G. E. ROBISON.

Revolving-Head Wheel-Rake.

No. 219,979. Patented Sept. 23, 1879.

Fig. 1.

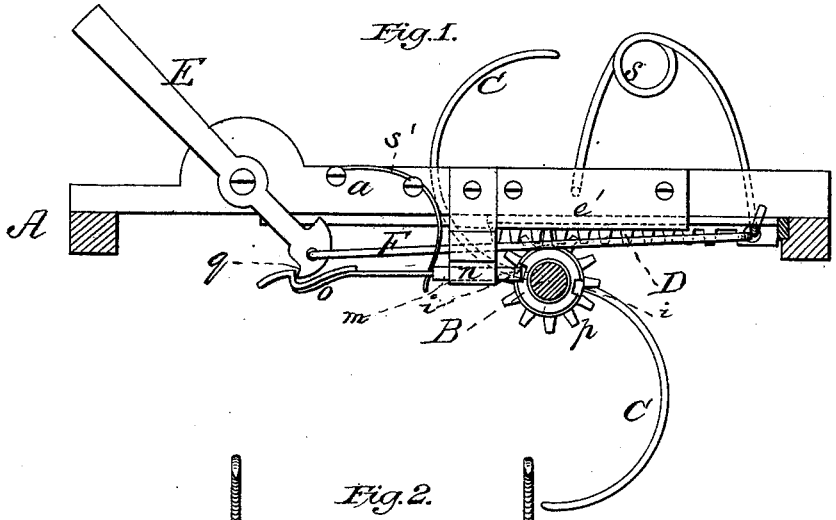


Fig. 2.

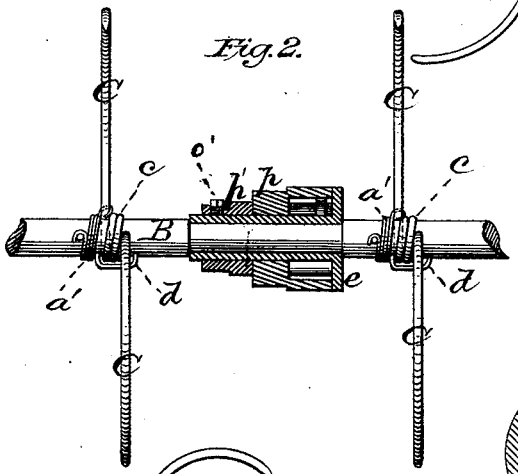


Fig. 4.

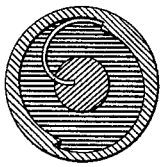
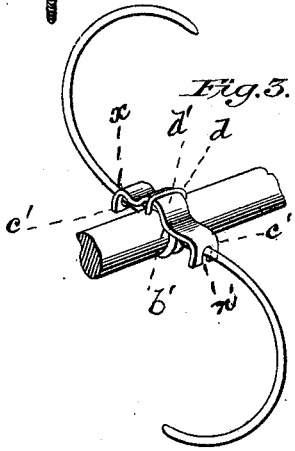


Fig. 5.



WITNESSES

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GEORGE E. ROBISON, OF MORAVIA, NEW YORK.

IMPROVEMENT IN REVOLVING-HEAD WHEEL-RAKES.

Specification forming part of Letters Patent No. **219,979,** dated September 23, 1879; application filed February 24, 1879.

To all whom it may concern:

Be it known that I, G. E. ROBISON, of Moravia, in the county of Cayuga and State of New York, have invented a new and valuable Improvement in Revolving-Head Wheel-Rakes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal vertical section of my improved rake; and Figs. 2, 3, and 4 are details.

This invention has relation to improvements in horse hay-rakes wherein the rake is rotated to dump a load; and the nature of the invention consists in combining, with a rake-frame and a rotating rake-head journaled therein and provided with a pinion, an endwise-movable rack-bar engaging said pinion, a clutch locking said pinion to the head, a spring retracting said bar, a lever fulcrumed on the frame, and a connecting-rod uniting the bar and lever, as will be hereinafter more fully set forth.

In the annexed drawings, the letter A designates the preferably rectangular frame of my improved rake, braced longitudinally by a beam, *a*, and supported on suitable transporting-wheels. B represents a shaft constituting the head of the rake, and journaled in suitable bearings, either in front or in rear of the spindles of the transporting-wheels aforesaid. Instead of using shaft B for this purpose, I may, if I so elect, employ the axle, on the ends of which are the spindles or axle-arms.

The rake-teeth are usually made of a single piece of metal, bent one or more times around a mandrel to form an annular sleeve or hub, *c*, by means of which they are passed successively upon the rock-shaft B.

The teeth C form with each other the outline of the letter **S**, and each set of teeth is maintained in a proper relative position by a staple, *d*, spanning the hub *c* and driven into the head-shaft, or by an equivalent device. Each set of teeth has free rotation upon the head, and is held down to its work by means of a spring, *a'*, of the form shown in Fig. 3, being a strip of metal, *b'*, having bent-down end arms, *c'*, the one having a notch, *n*, in its end to receive one of the teeth, and the other having an elongated hole, *x*, to receive the other tooth C, and having the central bearing, *d'*, conforming to the hub of the teeth. In this construction the staple is forced into the head and embraces both the spring and hub, holding the former against horizontal swaying.

Upon the under side of the beam *a*, and endwise movable in guides *e'*, secured thereto, is a metallic rack-bar, D, that engages a pinion, *p*, rotating loosely upon the rake-head, and included between a collar, *p'*, and a clutch, *e*, applied thereon. This clutch is of the usual construction, and connects the pinion and head when the latter is rotated in the act of dumping a rake-load, but releases it when the teeth are again brought down to their work.

The rack-bar D is connected at its rear end to the beam *a* by a spring, *s*, the reaction of which causes the rake-head to rotate backward and return the teeth to their work. The rear end of bar D is connected to a manipulating-lever, E, fulcrumed on the frame at the front part of beam *a* by means of a connecting-rod, F. This lever being drawn to the rear, the rack-bar D is drawn to the front, and the clutch *e* being then engaged with the pinion *p*, the rake-head is given a half-revolution, raising one set of teeth and dumping their load, and throwing the other set simultaneously into the working position. The lever being released, spring *s* reacts and the clutch *e* releases the pinion *p*, so that the rack-bar is drawn back to its former position without affecting the rake-head or teeth, the pinion turning freely on the rake-head. The collar *p'* is adjustable on the rake-head by means of a set-screw, *o'*, and has formed in it notches *i* diametrically opposite each other, each of said notches corresponding to one of the sets of teeth, and the rake-head is locked against rotation, thus holding the teeth down by means of a pawl, *m*, moving endwise through a guide, *n*, depending from beam *a*, and maintaining its engagement normally with the collar by the restraint of a spring, *s'*, secured at one end to the frame *a*, and bearing at the other against the heel of the said pawl. This pawl has projecting horizontally to the front a latch-arm, *o*, with which a finger, *q*, on the power end of the lever E is

engaged when the rake-teeth are down to their work. Consequently the moment the said lever is drawn back in the act of tripping the rake the pawl is disengaged from the notch *i* and allows the head to rotate. The backward movement of the lever continuing, its finger slips out of engagement with the latch-arm, and spring *s'* reacts and forces the pawl against the collar, so that the moment the notch *i* comes around it becomes engaged therewith. The lever E being then released, spring *s* reacts, and, in addition to the results above described, re-engages the finger with the latch-arm.

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

1. The combination, with the frame having longitudinal guides *e'* and the endwise-movable spring-retracted rack-bar D, of the rock-shaft B, having pinion *p*, clutch *e*, and collar *p'*, the lever E, and connecting-rod F, substantially as specified.

2. The combination, with the rake-head shaft B, having pinion *p* and a locking-clutch, *e*, the endwise-movable rack-bar D, and the retracting-spring *s*, of a collar, *p'*, having opposite notches *i*, the pawl *m*, having latch-arm *o*, the lever E, having finger *q*, and the connecting-rod F, all combined, arranged, and operating as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE ELMER ROBISON.

Witnesses:
GEO. L. PARKER,
HENRY CUTTER.