C. E. FORKNER.

HARROW.

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1,066,481. Patented July 8, 1913.

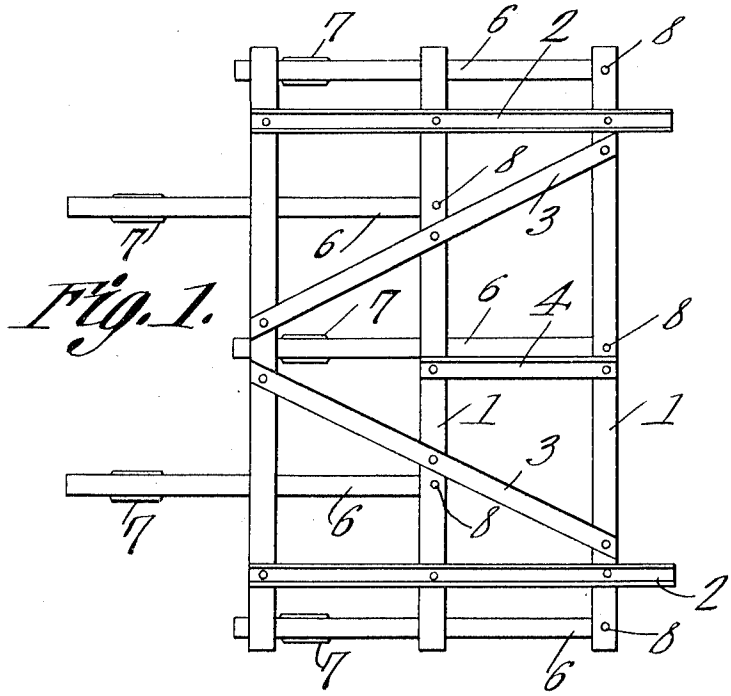


Fig. 1.

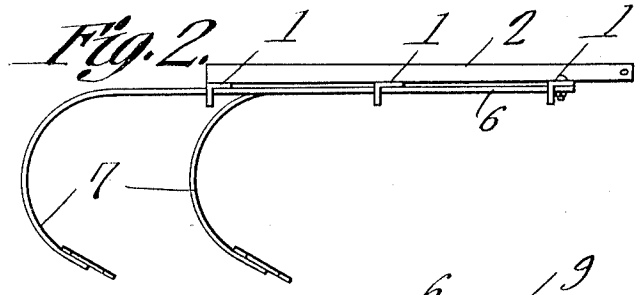


Fig. 2.

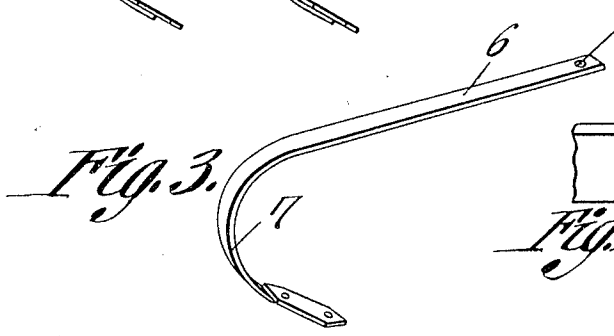


Fig. 3.

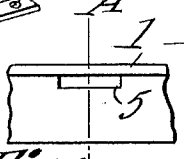


Fig. 4.



Fig. 5.

Charles E. Forkner,

Inventor

Witnesses

J. P. Toomey

L. Willson

by C. A. Snow & Co.

Attorneys

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES E. FORKNER, OF MARSHALLTOWN, IOWA.

HARROW.

1,066,481. Specification of Letters Patent. Patented July 8, 1913.

Application filed March 11, 1913. Serial No. 753,605.

To all whom it may concern:

Be it known that I, CHARLES E. FORKNER, a citizen of the United States, residing at Marshalltown, in the county of Marshall and State of Iowa, have invented a new and useful Harrow, of which the following is a specification.

This invention relates to spring tooth harrows and more particularly to means whereby the teeth can be securely fastened to the frame of the harrow without danger of lateral displacement relative to each other, means being provided whereby the attaching bolts are relieved of excessive strains and thus rendered more efficient.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a plan view of a harrow embodying the present improvements. Fig. 2 is a side elevation thereof. Fig. 3 is a perspective view of one of the teeth. Fig. 4 is an elevation of a portion of one of the members of the harrow frame. Fig. 5 is a section on line A—B Fig. 4.

Referring to the figures by characters of reference 1 designates transversely extending angle strips arranged with their flanges extending downwardly and these angle strips are connected in any preferred manner, as by means of channeled strips 2 resting thereon and secured thereto. Furthermore diagonally disposed braces 3 may be secured upon the strips 1 and one or more additional connecting strips 4 may be secured on the strips 1. The depending flanges of the strips 1 are formed with slots 5, the slots in each flange being disposed in alinement and close to the top of the strip and the slots in all of the strips being spaced apart equal distances so that the corresponding slots in the several strips will register. These slots are designed to receive the shanks 6 of spring teeth 7, the shanks being so proportioned as to fit snugly within the slots.

In arranging the teeth, where three cross strips 1 are employed, said teeth are disposed in two transversely extending series. The shanks of the teeth constituting the rear series are extended through alternate slots 5 in the flange of the rearmost strip 1 and thence into the corresponding slots in the flange of the middle strip 1. Bolts or other fastening devices, indicated at 8, are inserted through the top of the middle strip 1 and into openings 9 formed in the front end portions of the shanks 6. Thus it will be seen that the teeth of the rear series will be securely held and lateral displacement thereof will be prevented by the end walls of the slots 5 in which the shanks 6 are seated. The teeth of the second or front series are secured to the harrow by inserting their shanks 6 into those slots in the middle strip 1 which are located between the shanks of the rear series of teeth. Said shanks of the front series are then extended forwardly into the slots in the front strip 1 and are secured by means of bolts or the like extending into openings in the front ends of the shanks. Thus it will be seen that all of the harrow teeth will be securely held and will be maintained constantly in the same relation to each other. Should one of the teeth break or become worn, thus necessitating the insertion of a new one, the bolt or other fastening device 8 can be removed and the shank thus withdrawn from the slot and a new one quickly substituted, this operation being effected easily and without requiring the services of a skilled mechanic.

It is to be understood that all of the strips 1 are similarly slotted so that, if desired, all of the harrow teeth can be placed in a row instead of staggered as illustrated in the drawings.

What is claimed is:—

1. A harrow including angle strips having slotted depending flanges, connections between the strips, and spring teeth having flanges extended through the slots of two adjoining strips.

2. A harrow including angle strips having slotted depending flanges, connections between the strips, spring teeth having flanges extended through the slots of two

adjoining strips, and means for securing each shank to the top of that strip in which the end portion of the shank is seated.

3. A harrow including angle strips having slots therein, connections between the strips, and spring harrow teeth arranged in front and back series, each tooth of one series being provided with a shank extending through a slot in the rear angle strip and thence into a slot in the angle strip next in front thereof, said shanks being arranged in alternate slots in each of said strips, and the shanks of the other series being extended through the remaining slots in the last named strip and thence through the corresponding slots in the front strip.

4. A harrow including angle strips having slots therein, connections between the strips, and spring harrow teeth arranged in front and back series, each tooth of one series being provided with a shank extending through a slot in the rear angle strip and thence into a slot in the angle strip next in front thereof, said shanks being arranged in alternate slots in each of said strips, the shanks of the other series being extended through the remaining slots in the last named strip and thence through the corresponding slots in the front strip, and means for connecting the front end portion of each shank to the strip in which said portion is seated.

5. A harrow including transversely extending fixedly connected angle strips having slots in their depending flanges, front and rear series of harrow teeth having shanks extending through certain of the slots in the strips, and means for detachably connecting the front end portion of each tooth to the strip in which said portion is seated.

6. A harrow including transversely extending fixedly connected angle strips having depending slotted flanges, harrow teeth having shanks extending through corresponding slots in adjoining strips, and means extending through the front end portions of the shanks and through the tops of the strips in which said portions are seated for detachably securing the shanks to the strips.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHARLES E. FORKNER.

Witnesses:
BEN KELLEY,
GUY WILLIAMS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."