(No Model.)

E. KIME.

LAND ROLLER.

No. 489,587. Patented Jan. 10, 1893.

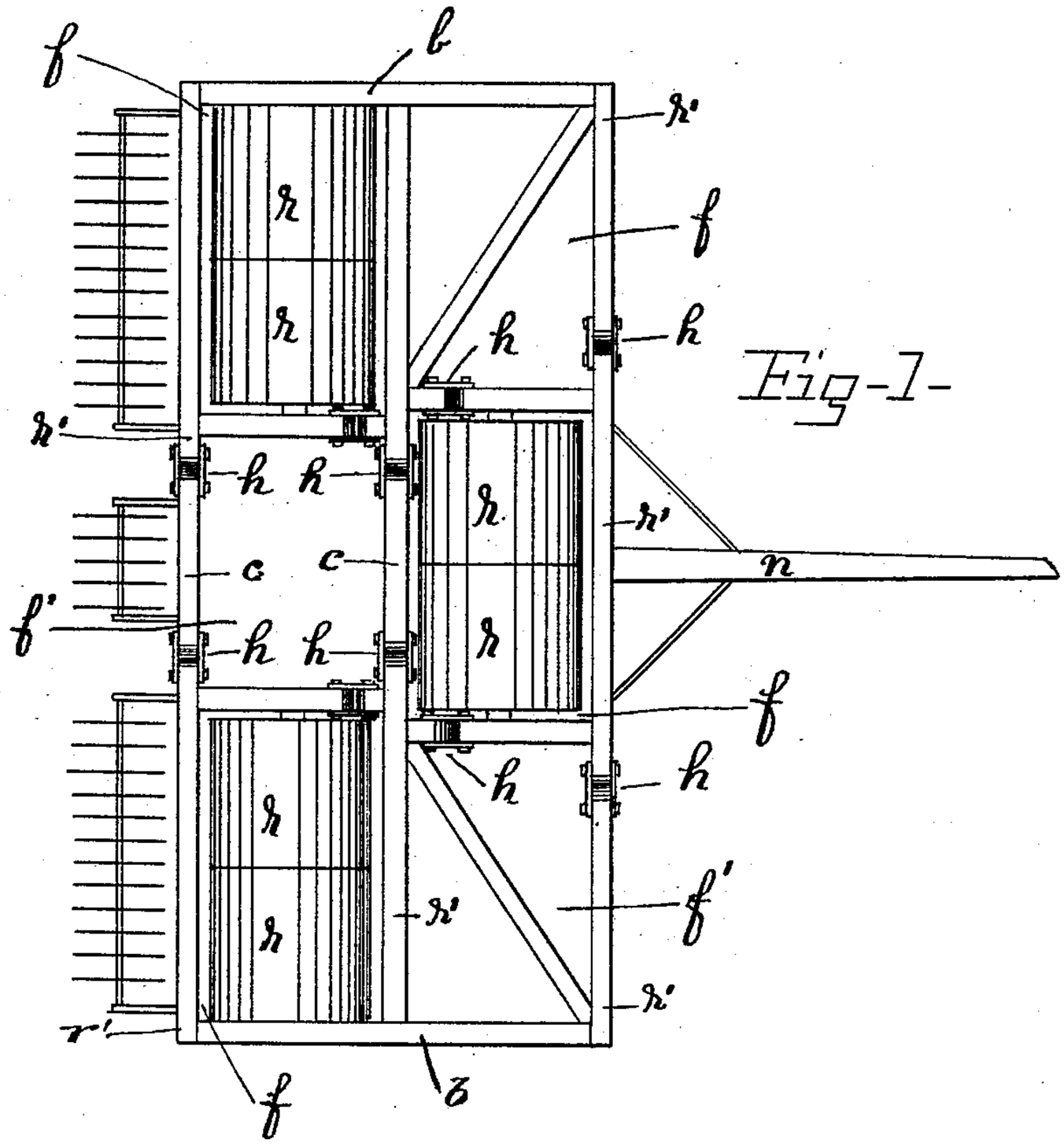

Fig-1-

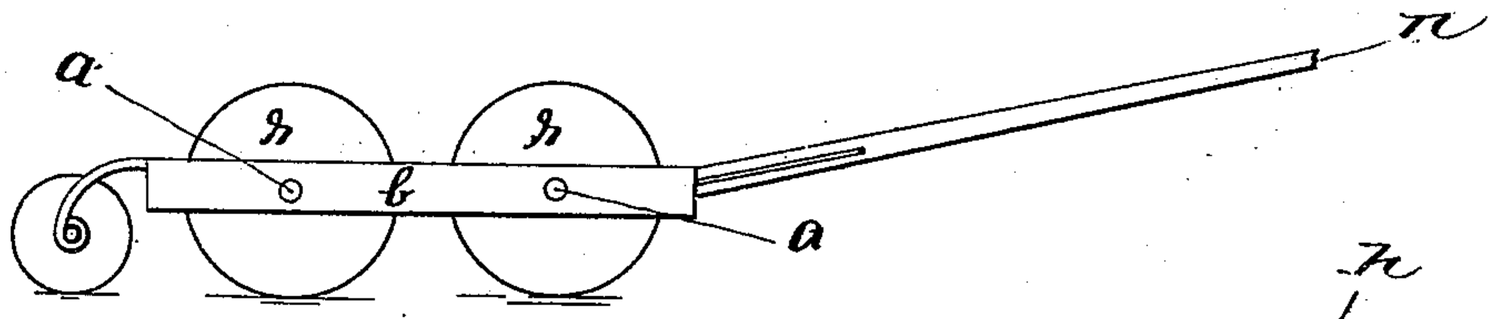

Fig-2-

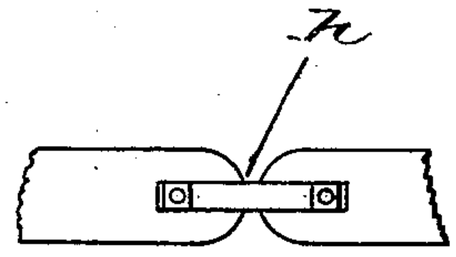

Fig-3-

Witnesses
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UNITED STATES PATENT OFFICE.

ENOCH KIME, OF MILTON, OHIO.

LAND-ROLLER.

SPECIFICATION forming part of Letters Patent No. 489,587, dated January 10, 1893.

Application filed September 17, 1892. Serial No. 446,180. (No model.)

To all whom it may concern:

Be it known that I, ENOCH KIME, a citizen of the United States, residing at Milton, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Land-Rollers; and I do hereby declare the following to be a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to that class of land rollers used for leveling ground, and crushing clods, in tillage for crops, and for similar uses, in which two or more rollers appear, so hung and arranged in the means of draft, that they may travel in different planes; and its object is such a land roller that is simple, and cheaply constructed; that may be readily and easily turned and handled, and without creating inequalities in the ground surface; that will follow closely in the line of draft; and in which each separated pair of rollers will, in rising and falling to different planes, present to the ground surface peripheries that adhere to horizontal lines, these being features never before combined in a land roller by the means presented in my invention. I accomplish this object by the mechanism hereinafter described and illustrated in the drawings in which

Figure 1 is a top or plan view of my roller complete, trailing a disk clod cutter, which often may be used with great advantage therewith; Fig. 2 is a side view of the same; and Fig. 3 is a side view of sections of the rails *r* of the frames *f* of the roller, connected by my hinge joint *h*.

Similar letters indicate similar parts in all views.

My land roller, as will be seen by inspection of the drawings, consists of the three similar, rectangular frames *f f f*, of greater length than breadth, each carrying within the quadrangle the two similar horizontally alinged rollers *r r* having the common fixed axis *a*, the central frame *f*, to which is attached the neap *n*, being forward of the two rear frames *f f* that are horizontally aligned and hinged together by my hinge joint *h*, (to be described) in such a manner that each frame *f* in traveling, rises and falls independent of the others, while, for lateral turning, the joint is rigid. The three empty frames *f' f' f'* are necessary to the hinge employed, and to strengthen the mechanism of the combination. The horizontal rails *r'* of the two rearward frames *f* are prolonged at the inward terminations beyond the cross bars *b*, the ends being vertically rounded, to supply a pivot seat for the hinge *h*. For the same purpose both terminations of the rail *r'* of the forward frame *f* are similarly prolonged and rounded while the cross bars *b b* are, rearward of the fixed axis *a*, cut in twain, the severed ends being also vertically rounded. In the same manner the inward ends of the short forward rails *r'* of the empty frames *f' f'* that appear on either side of the forward rollers, are rounded. The hinge joint *h*, shown separately at Fig. 4, is formed of two short horizontal bars, placed one on each side of the two round ended parts between which a joint is to be formed, over lapping both, and firmly pivoted to both. I use the hinge joint in the double form on both horizontal sides of the empty frame *f'*, that appears between the two rearward frames *f f* by means of the connecting bars *c c*, that extend between the two hinges *h h;* and elsewhere in the single form. The outward ends of the forward pair of rollers *r r* are on the horizontal lines of the inward ends of the inner rollers *r r*, so that no space of ground surface over which the rollers pass is left unacted upon. The neap *n* is the usual draft neap, and is attached to the forward rail *r* of forward frame *f* in the usual manner.

I make the several frames *f* and *f'* preferably of wood and the several rollers *r* as a casting of iron. The fixed axles *a* are round rods or shafts of iron or steel, and the hinges are preferably for strength, of wrought iron.

The mechanism of my land roller will now be understood and its operation to accomplish the results enumerated in the beginning of this specification will be comprehended.

It will be seen that, because two rollers revolving upon a fixed axle are employed in each frame *f* so that they will upon an abrupt turn to the right or left without forward movement revolve simultaneously in opposite directions, coupled with the fact that the hinges are rigid as against lateral movements, my land roller

will change direction of travel with the facility almost of any wheeled vehicle and without slide over the ground. It will also be seen that the rollers will not swerve from the direction of the draft, and that the peripheries of the rollers will pass upon the ground surface on strictly horizontal lines, because all sides of the frame must have the same vertical movement.

I am aware that two rollers on a fixed axle, and in frames with various devices for hinging have been used, and also that rollers without frames and hinged by chains are known, but I am not aware that the land roller on the hinge frames and combinations of parts above described was ever known or used until my invention thereof.

What I claim is

In land rollers, the land roller formed by the combination of the three similar rectangular frames *f f f*, each provided within its quadrangle with two similar rollers *r r* having the common fixed axle *a*, the middle frame *f* advanced forward of the two rear frames *f f* and jointed together by the hinge joints *h* formed of two horizontal parts overlapping and firmly pivoted to the vertical rounded contiguous ends of the rails *r* and the cross bars *b* of the frames, in double joints between the rear frames *f f*, and in single joints for the forward frame *f*, to which is attached the neap *n*, and the empty frame *f' f' f'*, all substantially as described and for the purpose expressed.

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

ENOCH KIME.

Witnesses:

J. B. CLAYPOOL,

J. J. WOODWORTH.