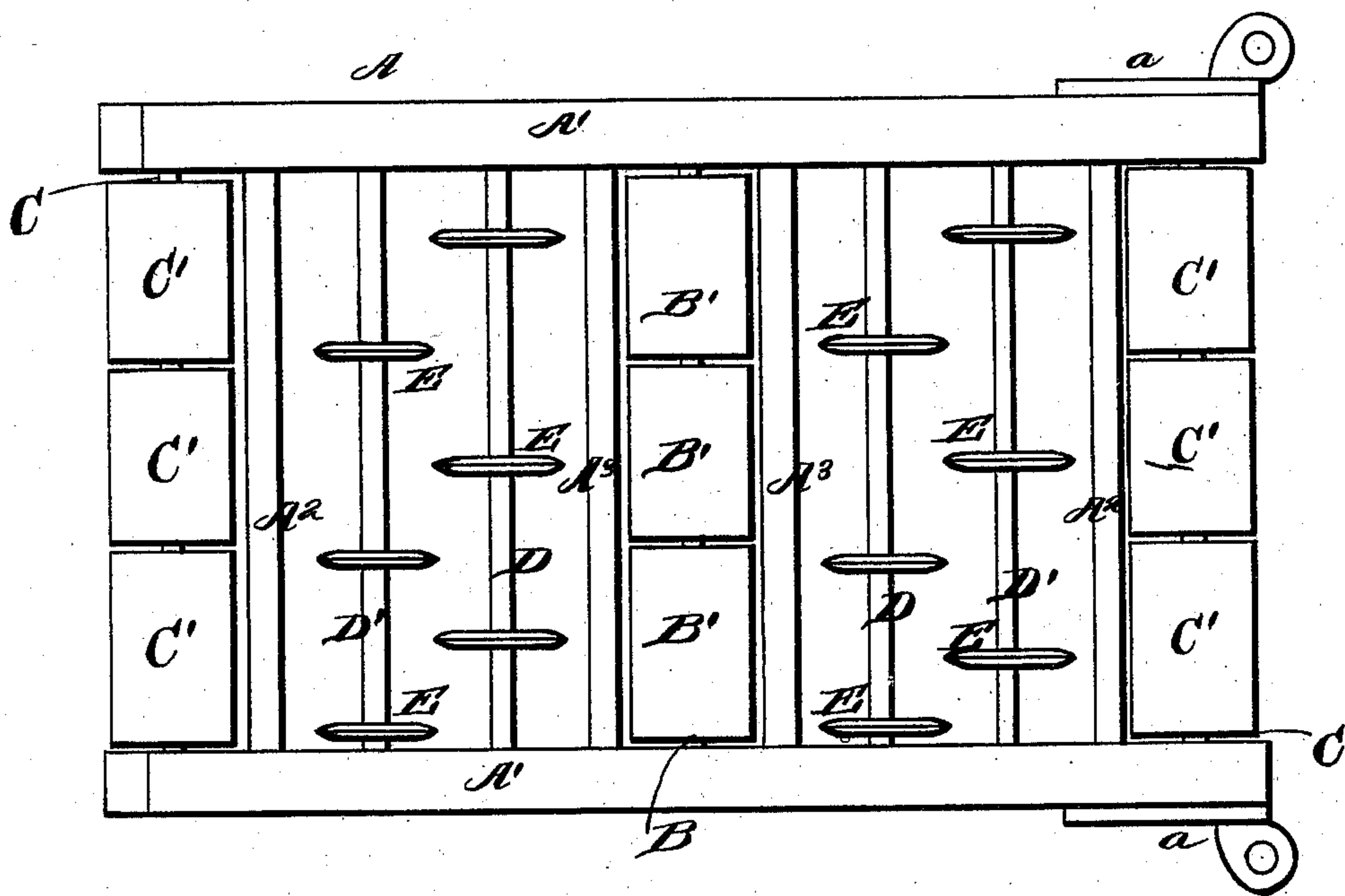


G. R. HUGHES & J. E. WALL.
HARROWS AND ROLLERS.

No. 194,436.

Patented Aug. 21, 1877.



WITNESSES

Robert Garrett
George E. Upham

INVENTOR *5*

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UNITED STATES PATENT OFFICE.

GEORGE R. HUGHES AND JOHN E. WALL, OF FRANKLIN, TENNESSEE.

IMPROVEMENT IN HARROW AND ROLLER.

Specification forming part of Letters Patent No. **194,436**, dated August 21, 1877; application filed February 24, 1877.

To all whom it may concern:

Be it known that we, GEORGE R. HUGHES and JOHN E. WALL, of Franklin, in the county of Williamson and State of Tennessee, have invented a new and valuable Improvement in Harrows and Rollers; and we do 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, and to the letters and figures of reference marked thereon.

The figure of the drawing is a representation of a plan view of our harrow and roller.

This invention relates to combined harrows and rollers; and it consists in the construction and arrangement hereinafter particularly described.

In the accompanying drawing, A designates the rectangular frame of our device, provided on each side of its front end with a draft-iron, *a*. Said frame consists of two longitudinal side bars, $A^1 A^1$, and four cross-bars, $A^2 A^3 A^3 A^2$, one of which, A^2 , is near each end, the other two, A^3 , being in the middle with a small interval between them. In this interval turns a transverse roller-shaft, B, which carries a sectional roller or rollers, B' , said shaft being journaled in the inside of side bars $A^1 A^1$. In the ends of said side bars A^1 beyond front and rear cross-bars A^2 are journaled other roller-shafts, C, carrying rollers C^1 , similar to B' .

In each space between the cross-bars A^2 and A^3 are two transverse shafts, $D D'$, having sharp-edged disks or harrow-wheels E. These disks are alternately arranged on each pair of shafts $D D'$, so that those on shaft D are opposite the spaces between those on shaft D' , and vice versa. These sharp-edged disks act as substitutes for the harrow-teeth in common use.

If preferred, the roller-shafts above described may be detached, leaving the machine a harrow and nothing more.

The rollers $C' B' C'$ act as ordinary garden or field rollers for smoothing the ground.

We do not claim any novelty in the construction and use of said rollers.

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

The harrow-frame A, provided with the sectional rollers $B' C'$ and cutters E E, alternately arranged on their shafts between said rollers, the axes of the rollers and cutters being parallel to each other, substantially as described, and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

GEORGE R. HUGHES.
JOHN E. WALL.

Witnesses:

WM. HOUSE,
B. SCRUGGS.