

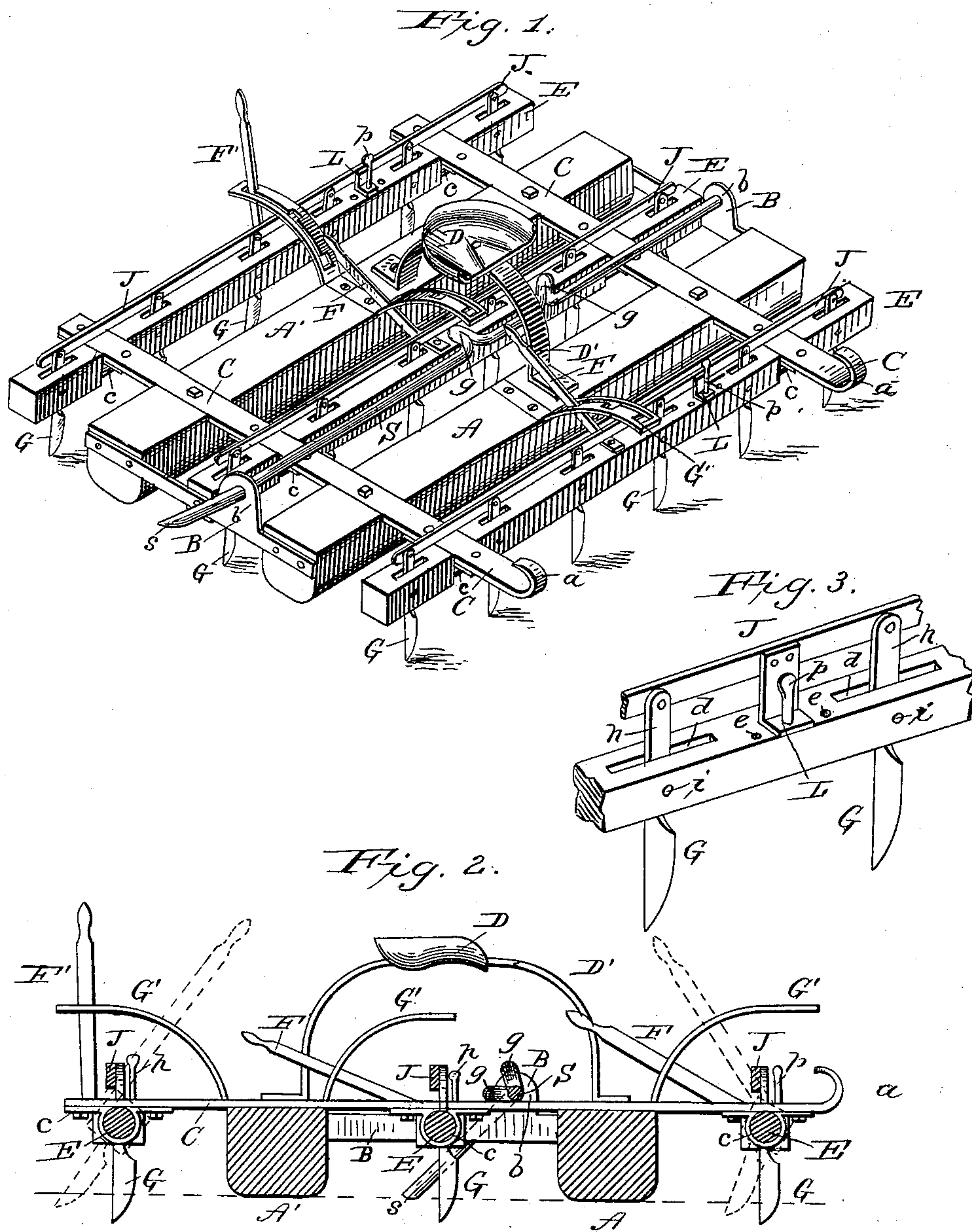
(No Model.)

E. RANKIN, Jr.

HARROW.

No. 366,876.

Patented July 19, 1887.



Witnesses  
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# UNITED STATES PATENT OFFICE.

EDMUND RANKIN, JR., OF LINCOLN, ILLINOIS.

## HARROW.

SPECIFICATION forming part of Letters Patent No. 366,876, dated July 19, 1887.

Application filed May 9, 1887. Serial No. 237,586. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND RANKIN, Jr., a citizen of the United States, residing at Lincoln, in the county of Logan and State of Illinois, have invented certain new and useful Improvements in Harrows, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in riding-harrows which are designed for pulverizing the soil, breaking up clods, and leveling the surface; and the nature of my invention is in the combination of cutting-teeth which can be set at different angles of inclination, both laterally and longitudinally, with clod-crushers and soil-levelers; also in a novel dumping device, as will be fully understood from the following description, taken in connection with the annexed drawings, in which—

Figure 1 is a perspective view of my improved pulverizer and leveler complete. Fig. 2 is a vertical section taken longitudinally through the harrow on one side of the driver's seat. Fig. 3 is a perspective view in detail of part of one of the harrow-beams, showing the device for setting the teeth laterally at different angles for hillside and level-ground harrowing.

Referring to the annexed drawings by letters, A A' designate two parallel beams rounded somewhat on their bottoms, and rigidly secured to two metal bars, C C, having front hooked ends, *a a*, for the attachment of a doubletree. The beams A A' are arranged transversely with respect to the length of the harrow, and they are secured together at a suitable distance apart by means of longitudinal bars B B in addition to the longitudinal bars C C. The driver's seat D is mounted upon an arched spring support, D', the lower ends of which are secured to the two beams A A' at or near the middle of the length thereof.

In front and rear of and between the two clod-crushing and soil-leveling beams A A' are transverse harrow-tooth beams E, which are journaled in bearings *e*, secured to the lower sides of the bars C C, so that by means of hand-levers F the said beams E can be os-

cillated by the driver while in his seat, D. By means of slotted segments G', suitably notched, the driver can adjust the harrow-teeth G and fix them at any desired angle forward or backward, or set them perpendicular to the plane of the top of the harrow.

Preferably the harrow-teeth are made with front draw-cutting edges, as shown in the annexed drawings, and their shanks *h*, which are flattened, pass freely through slots *d*, made vertically through the harrow-beams E, which slots are oblong in a direction with the length of the said beams.

The harrow-teeth or cutting-blades G are attached to their beams by longitudinal fulcrum-pins *i*, and the upper ends of the shanks of the teeth G are pivoted to bars J, extending transversely across the harrow. These bars J are rigidly secured to angular standards L, which are attached to the harrow-beams by pins *p*, inserted into holes *e*. By these means the harrow-teeth can be adjusted laterally and fixed at different angles for hillside or level harrowing.

S designates a horizontal transverse rod, which has its end bearings in raised portions *b* of the longitudinal bars B, and which is formed with backwardly-inclined arms *s s*, and also with foot-levers *g g*, which latter are convenient to the driver while in his seat, D. The object of this last-described device is to enable the driver, by pressing with his feet upon the levers *g g*, to forcibly depress the arms *s s* upon the ground and dump the harrow, so as to free it of gathered trash.

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

1. A riding-harrow consisting of the transverse clod-crushing and soil-leveling beams A A', the seat mounted thereon, the end bars, B, and connecting draw-bars C, the angular dumping-bar S, formed and adapted to operate as described, the oscillating teeth-beams E, levers for oscillating these beams, the notched segments G', and harrow-teeth which are pivoted to their beams and laterally adjustable, all substantially in the manner and for the purposes described.

2. The combination, in a riding-harrow, of longitudinally-oscillating beams E, the intermediate clod-crushing beams A A', harrow-teeth whose shanks pass through slots through  
5 beams E, and are connected thereto by longitudinal pivots i, the connecting-bars J, to which the upper ends of the shanks of the said teeth are pivoted, and the devices for set-

ting these teeth vertically or at different angles, substantially as described. 10

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

EDMUND RANKIN, JR.

Witnesses:

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