N. IDE.

Wheel-Cultivator.

No. 4,459 Patented Apr. 18, 1846

Fig. 1

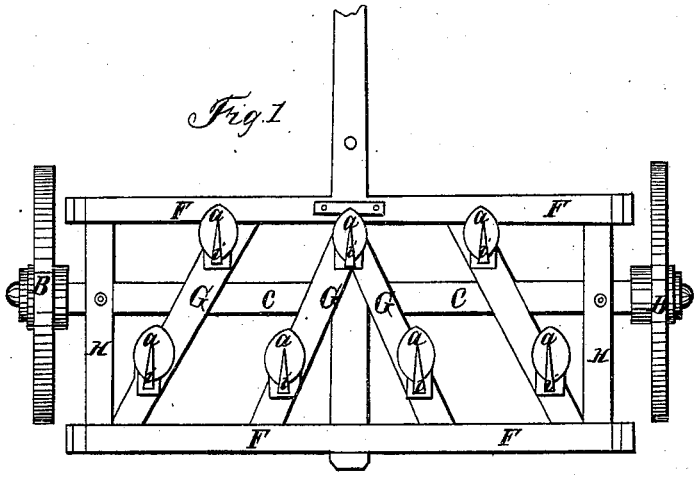


Fig. 2

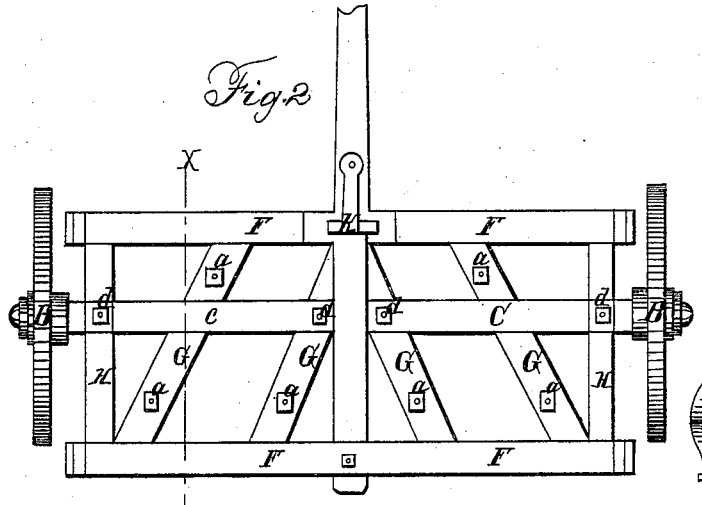
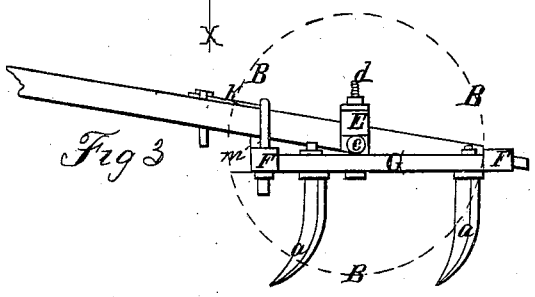


Fig 5

Fig. 4

Fig 3



UNITED STATES PATENT OFFICE.

NATHAN IDE, OF SHELBY, NEW YORK.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **4,159**, dated April 18, 1846.

To all whom it may concern:

Be it known that I, NATHAN IDE, of Shelby, in the county of Orleans and State of New York, have invented a new and useful Improvement in Wheel-Cultivators; and I do hereby declare that the following is a full, clear, and exact description of the principle or character thereof which distinguishes it from all other things before known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan; Fig. 2, a plan of the cultivator reversed; Fig. 3, a vertical section taken at the line X X of Fig. 1, and Figs. 4 and 5 front and back views of one of the teeth.

The same letters indicate like parts in all the figures.

The nature of my invention consists in the arrangement of the cultivator-teeth in two rows, one back and the other front, when this is combined with a pair of sustaining and carrying wheels, the bearing-points of which are in a line midway between the two rows of teeth, so that any tendency which one row of teeth may have to cut too deep is resisted by the weight of earth on the other row, the head of the wheels between them acting as the fulcrum, so that the team by this means is entirely relieved of any strain which it otherwise would have to sustain in consequence of the motion of the beam up and down as the teeth run too deep or too shallow. By this arrangement the necessity for guiding-handles or the employment of four wheels is entirely dispensed with.

In all the cultivators heretofore used with which I am acquainted, when two wheels only have been used the attendant must guide the instrument by means of the handles, which is a very laborious operation, without avoiding the strain on the team by the tendency of the teeth to run in or out of the earth, and when three or four wheels are employed to avoid this strain and relieve the attendant of the labor of guiding the teeth do not follow the slight inequalities of the surface of the ground, for when either the front or rear wheels pass over a slight elevation the teeth are necessarily drawn partly out of the earth, which increases the resistance and renders the operation on the soil less perfect; but by my improved arrangement all these difficulties are avoided, and as I employ large wheels, which extend considerably above the upper surface of the frame, by turning the whole implement upside down it answers the purpose of a cart in going to or from the field.

The machine consists of an oblong square frame five feet three inches by two feet six inches. The two rails F F, five feet three inches long, are three inches square, of white oak or other timber suitable for such purpose. The cross-rails at each end, H H, are three inches by two, framed so as to be flush on the upper side with the rails F F. Within said frame are four diagonal rails, G G, to receive the teeth *d*. The two middle ones are one foot three inches apart at the back rail, and form an angle that they meet five inches from where they enter the front rail. The other two rails are framed parallel to these, one on each side, and eleven inches from those already described. Into these four rails just described are fixed seven teeth, *a a*, of the following shape and in the following manner. The teeth are one and a quarter inch square where they go through the rails, and are fastened with a screw-nut on the upper side. They project below the frame twelve inches perpendicularly; but the whole length of the tooth below the rails is fourteen inches, gradually curving forward until the point enters the ground at an angle of twenty degrees, or thereabout. The point of the tooth may be circular, pointed, or square. Five inches from the point the tooth is five inches wide, and rounding in front in the cross-section about an inch, from whence it diminishes to one and a half inch at the shoulder at the under side of the rails. The tooth is one inch and a quarter thick at the shoulder, and diminishes to an edge at the point. On the back of the tooth is a brace, *i*, four inches of the upper section of which is welded to the tooth. This brace is one and a quarter inch square at the upper end, and ten inches long and tapering to a point at the lower end. The object of this brace is to strengthen the tooth

and form a substantial shoulder. The tooth is made of wrought-iron and pointed with steel.

The teeth are placed in the frame in the following manner: one in the middle, where the two middle rails are united, four inches from the front rail; two more in front in the cross-pieces, four inches from the front rail; and one in each of the four cross-rails, G G, four inches in front of the hind rail.

There are two wheels, B B, attached to the machine, one on each side, two feet six inches in diameter, placed on an axle, *c c*, composed of two pieces, so as to admit the tongue. The axle is placed eleven inches from the front of the frame to the center of the axis. Said axle is two and a half inches square, and is attached to the frame by two screw-bolts, *d d*, on each side, about ten inches long, between the frame of the machine and the axle. On these bolts are three small blocks of wood, E, about one inch thick and three inches in diameter, which can be removed at pleasure from the upper to the under side to regulate the depth to which the teeth shall cut in the ground. The horses or other power is attached to the machine by a tongue, *e*, similar to a wagon-tongue, about nine feet and a half long from the front of the frame, and is halved and bolted on the upper side of the hind rail, and is fixed to the front rail by a staple, *k*, passing over the tongue and through the front rail, with two screw-nuts on the under side of the rail. A piece of timber, *m*, is put between the front rail and the tongue, and by the thickness of this the tongue is made of proper height for the team.

The machine is used to cultivate and prepare any lands for growing any kind of farming produce. With one team of horses ten acres of land can be once gone over in a day, and by the use of this machine all noxious weeds are easily destroyed. The use of this machine cheapens the cost of cultivating lands for crops over any mode in use known to the inventor at least forty per cent. The lands being cultivated to uniform depth, crops are not so liable to be damaged by post-heaving. Lands should be once plowed before using this machine.

The treads of the wheels B B are midway between the points of the two rows of teeth, as is distinctly pointed out in the section Fig. 3.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement of the teeth in two rows, in combination with a pair of wheels the treads of which are in a line midway between the points of the two rows of teeth, substantially as described.

NATHAN IDE.

Witnesses:

SILAS M. BURROUGHS,

JOHN M. CULVER.