(No Model.)

H. D. BABCOCK.

SPRING TOOTH HARROW AND CULTIVATOR.

No. 262,918. Patented Aug. 22, 1882.

Fig. 1.

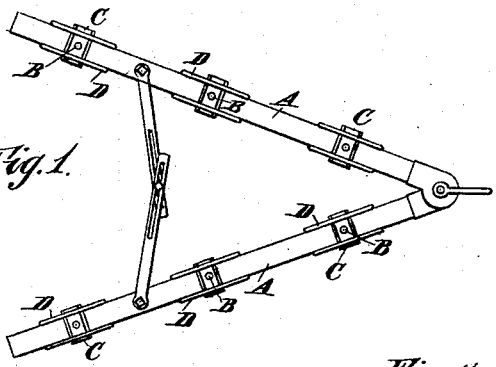


Fig. 3.

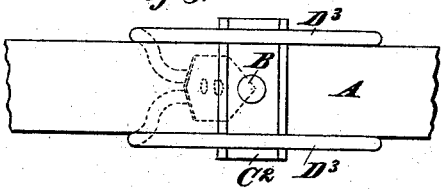


Fig. 4.

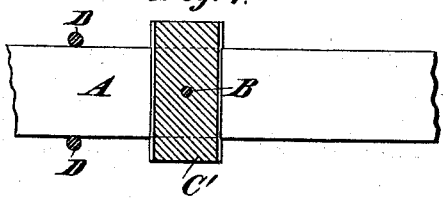


Fig. 2.

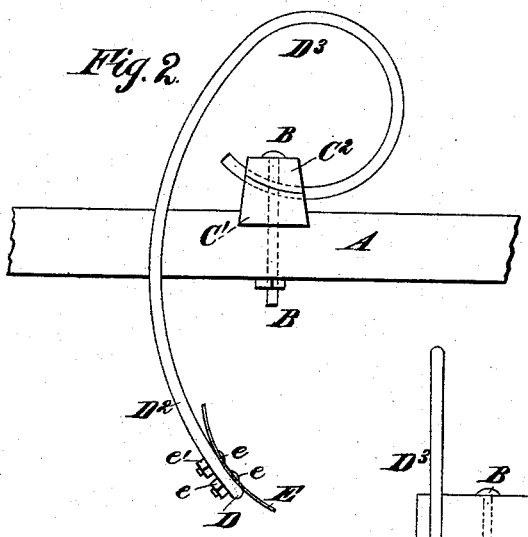


Fig. 5.

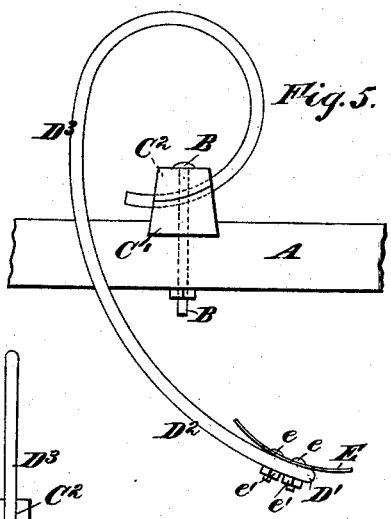
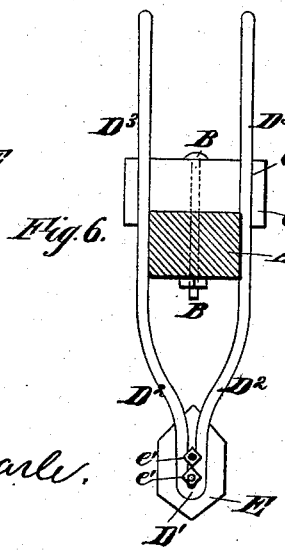


Fig. 6.



WITNESSES

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SPRING-TOOTH HARROW AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 262,918, dated August 22, 1882.

Application filed December 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, H. D. BABCOCK, of Leonardsville, Madison county, in the State of New York, have invented certain new and useful Improvements relating to Spring-Tooth Harrows and Cultivators, of which the following is a specification.

My invention gives the required strength and elasticity, with great facility for adjustment and repairs. I provide pairs of detachable castings capable of being bolted at any desired point on the framing of a harrow or cultivator, with grooves between adapted to seize and firmly hold each end of a round wire of proper thickness, which, being peculiarly doubled and bent, forms the main substance of each spring-tooth. A large portion of the spring lies above the frame. The doubled wire stands with one part on each side of the frame, so that the frame supports it laterally, while allowing it to spring greatly backward and forward. The inclination and elasticity of the teeth may be varied with great facility, and adjusted with any delicacy desired.

The following is a description of what I consider the best means of carrying out the invention. The accompanying drawings form a part of this specification.

Figure 1 is a plan view of an entire cultivator. The succeeding figures represent small portions on a larger scale. Fig. 2 is a side elevation. Fig. 3 is a corresponding plan. Fig. 4 is a horizontal section on the line S S in Fig. 2. Fig. 5 corresponds to Fig. 2, but with certain parts reversed, so as to greatly change the inclination of the tooth. Fig. 6 represents a rear view of one of my improved teeth and holding means, looking from the left in Fig. 2.

Similar letters of reference indicate like parts in all the figures.

A A are portions of the framing of the cultivator, lying in directions which approximate to the line of motion.

B are bolts, which may be shifted into various holes bored in the framing A whenever it is desired to change the position or increase the number of the teeth.

C C are peculiar clamps capable of confining and releasing the teeth. They are capable of being reversed in position, and thus materially changing the angle at which they hold the tooth. In either position they allow the tooth to be shifted forward and backward in the grooves in which it is held in the clamps. The separate portions of the clamps will be indicated by additional marks, as C' C^2, when necessary.

C' is the bottom casting, provided with lips which take hold of the sides of the frame A. C^2 is the top casting. The whole is firmly set by a bolt, B. The adjacent faces of these castings are grooved across near each end. The adjacent faces of the parts C' C^2 are not only curved, but incline forward and back, so that on separating the parts and turning the castings C' C^2 around and applying the teeth again in their proper grooves the angle at which the tooth is presented to the ground is considerably changed.

I will designate by the single letter D an entire spring-tooth, using additional marks, as D' D^2, &c., to indicate particular portions when necessary. The entire spring-tooth D is formed of a single piece of hard iron or steel of circular section. I prefer steel wire about one-fourth of an inch in diameter. To manufacture the tooth a proper length of the round metal is heated and folded sharply upon itself at the center of its length. The parts extend from this sharp bend or "bite" D' a short distance parallel to each other and close together. They then diverge rapidly, this bend being marked D^2. This divergence is arrested when they have attained the distance apart about equal to the breadth of the framing A. Both parts are then extended parallel to each other, but with a curve, D^3 D^3, as shown in Fig. 3. The grooves in the adjacent faces of the castings C' and C^2 are adapted to receive the curved parallel ends of the tooth, and to clamp them tightly by the aid of a nut on the bolt B. The quick bend or fold of the metal forms the lower point of the spring-tooth. To it is secured, by bolts *e* and nuts *e'*, a properly-shaped piece of steel or hard iron, E.

It will be seen that the length of the castings C' C^2 is a little in excess of the breadth of the frame-piece A, so that when all is in position the spring-tooth stands astride of the timber A, and is so clamped between the castings C' C^2 that on slacking the bolts B any tooth can be shifted in its position in the grooves and be clamped again in a new posi-

tion with the working point E farther back or farther forward. This adjustment greatly varies the elasticity. When the point is shifted forward sufficiently the elasticity of the whole tooth is made available. As it is shifted backward a portion of the ends are thrown out of use and the tooth is held more stiffly.

The exact adjustment attained by shifting the teeth forward and backward through the clamps C is additional to that attained by turning around the clamps C and inserting teeth in the greatly-changed angle thereby attained.

Either adjustment may modify greatly the inclination of the plate E, and to some extent the depth to which it will work in the earth.

The reversal of position of the clamps $C' C^2$ effects a great change. The shifting of the spring one way or the other between the clamps effects a minor one. The two adjustments allow a wide range with all possible degrees of inclination within such limits. Furthermore, by making these two adjustments in opposition each to the other a change of inclination can be made in the direction to dig deeper in the earth, while by reason of the reversal of the clamps instead of making the tooth more elastic it is more rigid. The teeth by striding the frame are stiffened laterally in all positions.

Modifications may be made in the forms and proportions of the details.

Any number of the teeth may be employed, and any number of the longitudinal parts A.

All the ordinary provisions may be made for widening and narrowing the framing, and for varying the point of connection of the chain or tongue by which the implement is drawn.

I claim as my invention—

The harrow-tooth D, formed of folded or double wire, and mounted so as to straddle the frame A, in combination with clamps $C' C^2$, adapted to be reversed in position on said frame, and having curved surfaces which allow the teeth to be varied in angular position by shifting therein, all substantially as and for the purposes herein specified.

In testimony whereof I have hereunto set my hand, at Leonardsville, Madison county, New York, this 28th day of November, 1881, in the presence of two subscribing witnesses.

H. D. BABCOCK.

Witnesses:
M. H. BROWN,
EDGAR MASON.