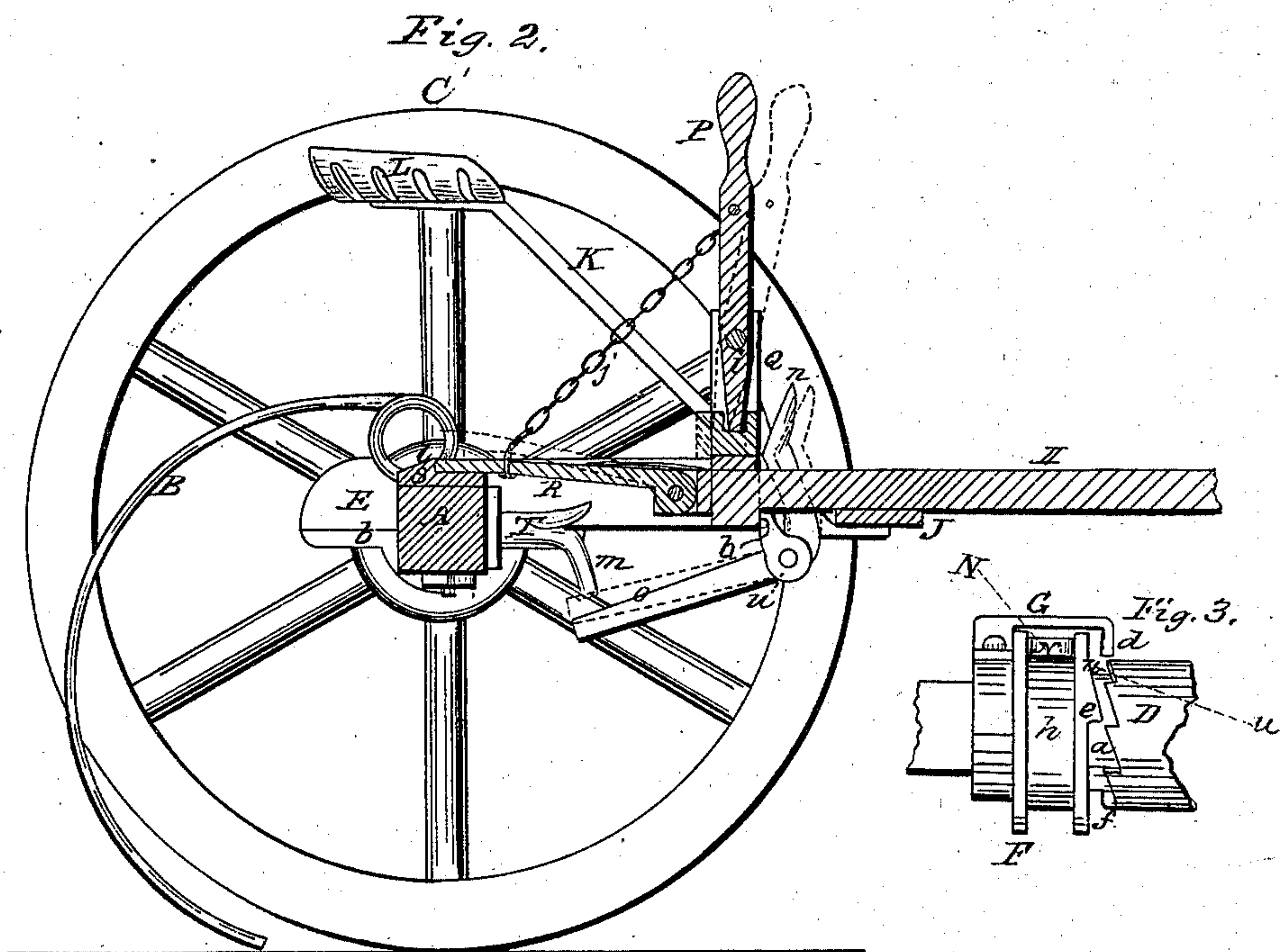




M Smith.  
Horse-Rake.

N<sup>o</sup> 78147

Patented May 19, 1868.



Witnesses

Thos. H. Dodge  
D. L. Miller.

Inventor

Moose Smith



# United States Patent Office.

MOORE SMITH, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO HIMSELF  
AND T. W. WELLINGTON, OF SAME PLACE.

*Letters Patent No. 78,147, dated May 19, 1868*

## IMPROVEMENT IN HORSE-RAKES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### KNOW ALL MEN BY THESE PRESENTS:

That I, MOORE SMITH, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Horse Hay-Rakes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a plan or top view of so much of a "Smith rake" as is necessary to illustrate my present improvements.

Figure 2 represents a section on line A B, fig. 1; and

Figure 3 represents a rear view of a portion of the rake-delivering apparatus, referred to hereafter.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, A is the axle, to which the teeth B are attached, as indicated in the drawings. Axle A is supported by the wheels C C'.

To the inner end of the hub of wheel C is to be fastened, in any convenient manner, a ratchet-sleeve, D, while between said ratchet-sleeve and the end-piece, E, of the rake-frame, a grooved catch or ratchet-ring, F, is fitted, to slide back and forth on a metal thimble, *a*, fastened to the journal of the wheel C.

The metal thimble *a*, while being fastened so as to turn with the axle A, is also combined with the grooved ring F, so as to be turned by that when the latter is revolved. The combination may be effected either by having a spline or steady-pin fastened to the ring F, to work in a slot in the thimble *a*, to permit of the necessary lateral motion to ring F, or the pin may be fastened to the thimble *a*, and work in a similar slot in the ring F. I prefer the latter.

The axle is attached to the end-pieces E E of the rake-frame by boxes *b* fastened to the under side of said pieces.

To the top of one of the pieces E is fastened the unlocking-piece G, which projects out over the grooved ring F, and bent down, as shown at *d*.

The outer face of the ring-piece F has one ratchet-tooth or notch, *e*, to catch into the notches or teeth, *f*, in the sleeve D, attached to the hub of wheel C.

The end-pieces E E are fastened at their front ends to the cross-piece H, to which the shafts I I are attached.

The foot-board J is attached to the shafts, which are shown broken off in the drawings.

Seat L is supported by spring K, fastened to the foot-board J.

To one end of the piece H is hinged or pivoted the angle-lever M, as seen at *g*, the arm, N, of said lever projecting back, and resting in the groove *h* in the ring-piece F, while the other arm of said lever extends along on top of the piece H, and has a slotted projection on its end, into which slot the lower end of lever P fits, lever P being hinged at *i* to the stand Q, fastened to the piece H.

A chain or cord, *j*, extends from lever P down to the stop-bar R, the front end of which is hinged between ears, 1 1, of piece K, fastened to the cross-piece H.

The rear end of the stop-bar R rests in a depression in piece S, fastened to the top of the axle A, as seen in the drawings, whereby the axle A and teeth B are prevented from turning forward so long as stop-bar R remains in that position.

A foot-piece, T, having a downwardly-projecting arm, *m*, is fastened to the front of axle A, while another foot-treadle piece, U, is hinged between ears or projections, 2 2, of the piece S, fastened to the front of piece H. One part, *n*, of said treadle projects up above piece H, (see fig. 2,) while the other end, *o*, projects back under the arm *m*, as fully indicated in the same figure.

The operation is as follows: When a sufficient amount of hay has been gathered by the teeth B to form a windrow, the driver, while sitting upon his seat, L, pushes lever P forward by his hand or foot, thereby raising



the stop-bar R from the stop-piece S, while, by the same operation or motion of lever P, the arm O of lever M is thrown back, and the arm N thrown out, carrying with it the grooved ring-piece F, as indicated in red lines, fig. 1. As wheel C revolves, one of the teeth f on sleeve D catches or locks in with the tooth e, when the rake-head or axle A, together with the teeth B, is revolved sufficiently to discharge the hay from the teeth, when the inclined part, 4, of the tooth e, coming in contact with the lip, d, of the arm or piece G, the grooved ring-piece F is forced or slid in, so as to unclutch or unlock the tooth e from the sleeve D, when the weight of the teeth causes the axle or head A to return again to the position shown in dark lines, figs. 1 and 2, the end, 5, of the stop-bar R dropping in front of the shoulder, 6, of the piece S, and grooved ring F, with its tooth, e, turning back ready for a repetition of the same operation.

It will be observed that the operation of unloading the hay from the rake is effected by the power of the team, and that only a slight exertion on the part of the operator is required to throw the clutch into action, after which the operation of raising the teeth and unclutching the device takes place without the necessary attention of the operator.

In case the driver desires to have the teeth press with greater force upon the ground than their weight occasions, he presses his foot against the end, n, of the treadle U, and forces the end o up against the arm, m, of the foot-piece T, as indicated in red lines, fig. 2, while, if he wishes to raise the teeth when the team is stopped, he raises the stop-bar R, by means of lever P, and then presses upon foot-piece T.

The unlocking-piece G is fastened to the piece E, so that it can be adjusted forward or back, to drop the teeth at the desired point of elevation. In this instance, the holes in the piece G, through which the holding-screws pass, are made oblong, or in the form of slots, to admit of the desired adjustment, by simply loosening the screws 10.

Having described my improved horse hay-rake, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with lever P, chain or cord j, and stop-piece S, of the stop-bar R, said parts being arranged in relation to each other substantially as and for the purposes set forth.
2. The combination, with axle or head A, of the foot-piece T, arm m, and treadle U, substantially as and for the purposes set forth.
3. The combination of the unlocking-piece G with the grooved ring F and its inclined tooth or projection e, substantially as and for the purposes set forth.

MOORE SMITH.

Witnesses:

THOS. H. DODGE,  
D. L. MILLER.