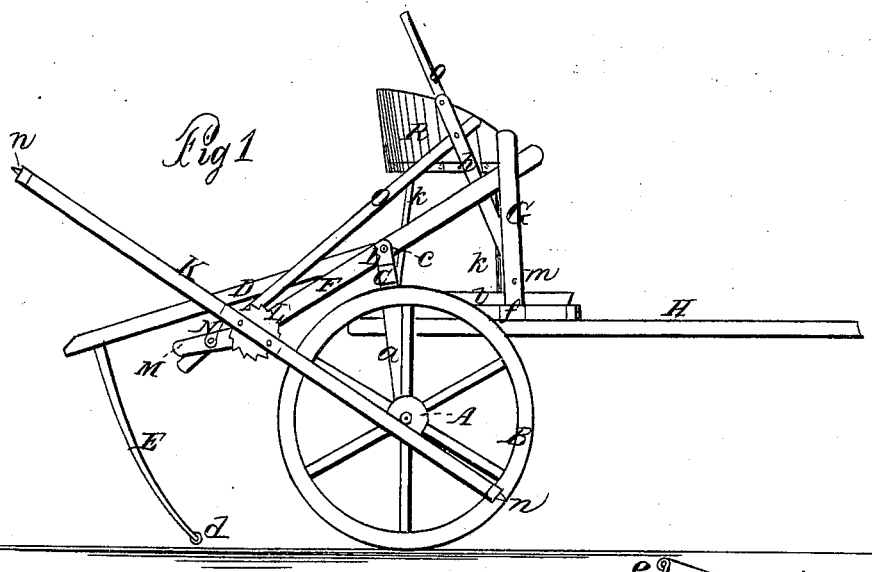
J. A. Varney,
Horse Rake.

No. 54448 Patented. May. 1. 1866.

Fig 1



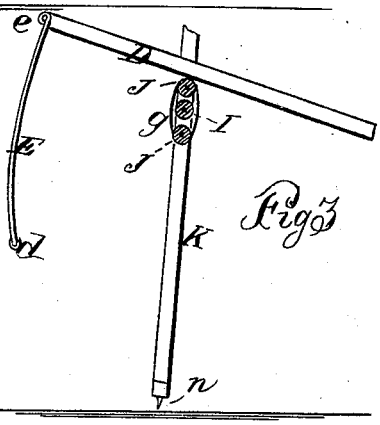
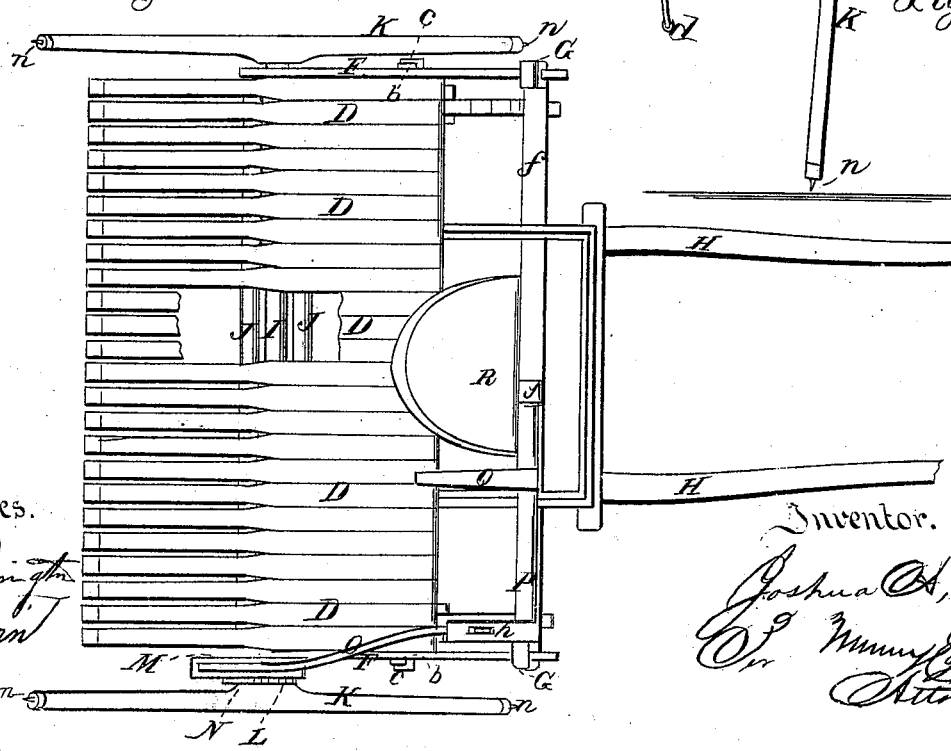


Fig 3

Fig 2



Witnesses.

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UNITED STATES PATENT OFFICE.

JOSHUA A. VARNEY, OF ALTON, NEW HAMPSHIRE.

IMPROVEMENT IN HORSE-RAKES.

Specification forming part of Letters Patent No. **54,448**, dated May 1, 1866.

To all whom it may concern:

Be it known that I, JOSHUA A. VARNEY, of Alton, in the county of Belknap and State of New Hampshire, have invented a new and Improved Horse-Rake; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my invention; Fig. 2, a plan or top view of the same; Fig. 3, a detached side sectional view of the rake-elevating mechanism.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and improved means for elevating the rake-teeth, and in the application of rollers to the lower ends of the same, whereby it is believed that a superior horse-rake is obtained, one which may be manipulated with the greatest facility, possess no parts liable to get out of repair, and which will not scratch up the earth and render the hay dusty, as is now the case, especially with the wire-tooth rakes.

A represents an axle having a wheel, B, on each end of it and standards *a* framed into it, the upper ends of which support a bar, C, which is parallel with the axle A, and has bearings *b* secured to it, in which bearings a rod, *c*, is fitted. On this rod *c* a series of bars, D, are fitted loosely, the rod passing through said bars near their front ends, and the bar C projects over and beyond the wheels B B, so that the outermost bars, D, are also beyond the wheels. The bars D are allowed to rise and fall freely independently of each other, and to the rear end of each bar D a curved tooth, E, is attached. These teeth may be constructed of either wood or metal, and in the lower end of each tooth a small roller, *d*, is fitted and allowed to rotate freely. The bars D and teeth E comprise the rake. The teeth E, if of wood, are rigidly attached to the bars D; but if of wire they are formed with one or more convolutions, *e*, at their point of attachment with the bars, in order to admit of their having a certain degree of elasticity. (See Fig. 3.)

On each end of the rod *c*, at the outer side of the bars D, there is placed loosely a lever, F, the front ends of said levers passing through slotted standards G G at the ends of a cross-bar, *f*, attached to the rear parts of the thills H H, and through the rear parts of the levers F F the journals of a shaft, I, pass loosely, and on each end of said shaft there is keyed or firmly secured an arm, *g*, said arms being placed centrally on the shaft and serving as bearings for shafts J J, which are parallel with the shaft I and at opposite sides thereof. (See Figs. 2 and 3.)

On each end of the shaft I, at the outer sides of the levers F, there is permanently attached a bar, K, and to the inner side of one of these bars, concentric with the rod *c*, there is secured a ratchet, L.

M is an arm placed loosely on the rod I at the inner side of the ratchet L, between it and one of the levers F, and to this arm a pawl, N, is pivoted, said pawl engaging with the ratchet L. The arm M has a lever or handle, O, attached to it, which is attached to an upright, *h*, on a shaft, P, the bearings of which are in a standard, *j*, and the upright G on the cross-bar *f*, the shaft P having a handle or lever, Q, secured to it. R is the driver's seat, supported by uprights *k* attached to a platform, *l*, on the rear of the thills.

From the above description it will be seen that as the machine is drawn along the teeth E will rake up the hay or grain, the rollers *d* preventing the teeth from scratching up the earth, and also preventing the teeth from catching into the earth and being broken thereby. The teeth of ordinary rakes scratch up a great deal of earth and render the hay and grain dusty, and the teeth are very frequently broken—difficulties which are fully obviated by the rollers *d*.

When the rake-teeth have gathered or raked up a sufficient quantity of hay or grain the driver from his seat R shoves forward the lever Q, and the pawl N, in consequence of engaging with the ratchet L, turns the shaft I, and the bars K are moved so that their front ends will come in contact with the earth, and as the machine moves along the bars K will catch into the earth and the shaft I turned so that one of the shafts J will throw up the bars D and teeth E, the latter passing over the hay or grain which they have collected, the bars and teeth dropping by their own gravity as

the shaft J turns down toward the axle. The shafts J J act alternately upon the bars D, the shaft I making about a half revolution at each elevation of the rake-teeth.

The rake-teeth are elevated to keep them above the surface of the ground in drawing the machine from place to place by depressing the front ends of the levers F F, the latter being held down by pins *m* passing through the standards G G. The bars K are provided with metal points *n* at their ends, to insure said ends catching into the earth when moved down in contact with it.

In case the driver prefers to walk the teeth E may be raised to discharge their load by turning down either of the bars K by hand.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The shaft I, provided with the bars K K, and shafts J J, in combination with the levers F F, arranged and applied substantially as shown and described, for raising the rake-teeth so that they may discharge their load.

2. The rollers *d* in the lower ends of the rake-teeth E, substantially as and for the purpose specified.

3. The combination of the bars D with the teeth E attached and fitted on the rod *c*, the shafts I J J, bars K K, and levers F F, all arranged on a mounted frame, to operate in the manner substantially as and for the purpose set forth.

JOSHUA A. VARNEY.

Witnesses:

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