

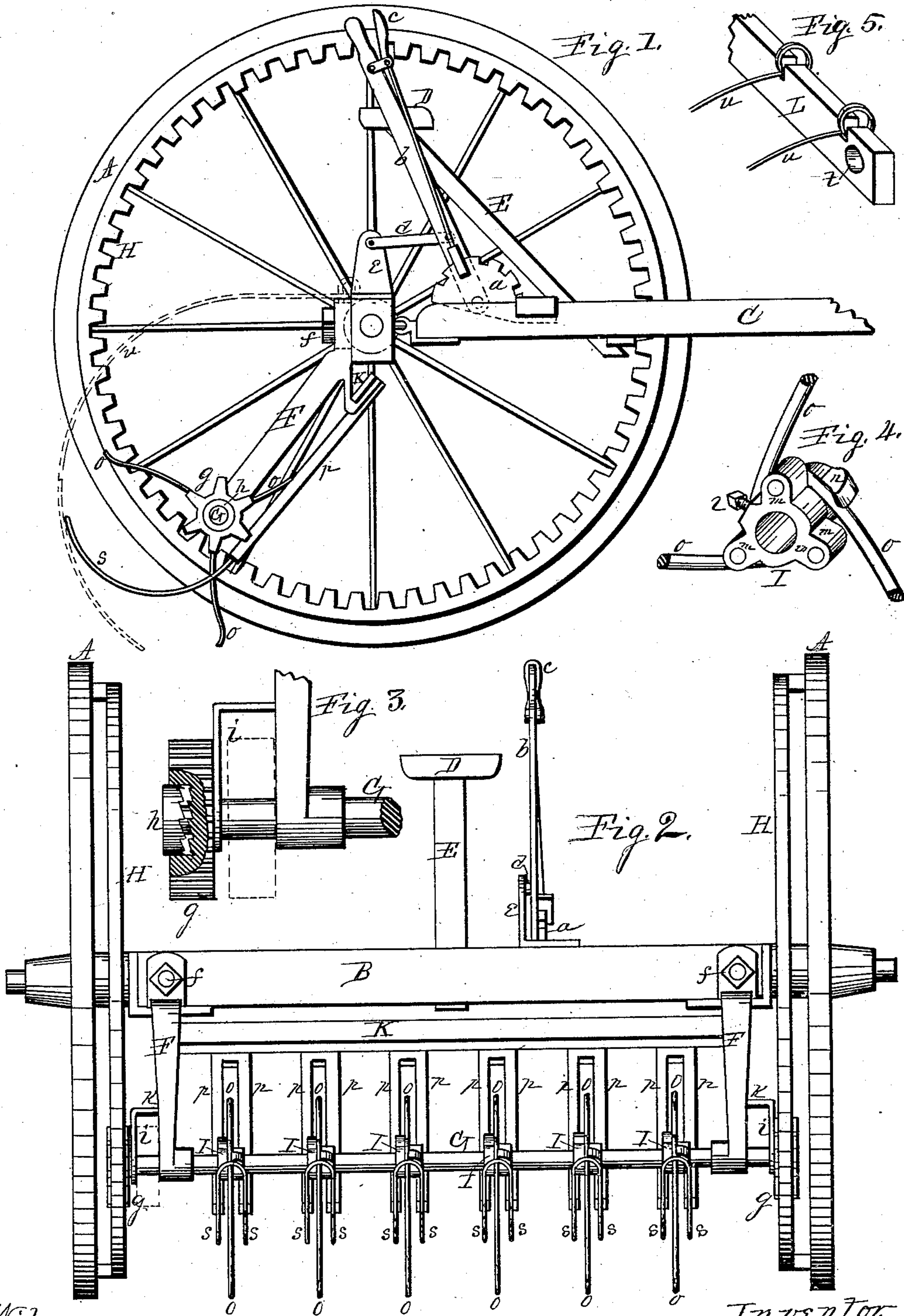
(No Model.)

W. R. JOHNS.

COMBINED HAY TEDDER AND RAKE.

No. 290.775.

Patented Dec. 25, 1883.



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# UNITED STATES PATENT OFFICE.

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## COMBINED HAY TEDDER AND RAKE.

SPECIFICATION forming part of Letters Patent No. 290,775, dated December 25, 1883.

Application filed February 12, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILL R. JOHNS, a citizen of the United States, residing in the city of Rockford, in the county of Winnebago and State of Illinois, have invented new and useful Improvement in a Combined Hay Tedder and Rake, of which the following is a specification.

This invention relates to that class of tedders and rakes in which the tedder apparatus may be disconnected from the main frame, which is mounted on the carrying-wheels, and the rake-head connected thereto, or vice versa, and in which the tedder-teeth rotate.

The object of this invention is to improve this class of combined machines, to render them more efficient and reduce rather than increase their cost. To this end I have designed and constructed the machine represented in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention, and in which one of the carrying-wheels with the cog-toothed rim fixed thereto is omitted. Fig. 2 is a rear elevation. Fig. 3 is a rear elevation of the end portion of the tedder-shaft and clutching mechanism, partly in section. Fig. 4 is an isometrical representation of the tedder-tooth hub and portions of the tedder-teeth in place therein. Fig. 5 is an isometrical representation of a portion of the rake-head, with a portion of some of the rake-teeth.

In the figures, A represents carrying-wheels mounted to revolve on the axle-arms of the axle-tree B.

At C are represented thills of a suitable construction, and are hinge-jointed to the axle B in a manner to permit the axle-tree to oscillate in its wheel-supports.

At D is represented a driver's seat fixed to the upper end of an inclined support, E, having its lower end fixed to the transverse bars of the thills in such a manner as to support the seat suitably elevated centrally over the axle-tree.

At *a* is represented a segment-toothed ratchet fixed to the transverse bar of the thills.

At *b* is represented a lifting and holding lever pivoted on the center of the segment-ratchet. This lever is fitted with a thumb-

lever, *c*, to operate a detent-bolt to engage the teeth of the segment-ratchet.

At *d* is represented a link having a pivotal connection with the lever *b*, and with a vertical arm, *e*, rising from the axle-tree.

It will be seen from the foregoing that the construction and arrangement of these several parts are such that a forward and backward movement of the lever will cause the axle-tree to oscillate in its wheel-supports, and that by means of the bolt-detent engaging the teeth of the segment-ratchet the axle-tree may be held in any position within the limits of the devices.

At F are represented shaft-supporting bracket-arms, having their upper ends fixed to the rear face and end portions of the axle-tree by means of suitable screw-bolts, *f*, passed through the parts.

At G is represented a shaft, of suitable dimensions, journaled to revolve in the outer end portions of the bracket-arms.

At *g* are represented gear-toothed pinions, loosely mounted on the outer end portions of the shaft, and are capable of a limited endwise-sliding movement thereon. The outer center of these pinions are countersunk, and the bottoms of these countersinks are produced in a saw-tooth-clutch form.

At *h* are represented saw-toothed clutch-heads, of a form and size to enter the countersink in the gear-pinions, and engage the saw-tooth-clutch-formed portion thereof. These clutch-heads are fixed on the outer ends of the shaft.

At *i* are represented lever-springs, pivoted at *k* to the bracket-arms, in such a manner that their free end can be raised to permit the gear-pinion to slide under it on the shaft. The position and the spring-action of these spring-levers are such that their free ends shall engage the inner face of the gear-toothed pinions and hold them in contact with the clutch-heads, to cause the shaft to revolve in the forward movement of the machine, and in the backward movement of the machine will permit the gear-toothed pinions, by reason of their saw-tooth-clutch connection with the clutch-head, to revolve on the shaft. By means of the pivotal connection of these lever-springs



with the shaft-supporting brackets their free ends can be raised, to permit the gear-pinions to be moved endwise on the shaft to the position shown in the dotted lines, to disconnect  
5 them from the clutch-heads, in which position the lever-springs will engage the outer face of the pinions and hold them disconnected from the clutch-heads.

At H are represented internal-gear rings,  
10 fixed to the inner face of the carrying-wheels, in such position thereon that their gear-teeth shall engage the teeth of the gear-pinions in a manner to cause them to revolve with the movements of the machine.

At I is represented a hub, bored to receive the shaft G, and fitted with a set-screw, l, by which to fix it to the shaft. These hubs are provided with ears m, radiating from one end portion of their periphery. These ears  
20 are bored parallel with the axial center of the hub, to receive the hook-end portion of the tedder-tooth. The opposite end of these hubs, from which the bored ears m rise, are provided with catch or hook ears n, projecting from  
25 its periphery radially between the bored ears m.

At o are represented portions of the tedder-teeth, one end of which is bent about at a right angle with the main portion of the tooth. This bent arm of the tooth is inserted in the  
30 hole formed in the arms m, and the tooth is then forced into the catch-hook on the arms n, in which position it will be securely held. These tedder-teeth o are produced in reverse curves of a proper form to engage the hay in  
35 their revolutions and deliver it rearward. These hubs, provided with their teeth, are placed upon the shaft G, at proper intervals, and are fixed in position thereon by means of the set-screw.

At K is represented a transverse bar, fixed at its ends to the shaft-supporting brackets.

At p are represented the side bars of a slotted shield or guard, having their end portion fixed to the transverse bar K, in such position thereon that the arms p of the guards  
45 will extend one on each side of each set of tedder-teeth, and under their shaft-support. The outer curved portion, s, of these slotted guards is produced from wire or round bar  
50 material, bent in proper loop form to span the tedder-teeth and engage the rear ends of the bars p, to which they are securely fixed. The rear portion of these wire-loop portions is curved upward, as shown, in such a manner  
55 as to discharge the hay lifted or thrown by the tedder-teeth in their revolutions rear-

ward, which action will prevent clogging the machine. In this instance these slotted guards are produced from two pieces; but they may readily be produced from a single piece, and, 60 if desired, they may be supported by suitable bearings depending from the shaft carrying the tedder-teeth.

At L is represented a portion of a rake-head produced from a suitable beam rectangular in 65 section, having its ends fitted with holes at t, designed to receive the bolts f, to connect it with the axle-tree B when the tedder is disconnected and removed from the carriage. This rake-head is provided, at proper inter- 70 vals, with rake-teeth u, of ordinary construction, fixed to the rake-head in any proper manner, preferably in the manner shown, in which the upper edge of the head is notched, to receive the coil of the tooth, to give firm- 75 ness to the tooth when its shank is fixed in the head.

From the construction and arrangement of the machine it will be seen that a movement of the lifting and holding lever in either di- 80 rection will operate to change the position of the tedder or rake teeth when the machine is employed in either capacity, which places them under the control of the driver, to hold or carry them in any position or at any ele- 85 vation within the limits of the devices.

I claim as my invention—

1. The herein-described tedder-tooth hub, provided with radial ears fitted to receive the bent shank ends of the tedder-teeth, and 90 catch-ears to engage and hold the teeth, in combination, with the teeth bent to enter the perforated ears and engage the catch-ears, substantially in the manner, and for the purpose set forth. 95

2. The combination, with the rotary tedder-teeth, of the slotted guards supported under the axial center of the rotary teeth, and having their rear ends curving upward, substan- 100 tially as and for the purpose set forth.

3. The combination, substantially as described, of the gear-toothed rim, a gear-toothed pinion loosely mounted on the shaft, of the tedder-teeth in position to engage the teeth of the gear-rim, a clutching mechanism of the 105 shaft and pinion, and a pivoted lever-spring detent to engage the opposite sides of the pinion, as and for the purpose set forth.

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