on opposite sides of the beam or its coupling-head.

While the best results are obtained by connecting the draft-rods *f* to the rock-shaft, for the reason that when so applied they assist in controlling the rotation of the shaft and the vertical motion of the beam, still it is to be understood that they may be connected directly to the horizontal portion of the wheel-carrying axle near its opposite ends.

In order to prevent the lower ends of the draft-arms F′ from swinging laterally, and to keep them in proper position with reference to the beams, notwithstanding the lateral adjustment of the latter, I use, in connection with each arm F′, a lateral brace, *a′*, attached at its lower end to the arm, and jointed at its upper end to the double-tree. One end of this brace, preferably the lower, is attached adjustably, so that the lower end of the arm F′ may be moved laterally and fixed in line with the beam. I prefer to provide the arm F′ with a series of holes, and to connect the brace thereto by a removable pin or bolt, this being the most simple means of adjustment at present known to me.

It is to be understood, as a peculiarity of my machine, that there are two flexible connections between the beams and the frame—namely, the evener and the draft devices extending therefrom to the beams, and the pivoted cross-bar and the rods extending therefrom to the axle.

To the tongue I connect at its middle by a vertical pivot, a cross-bar, G, and from the ends of this bar I extend rods *g*, chains, or equivalent connections rearward to the outer ends of the respective axles. These rods may be attached in any suitable manner, but are preferably hooked through the outer brackets which support the rock-shaft, as shown in the drawings.

Through the cross bar and rods each axle and beam is caused to move rearward as the other moves forward, and vice versa. In order to prevent this movement of the beams and hold them rigidly side by side, I propose to provide means of any suitable character for locking the bar G rigidly in position. I recommend as the best means for this purpose two bearing-plates, G′ and H′, secured respectively to the tongue and the cross-bar and provided with one or more vertical holes to receive a locking-pin, H. If desired, a series of holes may be provided to admit of the cross-bar being locked in different positions, so as to hold either beam in advance of the other.

I am aware that upright wheel-carrying arms have been connected to a cross-bar by laterally-adjustable couplings of various forms, and my invention is therefore limited in this regard to the coupling-head C′, having a socket to receive the journal of the arm A and a separate socket to receive the cross-bar C.

Having thus described my invention, what I claim is—

1. In an arched cultivator, the combination of the rigid cross-bar C, the upright wheel-carrying arms A, each having a horizontal journal at its upper end, the adjustable coupling-heads C′, each provided with a socket to receive the journals of the wheel-carrying arms and with a transverse opening to receive the bar C, and screws or fastening devices *c*, to secure said couplings in position.

2. In a cultivator, the combination of the tongue, the two wheel-carrying arms or axles connected with the tongue to swing forward and backward independently, the rock-shaft journaled to the said axles, the plows coupled to the axles, the double-tree M, pivoted to the tongue, the depending draft arms or links jointed at their upper ends to the double-tree, and two draft-rods extending from each draft-arm to opposite ends of the adjacent rock-shaft.

3. In a parallel cultivator, an upright arm, A, jointed to the frame to swing forward and backward, and provided at its lower end with a horizontal wheel-receiving portion or axle, a rock-shaft, E, jointed to said axle and to the plow-beam, and a draft device having two arms or rods, *f f*, extended to opposite ends of the rock-shaft, whereby the draft to propel the machine is applied to both ends of said shaft.

4. In an arch-cultivator, the combination of the axles having forwardly-projecting brackets, the rock-shaft journaled therein, the draft-link, the yoke consisting of two converging rods or their equivalents extended to opposite ends of the rock-shaft, the double-tree, the draft-arm jointed at its upper end to the double-tree and at its lower end to the yoke or draft-rods, and the lateral brace jointed to the draft-frame and to the double-tree.

5. In an arched cultivator, the combination of the rigid cross-bar C, the wheel-carrying arms jointed at their upper ends to said bar to swing transversely thereof, the pivoted cross-bar G, rods *g*, connecting said cross-bar with the wheel-carrying arms, and a locking device, substantially as described, for securing the bar G in position, whereby the swinging motion of the wheel-carrying arms may be prevented at will.

6. In a cultivator provided with plow-beams having an independent longitudinal movement, and, in combination with said beams, a cross-bar, G, pivoted to the tongue, connections extending rearward from the ends of said cross-bar to control the longitudinal position of the respective beams, and means, substantially as described, for locking said

cross-bar rigidly in position, whereby the independent longitudinal movement of the beams may be prevented.

7. The combination of the draft-pole or tongue, the two wheel-carrying arms or axles connected with the tongue to swing forward and backward independently, the two plow-beams coupled to the respective arms, the double-tree M, pivoted to the beam, the draft devices connecting the opposite ends of the double-tree with the respective couplings, the cross-bar G, also pivoted to the tongue, braces or connections extending from opposite ends of said cross-bar to the respective axles, and a locking device whereby said cross-bar may be fixed against pivotal movement.

In testimony whereof I hereunto set my hand, this 11th day of October, 1886, in the presence of two attesting witnesses.

AUGUST LINDGREN.

Witnesses:
A. A. CRAMPTON,
A. S. CARSON.