

(No Model.)

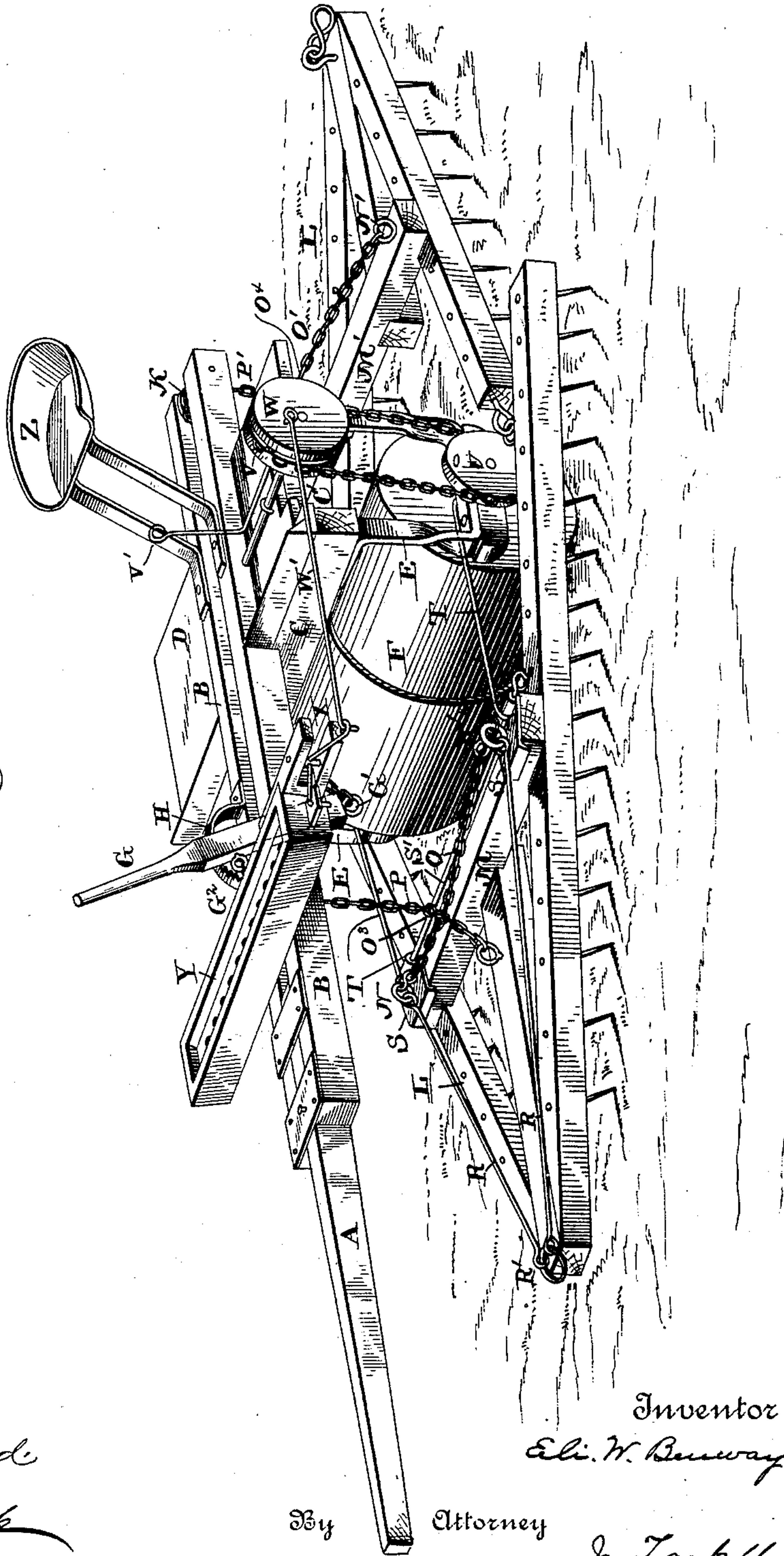
2 Sheets—Sheet 1.

E. W. BENWAY.  
RIDING HARROW AND ROLLER.

No. 360,554.

Patented Apr. 5, 1887.

Fig. 1.



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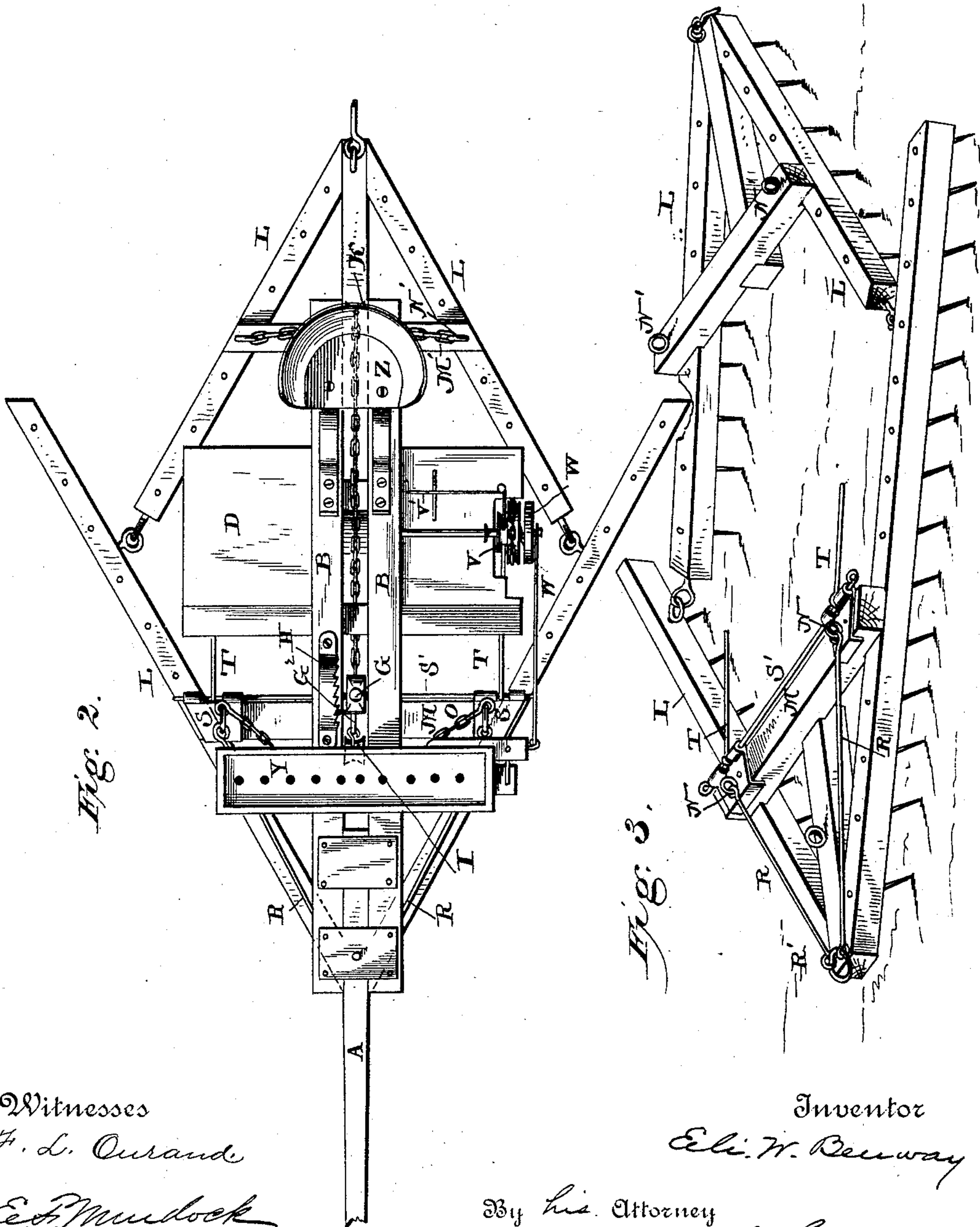
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F. L. Ourand  
E. F. Mumlock

Inventor  
Eli W. Benway  
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# UNITED STATES PATENT OFFICE.

ELI W. BENWAY, OF INDEPENDENCE, KANSAS, ASSIGNOR OF ONE-HALF TO  
HORACE D. GRANT, OF SAME PLACE.

## RIDING HARROW AND ROLLER.

SPECIFICATION forming part of Letters Patent No. 360,554, dated April 5, 1887.

Application filed November 1, 1886. Serial No. 217,694. (No model.)

*To all whom it may concern:*

Be it known that I, ELI W. BENWAY, a citizen of the United States of America, residing at Independence, in the county of Montgomery and State of Kansas, have invented certain new and useful Improvements in Riding Harrows and Rollers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in riding harrows and rollers, as patented to myself and others November 18, 1879, No. 221,767; and it consists in new combinations and appliances, whereby seed is distributed from and planted by the same machine and in one operation. The draft is so applied as not to raise the end of the harrows, and the parts may be separated and distributed so that a simple, effective, and compact machine may  
20 be formed from them.

In the drawings, Figure 1 is a perspective view of the machine. Fig. 2 is a plan view of the same; and Fig. 3 is a perspective view of the harrows separated from the rest of the  
25 machine.

The tongue A of the machine is rigidly secured between the ends of two parallel strips, B, that extend throughout the machine, leaving a slot between. Attached to these strips  
30 crosswise are two braces, C, upon which is mounted the platform D. To the under side of the said braces are secured the ends of stirrup-shaped braces E, which form bearings for the shaft of the rollers F. Between the  
35 strips B and forward of the rollers F is swung the hand-lever G. The said lever is provided with two rings, G' and G<sup>2</sup>, one upon the end and the other upon the forward side, an equal distance from the pivot upon which the said  
40 lever is swung. The lever is provided upon the side with a pawl, and upon the strips to one side of the lever is attached a ratchet, H. In front of the said lever G is placed the pulley I, and at the extremity of the braces B is  
45 the pulley K.

The harrows L L are formed of strips placed at an angle, provided with teeth, and braced, substantially as shown. These harrows are of different sizes, the smaller fitting between the  
50 long legs of the larger. The larger is provided

with rings placed at suitable positions to receive hooks placed upon the ends of the legs of the smaller.

Upon the cross-braces M M' are placed the rings N N'. Each pair of rings is connected  
55 by loose chains O O', which are provided with hooks O<sup>3</sup> O<sup>4</sup>. These hooks engage rings in the end of the chains P P', respectively. The chain P passes over the pulley I and is attached to the ring G', and the chain P' passes  
60 over the pulley K and is attached to the ring G<sup>2</sup> upon the lever G.

Attached to the rings N, and extending forward to the angle of the large harrow, are the link-rods R, which converge and are joined  
65 by the ring R'. To this the team is attached.

Attached to the brace M are hinge-leaves S, setting between the knuckles of which are the ringed ends of the connecting-rods T, which are connected to the said leaves by  
70 means of a rod, S', substantially as shown. A ring upon the other end of the said rod enfolds the shaft of the rollers, and thus connects the rollers to the harrows.

At one end of the roller-shaft and outside  
75 the bearing is a sprocket-wheel, U, which is geared to a smaller sprocket-wheel, V, by means of a link-chain. The said wheel V is loosely attached to the shaft of the crank-wheel W, and movable back and forth against  
80 the said crank-wheel by means of the hand-lever V', which is pivoted upon the platform of the machine, substantially as shown. The meeting-faces of the wheels V and W are provided with ratchet-teeth, forming a clutch-  
85 gearing. The crank-wheel is provided with a connecting-rod, w, which engages one arm of a bell-crank lever, X, hinged in the frame of a broadcast-seeder, Y, and the remaining arm engaging the slide of said seeder. The said  
90 broadcast-seeder is mounted upon the parallel strips B, and is of an ordinary construction.

The seat Z is mounted upon the strips B, and in position to allow the driver to manipulate the levers G and V'.  
95

The parts of this machine are so connected that they may be separated and the harrows and roller used separately. The harrows may be separated by lifting the hooks upon the ends of the legs of the smaller from the rings  
100



upon the larger, and the larger harrows may be separated from the roller by drawing the rod S'. The hooks O<sup>3</sup> and O<sup>4</sup> are released from the rings in the ends of the chains P P'. To  
5 use the harrows thus separated, the larger and smaller are joined by a hook, L<sup>2</sup>, at the angle of the small harrow engaging a ring in the center of the brace M of the large harrow.

In using the machine the seeder may be operated or not, at the will of the driver, by means of the handle V', throwing the wheels V and W into or out of gear.

The distinguishing features of this invention consist in the disposition of the harrows when  
15 used separately, the application of the draft so as not to raise the end of the harrow, and the seeder mechanism.

What I claim is—

In a harrow such as described, the combination of two harrows having an angular shape,  
20 and braced substantially as described, said harrows joined by means of hooks and rings

at their flaring ends, leaving a space between them, connecting-rods engaging one of said harrows and the shaft of a roller, said roller  
25 provided with a sprocket-wheel upon the end of its shaft, seeder mechanism consisting of two sprocket-wheels connected by a link-chain, one of said wheels being connected rigidly to the shaft of the said roller and the other  
30 movable upon a shaft upon the platform of the machine and controlled by a hand-lever and provided with a ratchet-toothed face, a crank-wheel provided with a crank-rod and  
35 having a ratchet-toothed face, a bell-crank attached to said crank-rod and seeder-slide, and a broadcast-seeder, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ELI W. BENWAY.

Witnesses:

H. D. GRANT,

J. B. UNDERHILL.