

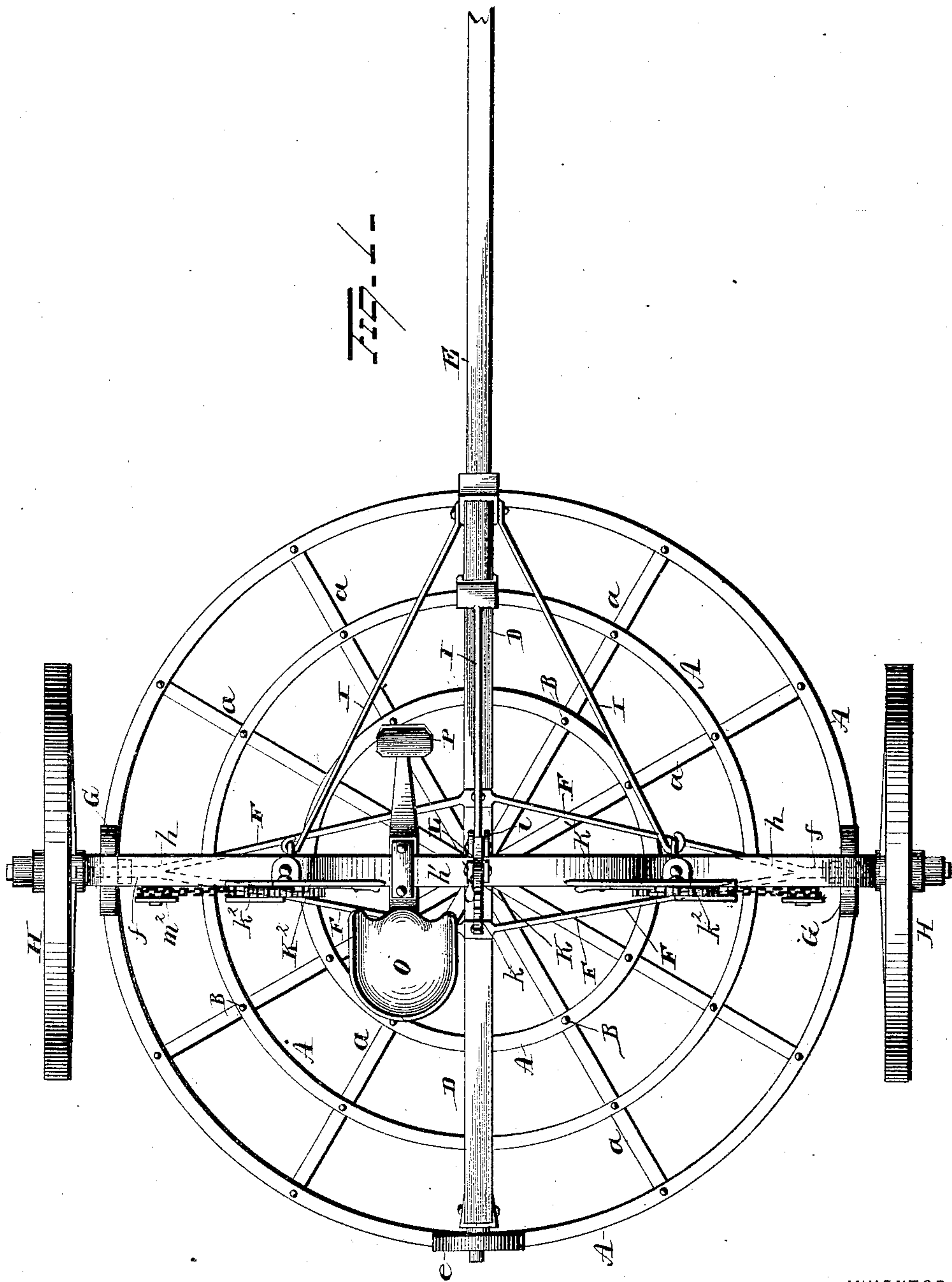
(No Model.)

2 Sheets—Sheet 1.

H. H. LADD.
ROTATING HARROW.

No. 318,631.

Patented May 26, 1885.



WITNESSES
S. G. Nottingham
W. A. Ruff

INVENTOR
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By H. H. Symmon
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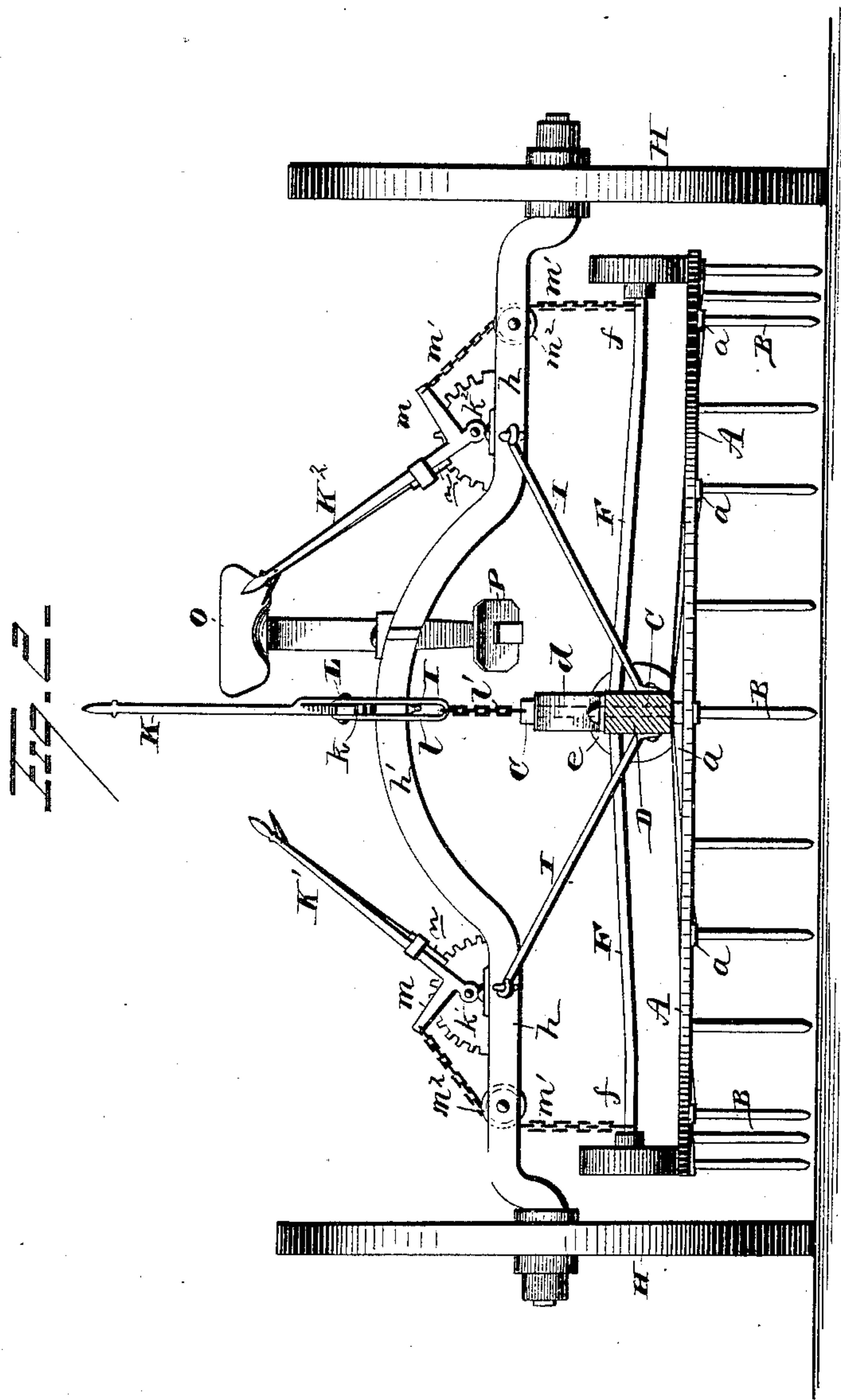
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INVENTOR
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UNITED STATES PATENT OFFICE.

HIRAM H. LADD, OF FREMONT, NEBRASKA.

ROTATING HARROW.

SPECIFICATION forming part of Letters Patent No. 318,631, dated May 26, 1885.

Application filed December 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, HIRAM H. LADD, of Fremont, in the county of Dodge and State of Nebraska, have invented certain new and useful Improvements in Rotating Harrows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in rotating harrows, the object of the same being to provide improved means for attaching the harrow proper to the carriage and for operating and adjusting the harrow, a further object being to provide a rotating harrow with a light, durable, and convenient carriage; and with these ends in view my invention consists in certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a plan view of the harrow, and Fig. 2 is a front view.

The harrow proper consists of a series of concentric circular slats, A, connected by radial bars *a*, and provided with teeth B, located preferably at the several junctures of the bars *a* and slats A.

The harrow is pivoted on a central bolt, C, which passes upward through a beam, D, and an arch-brace, *d*, secured on the upper side of the beam D.

To the forward end of the beam D the tongue E is secured, and to the rear end of the said beam the roller *e*, loosely mounted on a stud or pin, is secured. A forked spring-arm, F, is rigidly secured to and extends on each side of the beam D to points immediately above the outer slat of the harrow, where the branches unite and form spindles *f*, on which rollers or wheels G are mounted, which rollers, when in their normal positions, rest with their faces on the outer slat.

The harrow thus constructed is attached to a carriage consisting of a pair of wheels, H, of suitable construction to support the weight of the driver and the harrow proper, and to travel readily over rough ground. The ends aimed at in their construction are lightness and durability, combined with cheapness and ample strength. The wheels H are mounted

on the ends of an axle, *h*, which spans the harrow, and is arched centrally, as shown at *h'*. The forward end of the beam D is secured to the axle *h* by three brace-rods, I, which extend from each end and the top of the arch *h'* to the sides and top of the beam, and are preferably hinged to the beam in such a manner as to admit of a vertically-rocking motion of the beam. Three operating-levers, K K' K², are pivotally secured at the centers of three sector-bars, *k k' k²*, respectively secured to the axle *h*. The sector-bar *k* is secured at or near the top of the arch *h'*, at right angles thereto, and the sector-bars *k' k²* near the ends of the arch *h'* and in the same plane therewith. The lower portion of the lever K is provided with a forwardly-extending arm, L, to the end of which a link, *l*, is pivoted. The link *l* is connected with the beam D by a chain, *l'*, or other suitable means, at a point over or nearly over the center of the harrow. The levers K' K² are also provided with laterally-extending arms *m*, to the ends of which ropes or chains *m'* are attached. The chains *m'* extend over rollers *m²*, secured to the axle, and are attached to the braces F at or near the points where they meet. The three levers K K' K² are each provided with spring-actuated dogs *n*, adapted to lock the levers to the sector-bars. The driver's seat O and foot-rest P are secured to the top of the arch *h'*.

From the above construction it will be seen that the harrow may be elevated or permitted to rest in contact with the ground by the action of the lever K, and locked in any desired vertical adjustment, thus enabling the operator to determine the depth of cut; and it will be further noticed that the rollers G may be both lifted from the harrow by the levers K' K², or one lifted and the other permitted to remain in contact with the harrow, thus regulating the rotation of the harrow.

It is evident that slight changes may be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention; hence I do not wish to be understood as limiting myself strictly to the construction herein set forth; but,

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

In a harrow, the combination, with an axle, a beam depending therefrom, arms projecting from the beam, and rollers journaled on said arms, of a horizontally-rotating harrow piv-
5 oted to the beam, a lever pivoted to the axle and connected to the beam, and levers pivoted to the axle and connected with the projecting arms, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HIRAM H. LADD.

Witnesses:

J. E. FRICK,

LEWIS SPEAR.