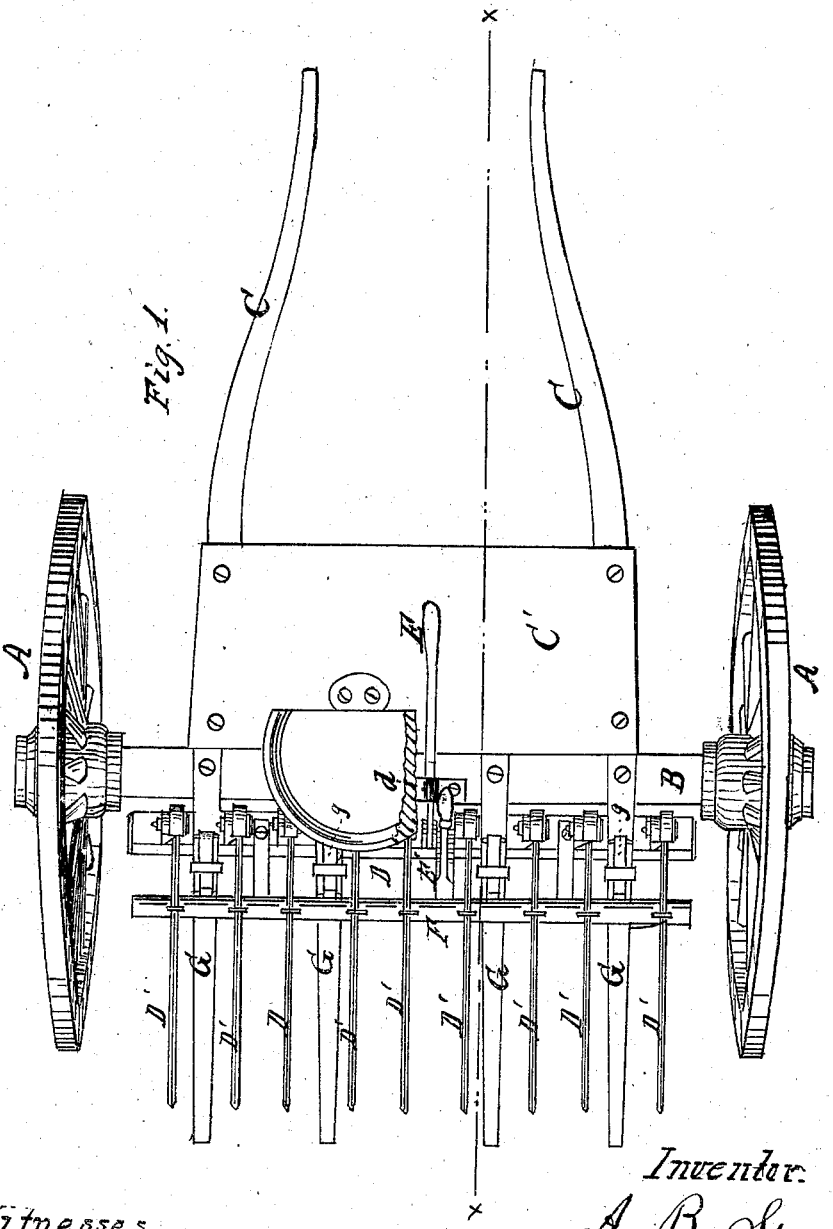
Sheet 1 - 2 Sheets

A. B. Sprout.

Horse Rake.

No. 48109 Patented Jun. 6, 1865.

Fig. 1.



Witnesses.

Alex. A. C. Klaucke

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Sheet 2 - 2 Sheets.

A. B. Sprout.

Horse Rake.

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Fig. 3.

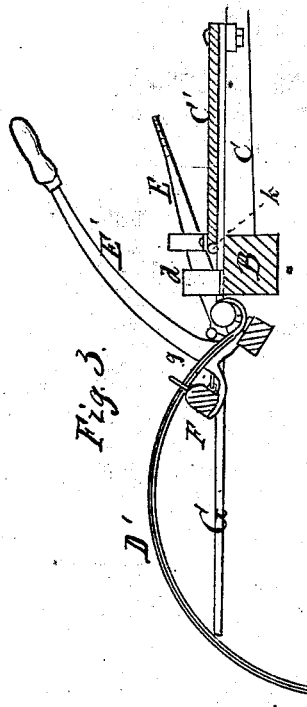


Fig. 4.

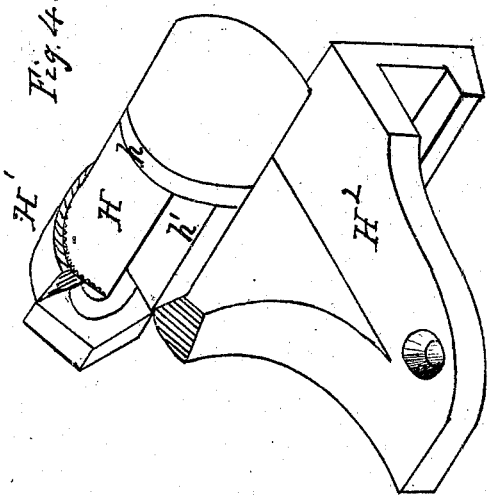
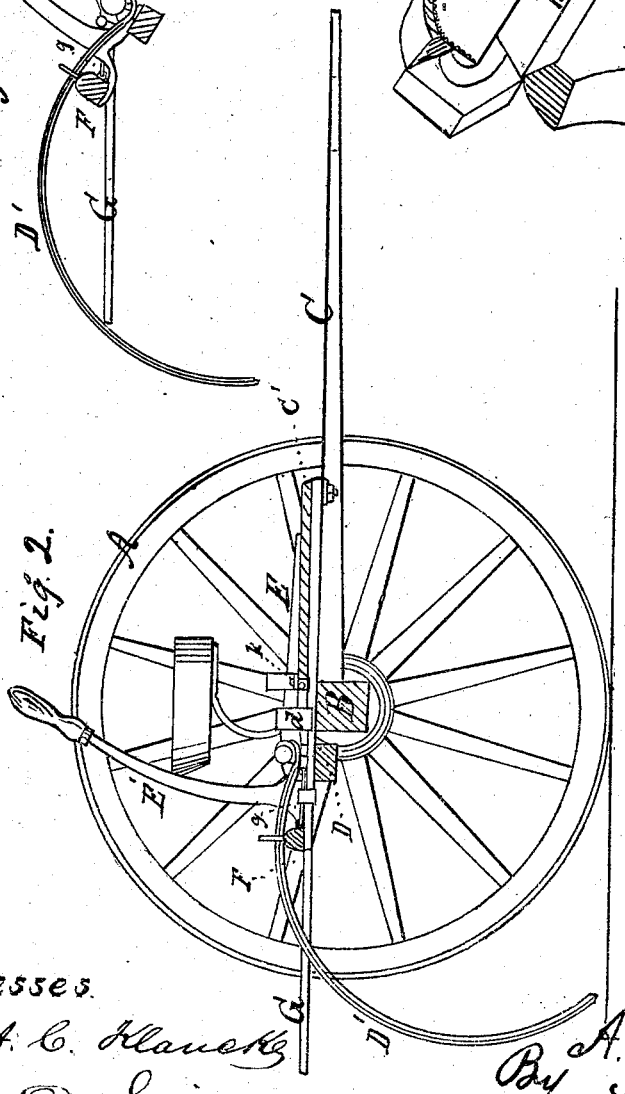


Fig. 2.



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UNITED STATES PATENT OFFICE.

ARIEL B. SPROUT, OF HUGHESVILLE, PENNSYLVANIA.

IMPROVEMENT IN HORSE-RAKES.

Specification forming part of Letters Patent No. **48,109**, dated June 6, 1865.

To all whom it may concern:

Be it known that I, ARIEL B. SPROUT, of Hughesville, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Horse Hay-Rakes; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of a rake embodying my invention: Fig. 2 is a vertical section of the same in the line *x x*, Fig. 1. Fig. 3 is a detached sectional view, illustrating the operation of the levers, hereinafter referred to, and also other parts. Fig. 4 is a perspective view of the device by which the connection between the rake head and teeth is made.

Similar letters of reference indicate corresponding parts in the several figures.

My present invention comprises new and useful improvements in the manner of operating and pivoting the rake and attaching the teeth to the rake-head, as will be hereinafter fully explained.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, A A are the wheels, B the axle, and C C the thills, all of which are of common construction. D is the rake-head, to which the teeth D′ are attached in the manner hereinafter described. E is a foot-lever pivoted to the head D, and having its fulcrum at *d* upon the axle B or the frame C.

A roller, K, under the lever E, pivoted in the sides of the lug or loop, reduces the friction of the said lever in raising the rake-head, and prevents it from binding as it rolls under the forward motion, which results from the pressure upon the lever E.

By the depression of the forward end of the lever the rake is thrown down and held to its work, there being no direct connection between the rake-head and frame of the machine. The lever E slides back with the downward and rearward motion of the rake-head, and forward when the latter is elevated, which is done by means of a hand-lever, E′, forked at its lower end to admit of its attachment to both the rake-head D and the tumbling-bar F. The rake-teeth are held at proper distances asunder, as well as braced against vertical and lateral strain by guides.

The bar F is attached to the cleaners G or other rigid part of the rake by strap-hinges *g*, so that the bar F, rotating on its pivots under the forward pressure of the lever E′, allows the rake-head to descend, and the rear curved ends of the teeth to rise and leave the hay. By means of the strap *g* a certain degree of vertical play is allowed to the bar F, so that in passing over knolls or similar obstructions it may rise accordingly; but in raking up heavy hay, or in bunching up hay, it is needful to prevent the rising up of the fulcrum-bar by reason of the degree of play it has, owing to its attachment by the straps *g*. For this purpose I use rings, which slip upon the cleaner-bars G and embrace the straps, so as to prevent vertical action of the bar F relative to the cleaners. Thus when the hand-lever E′ is turned forward to raise and clear the rake-teeth the bar F forms the center of motion for the rake, and the head D falls, as shown in Fig. 3.

From the above description it is manifest that less power or strength is required to operate the rake than if the head constituted the center of motion. When, on suspending the operation, the rake-teeth are elevated to their highest position, the head D assumes such position below the bar F as to partially counterbalance the backward and downward tendency of the teeth. The rake is retained in its working position by the foot upon the treadle-lever E, and is tripped or held from contact with the ground by the forward motion of the hand-lever E′.

To adapt the machine to horses of different heights, I have extended the cleaners G, which support the fulcrum-bar F, forward of the axle, so that by placing blocks over their forward ends, or by analogous adjustment, the position of the cleaners shall be changed relatively to the shaft, so that when the latter are raised to suit a large horse the forward end of the cleaners, under the foot-board, may be lowered, so as to elevate the fulcrum-bar and preserve the relation of the points of the teeth to the ground. The reverse operation adapts the machine to a smaller horse.

The rake-teeth D′ are each attached to the rake through the medium of a pintle, H, formed with a flange, *h*, and a circular shank, which

passes through a lug, H′, formed on a clamp, H^2, which is rigidly fastened to the head D in any suitable manner.

The rake-tooth D′ is coiled round the pintle with its end in the notch h', and the pintle, having been rotated a sufficient number of times to give the tooth the required pressure, is secured in the leg H′ and against turning therein by a burr or nut working on the threaded shank of said pintle. By this simple contrivance the elastic force of the rake-tooth may with facility be varied as circumstances may render desirable.

The face of the shoulder on the pintle and the side of the lug H′ are grooved or serrated, so as to interlock with each other and restrain the pintle from turning without the necessity of screwing it up so tightly as would otherwise be necessary.

Having thus described my invention, the following is what I claim as new therein, and desire to secure by Letters Patent:

1. The foot-lever E, so pivoted to the rake-head as, by being depressed, to throw the rake from its elevated to its working position, and by being held down with the foot to retain the rake in its working position.

2. Attaching the fulcrum-bar F to the cleaners or other rigid parts of the rake by means of straps g, connecting the two parts of a hinge-joint so as to allow a limited amount of vertical play to the bar F, for the purpose described.

3. In combination with the straps g, the movable rings or their equivalent, for the purpose of preventing the vertical play of the bar F relatively to the cleaners under the circumstances described.

4. The extension in front of the axle of the cleaners G, which support the rake-head, so as by their vertical adjustment to regulate the height of the rake-head from the ground at a given elevation of the shafts.

5. The rotating notched pintle-bolt H h', with grooves therein corresponding to similar grooves on the lug H′ for coiling the rake-teeth until the requisite force is attained, and for holding the tooth when coiled in position under the action of the nut on the bolt.

The above specification of my improvement in horse hay-rakes signed this 16th day of March, 1865.

A. B. SPROUT.

Witnesses:
EDWARD H. KNIGHT,
ALEX. A. C. KLAUCKE.