T. S. MILLER.
Horse Hay-Rake.

No. 206,959. Patented Aug. 13, 1878.

Fig: 1.

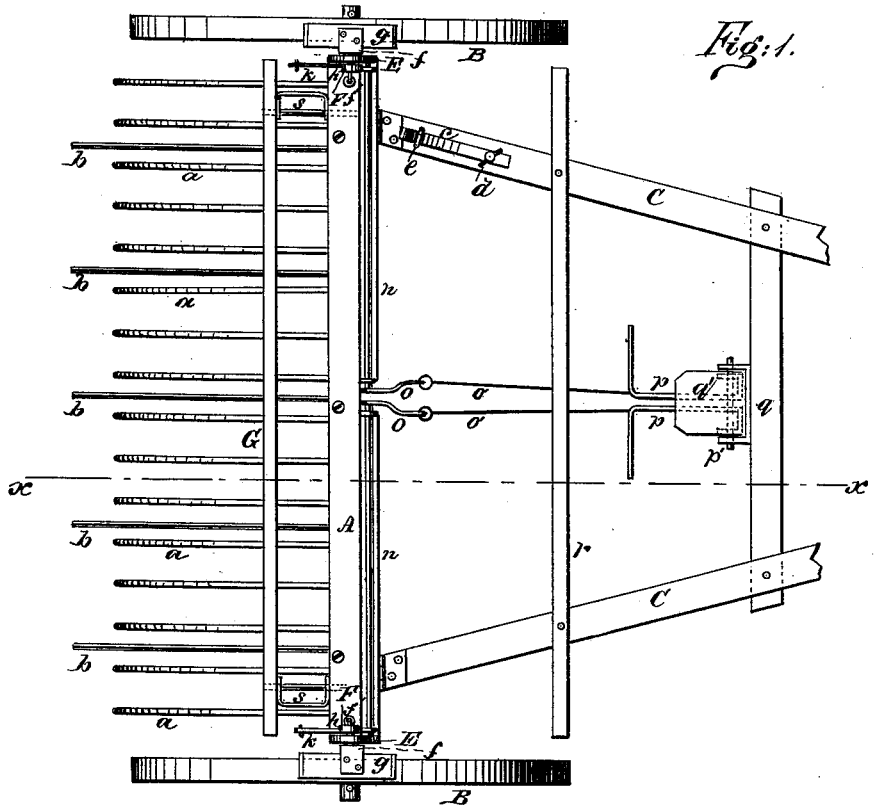
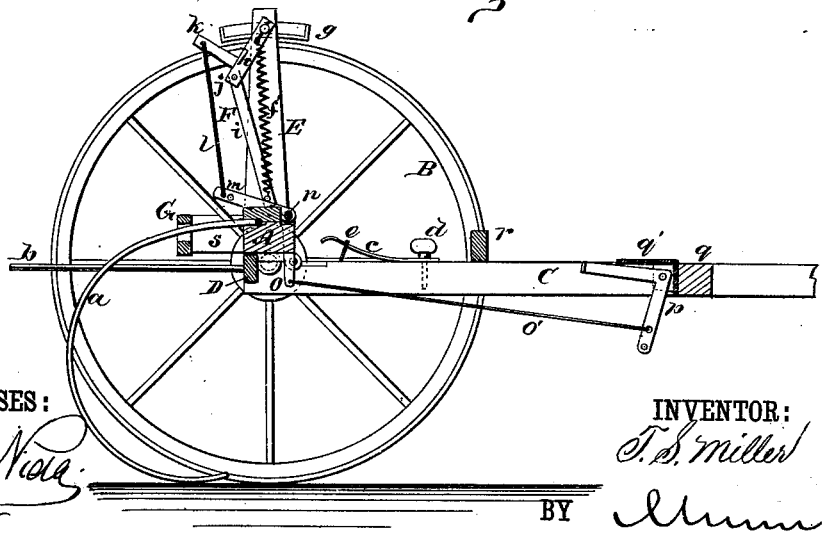


Fig: 2.



WITNESSES:
Chas. Neal
C. Sedgwick

INVENTOR:
T. S. Miller
BY
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS S. MILLER, OF POMEROY, OHIO, ASSIGNOR TO ADAM MILLER, OF HARFORD, PENNSYLVANIA.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **206,959**, dated August 13, 1878; application filed June 1, 1878.

To all whom it may concern:

Be it known that I, THOMAS S. MILLER, of Pomeroy, in the county of Meigs and State of Ohio, have invented a new and useful Improvement in Horse Hay-Rakes, of which the following is a specification:

Figure 1 is a plan view of my improved hay-rake. Fig. 2 is a vertical transverse section taken on line *x x* in Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention relates to that class of horse hay-rakes that are dumped by power taken from the supporting-wheels.

It consists in an arrangement of levers by which either or both of the brake-shoes may be brought into contact with the periphery of the supporting-wheels when it is desired to dump the rake.

Referring to the drawing, A is the axle of the rake, which is supported by the wheels B, and to which the rake-teeth *a* are attached. The shafts C are hinged to the under surface of the axle A at or near the front side thereof, so that the weight of the driver sitting on a seat attached to the shafts will counterbalance the rake-teeth. From a cross-bar, D, which connects the rear ends of the shafts, a number of straight clearing-teeth, *b*, project rearwardly between the teeth *a*. To one or both of the shafts a curved spring, *c*, is secured by means of a thumb-screw, *d*, by which it also may be adjusted, and it is guided and confined by the staple *e*. This spring is located so that the axle in turning compresses it, and it is adjusted by means of the thumb-screw, so that it will counterbalance the surplus weight of the driver, and also assist in returning the teeth to their normal position after they are discharged of hay. By means of this arrangement the teeth are returned gently without striking the ground, and their action may be regulated to suit the circumstances under which the rake is used.

To each end of the axle A an arm, E, is secured, which extends beyond the periphery of the wheel B, and is slotted to receive bolts or studs that project from the sliding piece *f*. The outer end of this sliding piece is angled and attached to a brake-shoe, *g*, which it supports over the wheel B. The outer end of the sliding piece *f* is designed to spring, to allow the brake-shoes *g* to conform to inequalities in the wheels.

Upon the inner side of the arm E there is a toggle, F, composed of the arms *h i*, pivoted together at *j*. The arm *h* is pivoted near the outer end of the arm E, and the arm *i* is pivoted to the lower end of the sliding piece *f*. A spring, *f'*, is attached to the lower end of the arm *i* and to the upper end of the arm E, and is designed to keep the brake-shoe from the periphery of the wheel. To the arm *h* a lever, *k*, is secured, which is connected by the rod *l* with an arm, *m*, on the shaft *n*. The shaft *n* is supported by boxes attached to the axle A, and is provided at its inner end with an arm, *o*, which projects downward and is arranged at about a right angle with the arm *m*. The arm *o* is connected by a rod, *o'*, with the downwardly-projecting arm of the lever *p*, which is fulcrumed on a rod, *p'*, supported by ears projecting from the cross-bar that connects the shafts. The upper arm of this lever is bent at right angles to receive the foot of the operator.

The arrangement of the toggles and brake-shoes is the same at both ends of the axle, and the shafts by which they are operated extend to the center of the axle, and the levers *p*, by which they are operated, are fulcrumed on the same pivot.

A pedal, *q'*, is supported by the rod *p'* and rests upon the levers *p*. A bar, *r*, is secured to the shafts C in position to engage and unlock the toggle F. An apertured bar, G, is supported by brackets *s* behind the axle A, for receiving and supporting the wire teeth *a*.

The rake is provided with the usual driver's seat. As it is drawn forward the hay is gathered by the teeth, and, when a sufficient quantity has accumulated, one of the levers, *p*, may be depressed, or both may be depressed at once, by means of the pedal *q'*. This operation locks the toggle F and holds the brake-shoes *g* in contact with the periphery of the wheels, where they remain until the toggle strikes the cross-bar *r*, by which it is unlocked. The arms E being now released, the teeth *a* drop and the operation is repeated.

It is obvious that one or both of the brake-shoes *g* may be employed in dumping the rake.

When the rake moves straight ahead both will be used, as it equalizes the draft, so that both sides draw alike; but usually, in turning, the brake on the outer wheel only will be used.

While I prefer the plan which I have described, I do not confine myself to this exact construction and arrangement of parts, as these may be somewhat varied without departing from my invention.

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

1. The brake-actuating mechanism consisting of the toggle F, having the arm *h*, and an arrangement of levers for operating the same, substantially as herein shown and described.

2. The combination, with the rake-wheels, of two brake-shoes actuated by independent mechanism and adapted to be operated singly or together, as shown and described.

3. The bar *r*, secured to the shaft C, for releasing the arms E, as herein shown and described.

4. The pedal *g'*, in combination with the levers *p*, for simultaneously operating both of the brake-shoes, substantially as herein shown and described.

THOMAS S. MILLER.

Witnesses:
W. J. KIRK,
ALEX. DOWNIE.