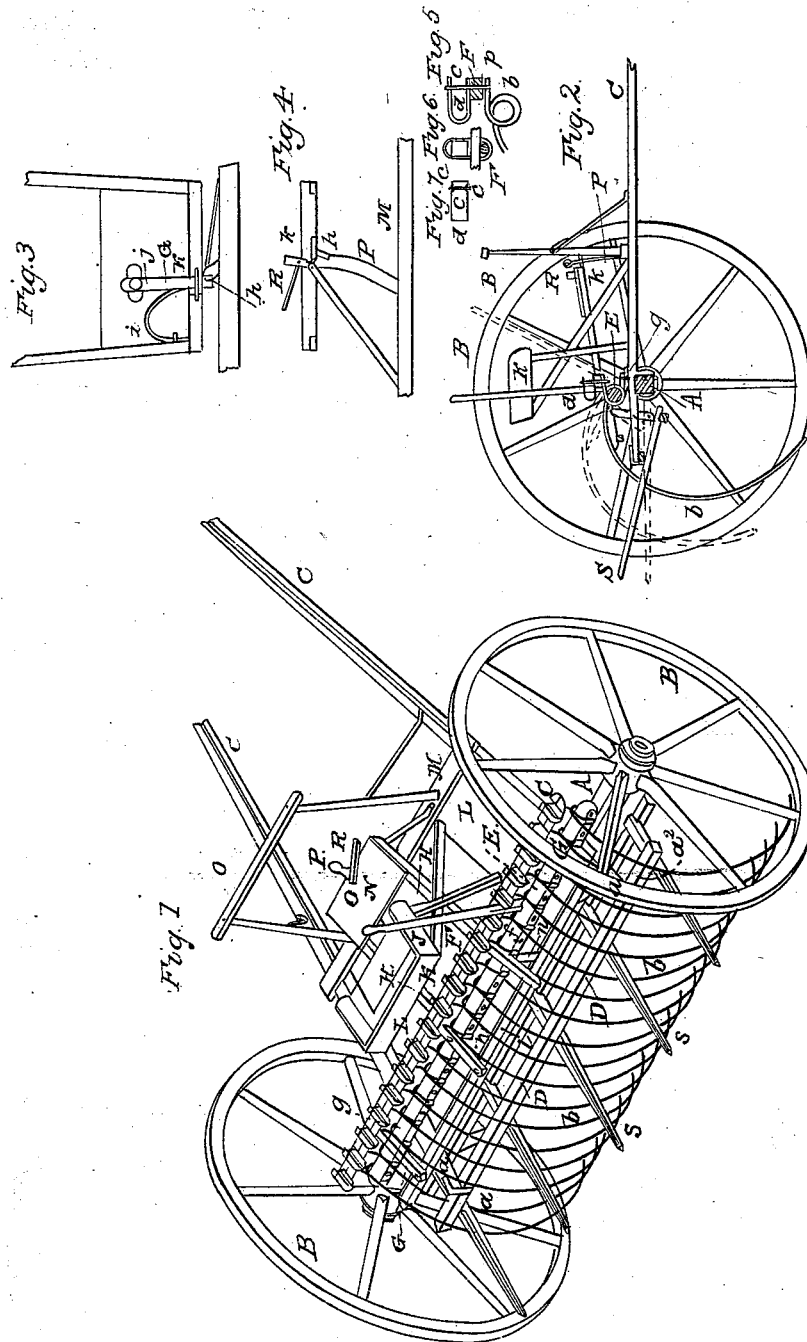


H. R. HAWKINS.

Horse Rake.

No. 54,151.

Patented April 24, 1866.



Witnesses
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UNITED STATES PATENT OFFICE.

HORACE R. HAWKINS, OF AKRON, OHIO.

IMPROVEMENT IN HORSE-RAKES.

Specification forming part of Letters Patent No. **54,151**, dated April 24, 1866.

To all whom it may concern:

Be it known that I, H. R. HAWKINS, of Akron, in the county of Summit 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, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of a horse hay-rake with my improvements applied thereto. Fig. 2 represents a longitudinal section, the rake-teeth being shown in two different positions; and Figs. 3, 4, 5, 6, and 7 represent detached parts, which will be referred to hereinafter.

In the drawings, A represents the main supporting-axle, which in turn is supported by the wheels B B. The thills C C are fastened to the top of the main axle, and extend back of the axle, as seen at *a a*, for the purpose of supporting the clearer-frame D, which is hinged thereto by straps *a' a'*, which pass around the frame-piece D and are then fastened to the ends *a a* of thills C C. The frame-piece D should be made or turned round at the points where the straps *a' a'* encompass it.

The upper ends of the teeth *b b*, which are made of wire, are coiled once around the draft-roller E, and then pass through the staples or links *c*, as fully shown in the drawings. For greater security the ends of the teeth may be bent down a little where they pass through the links or staples *c*, as indicated in Fig. 5. Staples or links *c* pass up through mortises in a cross-piece, F, and are provided with bent metal springs *d*, having notched edges *e e*, into which the sides of the links *c* fit, as indicated in the drawings. Cross-piece F is fastened to the front ends of the pieces G G, which are fastened to the top of the draft-roller E. It is also further supported by the pieces H H, which are fastened and supported by the draft-roller E. To the rear ends of the pieces G G and H H is fastened the cross-piece I, which affords a common support to all of the teeth *b*.

To retain the teeth in proper position on the draft-roll metal straps *f* are employed. These straps are bent at the proper points to receive the wire teeth, and after the teeth have been

placed upon the draft-roll the straps *f* are fastened to the draft-roller E, over the teeth *b*, as indicated in the drawings. By this arrangement the teeth *b* are free to work around the draft-roller, and thus can rise and fall, but cannot move laterally thereon. In lieu of iron straps *f* wooden cleats may be employed to retain the teeth in their relative positions.

The draft-roller is attached to the thills C C by means of straps *g g*, which permit the roller E to turn freely therein.

J is a handle fastened to the draft-roller E, and which extends up by the side of the driver's seat K, which is supported by proper braces extending up from the side flooring, L, which is fastened to the main axle in the rear and to the cross-piece M in front. N is the foot-board for the driver. It is fastened to the front of the pieces H H. O is a front guard or support for the convenience and safety of the driver.

From the front cross-piece, M, rises a bar, P, which is provided with notches *h*, into which the hinged locking-bar Q is forced by spring *i*. Locking-bar Q is arranged under the driver's seat, as seen in Fig. 3, which is a bottom view of the foot-board. Bar Q is hinged or pivoted at *j*, and its front end is thrown out of the notches *h* in bar P, when desired, by means of a bent foot-lever, R, pivoted at *o*. The short arm *k* of lever R passes down through the foot-board and close to the edge of bar Q, so that when the long arm of lever R is depressed by the foot of the driver the lower end of said lever forces bar Q out of the notch in bar P, when the foot-board can be depressed, thereby elevating the rake-teeth to discharge the hay. The position of the teeth and foot-board when thus changed is indicated in blue lines, Fig. 2, while a front view of the device for holding the rake-teeth and foot-board in position when raking is shown in Fig. 4.

To the clearer-frame D are attached fingers S, which project out beyond the rake-teeth *b*, while the front of said frame is attached or connected to the rear of the pieces H H by hinged links or connections *n n*, so that when the foot-board and the front of pieces H H are depressed the front of frame D is elevated, thereby depressing the rear ends of fingers S,

as indicated in blue lines, Fig. 2. By this arrangement, when the rake-teeth are elevated to pass the raked hay, fingers S are depressed, thereby preventing any accumulation of hay in the teeth.

Fig. 7 shows a top view of one of the springs *d* when inserted in the staple or link *c*, and Fig. 6 represents a front view. Fig. 5 represents a side view of the same together with the upper part of a rake-tooth.

It will be seen from the above description that the teeth have great elasticity, and that, too, independent of each other, owing to the spring of the coil around the draft-roller E, in connection with the yielding of the springs *d*, when the upper ends, *p*, of the teeth *b* bear or press down the loops or links *c*.

The roller E, answering as a support for the teeth and a draft device, is very simple, yet very effective. It can be easily removed together with the teeth for the repair or replacement of a tooth, which is often a great convenience. It will be observed that while roll E answers as a common draft-piece for all of teeth *b* none of them are so fastened to it as to prevent their partially turning upon the same.

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. Connecting the rake-teeth with the body of the rake by a roller, E, in combination with supporting the upper ends of the teeth by means of loops or links *c* and springs *d*, substantially as set forth.

2. The combination, with the upper ends, *p*, of the rake-teeth, of the links *c*, springs *d*, and cross-bar F, substantially as and for the purposes set forth.

3. The combination, with the notched bar P, attached to the cross-piece M, of the locking-bar Q and its spring *i*, substantially as set forth.

4. The combination, with the foot-board or treadle N and locking-bar Q, of the bent lever R, arranged and operating substantially as and for the purposes set forth.

5. The combination, with the teeth *b*, roller E, cross-bar F, and pieces H H, of the links *n n*, clearer-frame D, and fingers S, said parts being arranged and operating in the manner and for the purposes set forth.

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Witnesses:

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