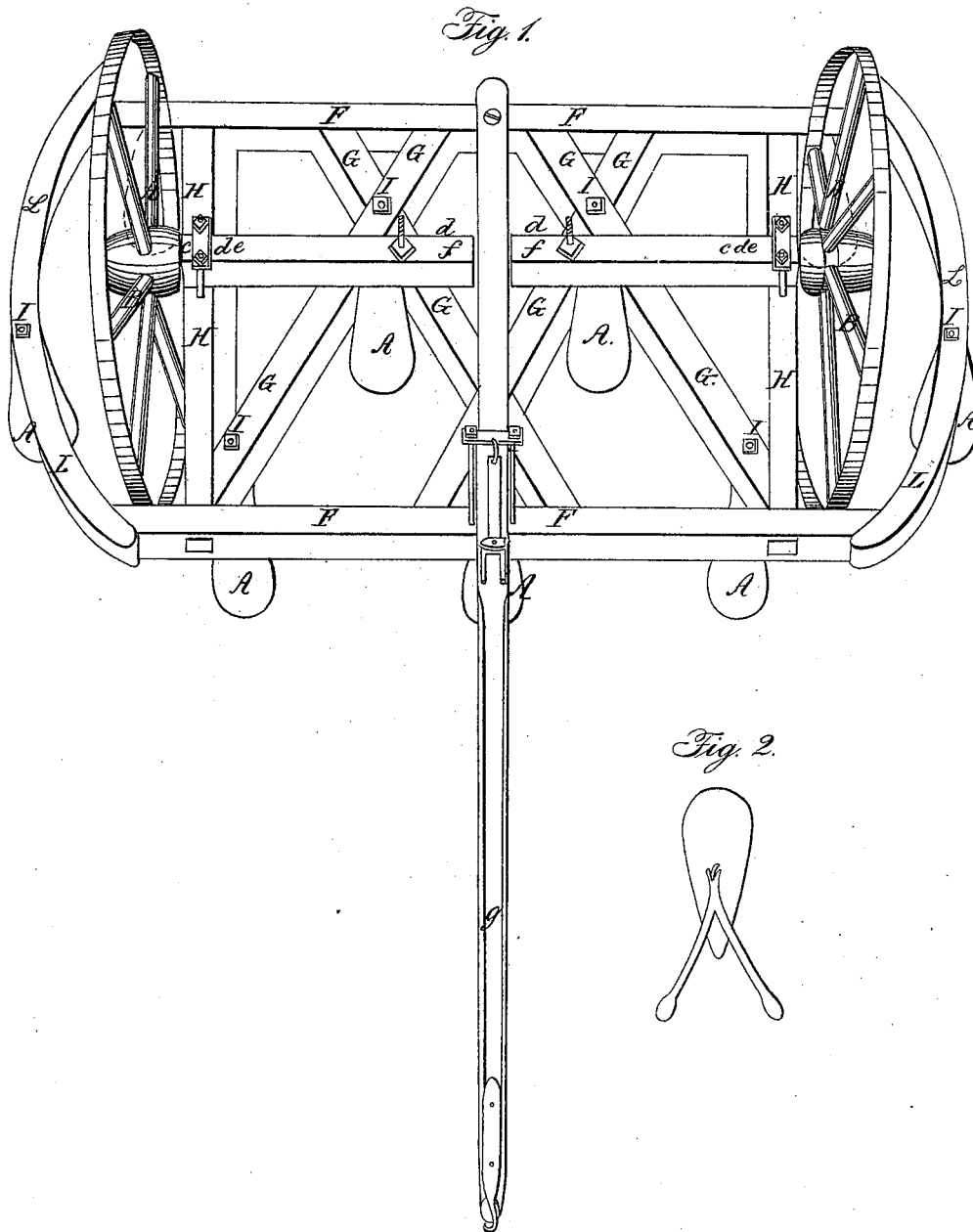


D. S. BILLINGS.

Wheel-Cultivator.

No. 5,429.

Patented Feb. 1, 1848.



UNITED STATES PATENT OFFICE.

DANIEL S. BILLINGS, OF CONNEAUT, PENNSYLVANIA.

IMPROVEMENT IN WHEEL-CULTIVATORS.

Specification forming part of Letters Patent No. 5,429, dated February 1, 1848.

To all whom it may concern:

Be it known that I, DANIEL S. BILLINGS, of the town of Conneaut, county of Crawford, and State of Pennsylvania, have invented an Improvement in Wheel-Cultivators; and I do hereby declare that the following is an exact description of my improvement, reference being had to the accompanying drawings, making part of this specification.

Now, my invention consists in extending the principal rails (marked F F in Figure 1) to five feet four inches in length from shoulder to shoulder. On the end of these rails, let out to them by mortise and tenon, are two side rails of elliptic curve, (marked L L) being outside of the wheels. In the center of these curved rails, opposite the center of the axle, are teeth A A, fastened on the hind side by a straight brace extending back and fastening to the under side of the curved rails L L. The middle of the oblong frame is to be three feet.

The four center braces are marked G G G G. The two outer braces are let into the fore end of each cross-rail (marked H H) by a mortise and tenon, and crossing the center brace seven inches and a half from the inside of the hind rail (marked F F) is let into it by a mortise and tenon.

In each of the places where the braces side each other are teeth A, &c., running up through the braces and fastened on the upperside with nuts and screws, and supported on the back side by crotched braces, (see Fig. 2.) In each of the outside braces at seven inches and a half from the hind side of the fore rail is a tooth, A, like the others, supported by a crotched brace, one arm fastened upon the under side of the inside rail (marked H H) and the other upon the under side of the brace to which it is attached. Two other teeth (see dotted lines A' A') of the same size and form are let through the hind rail (marked F F) directly behind the center of each wheel, supported by a crotched brace, one arm of which is fastened upon the outside rail (marked L L) near the end, and the

other bends round the hind side of the rail marked F F, and is fastened thereto.

The axle *ff* and tongue *g* are fastened to the cross-rail H H by stirrups *c d e*, &c., with nuts and screws. The wheels are two feet and a half in diameter, and are placed upon the ends of the axle, but run between the cross-rail H H and the curved rail L L.

The advantages of my improvement over all other wheel-cultivators are—

First, that by means of the outside or curved rail (marked L L) and the teeth A, &c., attached to them, the farmer is enabled to plow the earth near a fence, stump, or other permanent obstruction, whereas in all others the wheel runs outside of the frame and prevents the teeth from cutting the earth near such obstruction.

Second, the teeth behind the wheels and following in the track thereof cultivate the earth wherever the wheels have beaten it down, and leave no trace of said wheels.

Third, placing the braces crosswise strengthens the frame and permits a reduction in the size of the timbers to three inches by two and a half, thereby diminishing the weight of said frame.

Fourth, the placing of the seven teeth in such a position as to be supported by crotched braces.

Fifth, the addition of two teeth to the number.

Sixth, the use of stirrups in fastening the axle to the cross-rails.

What I claim as new, and desire to secure by Letters Patent in the foregoing described machine, is—

The elliptic curve on the outside of the wheels, and the use of a tooth or teeth on each curve opposite the hubs, in combination with the cultivator-frame as constructed.

DANIEL S. BILLINGS.

Witnesses:

H. A. BILLINGS,
M. A. LEONARD.