

(No Model.)

2 Sheets—Sheet 1.

J. M. W. LONG.
HAY RAKE.

No. 550,722.

Patented Dec. 3, 1895.

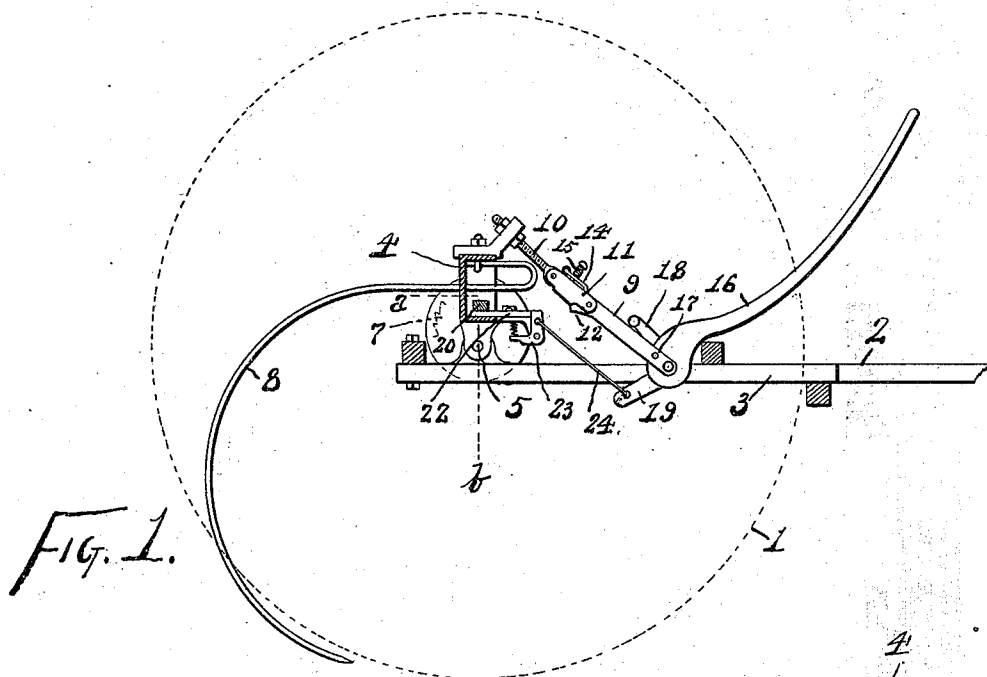


Fig. 1.

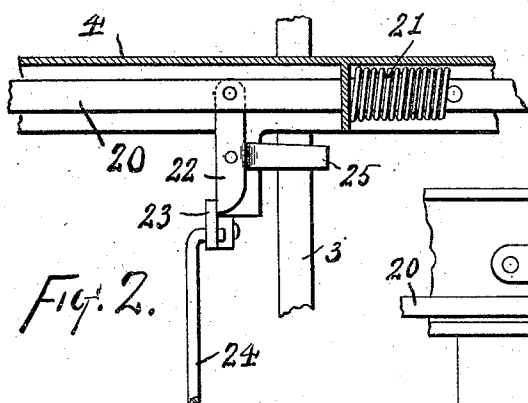


Fig. 2.

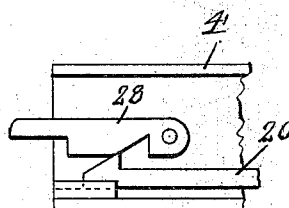


Fig. 4.

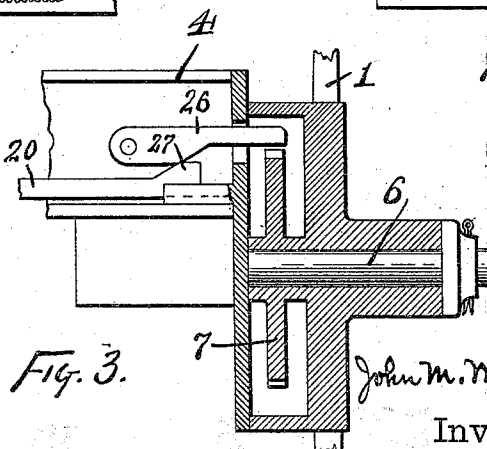


Fig. 3.

Witnesses:

E. Shipley,
G. L. Lee.

Inventor

John M. W. Long
by James W. See
Attorney

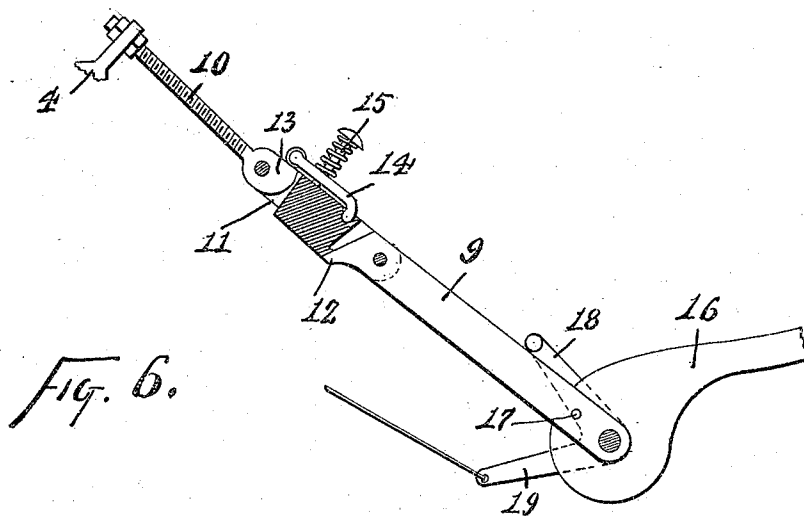
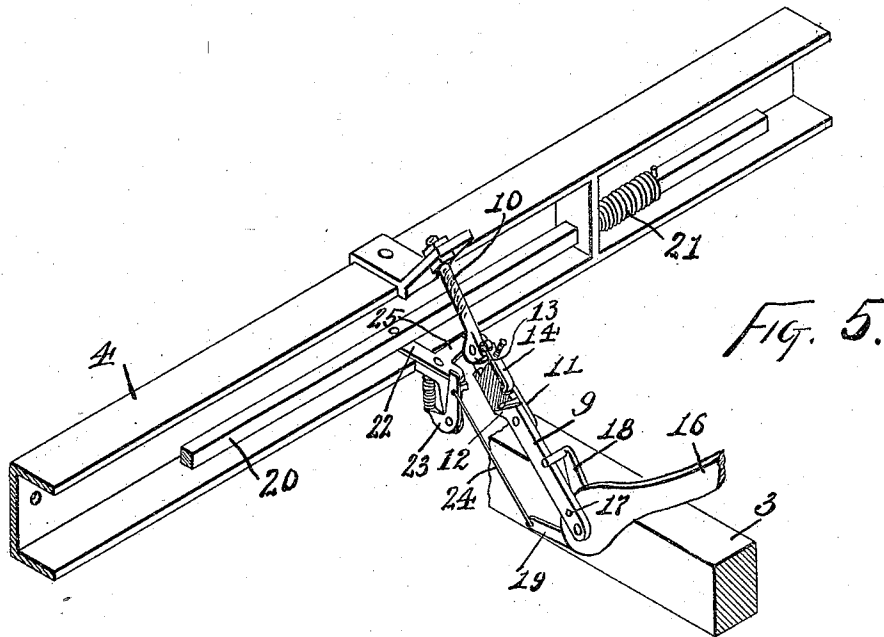
(No Model.)

2 Sheets—Sheet 2.

J. M. W. LONG.
HAY RAKE.

No. 550,722.

Patented Dec. 3, 1895.



Witnesses:
E. R. Shipley
G. F. Lee

John M. W. Long Inventor
by *James W. See* Attorney

UNITED STATES PATENT OFFICE.

JOHN M. W. LONG, OF HAMILTON, OHIO, ASSIGNOR TO THE LONG & ALLSTATTER COMPANY, OF SAME PLACE.

HAY-RAKE.

SPECIFICATION forming part of Letters Patent No. 550,722, dated December 3, 1895.

Application filed June 29, 1895. Serial No. 554,452. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. W. LONG, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Horse-Rakes, of which the following is a specification.

This invention pertains to improvements in the mechanism of self-dumping horse hay-rakes; and the improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical transverse section of a rake embodying my invention; Fig. 2, a horizontal section of the central portion of the rake-head in the plane of line *a* of Fig. 1; Fig. 3, a vertical diametrical section through one of the wheel-hubs and its axle attachment to the end of the rake-head, this view pertaining to the left-hand wheel of the rake; Fig. 4, a front elevation of the clutch-pawl pertaining to the right-hand wheel of the rake; Fig. 5, a perspective view at the central portion of the rake-head; and Fig. 6, a side elevation of the locking-toggle, one side of link 11 being removed.

Parts not shown or described may be of any suitable construction usual in this class of implements.

In the drawings, 1 indicates the usual wheels; 2, the usual shaft-frame; 3, the usual center bar forming part of the shaft-frame and extending fore and aft; 4, the rake-head in the form of a metallic channel-bar open at its front; 5, the usual hinges uniting the shaft-frame articulately to the channel-bar; 6, the usual stub-axles secured to the ends of the rake-head and having the wheels loose upon them, these stub-axles forming the axis upon which the rake-head turns in the act of dumping; 7, a ratchet-wheel, one on each of the rake-wheels, the teeth of these ratchet-wheels facing forwardly at the top; 8, the rake-teeth, secured, as usual, to the rake-head, these teeth being omitted from all but Fig. 1; 9, a link with its lower forward end pivoted to the shaft-frame, its rear end projecting rearwardly and upwardly; 10, a shank secured to the rake-head and presenting its forward end toward link 9; 11, a link with its rear end pivoted to shank 10 and with its front end piv-

oted to link 9, links 9 and 11 together forming a toggle capable of flexure downwardly when the rake is to dump; 12, a stop on link 9, engaging a part of link 11 and serving to limit the upward flexure of the toggle to a position with the three toggle-pivots in line or with the central toggle-pivot slightly above the common line of pivots, as is usual in rakes provided with toggles; 13, a short lever or toe projecting from shank 10 inwardly beyond the pivot uniting that shank to link 11; 14, a bar with its heel having a pivot bearing in the top of link 11, the head of the bar being armed with a roller resting upon toe 13; 15, a spring urging bar 14 toward link 11, and therefore urging the roller of the bar into engagement with toe 13; 16, the usual dumping hand-lever pivoted on the lower toggle-pivot, this lever to be within reach of the driver, it being understood that the implement will have the usual driver's seat; 17, coinciding pin-holes through link 9 and lever 16, in which a pin may be inserted to lock hand-lever 16 to link 9, lever 16 being entirely inert in the absence of such pin; 18, a foot-lever pivoted to the lower pivot of the toggle, its foot-pad lying over link 9; 19, an arm from lever 18 below link 9; 20, a clutch-rod disposed in the channel of the rake-head and adapted for slight endwise motion in guides therein; 21, a spring urging this clutch-rod toward the left of the implement and serving to move the rod to clutching position when the spring is allowed to act; 22, a lever with its center pivoted to the rake-head and with its rear end connected with clutch-bar 20; 23, a spring-trigger lever pivoted to the rake-head and held by its spring in a position engaging the forward end of lever 22 and preventing the rocking of lever 22 under the influence of spring 21 on the clutch-rod; 24, a link connecting trigger-lever 23 with arm 19 of the foot-lever; 25, an arm projecting from lever 22 in a position to strike frame-bar 3 when the rake-head has rocked entirely forward in its dumping motion; 26, a dog pivoted at the left end of the rake-head, its outer end projecting over the periphery of ratchet-wheel 7 of the left-hand rake-wheel and adapted to engage that ratchet-wheel if the dog is allowed to drop; 27, an incline at the left-hand

end of clutch-rod 20, engaging under dog 26 and holding that dog in raised non-engaging position when clutch-rod 20 occupies its normal position as restrained by trigger 23, and 28 a similarly-acting dog at the right-hand end of the rake-head, the clutch-rod similarly engaging this dog by an incline, the direction of incline, however, being the reverse of that at dog 26, so that the endwise movement of the clutch-rod will raise or lower both dogs simultaneously.

Referring to Fig. 1 and assuming a pin in holes 17, it is obvious that the toggle forms a lock holding the rake-head in normal raking position and that if lever 16 be drawn backward the toggle will be flexed and the rake-head turned forward and the dumping movement produced. This is the action as a hand-dumper. When used as a self-dumper, the pin is removed from holes 17, so that lever 16 need not oscillate during the dumping operation.

It is obvious that the rake cannot dump until the toggle is unlocked by being given a preliminary downward flexure. When the rake is to be dumped, then the driver presses foot-lever 18, which depresses the toggle and releases the lock formed by the toggle and will permit the rake-head to be rocked to do the dumping if power be in some manner applied to rock the rake-head forward.

Dogs 26 and 28 are normally free of the ratchet-wheels 7 on the rake-wheels, the dogs being held in that idle position by the inclines on clutch-bar 20, which is held in idle position by trigger 23 engaging lever 22. When the driver presses foot-lever 18 to unlock the toggle, the action simultaneously, through arm 19 and rod 24, pulls trigger 23 from engagement with lever 22. The clutch-rod is now released, and spring 21 urges it endwise and permits the dogs to drop to the ratchet-wheels. The rake-head thus becomes locked to the ratchet-wheels, and as a consequence the rake-head rocks forward and the load is dumped.

As the rake-head rocks forward, the arm 25 on lever 22 comes down in contact with frame-bar 3, the result being to shift clutch-rod 20 endwise and press spring 21 and disengage the dogs from the ratchet-wheels of the rake-wheels, trigger 23 at once going into engaging position and holding the clutch-rod. The rake-head having been thus released from the ratchet-wheels it rocks back to normal position by the weight of the rake-teeth leaving the parts in original condition. As the rake-head rocked forward in dumping the toggle flexed downwardly to permit of the motion, and as the rake-head goes back again to raking position the toggle straightens up again; but the weight of the toggle will prevent its going to the straight or locking position by the mere action of the rake-head. The purpose of bar 14 is to insure the toggle going to locking position.

Looking at Fig. 6, it will be obvious that if we depress the central pivot of the toggle such depression will be resisted by toe 13, engaged by the roller on the upper end of bar 14, and before the toggle can be depressed this roller must yield to pass over the toe 13. Spring 15 permits this yielding and becomes practically inert as a resistance as soon as the roller shall have passed the extremity of the toe. Conversely, when the toggle is being straightened by the action of the rake-head and the roller gets beyond the extremity of the toe then spring 15 will urge the toggle to straight position.

I claim as my invention—

1. In a horse rake, the combination, substantially as set forth, with the locking toggle of the rake, of a lever or toe at one of the toggle pivots, a pivoted bar engaging such toe and serving to hold the toggle in straight condition, and a spring yieldingly holding said bar in engagement with said toe.

2. In a horse rake, the combination, substantially as set forth, of a rake-head, rake wheels loose thereon and provided with ratchet wheels, dogs pivoted at the ends of the rake-head and adapted to engage the ratchet wheels, a clutch rod engaged to slide in the rake-head and having inclines engaging said dogs, a spring urging said clutch rod to position to permit the dogs to engage the ratchet wheels, a trigger arranged to restrain the action of said spring, a lock to maintain the rake-head in raking position, and a lever connected with said lock and trigger.

3. In a horse rake, the combination, substantially as set forth, with the rake-head and rake wheels and clutch mechanism at the wheels, of a clutch rod mounted for movement on the rake-head, a spring urging the clutch rod to clutching position, a lever pivoted to the rake-head, a spring trigger engaging said lever and holding the rod to unclutching position, a locking toggle to hold the rake-head in raking position, and a foot lever linked to said trigger and engaging over the toggle.

4. In a horse rake, the combination, substantially as set forth, with the rake-head rake wheels and clutching mechanism at the wheels, of a clutch rod mounted for movement on the rake-head, a spring urging the clutch rod to clutching position, a lever connected with the clutch rod and having an arm adapted to engage the frame of the rake at the completion of the dumping stroke, a spring trigger engaging said lever and holding the rod in nonclutching position, a locking toggle, and a foot lever engaging said toggle and linked to said trigger.

JOHN M. W. LONG.

Witnesses:

J. W. SEE,
LUM D. FITTON, Jr.