

L. BICKELSHYMER.

Rotary Cultivator.

No. 67,940.

Patented Aug 20, 1867.

Fig. 1.

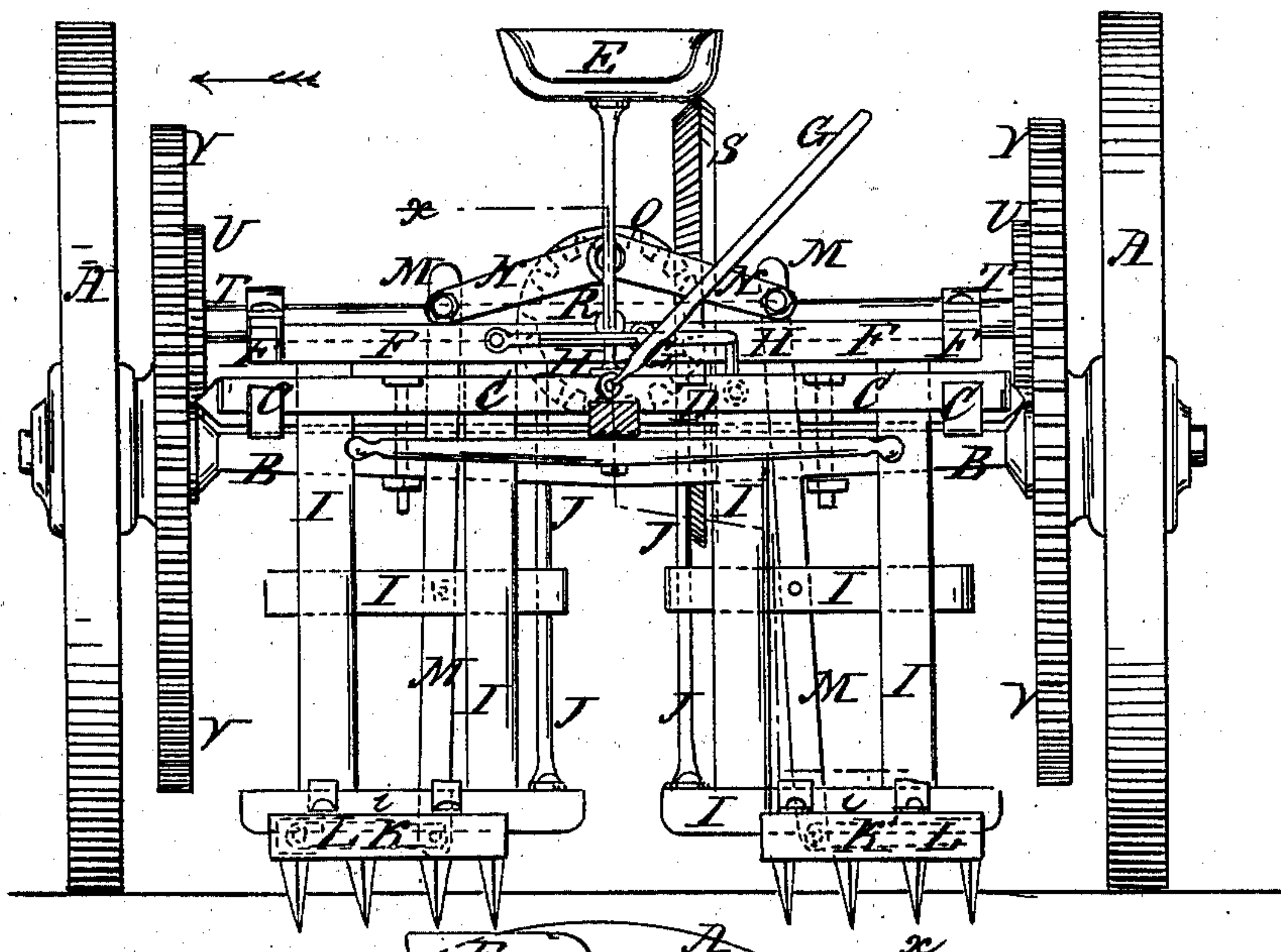


Fig. 2.

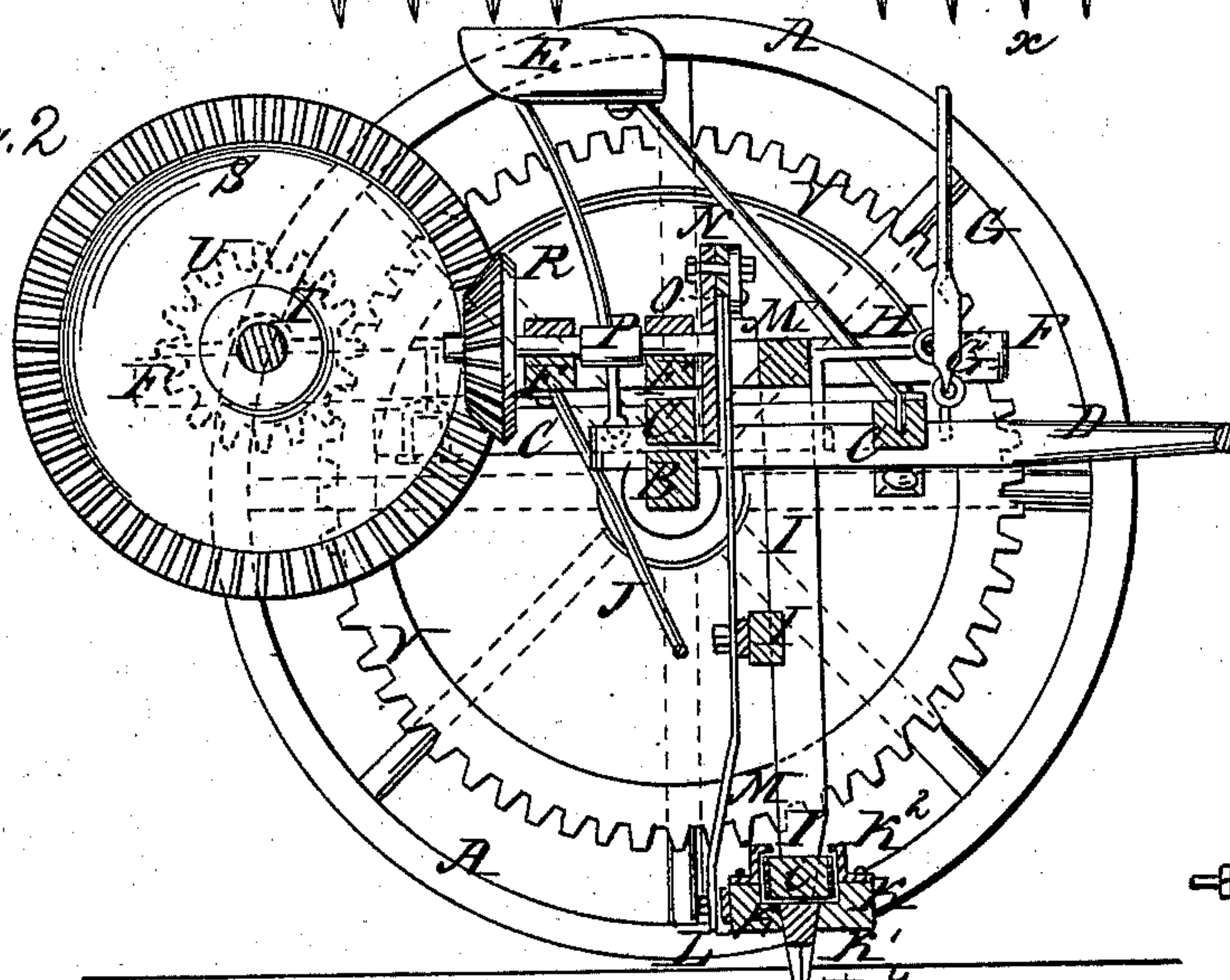


Fig. 3.

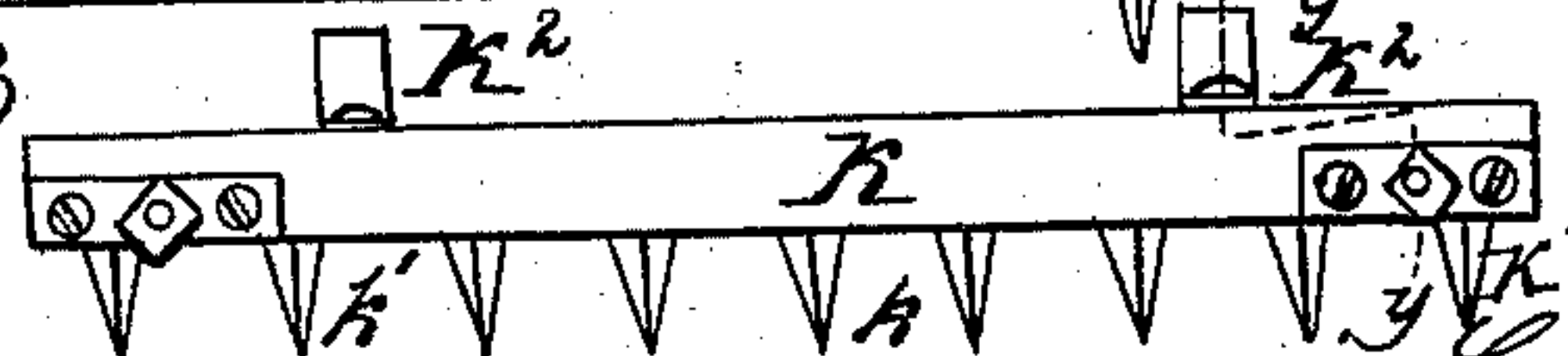
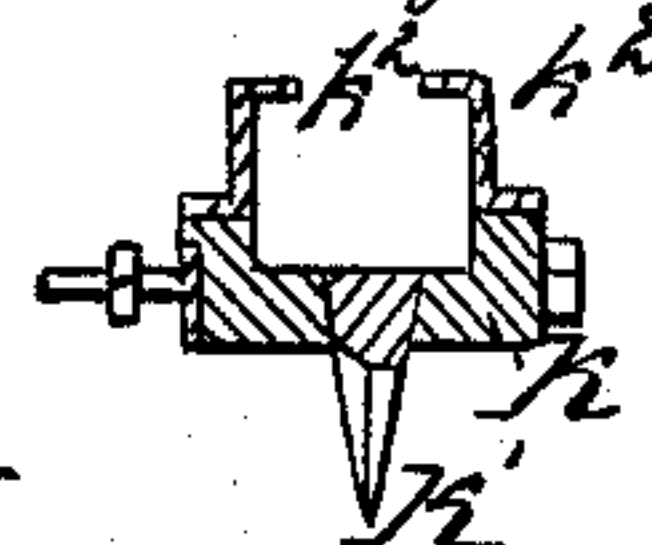


Fig. 4.



Witnesses:

Theo. Fische
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Lemuel Bickelshymer
Munn & Atty's

United States Patent Office.

LEMUEL BECKELSHYMER, OF LEAVENWORTH, KANSAS, ASSIGNOR TO HIMSELF AND GRANDERSON T. DEERING.

Letters Patent No. 67,940, dated August 20, 1867.

IMPROVEMENT IN HARROWS.

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, LEMUEL BECKELSHYMER, of Leavenworth, in the county of Leavenworth, and State of Kansas, have invented a new and useful Improvement in Harrows; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front view of my improved machine.

Figure 2 is a sectional view of the same, taken through the line *x x*, fig. 1.

Figure 3 is a detail view representing the harrow-shoe when made in one piece.

Figure 4 is a detail cross-section of the same, taken through the line *y y*, fig. 3.

Similar letters of reference indicate like parts.

My invention relates to harrows mounted upon wheels and receiving a reciprocating transverse movement from the said wheels by the interposition of gearing; and it consists in the harrow-shoes, to which the teeth are attached, in combination with the levers, connecting-bars, and crank-wheel, by which motion is communicated from the gearing to said harrow-shoes; and in the lever, in combination with the stationary and movable frames of the machine, the whole being constructed and arranged as hereinafter more fully described.

A are the wheels and B is the axle of the machine. C is a frame securely attached to the axle B and tongue D of the machine, and upon which the driver's seat E rests. F is a frame which rests upon the top of the frame C, and the side bars of which are pivoted or hinged to the rear ends of the side bars of the frame C in such a way that the forward end of the said frame E may be raised to lift the harrow-teeth out of the ground, and that the said frame F may be moved backward and forward to throw the machine out of and into gear. G is a lever, the lower end of which is swivelled to the tongue D or stationary frame C, and its middle part is connected with the frame F by a swivel, through the eye of which passes the guide-rod H, the ends of which are bent at right angles and secured to the forward cross-bar of the said frame F. By this construction, by means of the single lever G the machine may be thrown out of and into gear, and the harrow raised from or lowered to the ground, as desired. I are vertical frames securely attached to the frame F, so that by the raising or lowering of the said frame F the frames I will be carried with them. The frames I are strengthened by strong inclined braces J, as shown in the drawings. The lower cross-bar of the frames I forms slides *i* for the harrow-shoe or shoes K or K' to slide back and forth upon. The sides of the feet *i* should be plated to prevent wear and diminish friction, as shown in fig. 2. K K' are the shoes, to which the harrow-teeth *k*¹ are securely attached, and which fit upon the feet *i* of the frames I, being kept in place by the keepers *k*², attached to the said shoes, and projecting over the upper side of the feet, as shown in fig. 2. The shoes K' may be made in two parts, as shown in fig. 1, or in one piece, as shown in fig. 3. To the rear side of the shoe K or shoes K', near their outer ends, are pivoted the ends of the connecting-bars L, the other ends of which are pivoted to the lower ends of levers M. The levers M are pivoted to the central cross-bars of the frames I, and to their upper ends are pivoted the ends of the connecting-bars N, the other ends of which are pivoted to the crank-pin of the crank-wheel O. The crank-wheel O is attached to the end of the shaft P, which revolves in bearings in the frame F, and to the rear end of which is attached a bevel gear-wheel, R, the teeth of which mesh into the teeth of the bevel gear-wheel S, attached to the shaft T. The shaft T revolves in bearings at the rear end of the frame F, and has gear-wheels U attached to its ends, the teeth of which mesh into the teeth of the large gear-wheels V, securely attached to the wheels A so as to be carried with the said wheels A in their revolution, so that by the revolution of the wheels A in drawing the machine forward a reciprocating transverse movement is given to the harrow-teeth, while at the same time they are being drawn forward through the ground.

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

1. The harrow-shoes K' or K, to which the teeth *k*¹ are attached, in combination with the connecting-bars L, levers M, connecting-bars N, and crank-wheel O, by which motion is communicated from the gearing to the said shoes or shoe, substantially as herein shown and described.

2. The combination of the lever G with the stationary frame C or tongue D, and with the movable frame F, substantially in the manner herein shown and described and for the purposes set forth.

LEMUEL BECKELSHYMER.

Witnesses:

COLE McCREA,

RICHARD R. REES.