

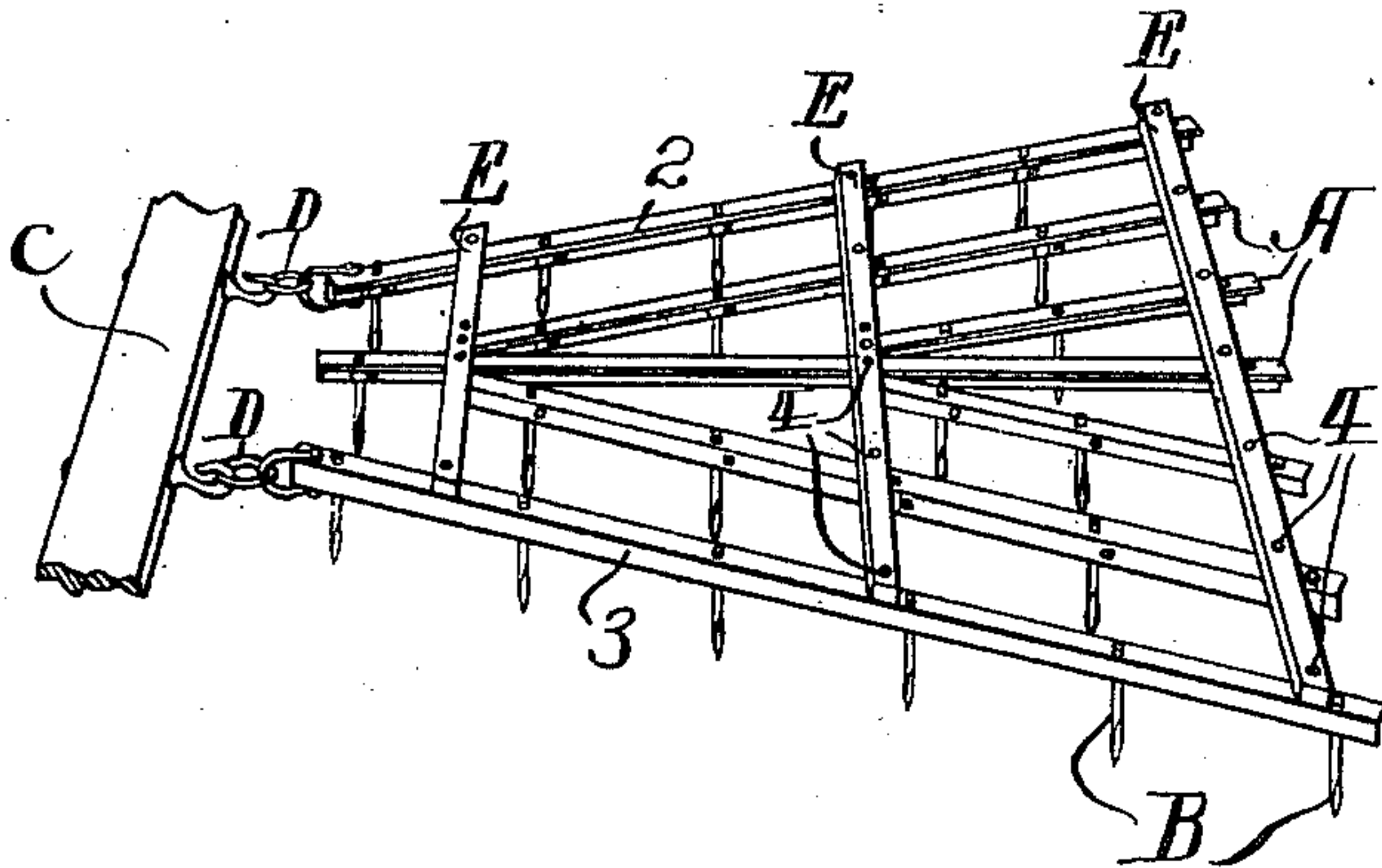
J. H. ANDERSON.

HARROW.

APPLICATION FILED DEC. 3, 1909.

995,650.

Patented June 20, 1911.



Witnesses:

Julie Donovan
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Inventor:

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UNITED STATES PATENT OFFICE.

JOHN H. ANDERSON, OF ST. PAUL, MINNESOTA.

HARROW.

995,650.

Specification of Letters Patent. Patented June 20, 1911.

Application filed December 3, 1909. Serial No. 531,201.

To all whom it may concern:

Be it known that I, JOHN H. ANDERSON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Harrows, of which the following is a specification.

My invention relates to an improved harrow and more particularly has to do with the construction of its frame for flexibly supporting the harrow teeth and allow for unevenness of the surface of ground over which the teeth drag.

The primary object of my invention is to provide a harrow frame which is sufficiently rigid to hold the harrow teeth to their work and yet which will yield under any inequalities of ground when excessive work is done by any of the teeth in the frame.

In the accompanying drawing is illustrated a section of a harrow in perspective showing my invention applied thereto.

My invention is adapted to harrow frames of any suitable design, the drawing showing only one form.

As illustrated A represents longitudinal bars which are preferably made out of angle iron for the purpose of reinforcing their strength and producing rigid supports for the depending harrow teeth B. The method of joining the teeth to the rigid bars may be of any suitable construction, this part of the device not forming part of the subject matter of my invention. The side bars 2 and 3 as illustrated are adapted to be coupled to the draw bar C in the usual manner by link connections D. All of the longitudinal rigid bars A are held by means of transverse supports E of any suitable number desired which are resilient and not reinforced. These supports are bolted or otherwise secured at 4 to the bars A. As illustrated the longitudinal bars A diverge backwardly although this design as before stated is not necessary with my invention. The transverse supports E being resilient allow the longitudinal bars a certain amount of flexibility or movement when the teeth which they support strike an obstruction or are subjected to excessive work thus in a measure relieving excessive

strain on the teeth. In practice the transverse supports may be made out of any suitable spring material their thickness being such as to allow considerable spring to the longitudinal bars in the frame. By making the transverse supports resilient the harrow is highly effective in operation and is not as liable to get out of order or break as with harrows heretofore constructed in which the frame is entirely rigid. Further the frame constructed in accordance with my invention is preferable to a frame in which portions thereof are loosely joined together because when the parts are loosely constructed the harrow will not be as effective in use as when a certain amount of rigidity is imparted to the frame as with my invention.

In accordance with the patent statutes I have described the principles of operation of my invention together with the apparatus which I now consider to represent the best embodiment thereof but I desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:—

1. A harrow, comprising, a plurality of longitudinal bars, a plurality of harrow teeth supported by said bars and a plurality of resilient cross bars to which said longitudinal bars are fastened, whereby the frame of the harrow is elastic under excessive work performed by the harrow teeth.

2. A harrow having a frame composed of a plurality of longitudinal harrow teeth bars and a flexible transverse bar to which said harrow teeth bars are rigidly secured, for the purposes specified.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN H. ANDERSON.

Witnesses:

JULE DONOVAN,
H. L. FISCHER.