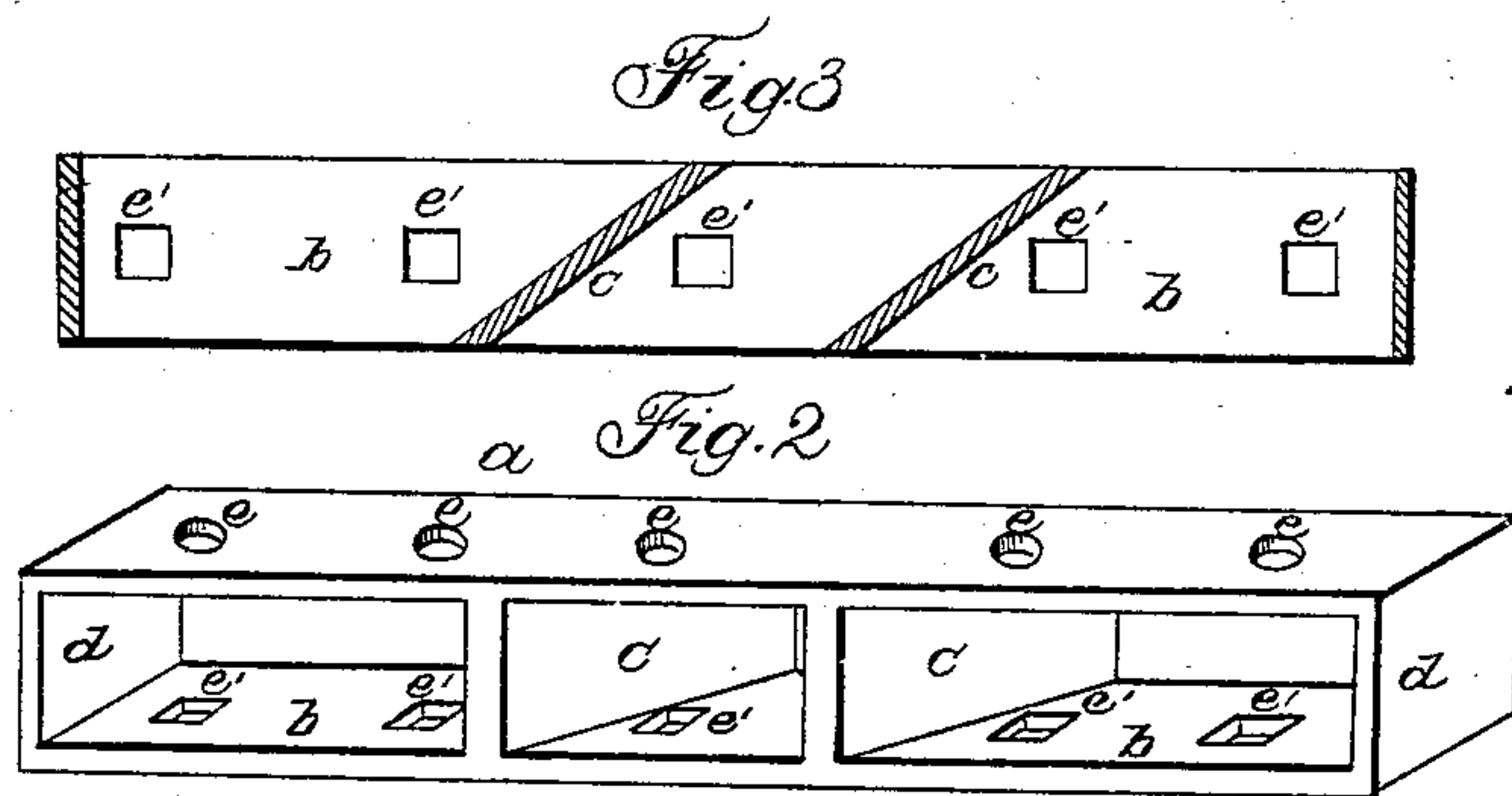
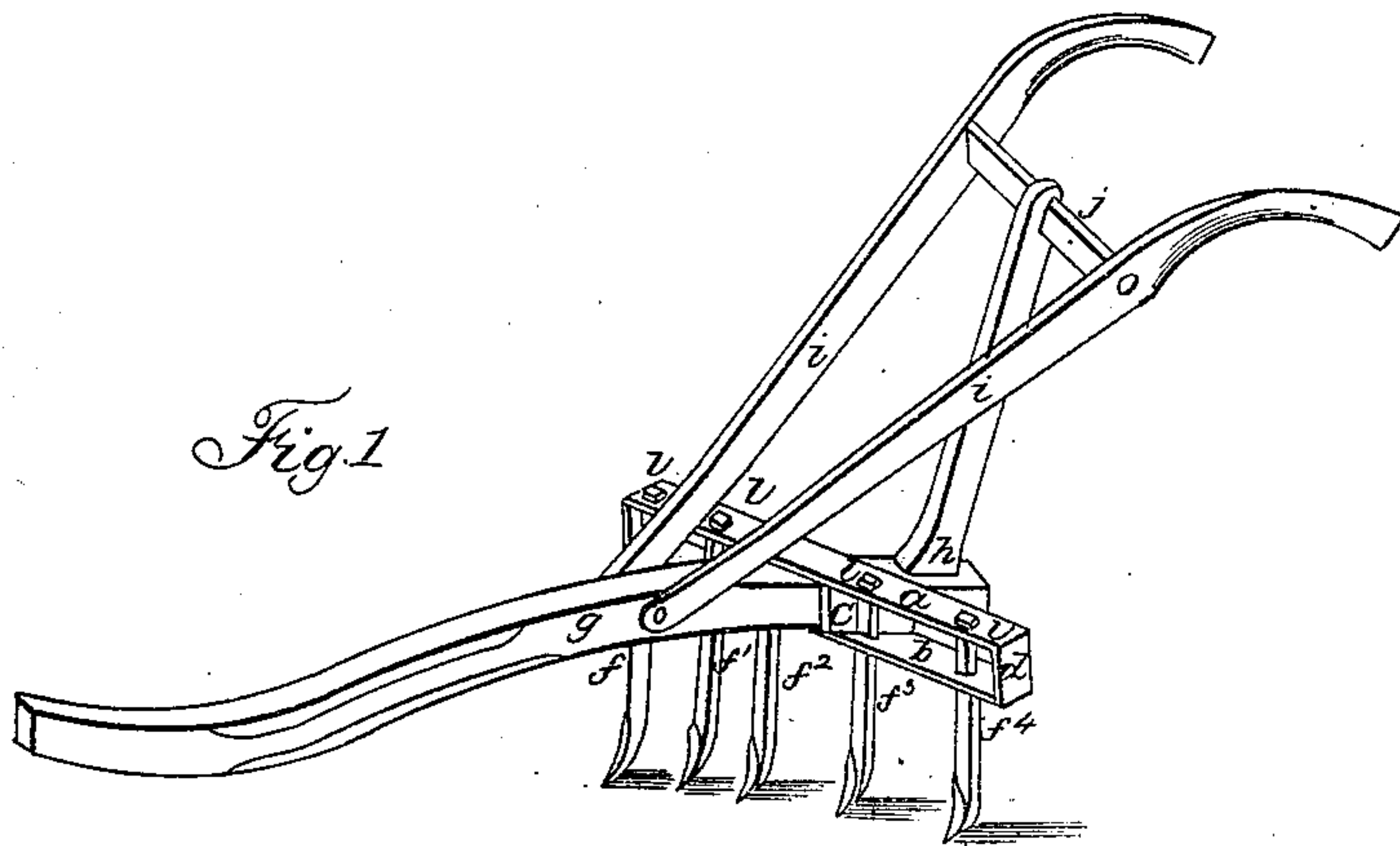


L. C. GILLASPIE.

Harrow-Head.

No. 29,073.

Patented July 10, 1860.



Witnesses.  
*R. W. Fenwick*  
*Justinus Dutrich*

Inventor.  
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# UNITED STATES PATENT OFFICE.

LE ROY C. GILLASPIE, OF DENMARK, TENNESSEE.

## IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. 29,073, dated July 10, 1860.

*To all whom it may concern:*

Be it known that I, L. C. GILLASPIE, of Denmark, in the county of Madison and State of Tennessee, have invented a new and useful Improvement in Side Harrow-Heads; and I do hereby 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.

Figure 1 represents a perspective view, and Figs. 2 and 3 a horizontal section and a perspective view, of the harrow-head.

Wherever the same letters of reference in the several figures occur they indicate corresponding parts.

The nature of my invention consists in a metallic side harrow-head open at front and rear, and having a central oblique or diagonal slot, *c c*, and openings *e e'*, in combination with a plow-beam, for the purposes hereinafter to be described.

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

This harrow-head is made of a metallic frame open in front and rear, and consists of a top, *a*, and a bottom plate, *b*, and two vertical side plates, *d d*, so as to form an oblong and rectangular frame, *a b d d*. This frame is considerably strengthened by two vertical partitions, *c c*, extending obliquely through the central part, *a*, of it, so as to form an oblique slot in the center of the frame for the insertion of the beam *g*. Thus the beam is inserted in the center of the harrow-head, and yet the harrow-head stands oblique in relation to the beam. The line of draft passing through the center of the harrow-head, the latter can be made much lighter than if the beam were attached to one of the ends of the oblique head. Besides, the head, consisting of a hollow frame, can be made much lighter than if it were constructed of a solid bar.

The harrow-teeth *f f' f<sup>2</sup> f<sup>3</sup> f<sup>4</sup>* are made of unequal length, the longest tooth, *f*, which is to run at the bottom of the furrow, being at one end of the harrow-head, and the shortest

tooth, *f<sup>4</sup>*, which is to run on the top of the hill, at the other end. The tooth *f* is made sharp and pointed, so as to cut without throwing up any of the soil, while the other teeth are made with flat shares, terminating in a point, so as to dig up the earth. The shanks of the teeth are square, and are screw-threaded at their upper ends. The square shanks are inserted through the square holes *e'* in the bottom *b* of the harrow-head, while their screw-threaded upper ends pass through round holes *e* in the top *a* of the harrow-head and are fastened by screw-nuts *l*.

The distance between the top *a* and the bottom *b* of the harrow-head being equal to the whole thickness of the beam *g*, the harrow-teeth inserted through the holes *e e'* in the top and bottom of the harrow-head are held more firmly than if they were inserted through a solid bar of less thickness. This is another advantage of the hollow harrow-head above described.

The shank of the central harrow-tooth, *f<sup>2</sup>*, passes through the oblique slot and through the beam *g*, inserted in said slot. The beam and head are thus firmly secured together.

A standard, *h*, extends upward from the end of the beam *a*, projecting in rear of the oblique slot, and is fastened at its upper end to a horizontal brace, *j*. This brace *j* connects the upper portions of the handles *i i*, the lower ends of which are secured to the beam *a* in front of the harrow-head.

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

A metallic side harrow-head, *a b d d*, open at front and rear, and having a central oblique or diagonal slot, *c c*, and openings *e e'*, in combination with a plow-beam, substantially as and for the purposes set forth.

The above specification of my improvement in side harrow-heads signed by me this 15th day of May, 1860.

LE ROY C. GILLASPIE.

Witnesses:

GOODWIN Y. AT LEE,  
GUSTAVUS DIETERICH.