W. H. FIELD.
Horse Hay-Rake.

No. 208,728. Patented Oct. 8, 1878.

Fig. 1.

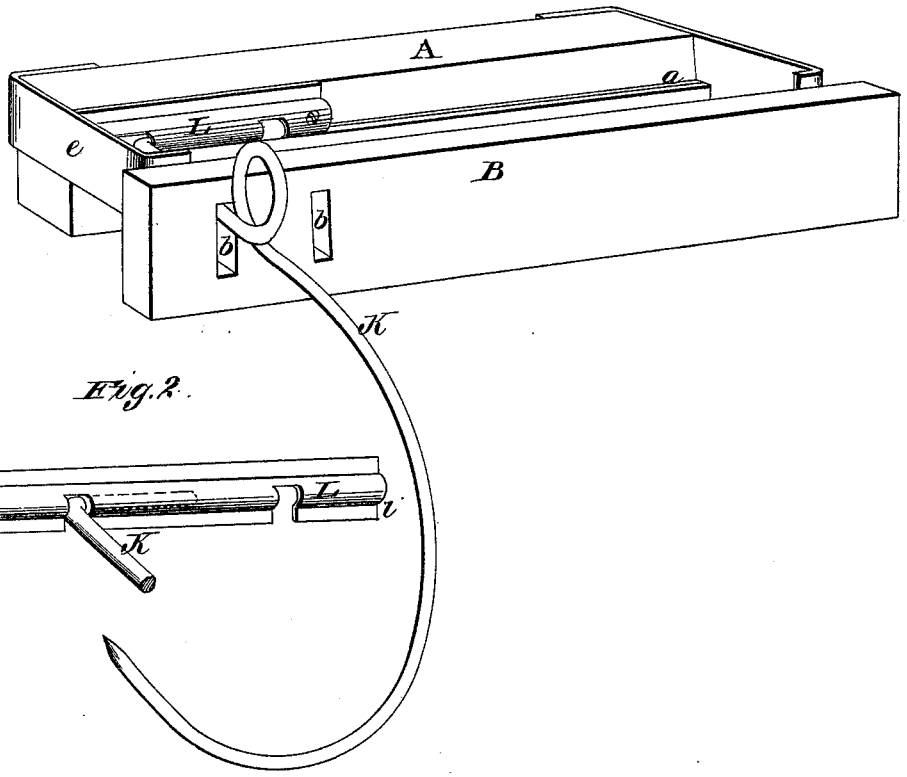

Fig. 2.

WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM H. FIELD, OF PORT CHESTER, NEW YORK.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **208,728**, dated October 8, 1878; application filed September 11, 1877.

To all whom it may concern:

Be it known that I, WILLIAM H. FIELD, of Port Chester, in the county of Westchester and State of New York, have invented a new and useful Improvement in Horse Hay-Rakes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a rake-head with tooth-board, tooth-holder, and a tooth, showing my invention. Fig. 2 is a view of the tooth-holder detached from the head.

The nature of my invention consists in a hinged tooth provided with a coil, situated beyond a point of bearing, as hereinafter more fully set forth.

It also consists in a peculiar form of tooth-holder in connection with the head.

It also consists in a tooth-holder provided with flanges and slots extending through one of said flanges, whereby several advantages are gained over previous forms of construction.

In the accompanying drawings, A represents the head of the rake, to which the tooth-board B is securely fastened by means of the supporting-arms *e*, which are secured to the head A. This head A is supported by wheels, and is hinged to thills in the ordinary manner, which is not shown in the drawings. The tooth K is formed so as to articulate in the head A, and has its end turned at right angles to the body of the tooth, for the purpose, when secured to the head, of preventing lateral movement to the point of the tooth. The tooth also extends through a slot, *b*, in the tooth-board, through which it has a determined amount of free vertical movement, while at the same time the lateral movement is prevented. This slotted tooth-board, while retaining the ordinary tooth in proper working position and allowing it to play up and down freely for a limited distance, offers a positive stop at the end of each of these vibrations, and thus becomes an anvil, upon which the teeth are constantly striking; hence there is a great liability to break immediately outside of the board. The teeth become brittle at this point and eventually snap off. I therefore form a coil in the tooth, formed with one or more convolutions, immediately in the rear of the tooth-board, whereby I secure the free limited vertical movement and freedom from lateral displacement, while at the same time securing a tooth with a great amount of elasticity at the point where this liability of deterioration or breakage occurs, the hammering thus being taken up and distributed over the metal without detriment.

I am aware that rakes have been made with articulating teeth, having a coil outside of but immediately adjoining the point of articulation, and I wish to distinguish between such arrangement and the one herein described, which has a determined amount of free vertical movement, and where the lateral displacement is prevented by the tooth-board, and the elasticity is introduced in the tooth beyond such support.

Another effect of the coil, when placed in this position, is to cause the point of the tooth to rise from the ground more abruptly when meeting an obstruction, and thus to easily and quickly free itself.

The head A is formed with a groove, *a*, fitted to receive the lower flange, *l*, of the tooth-holder L, thus enabling the wood of the head in the rear of the tooth-holder to receive the strain transmitted by the tooth, and to prevent the bending or displacement of the tooth-holder.

By this construction I am enabled to greatly reduce the weight of the tooth-holder, while still retaining proper strength. The tooth-holder is also formed with a flange extending upward, as well as another downward, and with slots extending through the lower flange for inserting the teeth.

In a tooth-holder of this form the lower flange transmits to the head the backward pull of the teeth, while the upper flange prevents bending vertically, this form securing much greater strength, lightness, and convenience than heretofore.

I claim in a horse hay-rake—

1. A hinged or articulated tooth formed with a coil outside of or beyond a tooth-board, or its equivalent, as set forth.

2. The head A, formed with the groove *a*,

in combination with the tooth-holder L, having the flange *l*, substantially as set forth.

3. A tooth-holder formed with flanges and with slots extending through one of said flanges, substantially as and for the purpose described.

4. The combination of a rake-head and tooth-board with a tooth formed with its end turned at right angles and in the direction of the length of the head, and having a coil formed outside of said tooth-board, substantially as and for the purpose set forth.

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