

(No Model.)

J. DUGAW.

HARROW.

No. 305,162.

Patented Sept. 16, 1884.

Fig. 1.

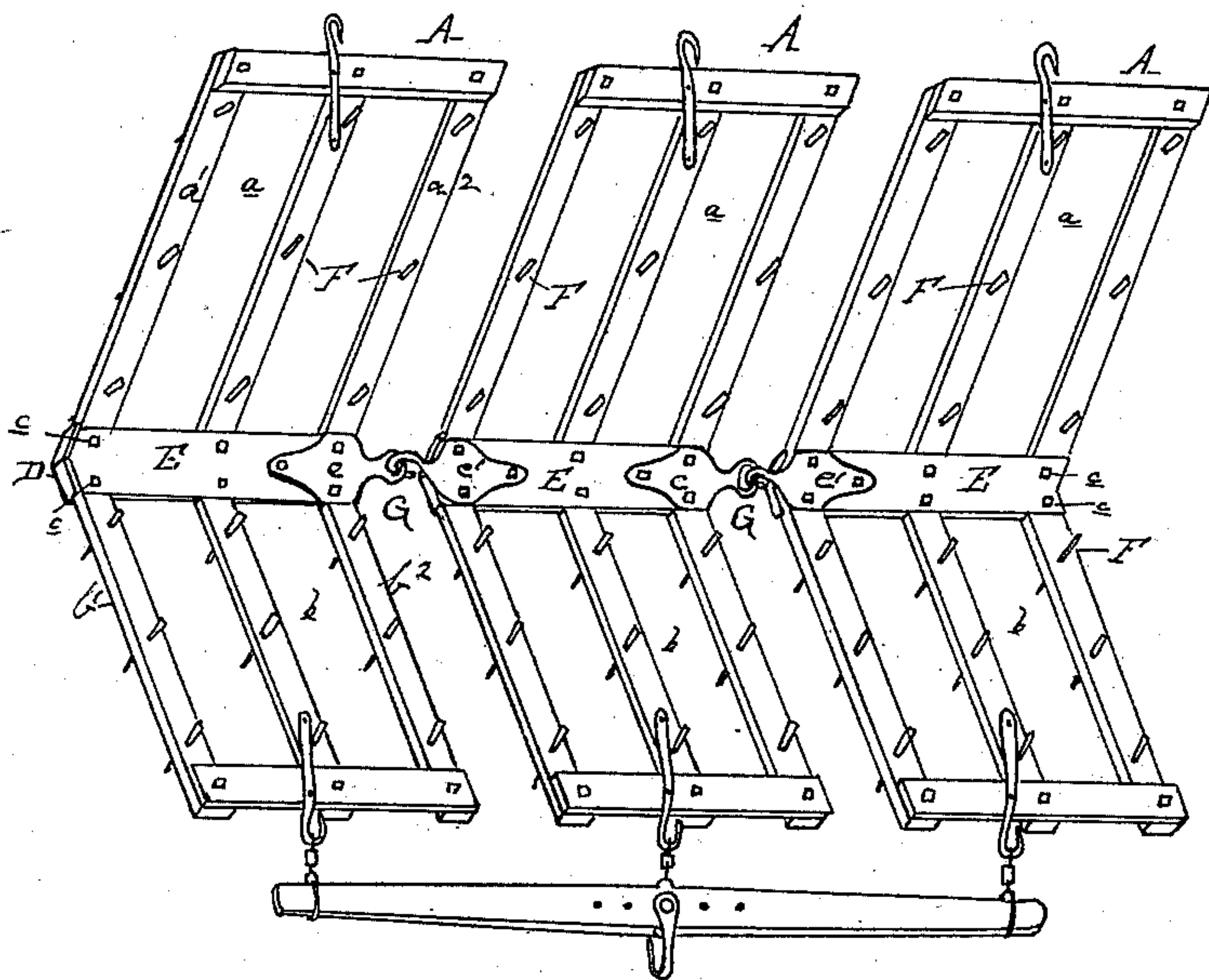
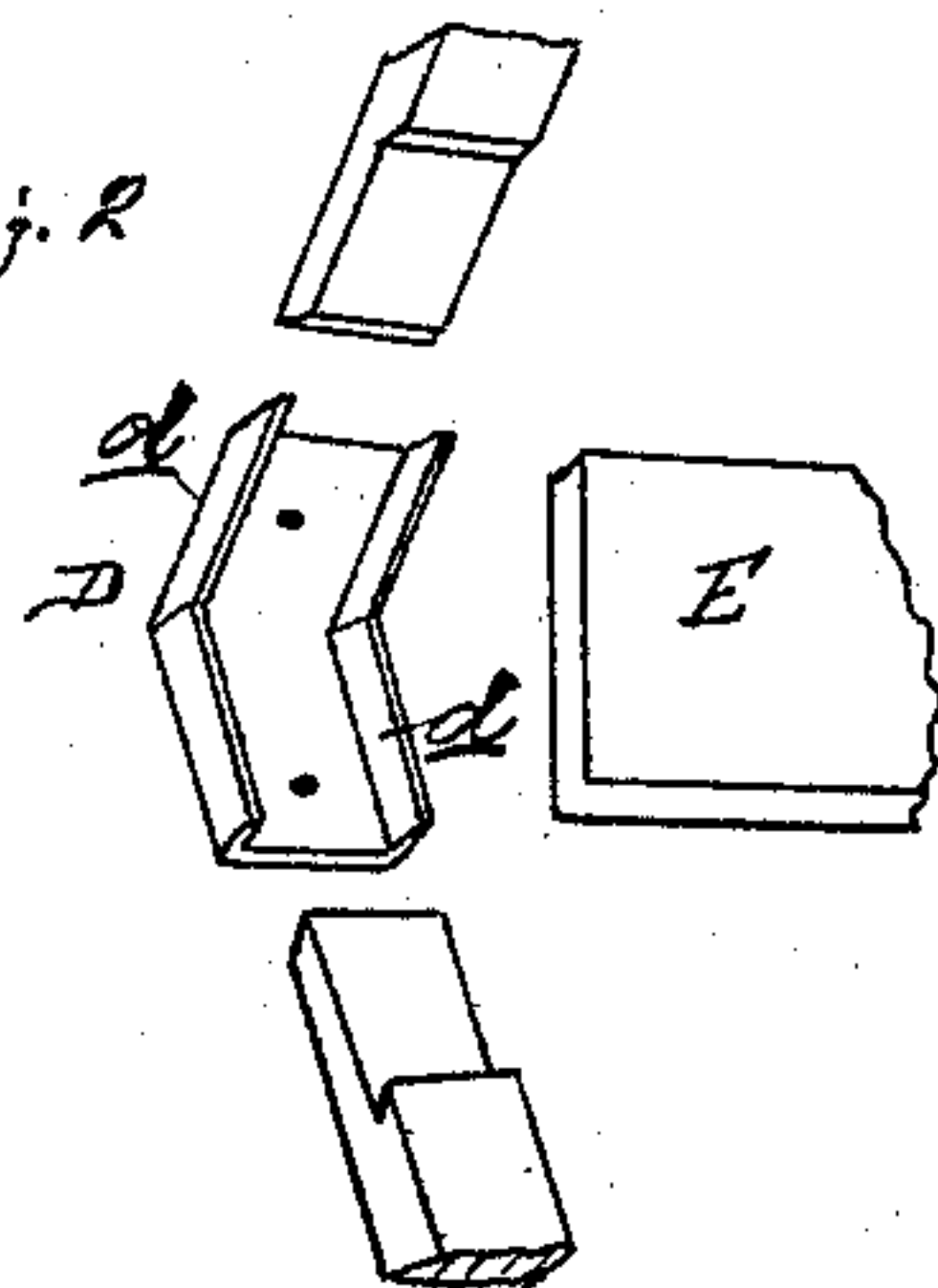


Fig. 2.



Attest:  
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By his Atty.  
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# UNITED STATES PATENT OFFICE.

JAMES DUGAW, OF INKSTER, ASSIGNOR OF ONE-HALF TO JOHN PERRY, OF  
TRENTON, MICHIGAN.

## HARROW.

SPECIFICATION forming part of Letters Patent No. 305,162, dated September 16, 1884.

Application filed February 23, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES DUGAW, of Inkster, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Harrows; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to certain new and useful improvements in the construction of harrows; and the invention consists in the peculiar construction, arrangement, and various combinations of the parts, all as more fully  
15 hereinafter set forth.

Figure 1 is a perspective view of my improved harrow. Fig. 2 is a sectional perspective showing the means employed for securing the joints.

20 In the accompanying drawings, which form a part of this specification, A represents a frame, substantially of the form shown, one portion, *a*, being longer than the other, *b*. At the meeting ends of these sections *a b*, and  
25 upon the under side, I place a cast-iron socket-plate, D, having flanges *d*, to embrace the ends of the frame-pieces, and secured in place by bolts *c*, which pass up through it and through the ends of the bars, and a tie-strap, E, receiving nuts upon their upper ends. The bars of  
30 which the portions *a b* are formed fit into the sockets D, and are cut away on their upper portions, and the strap E laps over these cut-away portions, as shown. In the diagonal

bars of the frames I secure in any suitable 35 manner the teeth F in such order in relation to each other that as the harrow is drawn from either end each tooth will form a line of work for itself.

I construct the harrow in sections, as shown, 40 and at the joints provide a "hook-and-eye" or other suitable coupling, G, by means of which two or more of the sections can be used together. These couplings are formed of a plate, *e*, carrying an eye, and a plate, *e'*, carrying a hook, and are secured to the meeting 45 ends of the sections by the same bolts that secure the socket, bars, and strap together.

I am aware of Patents Nos. 88,195, 95,348, 124,586, and 165,790, and make no claim to 50 the construction shown therein as forming part of my invention.

What I claim as my invention is—

A harrow constructed in sections, each section composed of a portion, *a*, and a portion, 55 *b*, in combination with the socket D, having flanges to embrace the ends of the frame-pieces, the tie-strap E, covering and uniting the ends of the frame-pieces *a b*, bolts *c*, passing through the socket frame-pieces and tie- 60 strap, and the coupling G, connecting each two sections, substantially as and for the purpose specified.

JAMES DUGAW.

Witnesses:

E. SCULLY,  
H. S. SPRAGUE.