

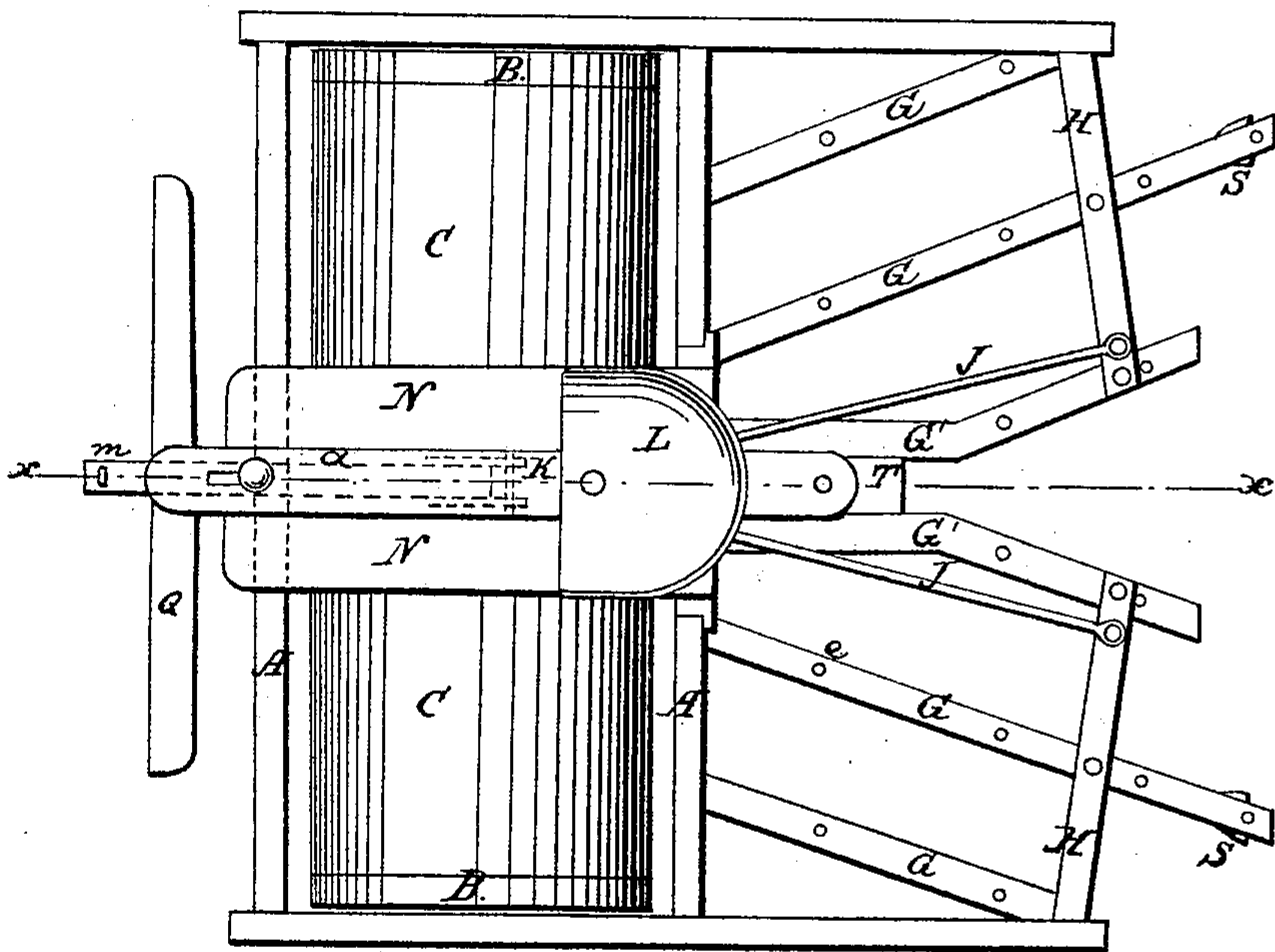
G. H. WOODRUFF.

Roller and Harrow.

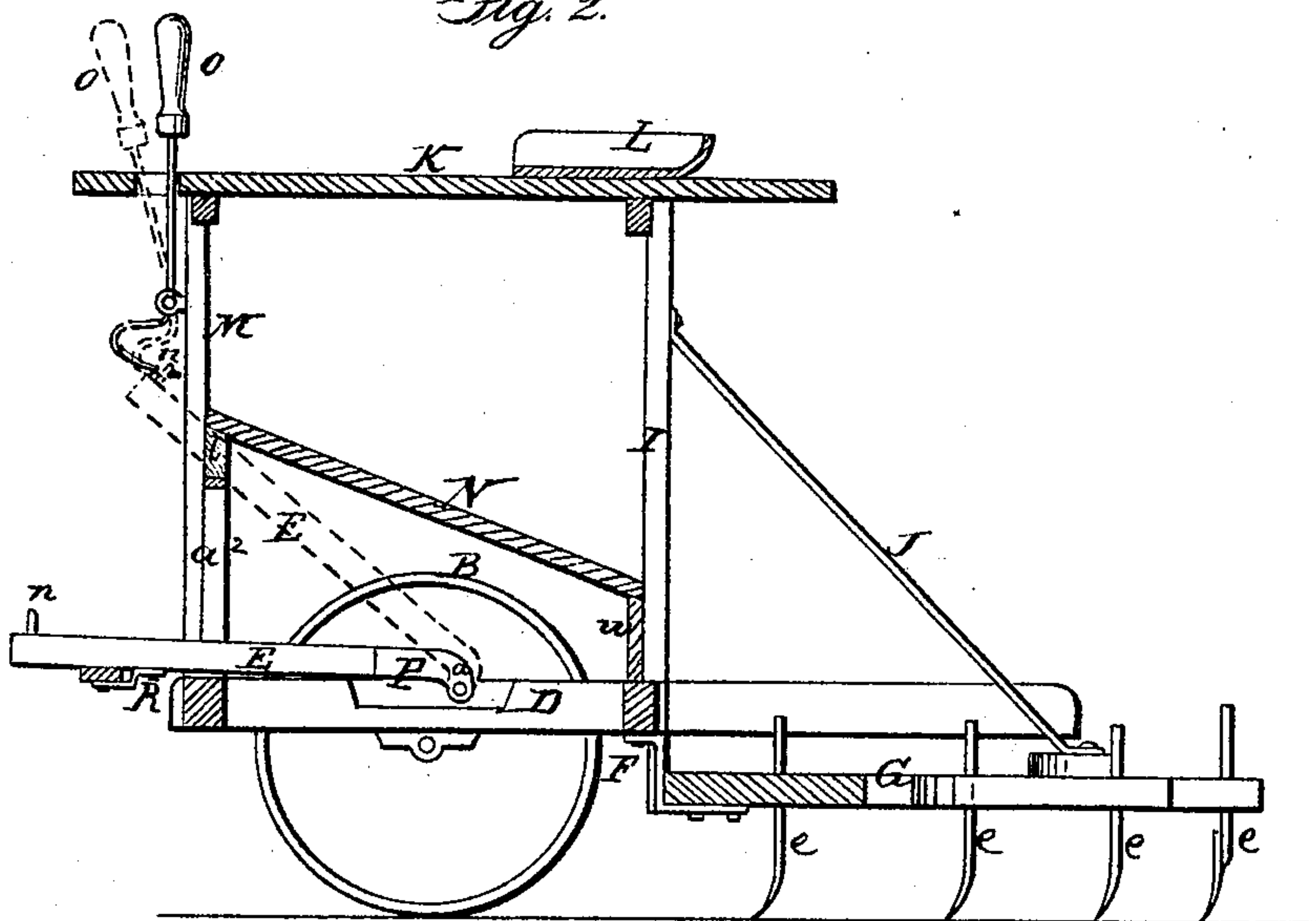
No. 60,655.

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*Fig. 1.*



*Fig. 2.*



Witnesses:

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# United States Patent Office.

## IMPROVEMENT IN COMBINED ROLLER AND HARROW.

GEORGE H. WOODRUFF, OF JERSEYVILLE, ILLINOIS.

*Letters Patent No. 60,655, dated December 18, 1866.*

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE H. WOODRUFF, of Jerseyville, in the county of Jersey, and State of Illinois, have invented a new and improved Combined Roller and Harrow; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification.

The nature of my invention consists in combining two or more sections of field rollers with a harrow in such a manner that the roller may be removed and the harrow used, or separately employed from the harrow, so that the ground may be rolled and harrowed at the same time, or only the harrow used, as may be desired, and the nature of the work shall require.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 is a top plan view of my improved combined roller and harrow.

Figure 2 is a longitudinal vertical sectional elevation, taken through the line *x x*.

Letters of like name and kind refer to like parts in each of the figures.

A represents a rectangular frame, made of wood or other suitable material, with the side pieces extending to a suitable distance to the rear for the purpose of supporting the rear end of the harrow. The frame A is mounted and runs on wheels, B B, which are provided with shafts and journals, which run in proper bearings firmly secured to the under side of the rectangular frame A. Upon the shafts upon which are the wheels B B, are rollers, C C, made of wood of the same diameter as the wheels, the outer ends of which are made to fit against the inside of the rim of the wheels A A. The wheels A A and rollers B B are secured upon the shaft by means of set-screws, so that the rollers may be removed as desired, and only the wheels employed. The frame A is provided with a suitable cross-piece, D, that passes between the sections of the rollers, to which the bearings of one end of the shafts are secured, and to which is also secured, by a pivot-bolt, *a*, the pole E. To the rear cross-piece of the frame A are secured, by means of the connecting-bars F F F F F F, the harrow beams G G G G G G. These connecting-bars, F, are bent twice at right angles for the purpose of bringing the beams G to the proper height in relation to the frame A and to the ground, so that the teeth will operate successfully. The beams G extend back from the frame A in an oblique direction. The beams G' are made straight at the front ends, and extend back in a straight direction to near the middle, where they turn at an angle to correspond with the beams G. In the beams represented by G and G' are secured any desired number of teeth, represented by *c*. H are bars secured to the rear end of the side pieces of the frame A, extending toward the centre to the rear of the frame, at nearly right angles with the said side pieces of the frame A. At the inner ends of the bars H H are secured inclined braces, J J, which extend upward, and secured to the inclined posts I I. These posts, I I, are rigidly secured to the rear cross-piece of the frame A, and support the rear end of the bar L, upon which is locked the adjustable driver's seat L. M M are also two inclined posts secured to the front end of the frame A, which support the front end of the bar K. N N are two inclined foot-boards, the front ends of which are secured to a cross-bar, *i*, that is secured to the inclined posts M M. The rear ends of these foot-boards are secured to a cross-piece, *m*, that rests on the rear cross-piece of the frame, and secured to the posts I I. O is a lever, pivoted by means of a rock-shaft; the said shaft is provided with bearings secured to the inclined posts M M. The lower end of this lever, O, is bent in such a manner as to form a hook, for the purpose of engaging in the eye *n*, that is located and secured to the upper side of the tongue or pole E, for the purpose of holding the harrow in an elevated position. The pole E is secured to about the centre of the centre cross-piece D of the frame by means of a bifurcated bar or strap, P, that strides the said piece D, and a bolt that passes through the strap P and the cross-piece D, so as to form a pivot, upon which the pole works, and which holds the pole in its position. *a*<sup>2</sup> is a guide, through which the pole or tongue passes, to prevent any lateral motion. The said guide is secured to the front cross-piece of the frame A. Q is the evener, secured in the usual way upon the under side of the pole E by means of hammer and strap R. At the rear ends of the two longer beams, G G, are secured cultivator blades or ploughs, S S, when it is designed to use the machine for a marker for the rows of corn, potatoes, &c.

The operation is simple, easy, and perfect; each feature of the machine performs its functions in the most



desirable manner. When it is only desired to use the roller the pole is rigidly engaged in the hook *n*, at the lower end of the lever *O*, in the eye *n'*. At the same time the seat is moved forward upon the bar *K* to a point where the weight of the driver will balance the harrow in an elevated position, so that no part of the machine will operate except the rollers, as designed, the weight of the harrow, as also the driver, being upon the rollers. When it is designed to use the combined machine, the hook upon the lever *O* is released from the eye *n'*, in the pole, which allows the harrow to resume its position upon the ground. When the driver adjusts his seat upon the bar *K* to any desired point, so as to bring his weight sufficiently upon the harrow to operate it to the proper depth in the ground, by moving or adjusting the seat upon the bar *K*, regulates the depth of the teeth in the ground. When it is designed to roll, harrow, and mark off the rows for plants, the ploughs, *S S*, are placed in the rear end of the two longer beams, *G G*. If in this position the rows are too wide, by removing the harrow-teeth and inserting the ploughs in their stead, the rows may be varied as desired. To roll and cultivate among corn, the wheels *B B* are removed, which will allow the rollers, *C C*, to move from the centre to the outside of the frame, where they are secured, which leaves a space of from four to twelve inches between the two sections of rollers. The movable piece *T* is then removed, together with its tooth. The outer or rear ends of the beams *G' G'* are moved out from each other, and again secured to the bars or stays *H H*. The front ends of the beams may also be moved apart in the same manner, upon the rear cross-timber of the frame *A*, when the machine will stride the rows, rolling and cultivating the ground and eradicating the weeds. When the plants have attained a sufficient growth to have the dirt thrown upon the roots, the two inside or centre harrow teeth are removed and the ploughs *S S* used in their stead. To harrow and cultivate without rolling, the rollers are removed, and only the wheels *B B* employed to carry the machine, so that it will perform all the functions of an ordinary harrow. At the same time a comfortable seat is provided for the driver, so that the infirm or one that has lost a limb can operate it when he would not be able to travel and drive the team.

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

1. The employment of the pivoted lever *O*, for the purpose of elevating the harrow so that only the rollers may be used, substantially as shown and described and for the purpose set forth.
2. The wheels *B B* in combination with the rollers *C C* and frame *A*, constructed and arranged in such a manner that the rollers may be removed and only the wheels used, or the wheels removed and the rollers moved out to the frame, substantially as herein shown and described and for the purpose set forth.
3. I also claim the beams *G G'*, standing obliquely to the frame *A*, when the said frame *A* is provided with wheels *B B* and rollers *C C*, constructed and operated substantially and for the purposes set forth.
4. The adjustable seat in combination with the frame *A*, wheels *A A*, rollers *C C* and harrow, for the purpose of regulating the depth of the harrow teeth *e*, substantially as described and for the purposes set forth.
5. Attaching the pole or tongue *E*, by means of bifurcated bar or straps *P*, to near the centre cross-piece *K* of the frame *A*, in combination with the guide *a'*, substantially as shown and described and for the purposes set forth.

GEORGE H. WOODRUFF.

Witnesses:

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