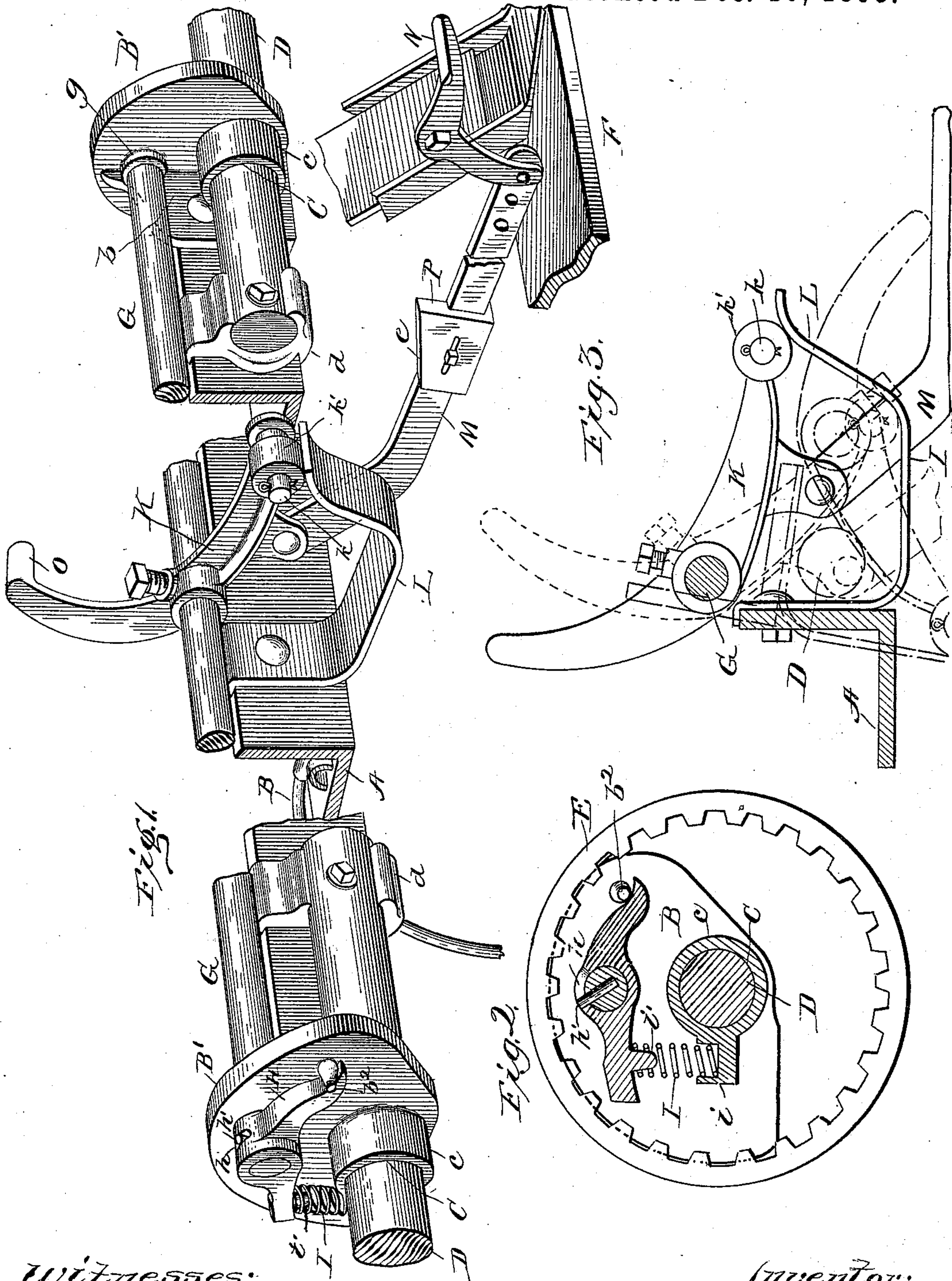


(No Model.)

D. MAXWELL, Sr.  
HORSE RAKE.

No. 551,039.

Patented Dec. 10, 1895.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## HORSE-RAKE.

SPECIFICATION forming part of Letters Patent No. 551,039, dated December 10, 1895.

Application filed August 24, 1895. Serial No. 560,423. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID MAXWELL, Sr., a subject of the Queen of Great Britain, residing at St. Mary's, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Horse-Rakes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in "draft-dumping" hay-rakes in which the spring raking-teeth are carried by a rocking or rolling support preferably journaled in the ground-wheels and having means whereby it may be connected with the wheels to rotate or turn a part of a rotation with said wheels and with means for automatically releasing said connection when the teeth have reached a suitable elevation, allowing them to return to normal or raking position.

The invention consists in certain novel details of construction and combinations and arrangements of parts relating more particularly to the mechanism for connecting and disconnecting the rocking support and ground-wheel, all as will be hereinafter described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a perspective view of the rocking support and its immediate connections with portions broken away and the ground-wheels removed. Fig. 2 is a detail section taken inside of one of the ground-wheels to show the pawling mechanism. Fig. 3 is a detail section showing the pawl-shaft-controlling mechanism.

Like letters of reference in the several figures indicate the same parts.

The rocking or rolling support in the present structure, which, it may be remarked incidentally, is intended to be used on what may be termed an "all-steel" rack, is preferably formed by an angle-iron A, to the horizontal flange of which the spring-teeth B are affixed in any suitable manner. At each end this angle-iron A is rigidly bolted to a head B by means of flanges b; in the angle of which the ends of the angle-iron seat. The

heads B' have apertures C therethrough, surrounded by collars c, for the reception of the short axles D of the ground-wheels, the inner ends of the axles being preferably held by small clips or castings d, secured to the upright flange of the angle-iron, as shown clearly in Fig. 1.

When the ground-wheels are mounted on the axles D, the parts just described constitute the rocking head, and to this head the shaft-frame and seat-support F may be connected in any ordinary and well-known manner, so as to leave the said rocking support or frame free for a partial rotation in unison with the ground-wheel.

The ground-wheels are provided with internally-toothed ratchet-boxes E, Fig. 2, which surround the heads B' and are adapted to be connected with said heads when desired by means of a pawling mechanism to be now described. The head B', in addition to the apertures for the reception of the axle, I provide with apertures or, more properly, bearings g for the reception of a through-shaft G, which extends entirely across the frame and through the heads, its ends being adapted to receive pawls H; but the connection between said pawls and the shaft is a loose one, formed by slots or enlarged openings h in the pawls, through which pins h' pass into the shaft, thus permitting the pawls to have a limited independent movement, but at the same time enabling the shaft to operate as a controlling-shaft for throwing the pawls out of engagement or allowing them to move into engagement with the internal teeth in the ratchet-boxes under the influence of their springs I. These springs I are held on the outer faces of the heads B, being preferably of convolute form, by means of small boxes i on the outer faces of the heads B, into which one end of the springs pass, and projections i' on the under faces of the pawls, around which the opposite ends of the springs pass.

The springs I, as just intimated, tend to normally hold the pawls in engagement with the teeth on the ratchet-boxes and thus lock the rocking support and ground-wheels for simultaneous rotation, and in order to prevent this the controlling-shaft is provided with a cross-head K, having a stud k on one



arm, preferably carrying an antifriction-roller  $k'$  and adapted to co-operate with a spring-retainer L, connected to the angle-iron A, and of such form as that the stud will put  
 5 said spring under tension when the controlling-shaft is rocked from one extreme to the opposite extreme of its independent movement, and thus the said spring tends and will hold said shaft in either of said posi-  
 10 tions. When the stud rests on the outer end of the spring, as shown in Fig. 3 in full lines, the springs I will be held under compression and the pawls consequently out of engage-  
 15 ments and with their ends pressed against stops or lugs  $b^2$  on the heads  $B'$ ; but when the stud is moved back the springs I assert themselves and the pawls are thrown out into en-  
 20 gagement with the ground-wheels, there being sufficient independent movement in the pawls to insure the proper engagement of both without danger of one being held out of engagement by the other striking the point of a tooth.

To control the cross-head and controlling-shaft, the operating-link M is pivotally con-  
 25 nected to the cross-head at one end and at the opposite end to one arm of a bell-crank or other suitable form of lever N, preferably pivoted to the seat-standard in position to be  
 30 moved by the driver's foot. Thus when the driver presses on the lever the lower arm of the cross-head will be moved back, the pawls thrown into engagement, and the rocking support, locking with the ground-wheels,  
 35 will be rotated therewith until the projection O on the cross-head strikes the link M, holding the controlling-shaft stationary and throwing the pawls out of engagement. At the same time the spring-retainer on the  
 40 rocking support is moved to hold the pawls retracted and allow the parts to drop back into normal or raking position. The projection O preferably constitutes the opposite arm of the cross-head, and, if desired,  
 45 the height to which the teeth shall be raised or the movement of the rocking support may be regulated by mounting an adjustable stop, such as P, on the operating-link in position for the projection O to engage therewith.  
 50 Thus by adjusting the stop longitudinally of the link the projection O is caused to engage at different points on the inclined surface  $e$ , and therefore arrest the rotation at different points.

Having thus described my invention, what I claim as new is—

1. In a draft dumping rake, the combination with the rocking tooth support, ground wheels and an integral controlling shaft journaled in the rocking support having pawls  
 60 loosely mounted on it at opposite ends for locking said support and ground wheels for simultaneous rotation, a cross head connected with the controlling shaft, a spring retainer on the rocking tooth support cooperating with  
 65 the cross-head to hold the shaft in its adjusted position, a stop for automatically rotating the shaft in one direction and means for manually rotating it in the opposite direction; substantially as described. 70

2. In a draft dump horse hay rake, the combination with the rocking tooth support, ground wheels and integral pawl controlling shaft extending way across the rocking support, of the spring pressed pawls journaled  
 75 on opposite ends of the shaft to have a limited independent movement, a cross head on the shaft at an intermediate point, a spring retainer on the rocking support for holding the shaft with the pawls retracted and an oper-  
 80 ating link located in the path traversed by and cooperating with the cross head when the support is locked with the wheels to release the pawls and allow the support to resume position; substantially as described. 85

3. In a draft dump horse hay rake, the combination with the rocking tooth support, ground wheels having internally toothed pawl boxes, and pawl controlling shaft journaled  
 90 in the rocking support and extending way across the same, of the pawls journaled on opposite ends of the shaft to have a limited independent movement, springs independent of the shaft for holding the pawls in position,  
 95 stops for limiting the movement of the pawls, a cross head mounted on the shaft at an intermediate point, an operating link pivotally connected with one arm of the cross head and lying in the path of movement of the other  
 100 arm whereby the shaft may be manually rotated in one direction and automatically rotated in the opposite direction, and a retainer for holding the shaft with the pawls in adjusted position; substantially as described.

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Witnesses:

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