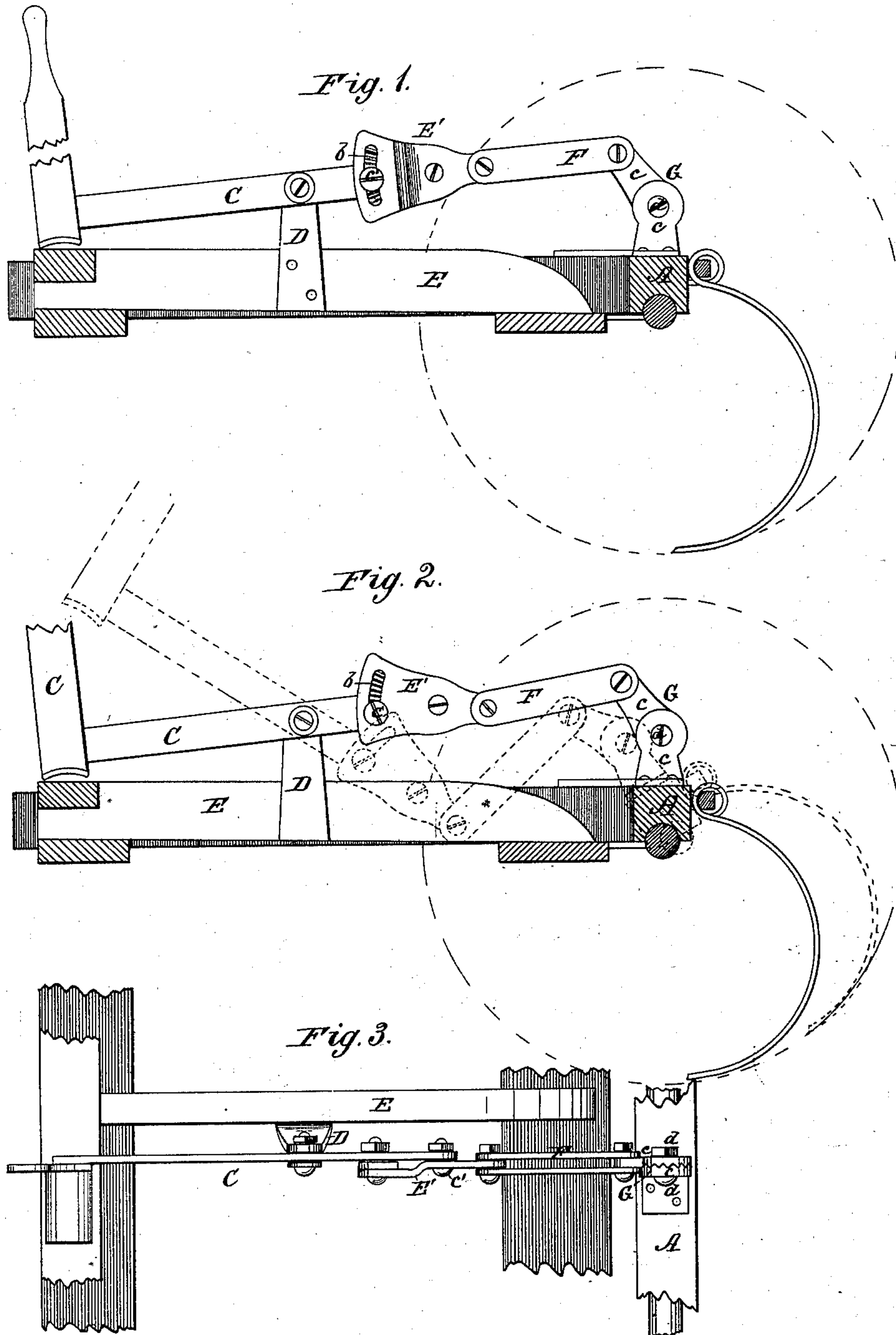


S. T. FERGUSON.  
Horse Hay-Rake.

No. 216,166.

Patented June 3, 1879.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

SAM T. FERGUSON, OF MINNEAPOLIS, MINNESOTA.

## IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **216,166**, dated June 3, 1879; application filed April 17, 1879.

*To all whom it may concern:*

Be it known that I, SAM T. FERGUSON, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Improvement in Horse Hay-Rakes; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention belongs to the class of tilting wire-tooth sulky-rakes, and is more particularly an improvement in that special or sub class in which a jointed or toggle tilting lever is adapted to lock the rake-head or prevent its rotation when the members of such lever are in a certain relative position—say when they are in line with each other.

The improvement consists in attaching a plate to the rear end of the pivoted lever proper, or in interposing such plate between the lever and links, which are attached directly to the arm of the rake-head, so that by adjusting said plate on its pivot the lever may be quickly rendered flexible or rigid at will—in other words, whereby it may be changed from a yielding or flexible lever, to be held by the foot or hand of the driver, to a rigid or lock lever, which will hold the teeth of the rake to the ground without the aid of the driver.

In accompanying drawings, forming part of this specification, Figure 1 is a cross-section of the main portion of a rake having my improved lever attachment. Fig. 2 is a similar view, but showing a different position or angle of an arm which is jointed to the rake-lever. Fig. 3 is a plan view.

In said figures, A indicates the rake-head, which is provided with spring-teeth and adapted to partially revolve, in the usual way. The combined hand and foot lever C is pivoted to standard D, attached to the frame E of the rake. To the rear end of said lever, at or about the middle of its length, is pivoted an arm, E', which is a sector-shaped plate having a closed arc-slot, b, in its broader end. A clamp-screw, c', passes through the slot b, and thus secures the arm E' at any desired angle to the lever C, for the purpose hereinafter explained.

The arm E' is connected by links F with

the jointed adjustable arm G of the rake-head A. Said arm G consists of two parts, c c, which are plates or flat bars, having enlarged circular contact-surfaces, that are serrated or corrugated to enable them to be clamped firmly together by a screw, a.

The adjustment, operation, and function of the above-described parts are as follows: When, as shown in Fig. 1, the adjustable arm E' is aligned with the lever C and the upper end of arm G—that is to say, when arm E' is in such position that a right line can be drawn through its pivot, the clamp-screw, and the bolts that connect the links F to arms E' G—then the lever is adapted to lock the rake-head A, or prevent it rotating, (on the principle of the dead-center as applied to engine-cranks.) But if the arm E' be turned on its pivot so as to throw its rear end down at an angle to the lever C, as shown in full lines, Fig. 2, then the relation of parts becomes such that the lever is flexible, or, in other words, there is no dead-center, and hence comparatively slight pressure against the rake-teeth will suffice to revolve the rake-head and tilt the lever C. In other words, if the arm E' is adjusted in line with lever C, Fig. 1, the latter is unyielding when in its normal position, and the rake-head is held rigidly locked; but if the arm E' is adjusted out of such line, Fig. 2, then the lever C becomes flexible, and will yield readily, so that it requires to be held down by pressure of the driver's hand or foot.

My invention thus enables the character and operation of the rake-lever to be easily and quickly changed according to different requirements. In the one case the teeth of the rake are held to the ground with the aid of the driver, and in the other case without it.

It is obvious that by changing the angle of one of the parts c of jointed arm G to the other part c thereof, the relation or angle of the rake-teeth to the frame E of the rake will be also changed. By such adjustment the rake-teeth may be adapted to operate in the desired manner on different kinds of ground-surface. The adjustment may also be made, when required, to prevent the change in the

angle of arm E' to lever C from effecting any change in the angle of the teeth to frame E.

What I claim is—

The combination, with the rotatable rake-head, the pivotal lever, and the links attached to an arm of said rake-head, of a slotted plate or arm, which is pivoted to the rear end of said lever and connects it with the links, sub-

stantially as shown and described, whereby the adjustment of said arm or plate will render the lever yielding or flexible, as specified.

SAM T. FERGUSON.

Witnesses:

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