

(No Model.)

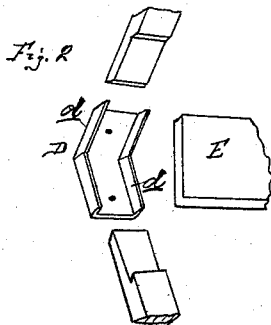
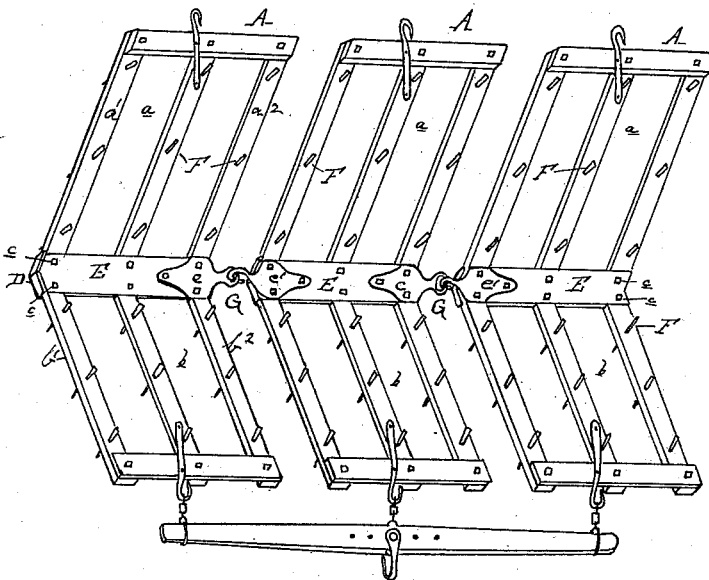
J. DUGAW.

HARROW.

No. 305,162.

Patented Sept. 16, 1884.

Fig. 1.



Attest:
J. Paul Mayer

Inventor.
James Dugaw
By his Att'y.
Thos. S. Sprague

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-strap, and the coupling G, connecting each two 60 sections, substantially as and for the purpose specified.

JAMES DUGAW.

Witnesses:

E. SCULLY,
H. S. SPRAGUE.