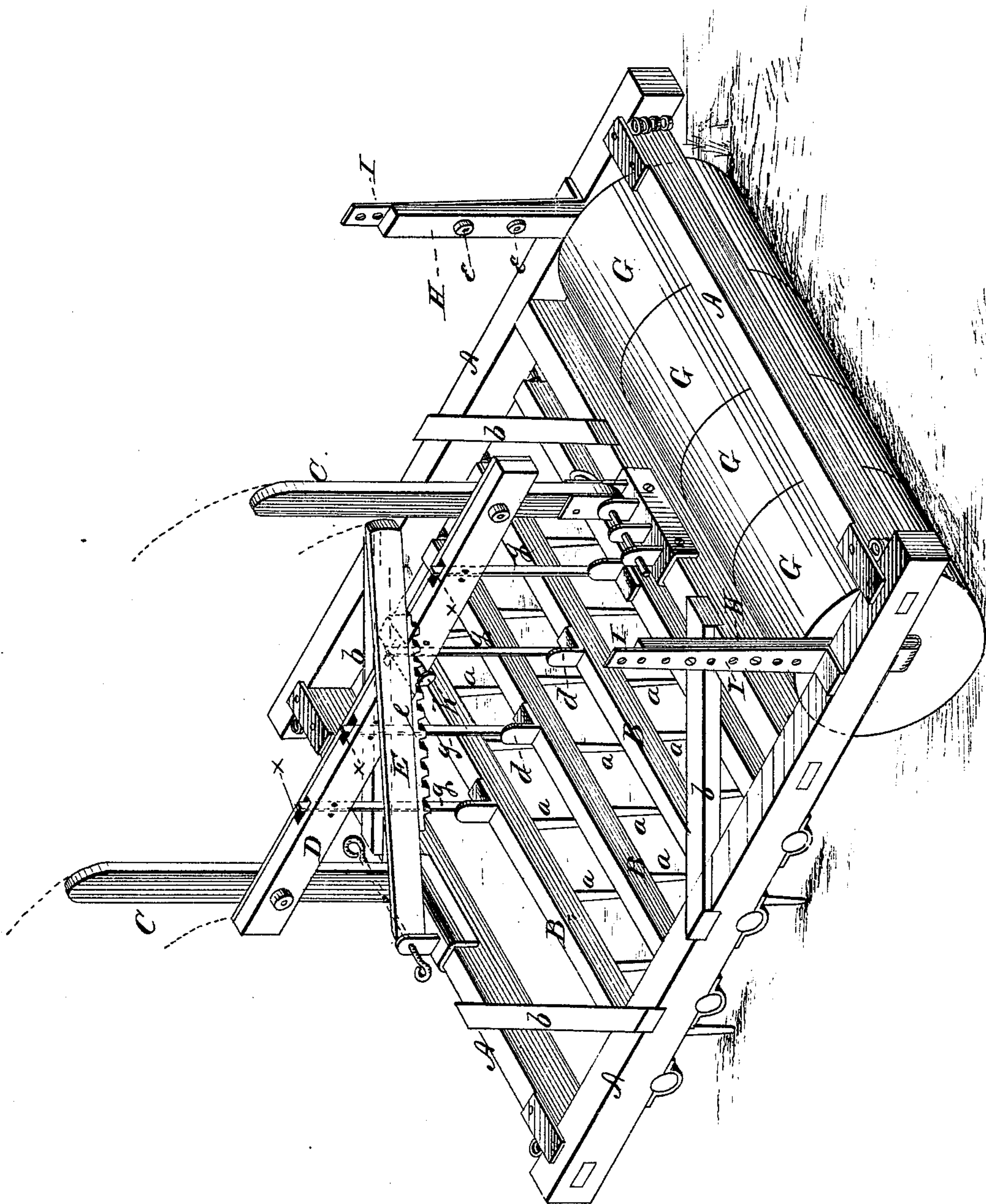


W. GILLELAN.

COMBINED HARROW AND LAND-ROLLER.

No. 182,914.

Patented Oct. 3, 1876.



WITNESSES

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WILLIAM GILLELAN, OF EMMITTSBURG, MARYLAND.

IMPROVEMENT IN COMBINED HARROW AND LAND-ROLLER.

Specification forming part of Letters Patent No. **182,914**, dated October 3, 1876; application filed June 7, 1876.

To all whom it may concern:

Be it known that I, WILLIAM GILLELAN, of Emmittsburg, in the county of Frederick, and in the State of Maryland, have invented certain new and useful Improvements in Combined Harrows and Land-Rollers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction of a combined harrow and land-roller, as will be more fully hereinafter set forth.

In order to enable others skilled in the art to which my invention relates, I will now proceed to describe the same, reference being had to the accompanying drawings, forming part of this specification, in which the figure represents a perspective view of my invention.

A represents a rectangular frame of suitable dimensions, braced by inclined stays *b b*. Journaled between the bars of the frame are a series of cross-shafts, B B B, placed a suitable distance apart, and each provided with a series of harrow-teeth, *a a a*, equidistant from one another. At the center, on top of each harrow-shaft, is placed a metallic casting, *d d*, and to each casting is secured a vertical spring-bar, *g g g*. Detachably connected to the upper part and center of the front and rear cross-bars of the harrow-frame proper are two upright levers, C C. These levers are connected together by a horizontal bar, D, pivoted at both ends to the levers, and provided with a number of vertical slots, *x*, to correspond with, and directly over, each harrow-shaft B. The upper ends of the spring-bars *g* pass into these slots *x*, and have a free play back and forth in the same.

It will thus be seen, as either lever C is moved backward or forward, that the bar D, moving therewith, will cause the spring-bars to partially rotate the harrow-shafts B, and give the teeth *a* an inclination either way, so as to regulate the depth they will enter the ground.

E represents a long bar pivoted to one end of the frame, and having a back bar, pins, or serrations, *e*, on the under side, which will engage with a stud, *h*, on the bar D, so that the harrow-shafts can be held in any desired

position after having been moved by the levers.

In the rear of the harrow-frame proper is a land-roller made in sections G G. A shaft runs through the rollers, and is connected at each end to a vertical standard, H H. Secured to the frame, adjacent to each standard, is a vertical casting, I I, having a series of perforations. The standards H lie against the inner faces of the castings I, and one or more bolts, *e*, secure the standards and castings together.

Whenever desired, the rollers can be adjusted up or down by raising or lowering the standards H, and connecting the same by the bolts through any of the perforations in the castings I.

It will be seen with my invention that the team can be attached to either end of the frame, and that the teeth can readily be adjusted for harrowing any kind of ground, and the sectional land-roller adjusted to correspond with the adjusted harrow-teeth.

By means of the spring-bars *g* the harrow-teeth, or the bars themselves, are not liable to become broken when the teeth strike an obstacle, such as a stump or stone, as each bar B is independently and flexibly connected by a spring to the bar D.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the rocking bars B, provided with harrow-teeth *a*, of the spring-bars *g*, projecting from said rocking bars, the longitudinal bar D, connecting the two levers C C, and provided with slots *x* and stud *h*, and the pivoted bar E, having pins or serrations *e*, all as and for the purposes herein set forth.

2. The roller G secured upon a shaft connected to the standards H H, in combination with the perforated castings I I on the frame A and the bolts *e*, all substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 25th day of May, 1876.

WILLIAM GILLELAN.

Witnesses:

M. L. STOWELL,

WM. L. BRAMHALL.