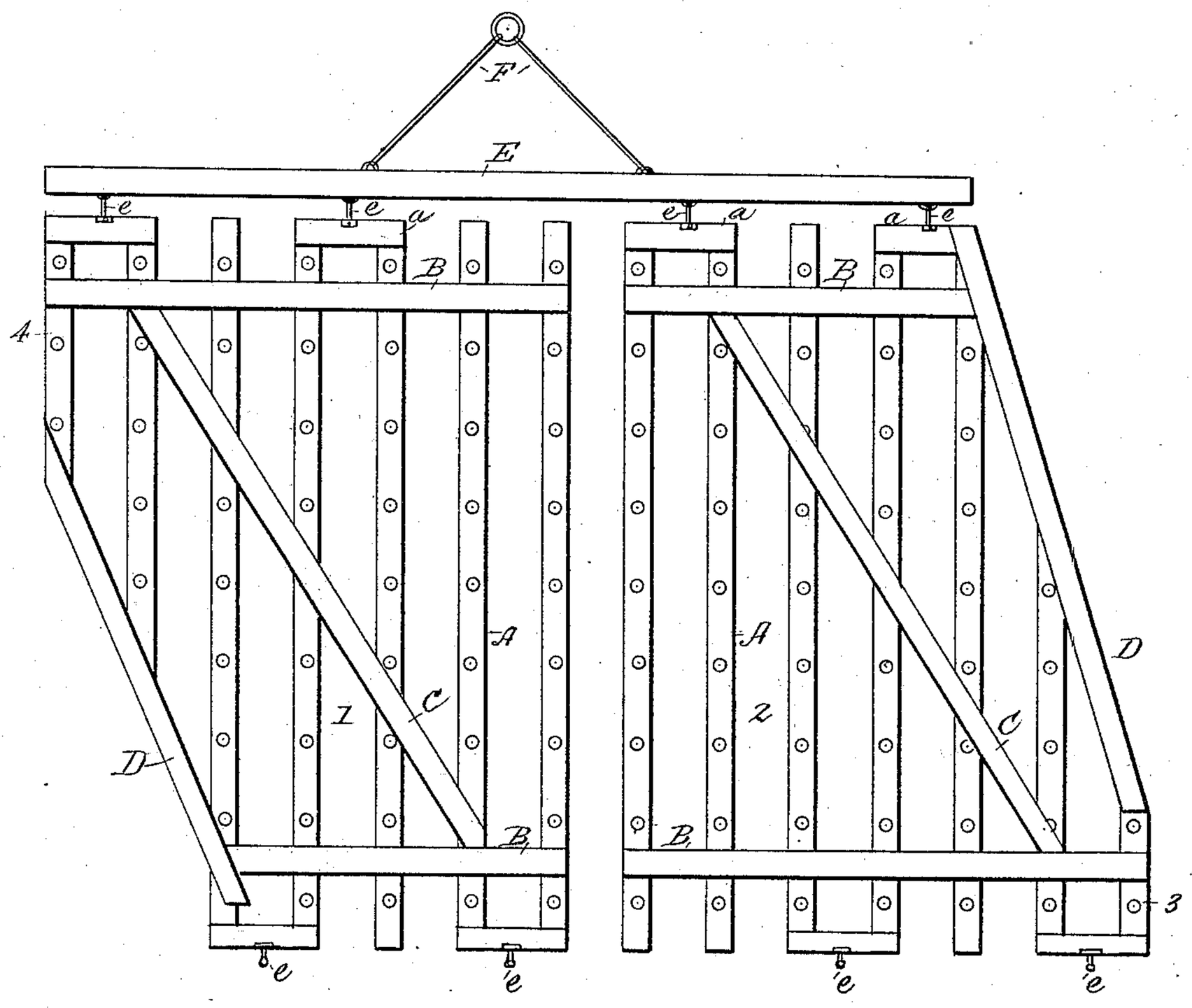
(No Model.)

F. FINDEISEN.

HARROW.

No. 365,677. Patented June 28, 1887.



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UNITED STATES PATENT OFFICE.

FREDERICK FINDEISEN, OF FERGUS FALLS, MINNESOTA.

HARROW.

SPECIFICATION forming part of Letters Patent No. 365,677, dated June 28, 1887.

Application filed January 21, 1887. Serial No. 225,006. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK FINDEISEN, a citizen of the United States, residing at Fergus Falls, in the county of Otter Tail and State of Minnesota, have invented certain new and useful Improvements in Harrows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to double harrows; and it consists in the construction and arrangement of the parts of the same, which will be more fully hereinafter described, and pointed out in the claims.

One object of my invention is to provide a harrow which by its construction will finish at one operation all the ground that it covers, thereby rendering a reharrowing of the portion which it has traversed unnecessary.

A further object of my invention is to so construct the harrow that it will permit of the draft-beam being attached to either end, thereby providing for a saving in the use of the teeth, which by continuous usage in one direction become worn and require to be replaced by others.

I attain these objects by the double harrow illustrated in the accompanying drawing, which shows a plan view thereof.

The harrow is formed of two sections, 1 2, constructed of the longitudinal beams A A, which are connected by long cross-beams B B and by diagonal beams C C and D D. The ends of the longitudinal beams are also connected in pairs, as shown, by the short braces *a a*. A projection is formed on one side of each section by means of the short beams 3 and 4 and the slightly-longer beams next adjoining the same. These projections are arranged in diagonally-opposite corners of the harrow, as shown, and fill out the vacancies existing in ordinary harrows, thus making the present harrow nearly square in a straight line with the draft, so as to effect a nearly square or finishing cut and avoid the making of laps or the going over of a portion of the ground twice. These projections or short beams are crossed by the beams B and the diagonal beams C and D, respectively, the latter, D D, constituting the outside edges of the sections. The small braces *a a*, connecting the longitudinal beams in pairs, are provided with hooks and links *e e*, for the purpose of connecting the harrow to the draft-bar E. Two link-rods or draft-irons, F, form convenient means for attaching the power to the harrow. Underneath the beams the usual teeth are provided, which need no description. The draft-bar E is capable of being released from one end of the double harrow and connected at the opposite end, thereby reversing the faces of the teeth which have been exposed to wear; or, if desired, the draft-irons may be removed from the front and fastened to the rear end of said harrow, where holes for their bolts may be bored. By reversing the position of the sections—that is, by placing the right hand section on the other side of the left-hand section—it will be found that the diagonal beams D D form the sides of the sections nearest one another, the resultant form being nearly square, and the line of pull from the draft-beam will be more direct. The small braces *a a* greatly benefit the harrow in heavy work, as they prevent strain on the body thereof and thus render it more durable, and by means of the projections there is no part of the piece of land which is being harrowed left with spaces unevenly operated upon.

I am aware that prior to my invention reversible harrows have been constructed, and also that harrows have been made in two parts; but I believe that the construction herein described is novel and superior.

Having thus described my invention, what I claim as new is—

1. A harrow consisting of two nearly similar sections, each formed of a number of straight beams of equal length and of two short beams of unequal length, arranged as described, diagonal beams, cross-beams connecting them near their ends, short braces at the extreme ends of said straight beams, and draft-bars, substantially as described.

2. A double harrow formed in two sec-

tions, each of said sections being constructed of a number of straight beams of equal length and two short straight beams of unequal length, arranged as described, cross-beams, diagonal beams, short braces uniting the longitudinal beams in pairs and provided with hooks, and a reversible draft-bar, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK FINDEISEN.

Witnesses:
LAWRENCE L. AUNE,
JUL. OLSON.