

M. DAVENPORT.

Horse Rake.

No. 44,079.

Patented Sept. 6, 1864.

Fig. 1

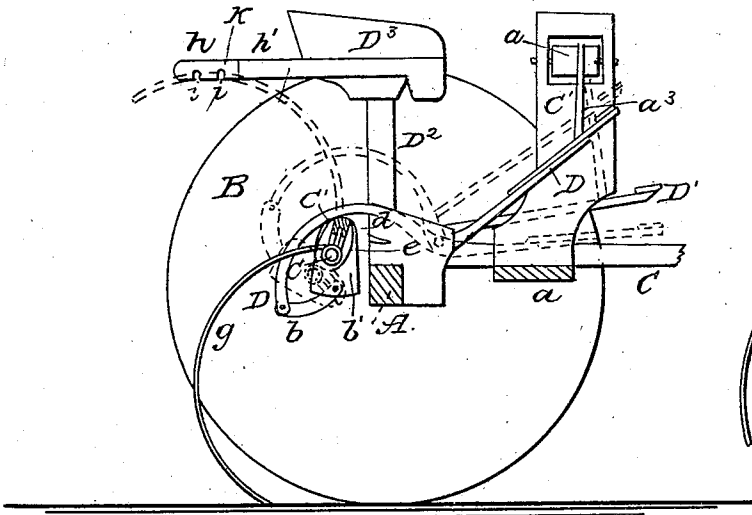


Fig. 3

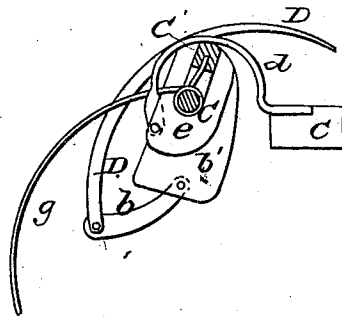


Fig. 4

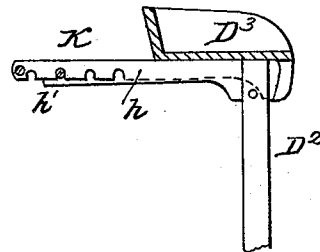


Fig. 2

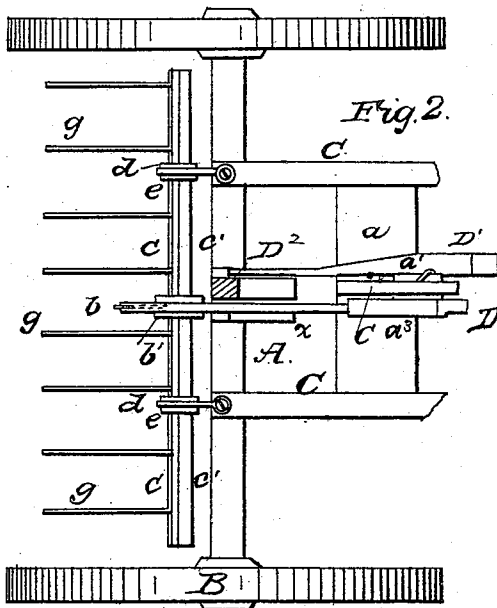
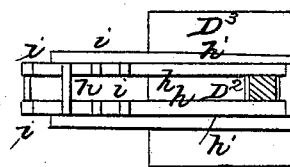


Fig. 5



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MOSES DAVENPORT, OF MINERVA, OHIO.

IMPROVEMENT IN HORSE-RAKES.

Specification forming part of Letters Patent No. 44,079, dated September 6, 1864.

To all whom it may concern:

Be it known that I, MOSES DAVENPORT, of Minerva, Stark county, State of Ohio, have invented a new and Improved Horse Hay-Rake; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal section through the improved machine. Fig. 2 is a plan view of the same with the driver's seat removed. Fig. 3 is a detail of the devices for operating the rake. Figs. 4 and 5 are views showing the manner of adjusting and supporting the driver's seat.

The main object of my invention is to enable the driver, while sitting in his seat on the machine, to raise or depress the rake at pleasure by means of his feet alone, or without the aid of his hands, and also to bring certain parts in such positions, in the act of depressing the rake, that the latter will retain its depressed position without requiring any expenditure of labor on the part of the driver, as will be hereinafter explained.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the axle-tree of two carriage-wheels, B B', and C represents the shafts or thills, which are secured rigidly at their rear ends on top of the axle A and provided with transverse foot-board *a*, to which is secured an upright post, C', carrying a pulley, *a'*, over which passes a strap, *a*², the ends of which are secured to treadles D D', which are pivoted on each side of the standard D² of the driver's seat D³. The treadle D is pivoted at *x*, and that portion of it extending behind this joint is curved so as to pass over the rake-head, as shown in Figs. 1, 2, and 3. To the rear end of lever or treadle D a short link, *b*, is pivoted, which is again pivoted at its lower end to a block, *b'*, that is rigidly secured to the rake-head *c*, and also to a transverse beam arranged parallel to said head.

The rake is supported or suspended by curved arms *d d*, which are secured to the axle A, and to these curved arms blocks *e e* are pivoted, which blocks are secured to the rake-head and beam *c'*, as shown clearly in

Fig. 3. The teeth or tines *g* are secured to the rake-head *c* by coiling one end around the same and inserting this end into the beam *c'*, as shown in Figs. 1 and 3. This forms a good connection for the teeth and increases the elasticity of the same.

It will be seen that the axis of motion of the rake-head *c* is not coincident with the axis of this head, but that the axis of motion is in rear of the head and its parallel beam and located at the rear ends of the curved arms *d d* and blocks *e e*, so that the weight of the head and beam will to a considerable extent counteract the weight of the tines *g*. By thus nearly balancing the rake it will be seen that very little power will be required at the forward end of treadle D to tilt this rake—*i. e.*, to elevate it or depress it—and also that the driver can elevate the raking ends of the tines by pressing with his foot upon said treadle.

The two treadles D D' being connected together and suspended by a strap, *a*², as above described, it will be seen that when one treadle is depressed the other will rise. The treadle D is depressed when it is desired to elevate or tilt up the rake, and the treadle D' is depressed when it is desired to depress the rake and lock it down in place. When the rake is depressed as far as possible the rear end of treadle D is still further depressed, so as to bring the rear pivot of the link *b* below the forward pivot of this link. This movement locks the rake down in place, so that all strain upon its tines will be resisted by the treadle and link. To elevate the rake again pressure is applied to the treadle D, and the forward end of the same depressed until the rear pivot of link *b* is elevated above the forward pivot of the same, when further pressure upon D will then elevate the rake. These movements are very simple, and can be performed by the feet of the driver, thus enabling him to exercise full control over his horse, as his hands are free for this purpose during the entire operation of the machine.

The standard D², which is affixed to and projects up perpendicularly from the axle-tree, carries on its upper end two longitudinal parallel bars, *h h*, which extend back of said standard some distance and have notches *i i* cut in their lower edges, as shown in Figs. 4 and 5. To the bottom of the driver's seat D³ two parallel bars, *h' h'*, are secured, which extend back

a short distance and have a rod, *k*, extending transversely across them. This rod is fitted into the notches in the bars *h h* and the two bars *h' h'* brought down on each side, outside of the former, as shown in Fig. 5, the seat being supported on top of the standard. The two side or seat bars *h'* prevent the seat from getting out of place laterally, while the rod *k*, fitting into the notches in bars *h*, prevent the seat from moving out of place in the other direction. By raising the forward end of seat *D*³ and depressing the rear ends of the bars *h'*, so as to release the rod *k* from its notches, the seat can be adjusted forward or backward and again secured in place, as before. The principal object of adjusting the driver's seat is to enable the driver to throw his weight either forward or backward of the axle.

By hanging the rake so that its head will act as a counter-weight to the tines which are attached to it I accomplish two very important objects, viz: Very little expenditure of labor on the part of the driver is required to throw the tines free from the ground and to keep them in this position. Consequently I am enabled to employ to advantage the foot-levers which I have above described, and thus give the driver full control of his hands to manage his team. The two treadles or foot-levers have been hitherto used to a very limited degree to operate the rakes of wheel-machines; but such means necessitate the use of very small rakes, and even then it is almost impossible to keep the ends of the tines down in working position during the operation of raking. This objection I remedy in my bal-

anced-rake machine by the employment of a locking-lever, which enables the driver to lock the rake down, after which it is self-holding. This mode of locking the rake together with the foot-levers renders the machine very perfect and easily operated.

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

1. Suspending a rake from a carriage by means of curved arms or their equivalents in such manner that the forward part of said rake will nearly counterbalance the rear part, in combination with means applied to raise and depress the rake and automatically lock it down in working position, substantially as described.

2. The application of two treadles to a wheel-rake, when the rake is suspended by arms in such manner that its forward part will act as a counter-weight to the rear part, substantially as described.

3. The combination of treadles *D D'*, strap *a*³, pulley *a'*, and link *b* with a rake which is suspended by arms *d d*, substantially as described.

4. The combination, with the driver's seat *D*³, of the bars *h' h'*, rod *i*, and notched bars *h h*, constructed and operating substantially as described.

Witness my hand in matter of my application for a patent for a horse hay-rake.

MOSES DAVENPORT.

Witnesses:

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E. SCHAFER.