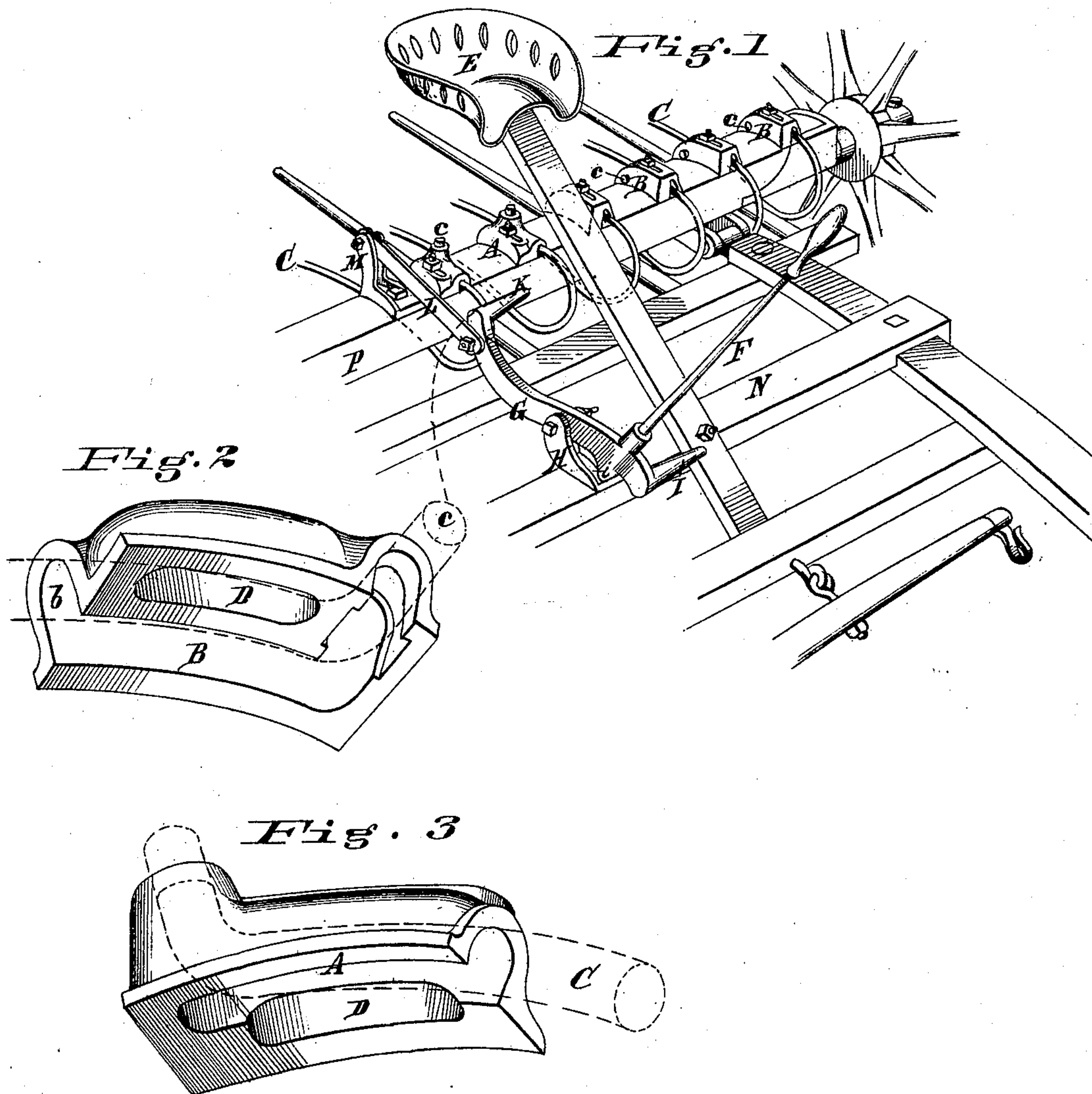


J. F. TRADER  
HORSE HAY-RAKE.

No. 177,176.

Patented May 9, 1876.



Attest  
Jas. S. Boyle  
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# UNITED STATES PATENT OFFICE.

JAMES F. TRADER, OF XENIA, OHIO.

## IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. 177,176, dated May 9, 1876; application filed April 1, 1876.

*To all whom it may concern:*

Be it known that I, JAMES F. TRADER, of Xenia, in the county of Greene and State of Ohio, have invented certain new and useful Improvements in Horse Hay-Rakes, of which the following is a specification:

The first part of the invention relates to the manner of fastening the teeth, and consists in the provision of an adjustable tooth-socket attachment, having a curved base to rest on an axle with an upper curved face, whereby the position of the teeth is regulated by simply moving the attachment back or forward; and the second part of the invention relates to a compound hand and foot lever dumping device, consisting of the parts hereinafter described.

Figure 1 is a perspective view of portions of a rake embodying both parts of the invention. Fig. 2 is an enlarged perspective view of the tooth-fastening attachment, when made to allow the point of the tooth to have a loose motion, and Fig. 3 is a similar view of the same device when made for a fixed tooth.

P is the axle, the upper side of which is made circuline. B is the tooth attachment, provided with a socket, *b*, for the tooth to rest in, the groove being sufficiently deep and horizontal at the back to allow the tooth C to play vertically in it, and circular at the bottom to fit the axle. It is provided with a slot, D, through which a bolt from the axle projects, and by means of a nut is adjusted to any desired position, and there secured, the object of such adjustment being to regulate the points of the teeth to suit the work. A is a similar attachment,

but intended to hold the tooth without vertical play, and having its rigid end turned up instead of being horizontal. Both are shown in Fig. 1, and in practice they may be used together, or either may be used separately. E is the operator's seat; N, a cross-bar; H, a bracket, to which the lever is pivoted, and against which the lower end of the hand-lever F, or the bracket-projection *i* under it, rests when the rake is in operation. M is a goose-neck bracket, securely attached to the axle P, and to which the straight arm L is pivoted. G is a curved arm, pivoted to L at one end, and to the bracket H at the other, and provided with two foot-pads, I and K.

The operator keeps the rake to its work by a gentle pressure of one foot on pad I, and when he desires to dump the load he changes his foot to pad K, slight pressure upon which, with the assistance of hand-lever F, performs the operation.

I claim—

1. The curved tooth-fastener A or B, provided with a groove for the tooth, and a slot for end adjustment, substantially as shown and described.

2. The compound hand and foot lever, composed of the arms F G L, foot-pads I K, and stop *i*, substantially as shown and described.

In testimony whereof I have hereunto set my hand this 22d day of March, 1876.

JAMES F. TRADER.

Witnesses:

JOHN A. HENRY,  
T. L. MAGRUDER.