I. Copeland,

Cultivator.

No. 107,456. Patented Sept. 20. 1870.

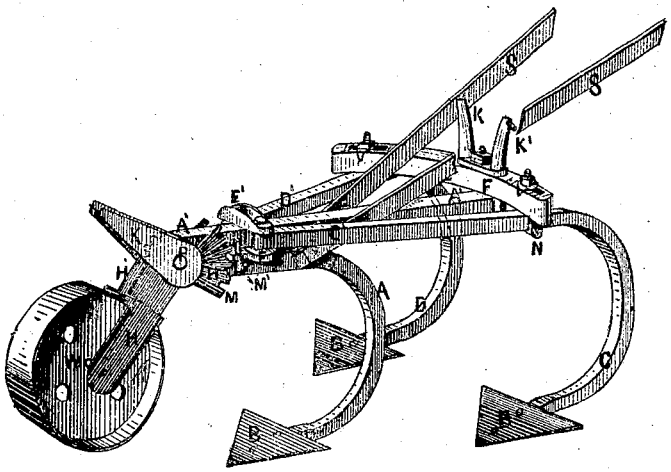

Fig. 1.

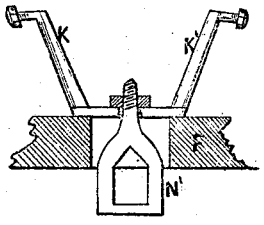

Fig. 3.

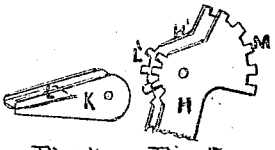

Fig. 4. Fig. 5

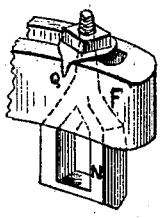

Fig. 6

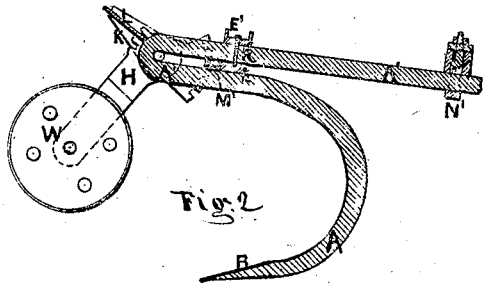

Fig. 2

Witnesses: Frank L. Parker, Jas. L. Grant

Inventor. Ira Copeland.

UNITED STATES PATENT OFFICE.

IRA COPELAND, OF NORTH BRIDGEWATER, MASSACHUSETTS.

IMPROVEMENT IN HORSE-HOES.

Specification forming part of Letters Patent No. **107,456**, dated September 20, 1870.

To all whom it may concern:

Be it known that I, IRA COPELAND, of North Bridgewater, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Horse-Hoes, of which the following is a specification.

The nature of my invention consists in the construction, arrangement, and adaptation of the several parts of a horse-hoe, the object being to improve the construction and increase the utility of horse-hoes.

In the accompanying drawings, Figure 1 represents my improved horse-hoe in perspective. Fig. 2 is a vertical section through the center beam. Figs. 3, 4, 5, and 6 show parts in detail.

I construct my improved horse-hoe as follows: A piece of bar-iron of suitable size and of good quality is bent and forged into the form represented by A A′, Fig. 2. This piece forms the central feature of my invention, and serves as a base upon and to which I attach all of the remaining parts. The lower end of this bar is provided with a triangular piece of plate-steel, B, which is made sharp and set on an incline, so it may readily enter the earth. As the bar A leaves the shoe B, it inclines upward, as shown in the drawings, so that any accumulation of weeds, grass, &c., may be worked to the surface of the ground, where they will be left free to slip away from the bar. The two lateral bars C C′ and D D′ are also provided with shoes B B, and are otherwise formed at their earth end like the bar A A′. The housings H H′ of the gage-wheel W and the clevis K are attached to pin P, Fig. 1, the pin P being held by the loop formed by the bending of the bar A A′, as shown in Figs. 1 and 2. The housing-pieces H and H′ are provided at the upper end with notched segments M and L, by which the positions of the gage-wheel W and the clevis K are governed.

M′, Figs. 1 and 2, is a flat piece, which, fitting into notches M, holds the housing, and consequently the guard-wheel W.

To adjust the guard-wheel W the piece M′ can be withdrawn, and after the wheel has been adjusted replaced to hold it where desired.

To adjust the clevis K, which is shown in Figs. 1, 2, and 4, it is necessary to withdraw the pin P, which will leave the clevis free to be placed in any desired position. The center piece, L, of the clevis fits into some one of the notches L′, Fig. 5, and thus holds it in position. The lateral bars C C′ and D D′ are attached to the central bar, A A′, by means of the clasps E and E′. These clasps E and E′ are fastened to the bar A A′ and to each other by means of a bolt or rivet, R, Fig. 2, which passes through the bar A A′. The lateral bars C C′ and D D′ are connected to the clasp E and E′ by means of bolts, as shown in Fig. 1, upon which the lateral bars are free to swing.

F is a curved cross-bar, and is rigidly attached to the bar A A′ by the loop-bolt N′, Fig. 3. This loop-bolt N′ also serves to fasten the handle-bracket K K′, as shown in Fig. 3. The rear ends of the lateral bars are held in position by means of loop-bolts N, Fig. 6, which hold them firmly in any desired position to the cross-bars F. To each of these loop-bolts I attach a pointer, Q, which serves, in connection with the graduation on the cross-bar F, to assist in the adjustment of the lateral bars.

The handles S and S are attached at their lower ends to the bar A A′ by a bolt, and at another point by means of starts and screw-nuts on the handle-bracket K K′, Fig. 3.

I claim as my invention—

1. The combination of the clevis K with the housings H H′, the notched segments L′ M, and the key-piece M′, substantially as described, and for the purpose set forth.

2. In a horse-hoe, the bar A A′, when bent and arranged in combination with the clasps E E′ and cross-bar F, substantially as described, and for the purpose set forth.

3. The combination of the loop-bolt N′ with the bar C C′, the cross-bar F, and the pointer Q, substantially as described, and for the purpose set forth.

4. The combination of the loop-bolt N′ with the cross-bar F and handle-bracket K K′, substantially as described, and for the purpose set forth.

IRA COPELAND.

Witnesses:

FRANK G. PARKER,

JAS. L. CONANT.