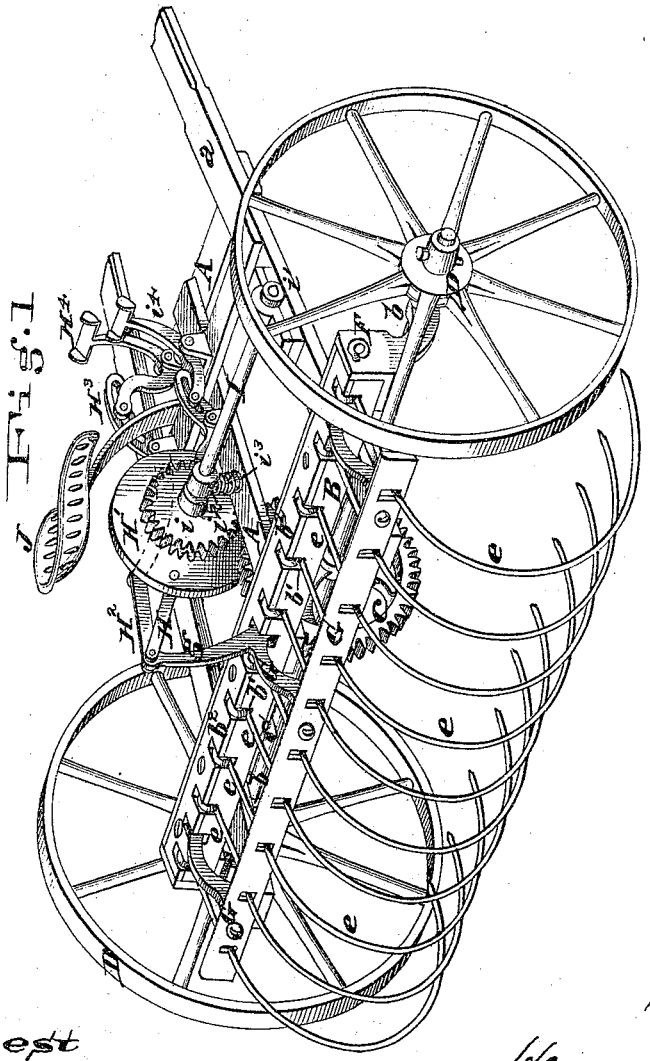
2 Sheets—Sheet 1.

H. Y. CAHILL.

HORSE HAY-RAKE.

No. 184,585. Patented Nov. 21, 1876.

Fig. 1.



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2 Sheets—Sheet 2.

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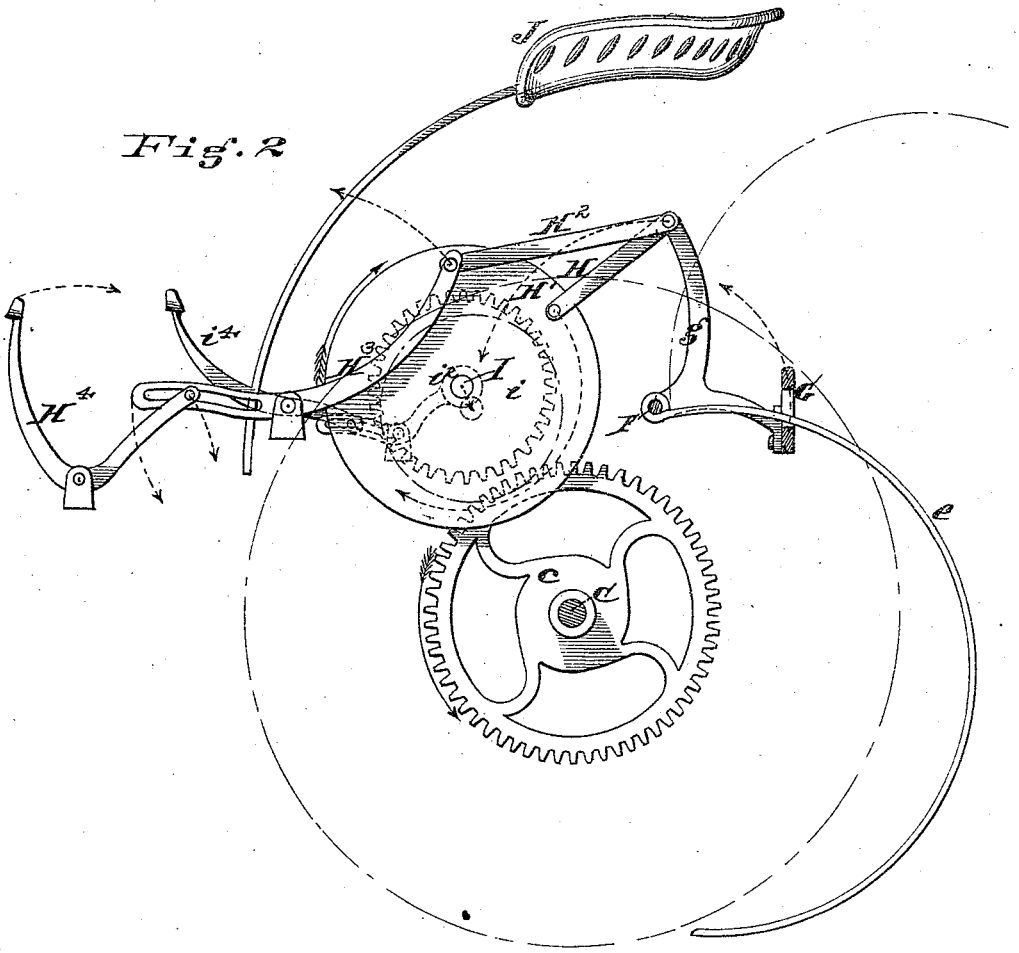
Fig. 2



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UNITED STATES PATENT OFFICE.

HENRY Y. CAHILL, OF DAYTON, OHIO, ASSIGNOR TO HIMSELF AND JOHN B. MAYER, OF SAME PLACE.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **184,585**, dated November 21, 1876; application filed July 11, 1876.

To all whom it may concern:

Be it known that I, HENRY Y. CAHILL, of Dayton, Montgomery county, State of Ohio, have invented an Improvement in Horse-Rakes, of which the following is a specification:

My invention relates to that class of sulky-rakes in which a shiftable gear-wheel and appliances connecting it with the rake-teeth lifter are provided for the purpose of lifting and depressing the rake-teeth by means of a gear-wheel constantly rotating with the drive-wheels.

My improvement consists of certain novel applications of foot-levers to the rake-teeth lifting and depressing mechanism.

Figure 1 is a perspective view of a horse-rake embodying my invention. Fig. 2 is an elevational diagram of the working parts embodying my invention.

A is the bed of the rake, having shafts *a* for the adaptation of single horse-power. B is an elemental frame-bar, forming part of the bed, and to which are secured the journal-boxes *b b*, that encompass the axle C and support the bed upon it. The axle is fitted to revolve in these bearings, and is secured fixedly to one of, or both of, the traveling and supporting wheels D, which imparts motion thereto. Secured firmly upon axle C is a gear-wheel, *c*. In the bar B, in the edge formed by upper and rear faces, I form slots b^1, and coincident slots in a cap-plate, b^2. Into these slots I introduce and pivot the members *e* G of the rake-frame E by means of a rod, F, running entirely through the length of bar B, and intercepting and passing said slots. The frame G, pivoted by rod F, supports the teeth *e* loosely in slots, through which they rise and fall limitedly under the influence of occasional small obstacles upon the surface being raked. The frame G has an extending member, *g*, to which is secured one end of a pitman, H, that connects with a crank-wheel, H^1, fixed along with gear-wheel *i* upon the loose end of a hinged shaft, I. The hinged end of the shaft is connected to revolve loosely in fixed bearing i^1 upon frame A, while the loose end runs in a hinged bearing, i^2, on frame A. The bearing i^2 is held in an elevated position above the bed A by means of a spring, i^3, and is connected by slot and pin to a foot-lever, i^4. The distance between the axle C and the bearing i^2, when the latter is forced its limit of throw toward the former by foot-lever i^4, bears such relation to the length of the combined radii of the wheels *c i* that these wheels will engage their teeth and operate, if at all, in conjunction. Secured to arm *g*, also, is a pitman, H^2, which connects with a hinged or tilting lever, H^3. H^4 is a foot-lever, connected by slot and pin to the lever H^3. The action of the combination of levers and pitman H^2 H^3 H^4 upon arm *g*, when the lever H^4 is pressed downward by the foot of the operator, is to force the rake-frame E down to its work. Secured upon the frame or bed A is a seat, J, for the use of the operator.

Operation: When operating the machine the driver seats himself on seat J, and places his feet upon the foot-levers H^4 i^4, and while raking toward a windrow, as usual, he presses with his left foot upon the lever H^4 to keep the rake down to its work. When the windrow of hay which he is forming is reached, however, and he wants to dump the hay gathered by the rake, he presses his foot down upon the lever i^4, and by causing the wheel *i* to engage with the revolving wheel *c* on axle C, a revolution of crank-wheel H^1 is attained, during and by which, through pitman H, the rake-frame E is raised and lowered with a gradual and steady rise and fall. The connection of levers H^2 H^3 H^4 at the same time may be gradually released by the foot of the operator; or he may follow them up, and, when the rake-frame is raised, disconnect the wheels *c i*, and hold the rake in a suspended position to pass an obstacle, and, by again engaging wheels *c i*, lower it afterward.

By the above means, as described, I am enabled to raise and lower the rake-frame with the same even and gradual speed, and thus avoid the ordinary method of raising them gradually, and allowing them to fall suddenly and violently to their position of action, thereby entailing a needless wear and tear upon the machine; and, furthermore, I am enabled at all times to control the rake-frame perfectly, either to its work or during dumping, to

suspend it or let it depress. The relative sizes of wheels *c i* are such that the distance traveled during the rise and fall of the rake-frame will be about six feet, the usual size of windrow formed by horse-rakes.

Having thus described my invention, I claim—

1. The combination, substantially as specified, of the gear-wheel on the axle of the machine, the crank and gear wheel on the hinged shaft I, the pivoted bearing i^2, having a slotted lever-arm, the spring i^3 acting on said bearing, and the foot-lever i^4, with the pitman H and the rake-frame.

2. The combination, substantially as specified, of the shiftable crank and gear wheel, for lifting and depressing the rake-frame, the pitman H^2, the slotted lever H^3, and the foot-lever H^4.

In testimony of which invention I hereunto set my hand.

HENRY Y. CAHILL.

Witnesses:
F. MILLWARD,
EDGAR J. GROSS.