

UNITED STATES PATENT OFFICE

WALTER ADRIANCE, OF POUGHKEEPSIE, NEW YORK.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **190,531**, dated May 8, 1877; application filed April 26, 1877.

To all whom it may concern:

Be it known that I, WALTER ADRIANCE, of Poughkeepsie, county of Dutchess, and State of New York, have invented a new and useful Improvement in Horse-Rakes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a plan or top view. Fig. 2 is a transverse vertical section in the plane *yy*, Fig. 1. The remaining figures are details, which will be referred to as the description progresses.

Similar letters indicate corresponding parts. This invention consists in the combination with the rake-head of an independent shaft, situated between the axles of the wheels, and of two clutches, the movable parts of which are mounted on the independent shaft, and can be thrown in gear with the stationary parts, which are mounted on the inner ends of the axles of the wheels. For this purpose a rock-shaft is used, which is operated by the foot, and which connects with the movable parts of the clutches by forked rods. The rake-head can also be raised by means of a hand-lever, with which is combined an adjustable stop for regulating the position of the rake-teeth. Said hand-lever is connected with an arm extending from the independent shaft by means of a chain or flexible connection, so that when the rake-head is raised by the action of the clutches, the hand-lever remains stationary. By shortening or lengthening the flexible connection, the height of the rake-teeth from the ground can also be regulated.

In the drawing, the letter A designates the frame of my horse-rake, which forms the bearings for the axles B B of the wheels C C. These axles are independent, one from the other, the wheels being secured on their outer ends by ratchet-wheels and pawls, or other equivalent means, and between the same, and in line with them, is situated an independent shaft, D, which has its bearings in suitable brackets attached to the frame A, and on which are firmly secured two or more arms, E, which support the rake-head F. On the inner ends of the axles B B are firmly secured the stationary parts G of two clutches, the

movable parts H of which are feathered on the ends of the independent shaft D. Beneath this independent shaft, and at right angles to the same, is situated a rock-shaft, I, on the outer end of which is secured a pedal, *a*, Fig. 1, in such a position that it can be conveniently reached from the driver's seat, while on the inner end of said rock-shaft is wound a spiral spring, *b*, which has a tendency to retain said shaft in the position shown in Figs. 1 and 4. On this rock-shaft is firmly mounted a disk, *c*, in which are secured two eccentric wrist-pins, *d*, which connect by rods *e* with levers *f*, the bifurcated ends of which engage with circular grooves in the hubs of the movable parts H of the clutches. If the pedal *a* is depressed, the disk *c* turns in the direction of the arrow marked thereon in Fig. 4, and thereby the movable parts H of the clutches are thrown in gear with the stationary parts G, and as the rake is drawn forward, and the wheels C revolve, the rake is raised up and the material which has accumulated in the rake-teeth is dumped.

On the independent shaft D is firmly secured a toe, *g*, and as this shaft is turned so as to raise the rake, said toe strikes a pin, *h*, which projects from the disk *c*, and the rock-shaft I is turned in the direction opposite to the arrow marked near it in Fig. 4. By these means the movable parts H of the clutches are thrown out of gear, and the rake is dropped automatically as soon as its contents have been dumped.

The descent of the rake may be eased by suitable springs or cushions.

On the independent shaft is firmly secured an arm, *i*, Fig. 2, which connects, by means of a chain, *j*, with a hand-lever, J, which has its fulcrum on a pivot, *k*, secured in the frame A. The front end of this lever is bent upward, so that it can be conveniently reached from the driver's seat, and its rear end strikes against a stop, *l*, which is fastened to the rear part of the frame A by means of a screw, *m*. (See Fig. 5.) This screw passes through a slot in the stop, so that said stop can be adjusted up or down. The object of this arrangement is to regulate the height of the rake-teeth from the ground. If the stop *l* is moved down, the points of the rake-teeth are raised

from the ground, and vice versa, and by means of the hand-lever J the rake can be elevated at any moment by hand, so as to clear obstructions.

The elevation of the rake-teeth from the ground can also be regulated by shortening or lengthening the chain *j*, and for this chain any flexible connection may be substituted. The advantage of this flexible connection is, that when the rake is raised by the action of the clutches and wheels, the hand-lever J remains stationary, and is not liable to be thrown in violent contact with the body of the driver. If a rigid connection should be used between the arm *i* and the hand-lever J, said hand-lever would be compelled to partake of all motions imparted to the independent shaft D, and as this shaft is turned suddenly every time the clutches are thrown in gear, the hand-lever would be liable to fly against the legs or other parts of the body of the driver.

If the rake has been raised by the action of the clutches and wheels, and is then dropped, its descent may be eased by providing the stop *l* with an elastic face, or by applying to the rear end of the hand-lever J an elastic cushion.

By the employment of the independent shaft D a firm connection is obtained between the rake and the frame A, and at the same time

the axles B B, or the rake-head and the independent shaft, can be readily taken off, either independent of the other, and the machine is simplified in its construction and reduced in cost.

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

1. The independent shaft D, arranged between, and in line with, the separate axles B B, and provided with the arms E, supporting the rake-head F, in combination with the clutches G H in the axles B and shaft D, respectively and rods *e*, disks *c*, having pin *h*, and the pin *g* on the shaft D, substantially as and for the purpose described.

2. The combination, with the rake-head F, independent shaft D, axles B B, clutches G H, and hand-lever J, of an adjustable stop, *e*, attached to the rear part of the frame A, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of April, 1877.

WALTER ADRIANCE.

Witnesses:

ROBT. N. PALMER,
EDWIN C. ELDRIDGE.