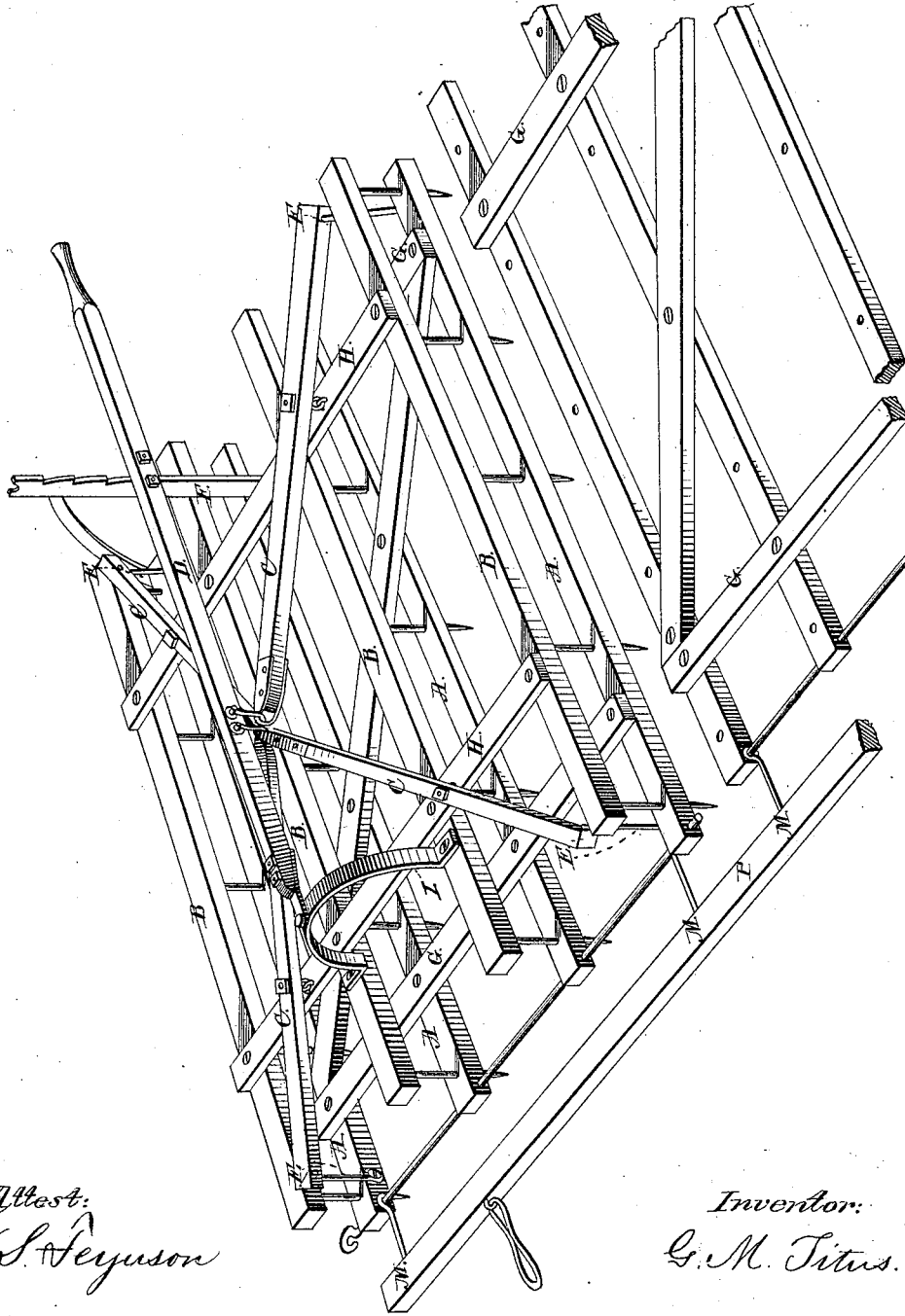


G. M. TITUS.
Harrow.

No. 200,109.

Patented Feb. 5, 1878.



Attest:
V. S. Ferguson
Chas. W. Hammon

Inventor:
G. M. Titus.

UNITED STATES PATENT OFFICE.

GEORGE M. TITUS, OF ROCK FALLS, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO WM. W. BROWN, OF SAME PLACE.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **200,109**, dated February 5, 1878; application filed June 12, 1877.

To all whom it may concern:

Be it known that I, GEORGE M. TITUS, of Rock Falls, Whitesides county, Illinois, have made a new and useful Improvement in Harrows; and I hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

My invention relates to certain novel improvements in adjustable harrows. It has for its object the adjustment as to depth of teeth, and the maintenance of any desired adjustment.

With these ends and objects in view, my invention consists in the special combination and arrangement of the several parts of the harrow, as will be hereinafter more fully and in detail described.

B B, &c., are the four or more bars constituting what is known as the "tooth-frame," and to which are fixedly secured the harrow-teeth. To the tops of these bars are secured, near to their ends, two parallel cross-bars, H H. A A A A are four bars, corresponding to the bars B, and secured in position to form a skeleton frame; and through these bars holes are formed, to permit the passage of the teeth of the bars B B, &c.

In addition to the strengthening-bars G G and diagonal bar, the ends of the bars A project slightly beyond the ends of the upper frame, and are provided with a suitable iron rod, furnished with any means for holding it in place. This bar serves as a means of attaching the draft-beam P.

Bridging two of the bars of the top frame, near the ends thereof, is secured an arch, I, to which is pivoted one end of a lever, D, the other end provided with a suitable edge or plate, adapted to enter and be held within notches in the side of an upright, F, secured to the rear end of the skeleton frame.

C C C C are four radial arms, of equal length, their outer ends connected by short pivot-rods E E, &c., to the four corners of the skeleton frame, and the inner ends connected by clevis-links or otherwise to the lever D at a

point where the diagonals of the frames would intersect. The upper or harrow frame is pivotally connected to these four arms C C, &c., in the lines of the diagonals, by suitable eyebolts, or otherwise secured to the cross-bars H.

From this construction and arrangement of parts it will be apparent that by raising the free end of the lever D the inner ends of the radial arms C will also be raised, rocking them on the eyebolt-joints, and causing their outer ends to be depressed, which, being secured to the four corners of the skeleton frame at its extreme corners, forces it down to cover more or less of the length of the harrow-teeth, or entirely conceal their points, practically exposing any desired depth for action with the soil. Any given or desired adjustment may be maintained by fixing the lever in position within the notches in the upright F.

It will also be observed that this adjustment may be made while the harrow is in motion, as the power applied exerts itself at the extreme corners, where any binding influence might exist, and that the whole frame is moved in a perfectly vertical line.

The advantages of and necessities for a harrow adjustable as described are obvious.

Without wishing to be understood as laying claim, broadly, to a harrow and skeleton frame adapted to be separated one from the other in a vertical line, for the purpose of clearing the teeth or giving any desired bite to the same,

What I do claim as new, and desire to secure by Letters Patent, is—

In combination with the upper and lower frames B A, the radial arms C and lifting-lever D, the arms C being connected to the upper and lower frames and to the lever D, in the manner described, whereby the frames may be separated with the least expenditure of power, as hereinbefore set forth.

G. M. TITUS.

Witnesses:

V. S. FERGUSON,
CHAS. N. HAMMOND.