2 Sheets—Sheet 1.

A. W. STEVENSON.

Horse Hay-Rake.

No. 211,273. Patented Jan. 7, 1879.

Fig. 1.

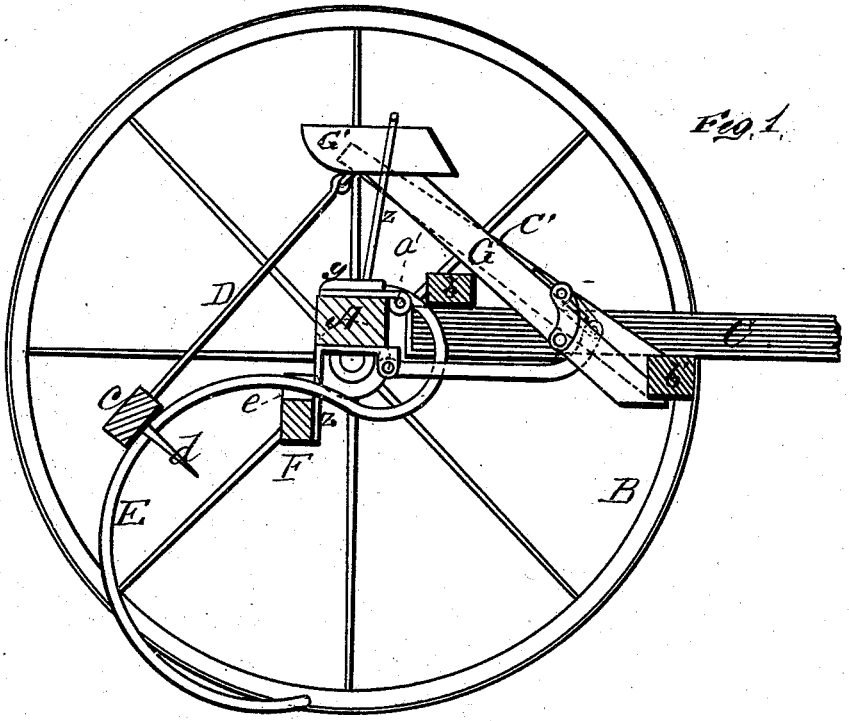
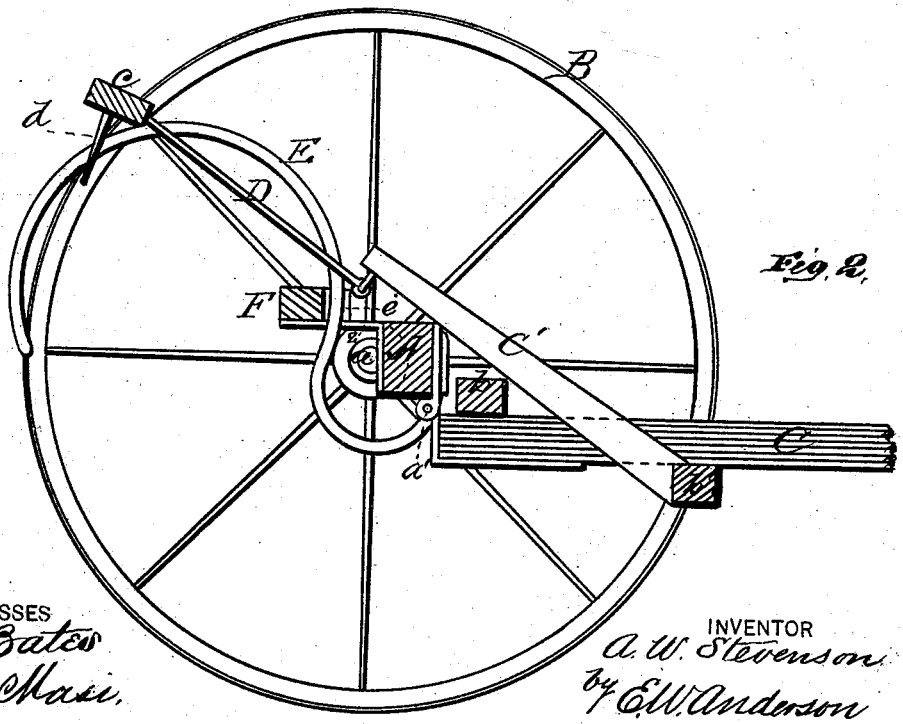


Fig. 2.



WITNESSES

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2 Sheets—Sheet 2.

A. W. STEVENSON.

Horse Hay-Rake.

No. 211,273. **Patented Jan. 7, 1879.**

Fig. 3.

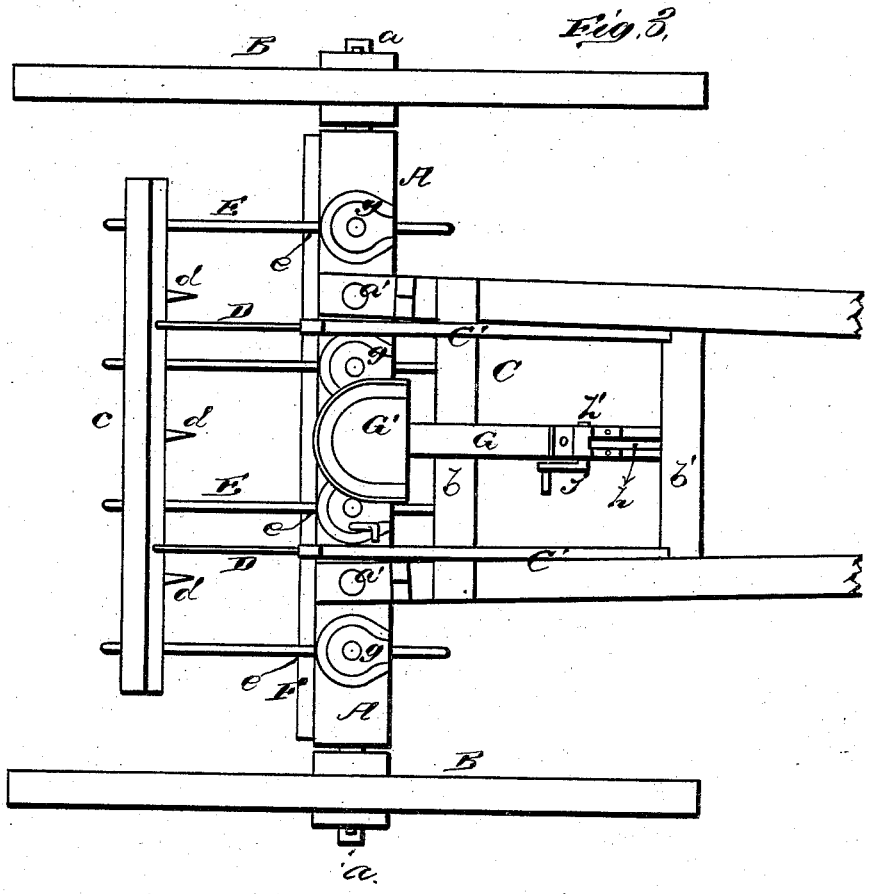


Fig. 4.

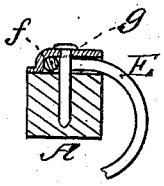
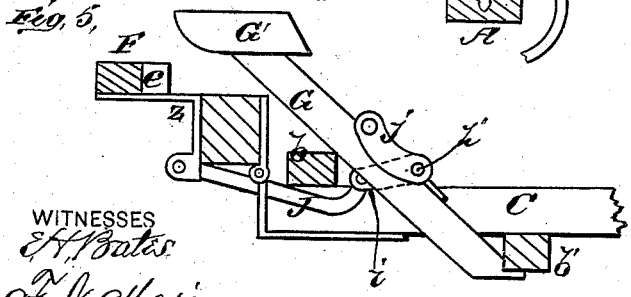


Fig. 5.



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UNITED STATES PATENT OFFICE.

ADOLPHUS W. STEVENSON, OF XENIA, OHIO.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **211,273**, dated January 7, 1879; application filed February 16, 1878.

To all whom it may concern:

Be it known that I, A. W. STEVENSON, of Xenia, in the county of Greene and State of Ohio, have invented a new and valuable Improvement in Horse Hay-Rakes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal section of my rake, showing the teeth down. Fig. 2 is a like view with the teeth up; and Fig. 3 is a top view of the rake, and Figs. 4 and 5 are detail views.

This invention has relation to horse hay-rakes in which the draft-frame is hinged to the axle, which is turned, when tripped, by the weight of the driver to throw up the rake-teeth; and the present invention consists, mainly, in the construction and novel arrangement of the draft-frame, pivoted to the upper front corner of the axle, and having a slotted seat-bar, a crank-shaft on said seat-bar having a downwardly-projecting arm connected to an under coupling, which is pivoted to the lower front corner of said axle and to the lower end of the said projecting arm, all as hereinafter fully shown and described.

In rakes of this character having tilting axles, in order to replace the rake-teeth in position on the ground after discharge, they have usually been constructed either with upright handles rigidly attached to the axle, or with upwardly-projecting arms on said axle, in order to get sufficient leverage to turn the axle back.

In the present invention it is designed to utilize the breadth or thickness of the axle to give the necessary leverage by pivoting the draft-frame to the upper front corner and applying the lever-connection to the lower front corner of the axle; and by arranging the tooth-supporting bar in depending hangers from the rear lower corner of the axle, its position is sufficiently separated from the overhanging clearer-standards attached to the draft-frame to enable them to be made short, and the clearer-frame to work by extension therefrom in such a manner that when the load is discharged their connecting-rods will be in line with said overhanging arms, thereby getting the full extension of which the connecting-rods and overhanging arms are capable.

In the annexed drawings, the letter A designates the axle of my improved rake, squared on its front face, and having at each end an arm, *a*, upon which the wheels B are applied. C represents the shafts or thills, the rear ends of which are squared and coupled to the upper edge of the shaft by the hinges A′. The thills are braced by means of the cross-bars *b* *b′*, the one at the end and on top, and the latter a sufficient distance in front and on the bottom.

C′ represents inclined arms or posts, extending to the rear and terminating over the axle, to which are secured the pivoted rods D, that carry on their ends a beam, *c*, to which the clearing-teeth *d* are secured. The beam *c* bears upon the rake-teeth E, whatever be their position, and the clearers *d* alternate therewith. The teeth E are **S**-shaped, and pass over a supporting-beam, F, thence under and around the front of the axle, to the upper face of which they are then rigidly secured, and they are maintained at a proper distance apart by being let into notches *e* in the said beam F. This beam depends from the lower rear corner of the axle, having suitable hangers *z*, whereby it is connected therewith, to carry the teeth at a sufficient distance below the axle and from the ends of the oblique overhanging arms C′ to enable the connecting-rods D to open to the rear when the axle is turned, and to extend in line with said overhanging arms, thereby gaining the full extension of which they are capable in pushing the clearer-bar back on the teeth. These teeth are provided at their butts with an eye, *f*, and are secured to the axle by means of a bolt, or other equivalent device, a metallic clamp-plate, *g*, recessed upon its under side to receive the eye and a portion of the shank of the tooth, and having a perforation for the reception of the bolt, being laid over the said eye. When the bolts are secured the edges of the said caps press forcibly upon the axle, and not only hold the teeth against lateral displace-

ment, but also prevent them from being torn loose from their bolts, the eyes being to all intents and purposes relieved of strain.

G represents the seat-bar, arranged in an inclined position and supported by the thill-braces *b b'*, aforesaid; and G', a seat, secured to the rear end of the bar G, over the axle. Near its front end the bar G is slotted, as shown at *h*, Fig. 3; and across this slot is a rock-shaft, *h'*, having an operating crank-arm, *j*, for foot-pressure, on one end, and a downwardly-projecting arm, *i*, in the slot *h*. This arm is connected with the under side of the axle by a pivoted coupling-rod, J, pivoted to a lug on the lower part of said axle and to the said arm.

When the crank-shaft, its arm, and the coupling-rod are in the relative positions shown in Fig. 1, they constitute an effective lock, which holds the teeth down to their work, the joint between the thills and axle being practically rigid; but if the said shaft be turned and the foot-lever *j* released, so as to break the lock, the weight of the driver upon the thills causes the axle to rotate, and throws the teeth into the position shown in Fig. 2, thereby dropping the load, the said teeth being prevented from dropping by the stripper-bar, upon which they rest. The seat and thill-frame are brought up into position again by pulling the shaft-lever *z* backward, and at the same time pressing on the foot-lever.

I am aware that a rocking axle and a draft-bar hinged thereto to throw up the teeth in discharging, by the weight of the driver, are not new, and that it is old to use overhanging arms extending to the rear for the attachment of the connections of the clearer. Therefore I do not broadly claim such devices.

What I claim as new, and desire to secure by Letters Patent, is—

In a horse hay-rake having the seat-bearing draft-frame hinged to the upper front corner of the axle, the combination, with slotted seat-standard G and the crank-shaft *h'*, pivoted thereon, and having the arm *i*, projecting downwardly through the same, of the under coupling, J, pivoted to the lower front corner of the axle and to the lower end of arm *i*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ADOLPHUS W. STEVENSON.

Witnesses:
LUTHER HANES,
C. L. MAXWELL.