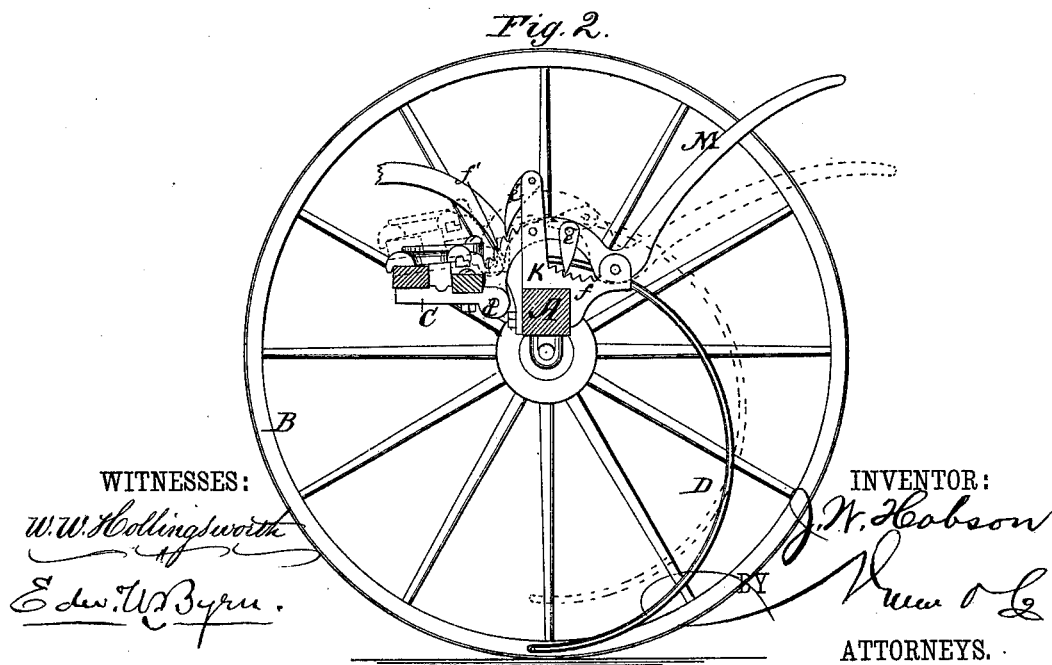
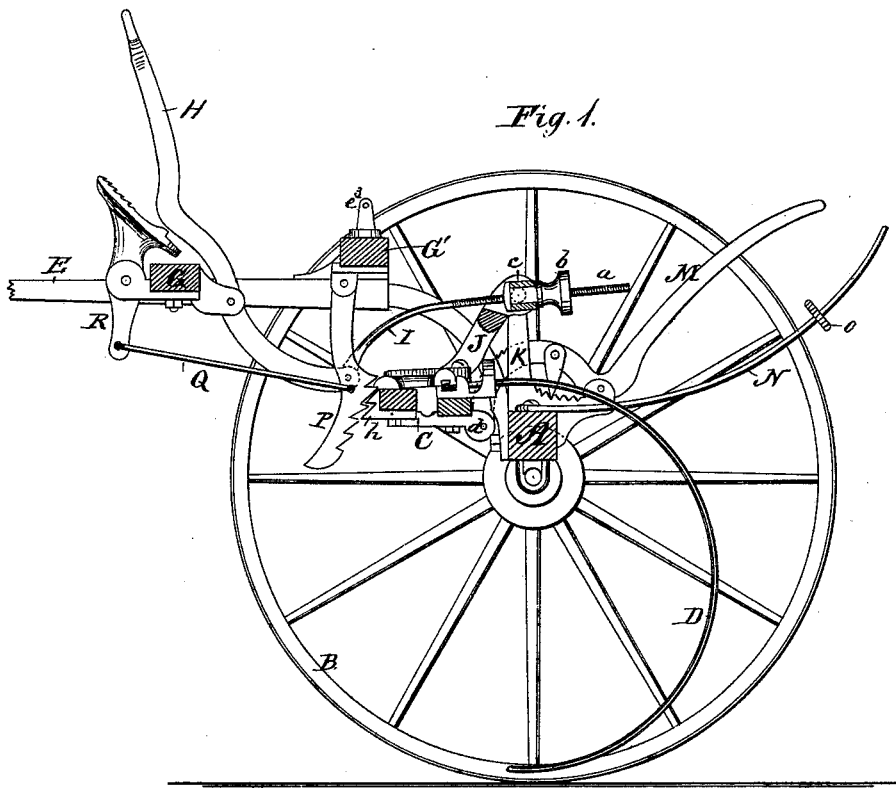


J. W. HOBSON.
Horse Hay-Rake.

No. 219,943.

Patented Sept. 23, 1879.

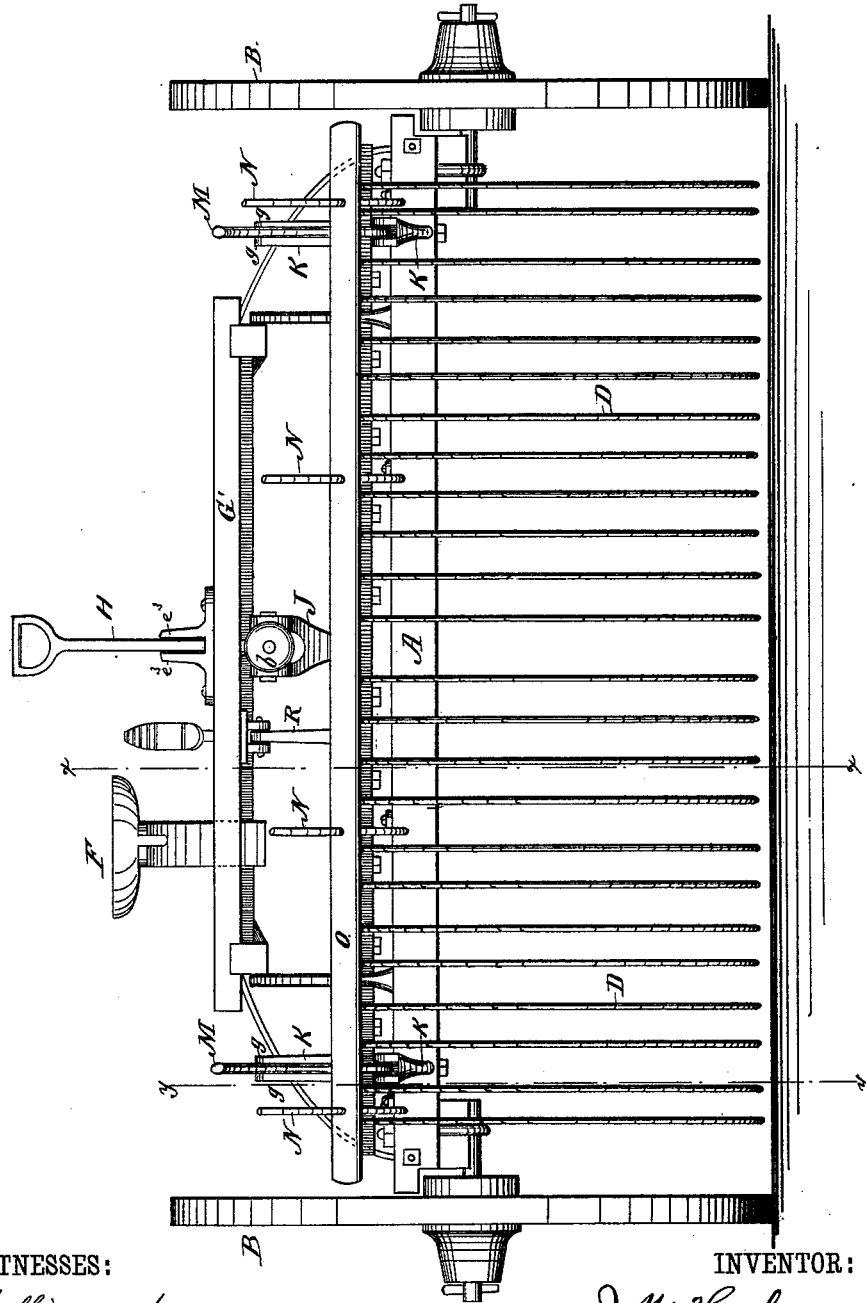


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Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH W. HOBSON, OF NEW YORK, N. Y.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **219,943**, dated September 23, 1879; application filed August 2, 1879.

To all whom it may concern:

Be it known that I, JOSEPH W. HOBSON, of the city, county, and State of New York, have invented a new and Improved Horse-Rake; 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 part of this specification, in which—

Figure 1 is a vertical section through the line *x x* of Fig. 3. Fig. 2 is a vertical section through line *y y* of Fig. 3, and Fig. 3 is a rear elevation.

My invention covers certain improvements in sulky horse-rakes of that class known as "hand-dumpers;" and the said improvements consist in the following features: First, in constructing the connecting-rod, which is attached to the lower end of the dumping-lever, with a screw-threaded end, and connecting said screw-threaded end to an arm projecting from the rake-head by means of a swivel and hand-screw, whereby the length of the connecting-rod may be nicely adjusted to bring the points of the rake-teeth farther to the front or rear, as the case may be; secondly, in the peculiar means for sustaining the rake and rake-head so as to permit a vertical adjustment of the same as a whole, to lower or raise the points of the rake-teeth without moving said points out of a vertical line, the said means consisting of a pair of adjustable levers fulcrumed upon the opposite ends of the axle and carrying at their shorter ends the suspended rake-head.

In the drawings, A represents the main axle, B B the wheels, C the rake-head, D the curved teeth, E the elevated shaft, and F the driver's seat, of an ordinary sulky horse-rake.

To a casting on the forward cross-bar, G, connecting the shafts, is fulcrumed the dumping-lever H, whose upper end is provided, for greater ease of manipulation, with a yoke-shaped (or spade) handle, and whose lower end is pivoted to the forward end of a connecting-rod, I. The rear end of this connecting-rod is screw-threaded, as at *a*, and said screw-threaded portion passes through a hand-screw nut, *b*, one portion of which has a flange or handles, by which it is rotated, and the other portion of which is in the nature of a sleeve, that

swivels in an oscillating collar, *c*, pivoted between the forked ends of an arm, J, projecting rigidly from the rake-head. The connection thus established between the dumping-lever and rake-head permits the rake-teeth to be raised by the movement of the rake-head upon its pivots *d d* whenever the dumping-lever is drawn to the rear.

To hold the rake-teeth in this elevated position, the dumping-lever is made at the end of its movement to pass between two lugs, *e e*, on the rear cross bar, G', and is there retained by a pin or catch.

By means of the hand-screw and swivel-collar for connecting the dumping-lever and rake-head, it will be seen that any degree of adjustment may be had for the rake-teeth in bringing their points farther to the front or rear, and the utility of this feature is to be found in the more extended use of the rake, being adapted thereby to crops of any weight and condition, as well as to lands either level or otherwise. With respect to this feature, however, I do not claim to be the first to adjust the connection between the dumping-lever and rake by a screw-connection, as I am aware that a screw-bolt and nut has been interposed in a chain for this purpose; and I therefore only claim the screw-nut and swivel when connected directly to the screw-threaded end of the connecting-rod.

As a modification of this feature of my invention, however, I may locate the nut and swivel at the joint of the connecting-rod and dumping-lever, instead of between the connecting-rod and arm on the rake-head, as shown.

In arranging the rake-head in its supports it is made bodily adjustable with the rake-teeth in vertical direction. The object of this is mainly to adapt the rake to different kinds of soil. If the ground is hard and level the points of the rake-teeth should be on, or nearly on, a level with the bottom of the wheels. If, however, the soil is soft, as in meadow-lands, the wheels bury to some extent in the ground and the rake-teeth have to be set higher. To secure this vertical adjustment is the object of the means about to be described.

K K (see Fig. 2) are L-shaped castings fixed upon the main axle, one near each end of the same. To the rearwardly-projecting ends of

these castings are fulcrumed levers *MM*, which have at their fulcrums a downward bend, and extend from this point forward in a semicircular curve, the said curved ends of the levers passing between two vertical guide-standards, *g*, of the *L*-shaped casting, and being pivoted at their pendent extremities to the rake-head. The handles of these levers project to the rear, and when depressed serve to raise the rake-head and teeth, as shown in dotted lines in Fig. 2, and when raised serve to depress the same.

For holding the levers to the desired adjustment, a system of pawls, *e e'*, and ratchet-teeth *f f'* are employed. One of these pawls, *e*, is pivoted to the curved portion of the lever, and engages with the ratchets on the lower branches of the *L*-shaped casting, which together limit the downward movement of the rake-head, while the other pawl, *e'*, is pivoted to the top of the *L*-shaped casting, and engages with the ratchets *f'* on the upper side of the curved end of the lever, so as to limit the upward movement of the rake and rake-head. By adjusting these pawls in the different teeth of the ratchets any desired position in or about a vertical line may be given to the points of the rake-teeth.

With respect to this vertical adjustment of the rake-teeth, I do not claim to be the first to secure said adjustment, but only claim my devices for accomplishing this result, which, it will be seen, possess distinctive merit.

From the description of the foregoing features it will be seen that, by the adjustment of the rake-teeth points forward and backward, together with the integral vertical adjustment, a great number of positions for the rake can be obtained to suit the requirements of the land or crop, or the views of the operator.

N are the clearing-bars, which consist of a series of upwardly-curved steel fingers, fastened to the main axle and provided with a continuous cross-bar, *O*, running along the outside of the teeth parallel with the axle, and made capable of adjustment to or from the surface of the teeth, as may best suit the crop or kind of work being done.

For holding the rake-teeth down to their work I employ a pendent bar, *P*, Fig. 1, pivoted at the top to the rear cross-bar, *G'*, and provided upon its rear side with ratchet-teeth, which are adapted to be thrown into or out of engagement with a tooth or spur, *h*, on the front side of the rake-head. This pendent bar is connected by a rod, *Q*, to the lower end of a lever, *R*, whose upper end is fashioned into a treadle to receive the foot of the driver.

Now, when the rake-teeth are down and at work gathering the grain, to enable them to resist the load as it accumulates, without dumping and dragging over it, the lever *R* is thrown forward by the movement of the foot, and this action causes the pendent ratchet-bar to engage with the tooth on the rake-head and hold said head up, for the rake-head being pivoted in its rear, it will be seen that to prevent the rising of the teeth its forward edge must be held up.

Having thus described my invention, what I claim as new is—

1. In a sulky horse-rake, the combination, with the pivoted rake, carrying curved teeth, and the hand-dumping lever, of the connecting-rod *I*, having a screw-threaded end, the screw-nut *b*, fitting upon said screw-threaded end, the swivel-collar *c*, and the arm *J*, fixed rigidly on the rake-head, all combined, substantially as shown and described.

2. The rake-head hinged to and suspended from the short end of a lever-support fulcrumed at right angles to the main axle and combined with the same, as described, whereby the axial point upon which the rake turns to be dumped, as well as the rake itself, is allowed a vertical adjustment to secure the vertical adjustment of the rake-teeth without turning upon their axis, substantially as described.

3. In a sulky horse-rake, the combination, with the rake-head carrying curved teeth, a set of running wheels, and an axle connecting the same, of the *L*-shaped casting *K*, fixed upon the axle, and having forked standards *g*, and the levers *M*, fulcrumed upon said castings and having their forward ends extended between the forked standards *g*, and held by pawls or their equivalents, as described, the said levers being also pivoted to the rake-head so as to support the same, substantially as set forth.

4. In a sulky horse-rake, the combination, with the rake-head carrying curved teeth, a set of running-wheels, and an axle connecting the same, of the *L*-shaped casting *K*, having forked standards *g*, ratchet-teeth *f*, and pawl *e'*, and the levers *M*, fulcrumed to said casting and having pawl *e* and ratchet-teeth *f'*, the said levers being also pivoted to and arranged to support the rake-head, as shown and described.

JOS. W. HOBSON.

Witnesses:

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