J. H. RANDOLPH, Jr.
Revolving Horse Hay-Rake.

No. 208,267. Patented Sept. 24, 1878.

Fig 1.

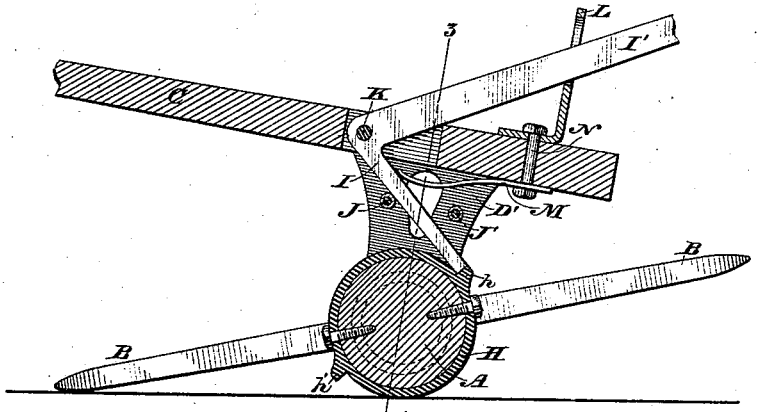


Fig 2.

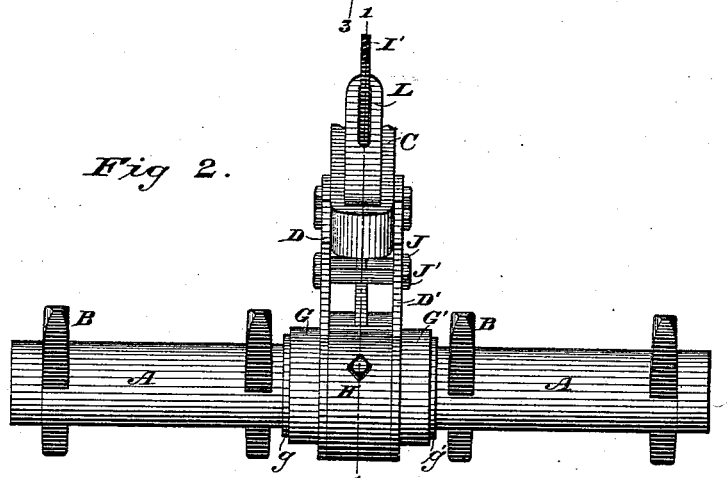
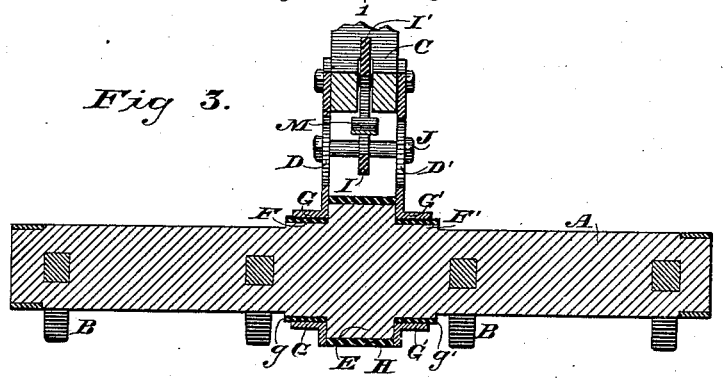


Fig 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN H. RANDOLPH, JR., OF WOODSTOCK PLANTATION, LOUISIANA.

IMPROVEMENT IN REVOLVING HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **208,267**, dated September 24, 1878; application filed August 3, 1878.

To all whom it may concern:

Be it known that I, JOHN HAMPDEN RANDOLPH, Jr., of Woodstock Plantation, in the parish of East Baton Rouge and State of Louisiana, have invented certain new and useful Improvements in Pea-Vine Pullers and Horse Hay-Rakes, of which the following is a specification:

My invention in general respects resembles the well-known class of horse hay-rakes having a revolving head provided with teeth centrally secured therein, which in operation are tripped and caused automatically to revolve as desired, so as to bring to the front and into operation the rear teeth, or those ends of the teeth previously projecting to the rear, and free the teeth previously in operation from the gathered load.

The object of my invention is generally to improve rakes of this class, and to provide a strong cheap machine, simple in construction and efficient in operation, especially applicable to gathering or pulling pea-vines; and my improvements mainly relate to a peculiar manner of mounting the rake-head, and to novel means employed to connect the revolving rake-head and the draft-pole or tongue and to lock and release the head.

The subject-matter claimed will hereinafter first fully be described, and then specifically be designated by the claims.

In the accompanying drawings, which show so much only of my improved machine as is necessary to illustrate the invention claimed, Figure 1 is a vertical longitudinal section on the line 1 1 of Fig. 2; Fig. 2, a rear elevation, with the tongue and the rake-head controlling or operating lever partly broken away, as in Fig. 1; and Fig. 3, a vertical transverse section on the line 3 3 of Fig. 1, showing the rake-head in longitudinal section.

A rake-head, A, preferably round, of any suitable length, and with such number of teeth B as may be desired, is connected midway its length with the tongue C in such manner that the teeth may be tripped and carried round by the partial revolution of the head, as is well understood. The revolving head is connected with and supported from the heel of the tongue by a two-part sectional bracket, pendant, or down-hanger, D D′. Both sections of the supporting-bracket are formed alike, and are firmly bolted at top to the sides or vertical edges of the tongue. They are formed with bearings at their lower ends to encompass the head, and are, by preference, made of cast-iron. This bracket serves to support the rake-head about the middle between the two inner teeth. The weight of the head is balanced upon the bracket, and the strain upon the teeth and head is sustained at a central point in the line of the tongue or draft.

The details of construction are in this instance as follows: At the middle, the head A is formed with a prominent annular shoulder or hub, E. The width (or area in direction of the length of the head) of this hub corresponds with the distance between the inner surfaces of the two pendants or parts D D′ of the bracket for supporting the head. At the base of this hub, or at the outsides of it, are lesser shoulders F F′, around which the bearings or annular stirrups G G′ of the two-part bracket fit, with metallic bands or rings *g g′* between the bearings and shoulders of the head to lessen friction and prevent rapid and injurious wear of the head. These bands may be shrunk upon the head after being slipped along to their places in fitting them before the teeth are inserted into the head. The stirrups or bearings G G′ are flanged or made broad, as shown, to increase the length of the bearings for the rake-head, and thus strengthen the connection between the head and tongue and resist unequal strains upon the head on the opposite sides of the bearings.

Upon the hub or centrally-enlarged part E of the head, between the bracket sections and bearings, is secured, by screws or otherwise, a metallic stop, collar, or cam-ring, H, having two projecting lugs or shoulders, *h h′*, diametrically opposite each other upon its circumference. These shoulders are inclined upon one side and abrupt or vertical on the other, and serve, in connection with a lever, I, to hold the teeth at work and to trip them, as desired. This collar is the full width of, or is made of a width slightly greater than, that of the hub E, and comes in contact at its edges with the bracket-sections D D′, (see Fig. 3,) and thus prevents wear upon the rake-head, as well as gages the space between the sections of the

bracket, which are drawn toward each other and against the cam-collar by screws or bolts J J′. The lever is bent and provided with a handle, I′, extending back a convenient distance, so that the operator may readily take hold of it from his position in rear of the teeth to trip the head. The lever is pivoted at K in a slot in the draft-pole. Its handle plays vertically in a guide-slot in a standard, L, on the heel end of the tongue. The slot in the standard limits the movement of the lever and prevents lateral play.

The operating end or bent arm I of the lever plays between the bolts J J′, which are so located relatively to the lever as also to prevent too great movement thereof in either direction. A spring, M, bears upon the lever, and acts with a tendency to keep it against the collar, either engaging one of the stops or in position to engage one of them when the teeth are tripped and the head makes a half-turn. An upward movement of the handle trips the teeth, and its weight alone would serve to rock it into its operative position; but I prefer to employ the spring as an additional precaution. A single bolt, N, and its nut serve to secure the standard L and spring M to the tongue.

From the foregoing description the operation of the machine will readily be understood without further description.

By my improvements it will be seen that I am enabled to use a double team, and that by placing the double-tree sufficiently far forward upon the tongue very long teeth may be employed without any obstruction to their turning. Another advantage of having the draft connected with the rake-head only at the center is that one head may be substituted for another with but slight delay, when desirable to change from long to short teeth, from a long to a short head, or from one having many teeth close together, for raking hay, to one having longer, shorter, and fewer teeth, for pulling pea-vines.

Obviously my improvements may be modified in some respects without departing from the spirit of my invention. For instance, the shoulders or enlargements E and F and the band *g g′* may in part or entirely be dispensed with, and the head be made of uniform diameter throughout, to cheapen the machine; and instead of a metallic cam roughly-formed notches may be made in the rake-head, or the stops *h h′* be separately attached thereto. I prefer, however, the construction shown by the drawings.

I claim as of my own invention—

1. The combination, substantially as hereinbefore set forth, of the rake-head and the bracket, in which it is centrally supported and by which it is wholly connected with and supported from the tongue in the line of draft.

2. The combination of the tongue, the sectional bracket secured to its heel end and provided with bearings, the rake-head mounted centrally in said bearings, and the collar or cam-ring secured to the head between the bracket-sections and their bearings, and serving to protect the head from wear, as described.

3. The combination of the tongue, the sectional bracket, the rake mounted at its middle in bearings in said bracket, the collar or cam-ring between the bracket-sections, and the lever acting upon the stops on said ring, the combination being and operating substantially as hereinbefore set forth.

4. The combination of the rake-head, the sectional bracket by which it is supported wholly at its middle, the cam-ring between the sections of the supporting-bracket, and the band upon the rake-head to protect it from wear in the bracket-bearings, substantially as hereinbefore set forth.

In testimony whereof I have hereunto subscribed my name.

JOHN HAMPDEN RANDOLPH, JR.

Witnesses:

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