W. ALDRICH.
HORSE HAY-RAKE.

No. 169,328. Patented Nov. 2, 1875.

Fig. 1.

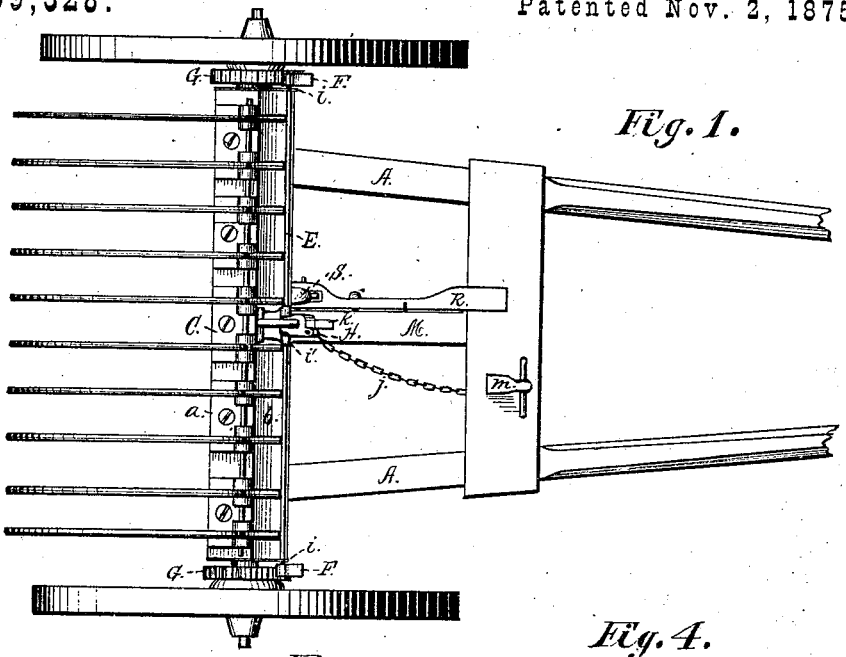


Fig. 3.

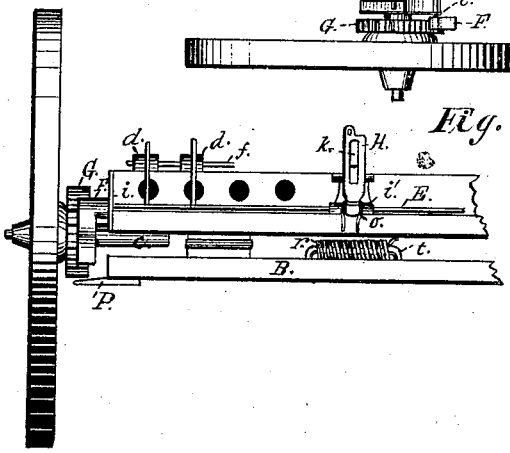


Fig. 4.

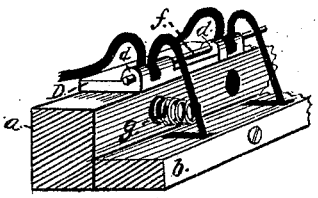


Fig. 5.

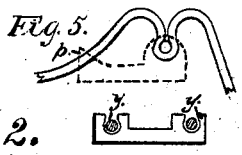
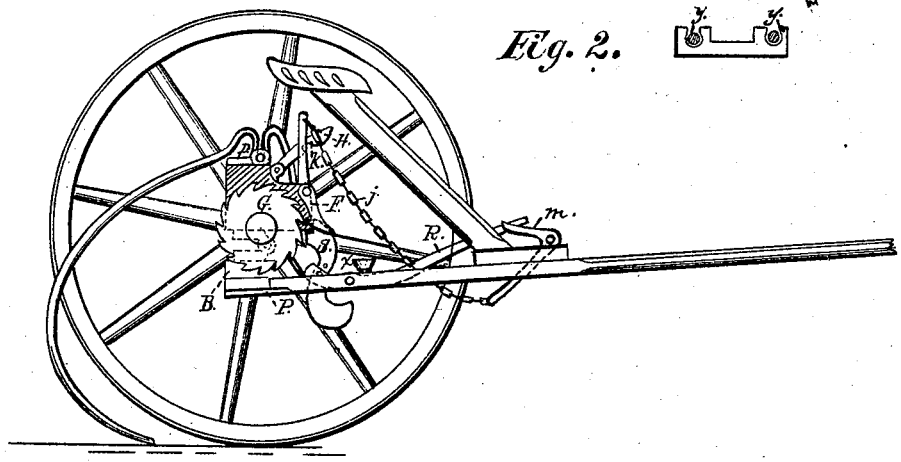


Fig. 2.



Witnesses:
E. R. Ealy.
Albert Kark.

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by Peck & Co.
Attys.

UNITED STATES PATENT OFFICE.

WALES ALDRICH, OF DAYTON, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY C. HERCHELRODE, OF SAME PLACE.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **169,328**, dated November 2, 1875; application filed July 12, 1875.

CASE 2.

To all whom it may concern:

Be it known that I, WALES ALDRICH, of Dayton, in the county of Montgomery and State of Ohio, 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.

This invention relates to that class of rakes that are dumped to discharge the collected hay by the draft of the horse, at the will of the driver; and my improvements consist in the novel combination and arrangement of the devices for actuating the rake-head, its peculiar construction, with the manner of securing the teeth thereto, and in a holding-down lever for keeping the teeth to their work, as will be described, and the invention distinctly pointed out in the claims.

I would thus describe the construction and operation of my improved rake, referring to the accompanying drawings, in which—

Figure 1 is a plan view of a horse hay-rake provided with my improvements. Fig. 2 is a side elevation of the same, with a wheel removed, to show the operating devices. Fig. 3 is a front view of a part of the rake-head. Fig. 4 is a perspective view of a portion of the head exhibiting the manner of attaching the teeth thereto. Fig. 5 is a side and front view of a modification of my improved tooth-holder.

Like letters of reference indicate corresponding parts in all the figures.

A A represent the thills of the rake rigidly secured to a cross-beam, B, in the rear, and directly under the axle to which it is hinged in any suitable manner. The axle C, which is the rake-head, is composed of two beams, *a* and *b*, Fig. 4, which, when connected, have in section an L shape, the beam *b* being placed against the forward face of the beam *a*, with their bottom edges corresponding and connected by wood screws or bolts. The stub-axles *c*, on which the wheels revolve, are bolted or otherwise secured to the under side of the rake-head, thereby keeping it above the axis of revolution, so that when it is dumped it passes through the arc of a circle. The front face of the axle, as seen in Fig. 3, is provided with a series of equidistant circular openings extending with uniform bore halfway through the head. These openings are tangential with the top face of the beam *b*, which has a series of slots, of a little greater width than a rake-tooth, cut from the edge two-thirds of the distance through the beam and at right angles to its longitudinal line. The slots are equal in number, with the circular openings, and correspond with their tangential points. D, Fig. 4, shows in perspective one of my improved tooth-holders composed of a metal plate secured to the top surface of the beam *a*, and having two bearings, *d*, of the shape shown, and at the same distance from each other as the circular openings and slots before mentioned. Each of these bearings supports a tooth, which is bent in the manner represented in Fig. 5. To secure the teeth to the head, supposing the holders to be all in position, it is only necessary to place them, one by one, in the slots in the bearings *d*, and then slip a rod, *f*, through the pivotal openings in the bearings, and through the eye formed by bending the teeth in the manner shown. It will be noticed that, in placing the teeth in position to be secured, the rearward and downward projecting ends, which may be flattened, enter the slots in the beam *h*, and fit snugly in them. The bearings *d* and the slots in the beam *b* are sufficient to prevent the teeth from having more lateral play than is desired; though, to entirely obviate it, the rear edge of the plate may be turned up, as seen at *p*, Fig. 5, at each end, and have recesses in which the teeth may be placed, as seen at *y*.

A series of spiral springs *g*, Fig. 4, may be placed in the circular recesses in the beam *a*, which they fill, and press against the inner sides of the rake-teeth, where they enter the slots. These springs, made sufficiently strong, give the teeth all the elasticity required to enable them to work efficiently and pass over rigid obstructions. When what is known as a drop-tooth is required the springs may be removed.

The mechanism for operating the rake con-

ts of a torsion-rod, E, confined upon the ward edge of the beam *b* in bearings *i*, at ch end, and *i'* in the middle. The ends of is rod are provided with pawls or dogs F, nich engage with the ratchet-wheels G, at-ched to the supporting-wheels, and revolv-g with them upon the same axis. An up-ght arm, H, is attached rigidly to the rod E, at center, and is provided with a vertical slot, which rests the end of a gravitating pawl latch, *k*, pivoted upon the forward top edge the beam *a*. A chain, *j*, connects the top the arm H with the treadle *m*, pivoted in e platform in convenient reach of the dri-r's foot. A small spring, *o*, is employed, as own, to keep the arm H thrown backward d the pawls F out of gear.

By pressing upon the treadle *m* the arm H drawn forward and held by the shoulder of e gravitating latch *k*. This throws the dogs to the ratchet-wheels, and, as the rake moves rward, the head is turned, elevating the teeth d discharging the collected hay. When the ad has been revolved about half-way, the d of the latch *k* strikes upon an adjustable rew, *x*, or equivalent device, upon the beam, thereby throwing it up and releasing the m H, which is acted upon by the spring *o*, r the purpose of throwing the dogs F out of e ratchets, and allowing the teeth to fall ck to raking position by the action of the ring *r*, coiled upon the rod *t*, which is at-ched to the beam B. Should the spring *o* ove insufficient in disengaging the dogs, ey would strike the projecting plates P, at-ched to the ends of the beam B, and be rown from the teeth of the ratchets.

It will be noticed that, by the employment the rod E, extending the width of the rake, d having the dogs F, the teeth may be ele-ted while the rake is in the act of turning, ere being sufficient torsion in the rod, al-ough held rigidly in the middle to allow the heel to turn backward and throw the pawl om the ratchet.

My improved holding-down device consists of a lever or treadle, R, pivoted to the side of the beam M, and carrying in the slot in its upwardly-curved rear end a swinging adjustable arm, S, weighted at the bottom to keep it always in a vertical position. The top of this arm is provided with a projecting shoulder, which rests against the under forward edge of the beam *b*.

The driver, by pressing his foot upon the forward end of the lever R, can keep the teeth down to their work. When the rake-head is turning, in the act of dumping, the driver removes his foot, and the swinging arm S is pushed forward, and allows the head to pass it.

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

1. The improved tooth-holder D, composed of a plate and bearings, *d d*, in combination with the end of a rake-tooth, bent in the shape shown, and pivoted by means of the rod *f*, substantially as described.

2. The beam *a*, provided upon its forward face with circular openings, in which the spiral springs are placed, as described, in combination with the slotted beam *b*, the tooth-holder D, and the ends of the rake-teeth, when the respective parts are arranged as and for the purpose specified.

3. The torsion-rod E, provided with the dogs F, for engaging with the ratchets G, and having the slotted arm H, connected to the treadle *m* by the chain *j*, in combination with the gravitating latch K, when arranged to operate in the manner and for the purpose specified.

4. The holding-down lever R, arranged as described, and provided with the gravitating arm S, substantially as and for the purpose specified.

Witness my hand this 8th day of July, A.D. 1875.

WALES ALDRICH.

Witnesses:

J. P. WHITMORE,

CHAS. M. PECK.