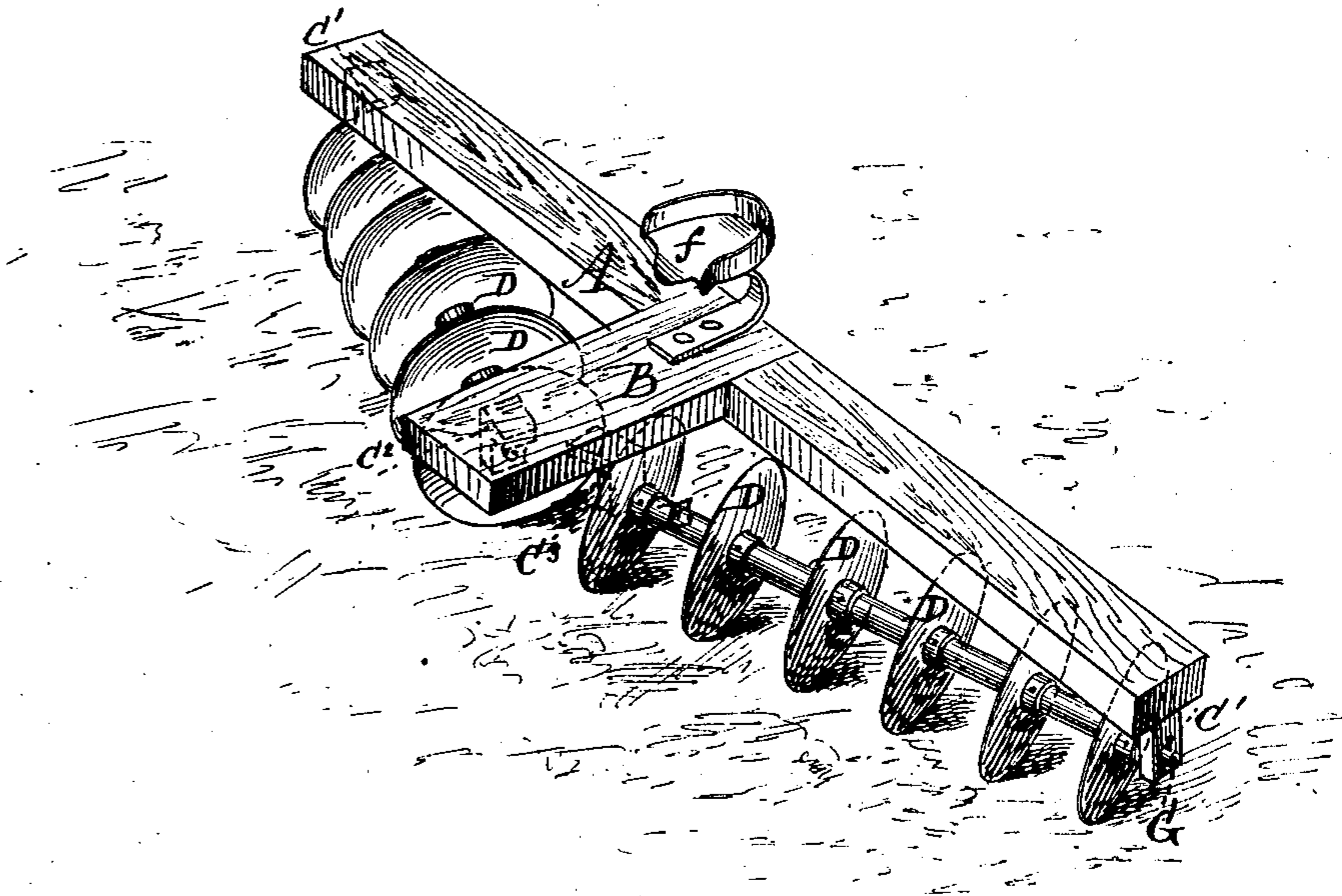


S. G. RANDALL.  
Disk-Harrow.

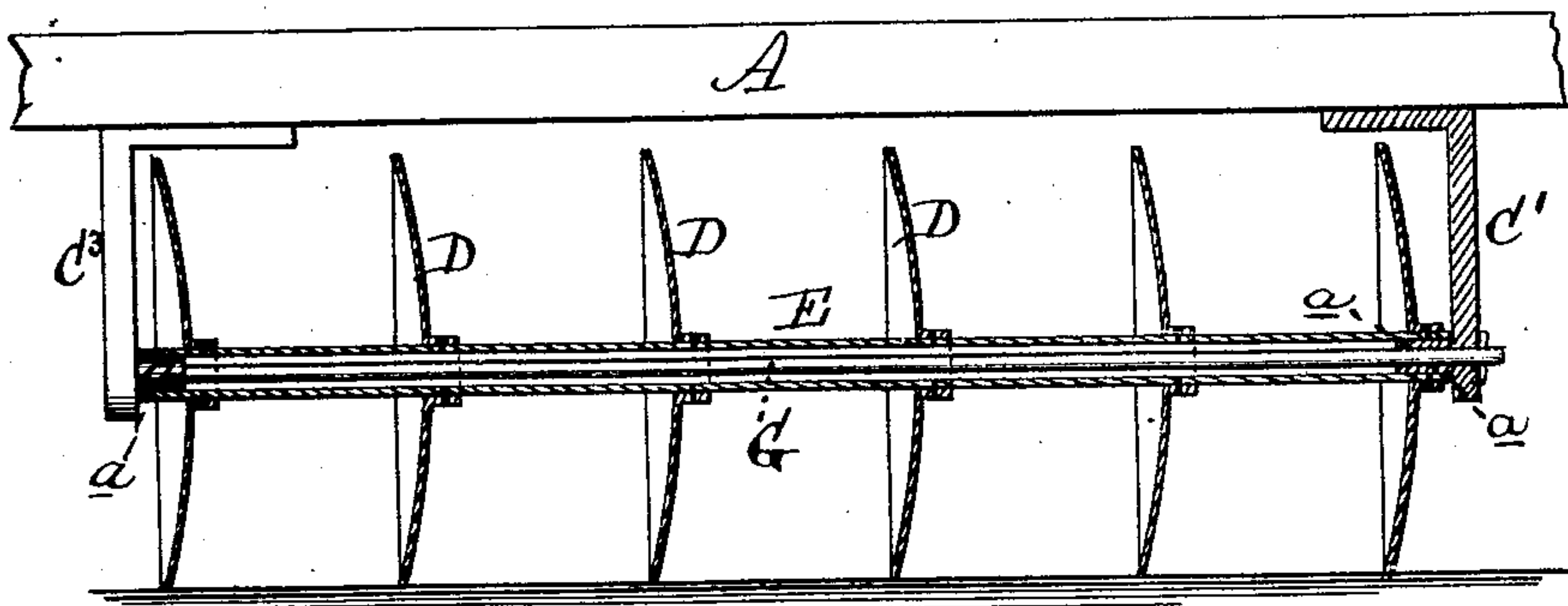
No. 163,527.

Patented May 18, 1875.

*Fig. 1.*



*Fig. 2.*



Witnesses.  
John Becker  
Fred Haynes

Silas G. Randall  
by his Attorneys  
Brown & Allen

# UNITED STATES PATENT OFFICE.

SILAS G. RANDALL, OF GREENE, NEW YORK.

## IMPROVEMENT IN DISK-HARROWS.

Specification forming part of Letters Patent No. **163,527**, dated May 18, 1875; application filed March 17, 1875.

*To all whom it may concern:*

Be it known that I, SILAS G. RANDALL, of Greene, in the county of Chenango and State of New York, have invented certain Improvements in Disk-Harrows; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification.

My invention consists in the peculiar construction of the axle which carries the disks, and the manner of attaching the same to the frame of the machine, whereby lightness, strength, durability, simplicity, and facility of attachment are obtained.

In the accompanying drawing, Figure 1 is a perspective view of my improved disk-harrow. Fig. 2 is a longitudinal vertical section.

A represents a bar or beam, of a length equal to the width of the space traveled over by the machine. About midway of the length of the bar A is attached the rear end of a bar or board, B, which extends forward a distance somewhat less than half the length of the bar A. On the under side of the bar A are attached two hangers, C<sup>1</sup> C<sup>1</sup>, one near each end of the bar; and on the under side of the bar B two similar hangers, C<sup>2</sup> C<sup>3</sup>, are attached, the hanger C<sup>2</sup> being near the front end of the bar, and the hanger C<sup>3</sup> being in rear thereof. The harrow-disks D are concavo-convex in form; but, instead of being loosely attached to and turning on a solid axle, they are rigidly attached to and turn with a hollow axle, E, through which passes a shaft, G, having its ends attached to two of the hangers by passing through holes therein, which ends may be fastened by nuts. Each of the hangers is constructed with a lateral journal, *a*, upon which the ends of the tubular axle are arranged to revolve; and the shaft G serves to connect the hangers together, and prevent them from spreading.

Two sets of harrow-disks are attached to the frame of the machine, the shaft of one set having its bearings in the hanger C<sup>2</sup> and one of the hangers C<sup>1</sup>, and the other shaft having its bearings in the hanger C<sup>3</sup> and the remaining hanger C<sup>1</sup>, so that the inner ends of the harrow-shafts are somewhat in advance of their outer ends, and each of the shafts is arranged at an angle with relation to the beam A.

The machine may be provided with a seat, *f*, for the driver, the bar or board B serving as a foot-board, and to the bar B is attached the tongue of the machine.

Among the advantages in a machine constructed as above described are the following: The tubular axle is light, strong, durable, not easily bent, and readily admits of punching holes by which to fasten the disks. It also allows the passage through it of the rod or shaft G, by which the hangers are made to share equally the shock or strain of the machine, and which also serve as braces to strengthen the beam A, by connecting its ends to the bar B. By attaching the hangers directly to the frame of the machine, the use of separate disk-frames is not necessary, and the construction is simplified by reducing the number of parts, and yet those parts are retained which are necessary to the successful operation of the machine.

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

The combination of the hangers, having the lateral journals *a*, with the tubular axle mounted on said journals, and the shaft G, passing through the axle and connecting the hangers together, substantially as and for the purpose described.

SILAS G. RANDALL.

Witnesses:

ETHAN A. STURTEVANT,  
HENRY F. HALL.