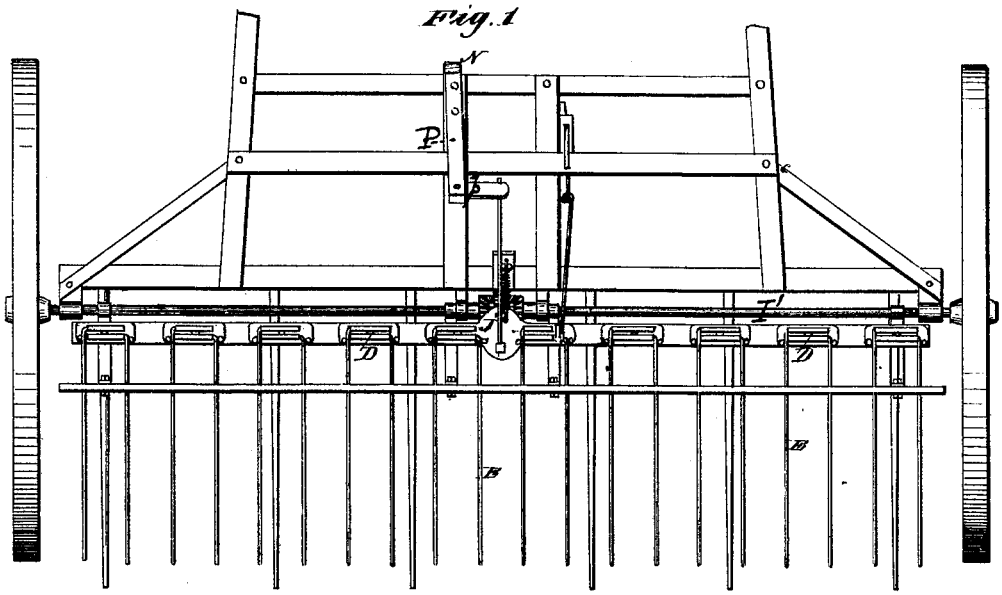
S. D. BATES.

Horse Hay-Rake.

No. 198,336. Patented Dec. 18, 1877.

Fig. 1



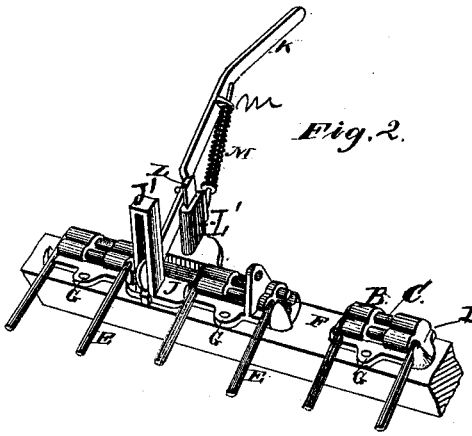


Fig. 2.

Fig. 3

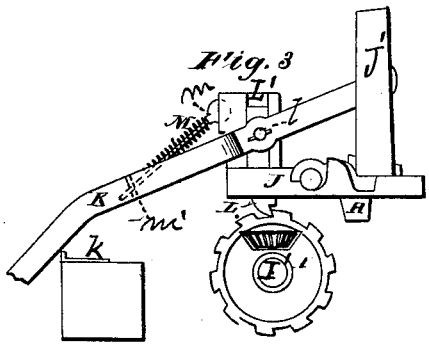
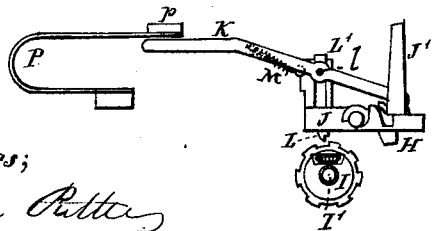


Fig. 4.



Witnesses;

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UNITED STATES PATENT OFFICE.

SAMUEL D. BATES, OF LEWISBURG, PENNSYLVANIA.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **198,336**, dated December 18, 1877; application filed May 8, 1877.

To all whom it may concern:

Be it known that I, SAMUEL D. BATES, of the borough of Lewisburg, county of Union, in the State of Pennsylvania, have invented certain new and useful Improvements in Horse-Rakes, of which the following is a specification:

My invention relates to the manner of fastening the teeth and the mechanism by means of which the rake is dumped or made to discharge its load; and the improvement consists of the bracket which confines in pairs independent spring-teeth upon a bar connected with the axle-tree, and in a peculiarly-constructed lever and catch, operated by a foot-treadle for the purpose of causing the rake to dump or discharge its load.

The accompanying drawings, with the letters of reference, will explain the manner of constructing said improvement.

Figure 1 is a plan. Fig. 2 is an enlarged view of the bracket or tooth-holder and the center casting, composed of two tooth-holders, and the tripping device. Fig. 3 is an end view of the tripping device, showing end of axle and ratchet-wheel. Fig. 4 is a detached view, reduced, of locking and tripping devices with the dog withdrawn from the ratchet-wheel.

In the accompanying drawings, D is the bracket or tooth-holder, cast with two longitudinal channels, C, extending the whole length, and arched over by the rounded bosses B. The bosses are also channeled, and, together with the base-plate, form the sockets for the bent ends of the two rake-teeth E E, allowing these bent ends to be as long as the bracket or base-plate D. The casting D is secured to the rake-head F by means of a bolt passing through the middle of the base-plate, as shown at G, Fig. 2, and is also held in place by the projections H, Fig. 3. The rake-head F is mounted upon the axle I′ in any usual or approved manner. I is a ratchet-wheel mounted centrally upon the axle, and connected therewith by means of gear-wheels or otherwise, so as to rotate with the axle. At about the center of the rake-head I arrange a dog, L, to slide vertically in a grooved standard, L′, which rises from a plate, J, cast in one piece with two of the tooth-fastening plates, whereby the bolts which secure these tooth-fasteners to the rake-head also hold the locking devices in position. K is a lever, pivoted to the dog L at *l*, and having one end arranged to vibrate vertically in the slotted standard J′.

M is a spiral spring wound about a rod, *m*, one end of the rod being pivoted to the standard L′, while the opposite end slides freely in an ear or lug, *m′*, projecting from one side of lever K. One end of spring M also bears upon this lug. P is a bow-spring, attached by one end to the frame-work. *p* is a foot-treadle, secured to the free end of the spring P immediately above the front end of lever K. *k* is a stop upon the frame-work.

When the operator desires to elevate the rake-teeth, he presses the foot-treadle down until the front end of lever K is so far depressed that the spring M is in substantially the position shown in Fig. 3—that is, until the front end of the spring is below a horizontal line drawn through the pivot which connects the lever with the dog L—and when the parts are in such position the effect of the spring is to press the dog upon the ratchet-wheel I, and thus cause said dog to engage with the teeth of the wheel, when the rake-head will be rocked forward until lever K engages with stop *k*, when a further forward rocking will withdraw the dog from the ratchet-wheel, and the teeth, in falling upon the ground, will return the parts into the position shown in Fig. 4. Thus it will be seen that it is not necessary for the driver to keep his foot pressed upon the treadle until the dog shall have actually become engaged with the teeth of the ratchet-wheel, nor even until the dog shall have been depressed to the line of the periphery of said wheel, because, as soon as the lever reaches a point where a line drawn through the center of the lug *m* and the pivot *l* will pass below the inner end of the spring M, this spring will force the dog down upon the wheel, and the foot-treadle may at once return to the position shown in Fig. 4.

I am aware that self-discharging rakes made to dump by means of a catch and ratchet-wheel in the center have heretofore been made, and this construction I do not claim, my invention being designed to remedy the defects existing in this class of rakes, which are the want of something to hold the catch down, as well as

up, and the liability of the catch to strike upon the top of a tooth in the ratchet-wheel and fail to dump, unless held down long enough for the ratchet-wheel to travel the distance between the teeth. In my device the spiral spring holds both up and down; and should the catch strike upon a tooth the spring will carry the catch down as soon as the tooth of the wheel has passed.

By constructing the casting J as described one piece is made to hold four rake-teeth—the lever, catch, and spring for dumping; and this is all held in place by means of two bolts.

I am also aware that tooth-holders constructed with a channel, and holding two teeth, have also been made and used heretofore, and this construction I do not claim. The defect which I desire to remedy is, that, by putting two teeth in one channel, the bent ends are too short, and are liable to move out of a true perpendicular as they wear. By constructing my tooth-holder as described I am enabled to make the channels which form the bearings for the teeth as long as the distance between the teeth.

I am also aware that the catches of self-discharging rakes have been connected with a device by which the catch may be depressed with the foot and made to connect with a ratchet-wheel to dump or discharge the load; but they are generally constructed of chains, cords, or other flexible materials, and are made fast to the tripping device, and hence must follow the rake-head until the load is discharged. This is objectionable from the liability of such connections to stretch and otherwise get out of adjustment, being too long or too short. With my treadle, constructed as described, it is only necessary to depress it far enough to throw the lever down, when, upon the removal of the pressure, it returns immediately to its position, and does not require the interposition of any yielding connection.

Having thus described my invention, I claim as new—

1. The tooth-holders D, consisting of a base-plate, with two channels for teeth running the whole distance between the teeth.

2. The combined tooth-holders J, constructed so as to hold four teeth, the dumping lever or device, and catch, combined in one piece.

3. The combination, with the ratchet-wheel I and dog L, of the lever K, standard L′, vibrating rod *m*, spring M, and slotted standard J′, substantially as set forth.

4. The combination, with the lever K, dog L, standards L′ J′, rod *m*, and spring M, of the spring foot-treadle *p*, substantially as set forth.

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Witnesses:

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