S. F. LEE.

CULTIVATORS.

No. 187,470. Patented Feb. 20, 1877.

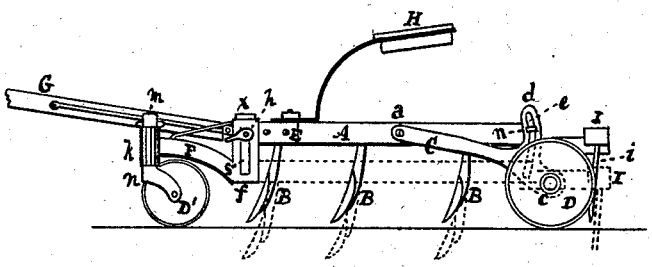

Fig.1.

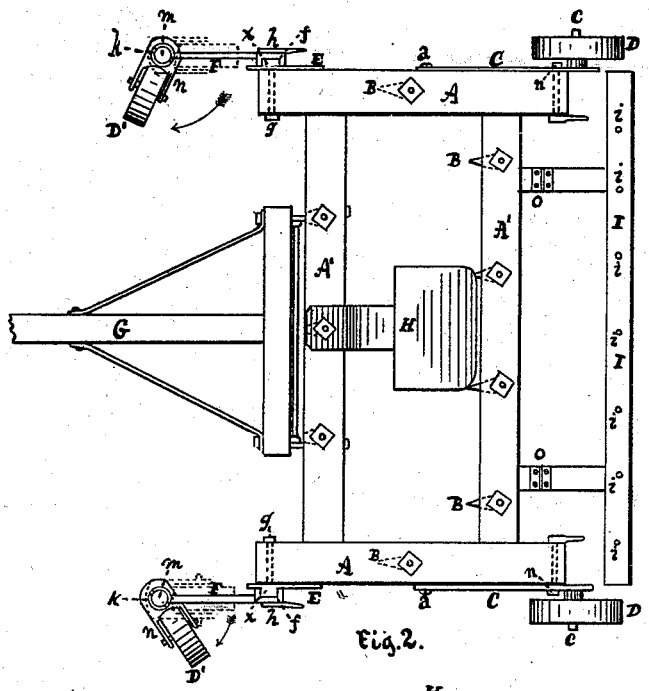

Fig.2.

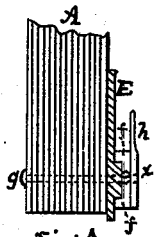

Fig.4.

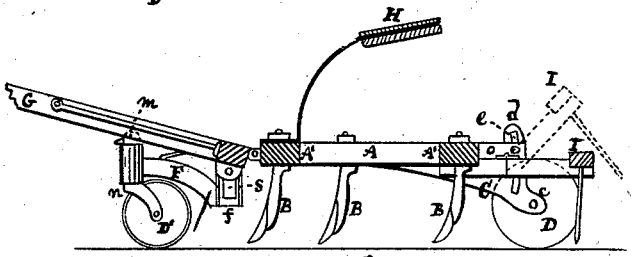

Fig.3.

Witnesses.

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UNITED STATES PATENT OFFICE.

STEPHEN F. LEE, OF NEW SCOTLAND, NEW YORK.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **187,470**, dated February 20, 1877; application filed January 3, 1876.

To all whom it may concern:

Be it known that I, STEPHEN F. LEE, of the town of New Scotland, county of Albany, State of New York, have invented certain Improvements in Cultivators; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side view of the cultivator embodying the improvements in this invention. Fig. 2 is a horizontal view from above of the same. Fig. 3 is a sectional elevation. Fig. 4 is a plan view of front arm attachment.

My invention relates to a cultivator composed of a frame-work carrying teeth or shears and supported and gaged by wheels; and consists in the several combinations of devices hereinafter described.

The object of this invention is to support the frame and teeth of the cultivator at any desired height, that the teeth may be made to operate with the soil to one regular and uniform depth when adjusted, and the machine be easily turned in a small space in either direction, while it may also be employed to convey loads to and from the field in lieu of a wagon.

To enable others skilled in the art to make and use my invention I will proceed to describe it in reference to the drawings and the letters of reference marked thereon, the same letters indicating similar parts.

In the drawings, A A′ represent the frame of the machine, made substantially in the form shown. B B are cultivator teeth or shears secured to the pieces comprising the frame by bolts or their equivalents, as is the practice of the trade. Pivoted to the pieces A A of the frame, at *a a*, are the swinging arms C C, which arms extend backward and have secured to them the axles *c c*, on which run the wheels D D. Made with each of said arms is the holding-arm *d*, provided with a slot, *e*, (shown in Figs. 1 and 3,) which slot is made with a curve from a radia of which the pivot *a* is the center. A T-head bolt, *n*, passes through said slot and the piece A, with the head of the bolt bearing against the face-surface of the arm *d*, in which said slot is made, and has its opposite end provided with a screw-nut, by which the bolt may be tightened.

Being thus constructed the bolt may be readily loosened, when the arm C may have its end carrying the wheel thrown downward or the rear end of the frame upward, as shown by full lines in Figs. 1 and 3, or to the reverse, as shown by dotted lines in Fig. 1. Secured to the forward part of the frame from the side pieces A A are the metal plates E E, having each the guide *x* attached to or cast solid with said plates. F is an arm, made solid with the vertical way *f*, which receives the guide *x*. Made in the vertical way is the slot *s*, through which slot and plate E and the piece A passes the T-bolt *g* having nut *h*. Made with the opposite end of the arm F is a sleeve or vertical bearing, *k*, in which works the pintle *m* of the caster-wheel bracket *n*, from which works the wheel D′. When the bolt *g* is loosened by the slackening of its nut *h* the arm may be lowered, as shown by full lines in Figs. 1 and 2, or relatively raised with the frame, as shown by dotted lines in Fig. 1. Pivoted to the forward part of the frame is the pole G, the loose end of which may be relatively raised or lowered. H is the driver's seat supported above the frame. Hinged to the rear of the frame, at *o*, is a harrow, comprised by the head I and teeth *i i*, which harrow follows after the teeth B of the cultivator, and is capable of being thrown up to dotted lines, as in Fig. 3.

The manner in which the several parts of this invention operate is as follows: The frame carrying the several cultivator-teeth, being supported by the wheels D D′, permits the driver to ride on the machine and supports the several teeth from operating to different and various depths, as the soil operated with presents different degrees of solidity or looseness, the wheels being supported from arms capable of having their ends carrying the axles raised or lowered to any desired distance in relation to the frame, operate as adjustable gages to prevent the teeth engaging with the ground when it is desired to convey the machine with a load to or from the field, or to engage with the soil to any desired depth, as the nature of the tillage might require. The rear wheels being held in one relative posi-

tion with the frame, and the front wheels being made with a caster-wheel form of connection with the forward arms, permit the machine being turned around in a short space, as the caster-wheels may assume any position which the circle turned in would demand, as shown by full lines in Fig. 2, and when drawn forward the said front wheels are permitted to assume the position shown by dotted lines in Fig. 2, and operate the same as the rear wheels. By rendering the rear and front ends of the frame capable of being elevated or depressed separately, the front or rear teeth of the cultivator secured to the most depressed portion of the frame may be made to engage with the soil to a greater depth than the teeth more elevated. The draft of the animals being applied to the cultivator from the hinged pole, and the teeth being gaged by the carrying wheels, prevents the teeth from being drawn down into the soil when rising over a knoll or ridge, and permits the teeth to engage about uniformly with the soil when passing over slight depressions of soil. The harrow at the rear evens the top surface of the soil in a uniform manner simultaneously with the cultivating of the same, and, being hinged, may at any time be thrown upward to escape an obstacle.

These improvements add greatly to the quality of the cultivator, as in its construction, above described, the frame may be made of larger capacity and carry more teeth than can be practical for operation when unsupported by wheels, in the manner as described in this invention.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

In combination with the cultivator-frame A, the rear wheels D mounted on pivoted arms C, provided with slotted arms *d* and set-screws *n*, and the caster-wheels D′ mounted on the adjustable arms F, substantially as and for the purposes set forth.

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Witnesses:

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