H. FRANCISCO.

Cultivator-Teeth.

No. 46,654. Patented Mar 7, 1865.

Fig. 1

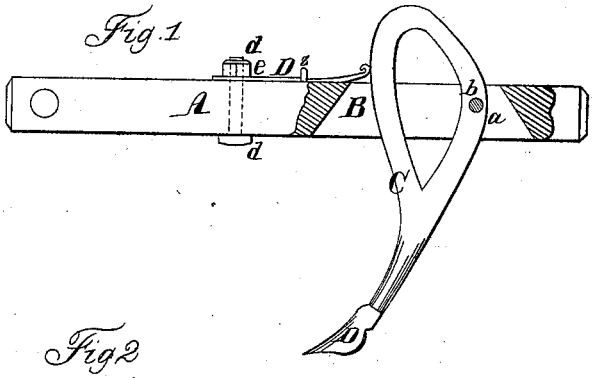


Fig 2

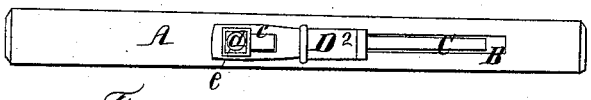


Fig 3

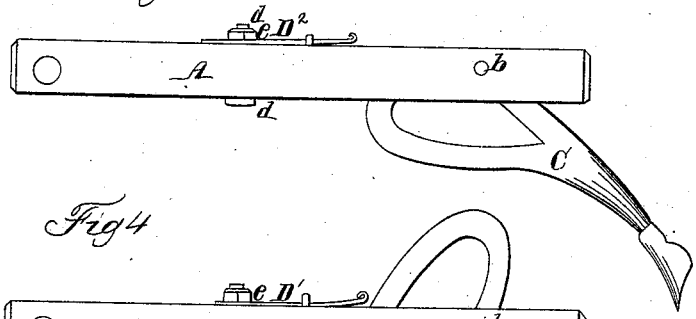


Fig 4

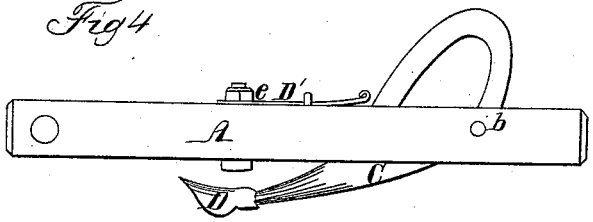
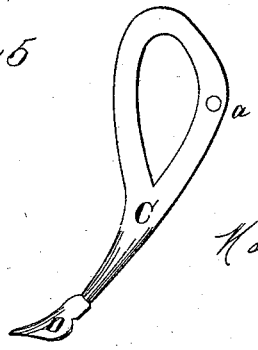


Fig 5



Witnesses

R. T. Campbell

C. Shafer

Inventor:

Henry Francisco

by his Atty

Mason Fenwick & Lawrence

UNITED STATES PATENT OFFICE.

HENRY FRANCISCO, OF LAKE MILLS, WISCONSIN.

IMPROVED TEETH FOR CULTIVATORS.

Specification forming part of Letters Patent No. **46,654**, dated March 7, 1865.

To all whom it may concern:

Be it known that I, HENRY FRANCISCO, of Lake Mills, in the county of Jefferson and State of Wisconsin, have invented a new and useful Improvement in Teeth for Cultivators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my invention as it appears when being used for cultivating the soil. Fig. 2 is a top view of the same. Fig. 3 is a side elevation of the invention as it appears when thrown back by an obstruction. Fig. 4 is a side elevation of the invention as it appears when thrown up and forward while backing or turning the machine. Fig. 5 is a side view of the cultivator-tooth disconnected from the beam or frame.

The same letters of reference in the several figures indicate corresponding parts.

Before setting forth the nature of my invention I will state that various contrivances which allow the teeth of cultivators to yield backward to obstructions have been patented previously to this date, and my invention is an improvement on such plans and methods.

The nature of my invention consists in the eccentric form of the standard of the tooth in connection with the adjusting-slide, by which the tooth may be set at any angle required to suit the nature of the soil in which it works, and the following results attained:

First. Although the slide will hold the tooth in proper working position in all ordinary ground, it will yield whenever the tooth meets with any obstruction which offers a resistance sufficient to break the tooth or damage the machine, the yielding of the slide not being after the manner of a spring, but a retreat on a straight line away from the front of the tooth, accordingly as the tooth gives to the resistance offered to it. The tooth being pivoted, its lower end rises and passes over the obstruction, thus saving the machine from damage.

Second. The machine can be backed without the difficulty of having the teeth act as obstructors, or any liability of their catching in the ground. The eccentric form of the standard at once allows the tooth to move forward and upward free of the action of the slide.

Third. These teeth will allow the machine to be turned square about without any attention from the person using it, for they will yield upward and forward to any back resistance, and in case the machine should be drawn from its rear end and no wheels were used to support it, as in the case of a harrow or drag, very little resistance would be experienced. This latter benefit is of more importance while carrying the machine from one place to another.

Fourth. From the peculiar form of the upper and front part of the standard no sods, stubble or straw, roots, sticks, or brush, wet dirt, or any other like obstruction will remain upon it, because these matters will glide up and fall off of their own weight.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is a beam of a cultivator. It is furnished with an oblong vertical slot, B, extending through it. This slot enlarges gradually from end to end as it descends through the beam.

C is the tooth or standard for a shovel, D. The front edge of this standard is of *cyma-reversa* form very nearly, and the back edge is nearly in form of a right angle with the corner rounded. The uppermost front portion of the standard stands farther forward of the angle or corner of the back edge of the standard than any other part, and from this point downward the front edge gradually stands nearer said corner or angle. I now speak as though there was really a corner or angle at *a*, but in fact there is no angle or corner when the tooth is finished.

The tooth thus constructed is hung on a pivot, *b*, which passes through the rear of the tooth near the corner or angle *a*, thus making the tooth an eccentric in its operation upon the slide D′, which holds it in any desired position so long as the resistance to the point of the tooth does not endanger the machine.

The slide D′ above mentioned is fitted to the top of the beam A by means of a slot, *c*, a screw-bolt, *d*, and a nut, *e*, as shown. By loosening the nut the slide can be set up more or less toward the shank or standard of the tooth, and accordingly as it is set up so will be the angle of the shank with the beam or ground. By this means the depth can be regulated at will and to the nicest possible degree. When the nut is screwed down upon the slide

the hold of the slide upon the nut and beam is sufficient to insure the retention of the tooth in any set position, but this hold is not so great as to prevent the tooth yielding and its shank sliding past the slide, the slide retreating forward from it, when the tooth turns upon its pivotal connection. As the tooth assumes the position shown in Fig. 4 the connection or bind between the slide and shank ceases, as will be evident from the drawings. This is owing to the eccentricity of the tooth. The reverse of this is the effect when the tooth moves backward in the slightest degree, and this is due to the eccentricity of the tooth or the form and position of the same with respect to the slide.

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

1. The eccentric standard to a cultivator-tooth constructed and operating substantially as described.

2. The slotted slide and set-screw arranged and operating in the manner and for the purpose described.

3. The combination of the set and retaining devices with the eccentrically-hung shank of a cultivator-tooth, substantially as and for the purpose described.

Witness my hand in matter of my improvement in teeth for cultivators.

HENRY FRANCISCO.

Witnesses:
A. J. FOSTER,
H. B. WILLARD.