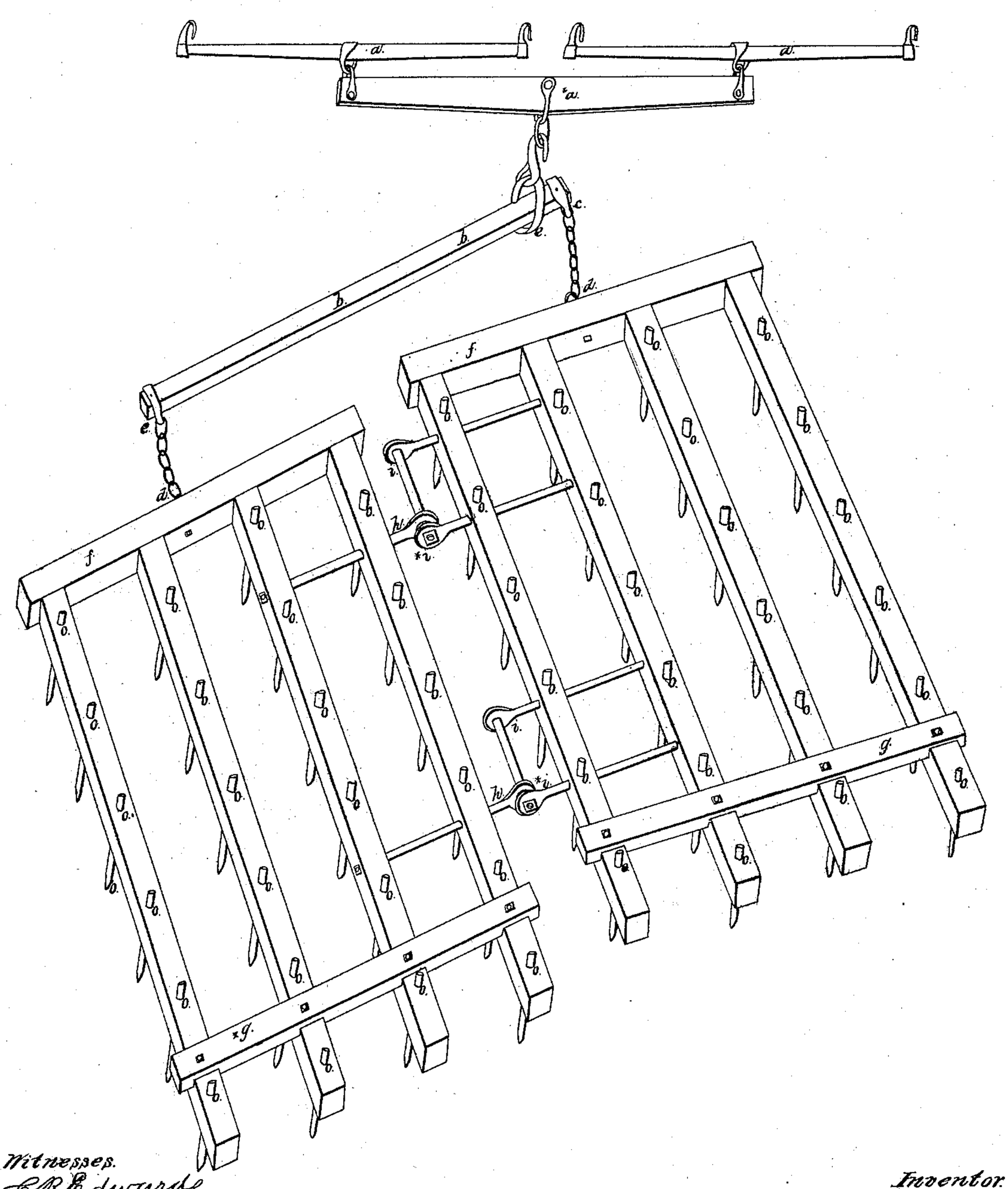
V. Sippel.

Harrow.

No. 91,977 Patented Jun. 29. 1869.



Witnesses.
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VALENTIN SIPPEL, OF NIAGARA CITY, NEW YORK.

Letters Patent No. 91,977, *dated June* 29, 1869.

IMPROVEMENT IN HARROW.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, VALENTIN SIPPEL, of the village of Niagara City, in the town and county of Niagara, and State of New York, have invented a new and improved Harrow; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The drawing, Figure 1, is a full representation of the construction of the harrow. As to the size of the harrow, the number of teeth, or size of the timber through which the teeth are fastened, they may be varied according to the wishes of farmers using them.

In the drawing—

At letters *a*, are represented the whiffletrees, to which the team is attached for drawing the harrow.

At *b* is a wooden draw-bar attached to the harrow, as at *c d*, by a short piece of chain at either end of the draw-bar.

The chain, by hook and eye, or ring, is rendered detachable at *b* or *d*, so that the ring *e* may be slipped on the draw-bar, and the whiffletree **a*, hitched to the ring *e*, as shown.

The operation of the ring *e*, and draw-bar *b*, is, that in turning around, or freeing the harrow from obstructions, it is found convenient to change the line of draught from one side of the harrow to the other; and this convenience is obtained with great facility by the ring *e* sliding from one end of the draw-bar *b* to the other. The draw-bar is lined with iron where the ring slides upon it.

The iron teeth, at letters *o*, are made in the usual manner, but I set them in the rails *o*, so that as few teeth as possible will be drawn in the same track when the harrow is drawn from either end of the draw-bar. Although in any given rail, *o*, I set the teeth at equal distances apart, I do not begin setting them at the same distance from the end of each rail.

A cross-bar of the same thickness and width of the rails *o*, is framed on the front ends of the rails of each half of the harrow, as shown at **f f*.

The bars **f f* and **g g* are not set at right angles with the rails *o*, but are set a little slanting, and as shown in the drawing. The rails *o*, in the rear of the harrow, are set a little further apart than at the front. Setting the bars across the front ends of the rails *o*, and also slanting the bars, as represented in the drawings, gives an advantage against obstructions. Setting the rails *o* further apart at and towards the rear, allows anything which might clog between the rails to work out more easily.

The hinges *h i* are so made that either half of the harrow will be drawn a little forward of the other, the eye of either hinge sliding from **i* to *i*. This gives the harrow the same position, whether drawn from one end of the draw-bar *b* or the other.

That part of the harrow which should be made of iron will be known to all persons acquainted with such work.

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

The setting of the rails *o* a little wider apart at and towards the rear, the bars **f f* slanting in opposite directions across the front ends of the rails *o*, beginning the teeth at unequal distances from the ends of the rails, and all these features in combination with the sliding hinge, draw-bar *b*, and ring *e*, when the whole are constructed, arranged, and operated, in the harrow described, substantially as and for the purposes set forth.

Witnesses: VALENTIN SIPPEL.

C. R. EDWARDS,

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