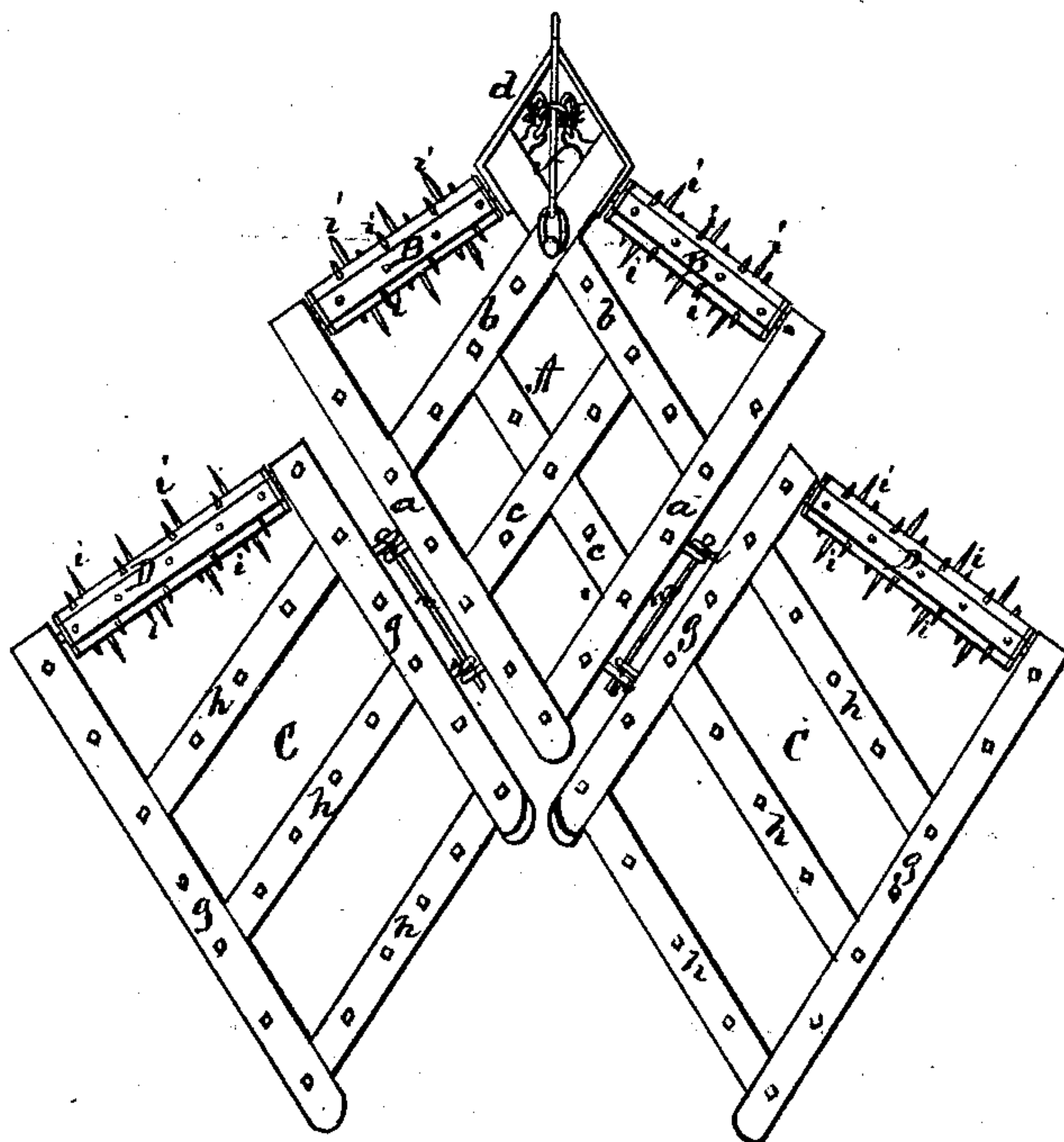


G. M. ELLIS.

Harrow.

No. 106,677.

Patented Aug. 23, 1870.



Witnesses.

Harry King

Ed. Curtis

Inventor.

G. M. Ellis

Grew

Alexander Mason

Attys.

United States Patent Office.

GEORGE M. ELLIS, OF HUNTERTOWN, INDIANA.

Letters Patent No. 106,677, dated August 23, 1870.

IMPROVEMENT IN HARROWS.

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, GEORGE M. ELLIS, of Huntertown, in the county of Allen and in the State of Indiana, have invented certain new and useful Improvements in Harrows; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a "harrow," as will be hereinafter fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which represents a perspective view of my harrow.

My harrow is composed of three frames hinged together. The center frame, A, is constructed in the following manner:

Two bars, *a a*, of suitable dimensions, are joined together in V-shaped form, and a suitable distance from their front ends are secured two other bars, *b b*, running parallel with the outer bars *a a*, and crossing each other near their front ends.

In the center space thus formed are inserted other bars, *c c*, to strengthen and brace the outside frame.

All these bars are firmly secured by mortises and tenons, and where bars cross each other they are let into each other, so as to present an even surface both on top and bottom.

Between the front ends of the bars *a* and *b* are pivoted rollers, B B, provided with teeth, *i i*.

The front ends of the bars *b b* are surrounded by a bent metal bar, *d*, and in the space there formed, to the bars *b b*, are attached rings, *e e*, through which passes the draft-rod *f*.

This draft-rod is secured to the bars *b b* at the point where said bars cross each other.

The side frames, C C, of my harrow are composed each of two parallel bars, *g g*, connected by inclined cross-bars *h h*, and having, between the front ends of the parallel bars *g g*, a roller or cylinder, D, pivoted, which roller is also provided with teeth *i i*.

The side frames C C are attached to the center frame A by means of rods or bolts, *m m*, passing eye-screws, *n n*, inserted in the bars *g* and *a*, as shown in the drawing.

The frames A and C C are provided with the usual harrow-teeth, as now in common use.

I am aware that the employment of a spiked or toothed roller upon a harrow is not new.

What I claim is—

The construction and arrangement of the sections A C C, all as shown and described.

In testimony that I claim the foregoing, I have hereunto set my hand this 30th day of March, 1870.

G. M. ELLIS.

Witnesses:

S. E. SINCLAIR,
S. C. BAUGHMAN.