

C. PEARSON.
MOWING MACHINE.

APPLICATION FILED SEPT. 25, 1913.

Patented Aug. 21, 1917.

3 SHEETS—SHEET 1.

1,237,689.

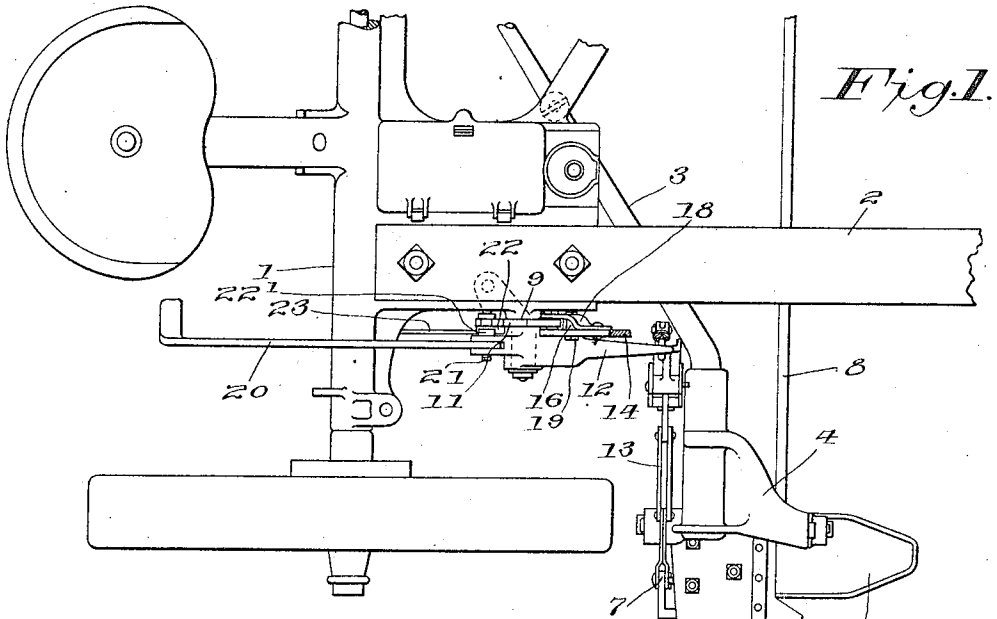
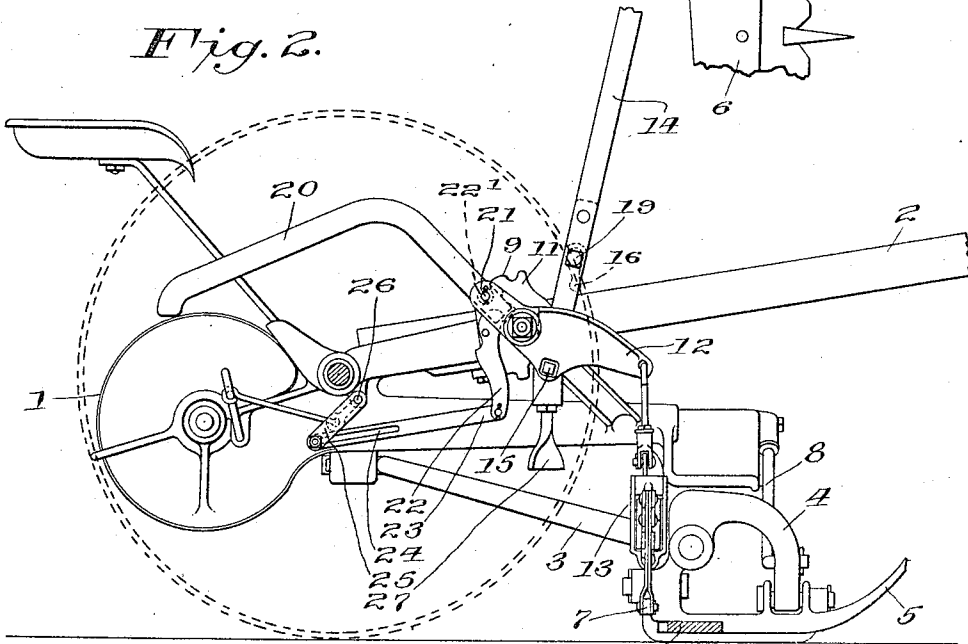


Fig. 2.



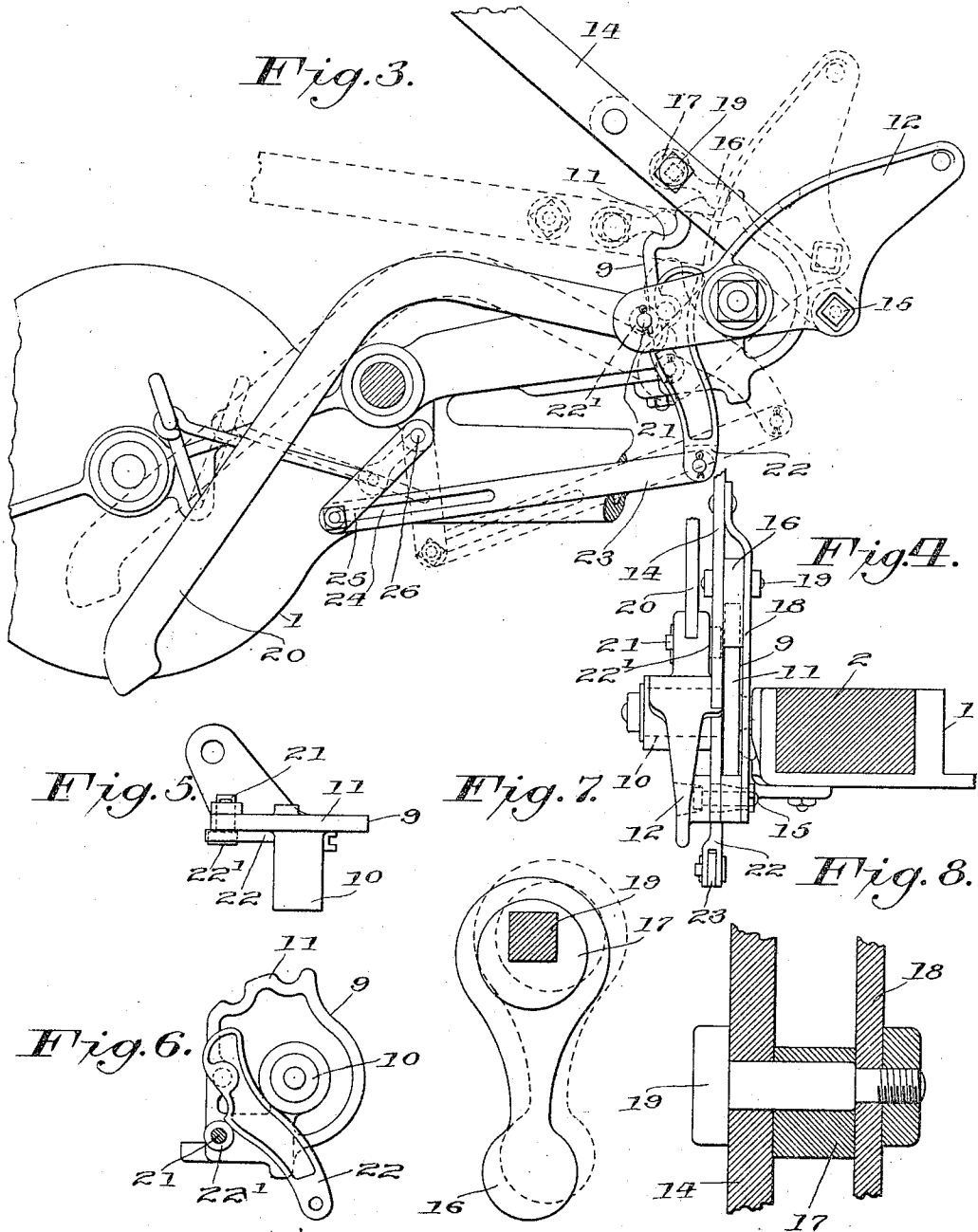
Witnesses:
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E. W. Burgess

Inventor:
Charles Pearson,
By Chas. E. Lord
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3 SHEETS—SHEET 3.

Fig. 9.

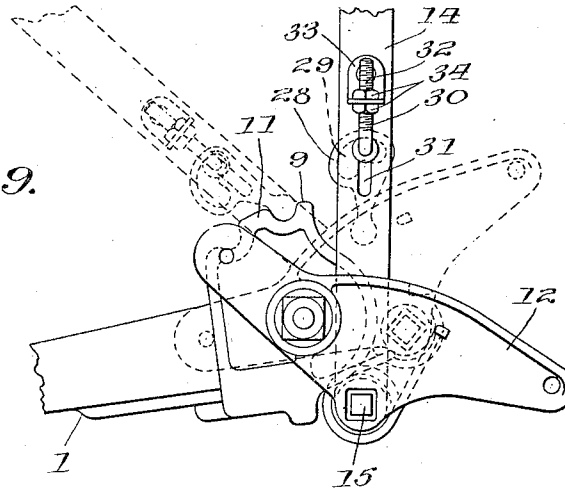


Fig. 10.

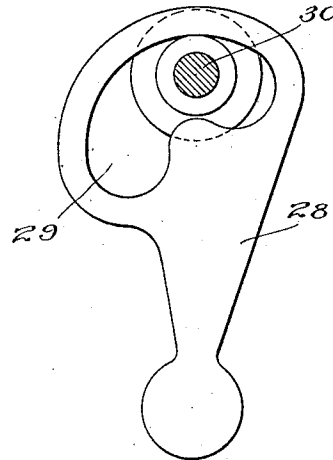
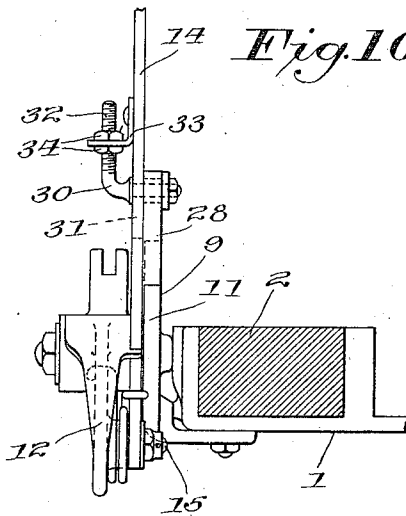


Fig. 11.

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UNITED STATES PATENT OFFICE.

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MOWING-MACHINE.

1,237,689.

Specification of Letters Patent.

Patented Aug. 21, 1917.

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To all whom it may concern:

Be it known that I, CHARLES PEARSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mowing-Machines, of which the following is a full, clear, and exact specification.

My invention relates to mowing machines, and in particular to the lifting lever mechanism whereby the operator may raise the finger bar to a vertical position, the associated parts of the mechanism being operative in a manner to insure efficiency and durability.

The object of my invention is to provide an improved semi-automatic lifting lever mechanism whereby the ordinary spring detent mechanism, which it is necessary for the operator to release each time he moves the finger bar, may be eliminated. A further object of my invention is to provide improved semi-automatic lifting lever mechanism in which the parts are securely held in each position of adjustment without making it necessary for the operator to actuate the detent mechanism, this improved mechanism being simple in its construction, having few parts, and positive and safe in operation. These and other objects of my invention will hereinafter appear.

I attain these objects by means of mechanism, two embodiments of which are illustrated in the accompanying drawings.

In these drawings:—

Figure 1 is a top plan view of part of a mowing machine having my invention forming a part thereof;

Fig. 2 is a side elevation of Fig. 1;

Fig. 3 is a view similar to Fig. 2, upon an enlarged scale, and showing the finger bar controlling mechanism in various positions of adjustment;

Fig. 4 is a detail view in front elevation of parts of the finger bar lifting mechanism;

Fig. 5 is a plan view of detached parts of the lifting mechanism;

Fig. 6 is a side elevation of Fig. 5;

Fig. 7 is a plan view on an enlarged scale of a pawl forming part of the lifting mechanism, showing the same in a different position of adjustment from that shown in Fig. 3;

Fig. 8 is a cross section of the lifting lever

and designed to show the manner of mounting the pawl;

Fig. 9 is a side elevation of part of the lifting lever mechanism, showing a modified form of the locking pawl;

Fig. 10 is a front elevation of Fig. 9; and

Fig. 11 is a side elevation upon an enlarged scale of the modified form of locking pawl, designed to illustrate the manner in which it is mounted.

The same reference characters designate like parts throughout the several views.

1 represents part of the main frame of a mower, 2 the draft tongue, 3 the coupling bar, 4 the coupling yoke journaled upon the coupling bar, 5 the inner shoe hingedly connected with the yoke member and having secured thereto the finger bar 6, the shoe being provided with a vertically disposed lever arm 7, and 8 represents a supplemental coupling bar having the stubbleward end thereof pivotally connected with the main frame and its opposite end with the yoke member 4. 9 represents a bracket member secured to the main frame and having a laterally projecting bearing member 10 and a toothed sector 11 integral therewith. 12 represents a lifting arm journaled upon the bearing member 10, the front side of said arm being connected with the lever arm 7 upon the shoe 5 by a common form of link mechanism 13. 14 represents a hand lever secured to the lifting arm 12 by means of a bolt 15 eccentric to the axis of the lifting arm, the lever being permitted a limited rotary movement independent of the arm in opposite directions. 16 represents a preferred form of gravity pawl member that is freely rotatable upon an angularly adjustable eccentric bearing block 17 that is secured between the hand lever 14 and a strap member 18 by means of a bolt 19 of rectangular cross section seated in said members. As shown, one end of the strap 18 is secured to the hand lever adjacent said sector and its opposite end to the lifting arm 12 by means of the bolt 15. The pawl 16 engages with the toothed sector 11 when the lever 14 is moved rearward to raise the cutting apparatus, and it is so adjusted by means of the eccentric bearing block 17 that it will sustain the weight of the cutting apparatus; but when the operator moves the lever forward to lower the cutting apparatus, it will turn

about its axis and be released from the sector. It is also to be noted that, although the location of the axis of the arm 12 relative to the axis of the pawl 16, and the line through the point of engagement of the pawl with the sector is such as to securely lock the pawl against any force that may be applied to the arm when the cutting apparatus is in a raised position, since the axis of the hand lever 14 relative to that of the pawl, and the point of its engagement with the sector is nearly in the same line, a little force applied to the hand lever in a forward direction will easily raise the arm 12 slightly and thereby release the pawl and permit the arm 12 to turn downward about its axis. 28 represents a modified form of locking pawl provided with a cam slot 29 at the head thereof that receives a stud member 30 that is received by a longitudinally arranged slot 31 in the hand lever 14. The stud member 30 is provided with a laterally turned threaded portion 32 disposed parallel with the hand lever and received by an opening in a bracket member 33 secured to the hand lever 14, and 34 represents adjusting nuts whereby the stud member 30 may be adjusted along the slot 31 in a manner to control the operative position of the pawl 28 relative to the toothed sector 11.

20 represents a foot lever having its front end connected with the rear end of the lifting arm 12 by means of the pin 21 in a manner permitting the lever to have a limited swinging movement upward relative to the lifting arm. 22 represents a cam-shaped lever pivotally mounted upon the sector 11 and adapted to swing in a vertical plane, the lower end being pivotally connected with the front end of a link 23, the rear end of the link being provided with a longitudinally disposed slot 24 whereby said link is slidably connected with an arm 25 secured to the clutch tripping rock shaft 26, the shaft 26 being operatively connected with the clutch mechanism (inclosed in the frame 1) in any preferred manner. 27 represents a depending stop member secured to the main frame of the machine and adapted to contact with the coupling bar 3 when said bar has been raised to a predetermined height. The pin 21 is provided with a roller 22' which, when the lever 14 is moved rearward from the full line position shown in Fig. 3 and before it reaches the dotted line position shown in that figure, engages with the cam lever 22 in a manner to swing it about its axis in a direction to disengage the clutch mechanism when the hand lever has reached a predetermined limit of its rearward movement in raising the finger bar; but when the hand lever is moved forward to permit the finger bar to swing outward and downward to an operative position, the roller 22' on the pin 21

will engage with the cam lever 22 above its axis and swing said lever in a direction to permit the clutch mechanism to become operative as a driving element in transmitting motion to the cutting apparatus when the finger bar has reached a predetermined angle of inclination in a downward direction.

It is to be noted that in both forms of the construction shown herein, means are provided for adjusting the operative position of the pawl so that the lifting effect of the mechanism upon the bar may be regulated and its wear may be taken up. In the form of my invention shown in Fig. 3, I accomplish this by adjusting the adjustable eccentric 17 angularly with respect to the angular bolt 19, four positions of adjustment being obtainable, another position of adjustment of this eccentric being shown in Fig. 7. In the form of my invention shown in Fig. 9, I obtain this same adjustment by adjusting the threaded connection 32, 34.

From the foregoing it is seen that the construction, operation and advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportions and minor details of construction may be resorted to without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is:

1. In combination, lever mechanism including a lever movable about its pivot but held against longitudinal displacement relative to its pivot, a sector, and a depending swinging pawl pivoted on said lever and engaging said sector, said pawl being releasable therefrom upon movement of said lever in opposite directions about its pivot.

2. In combination, a frame, an adjustable lever pivoted thereon, a sector carried on said frame, and eccentrically mounted pawl mechanism carried by said lever and engaging said sector releasable therefrom upon movement of said lever about its pivot.

3. In combination, a frame, an arm pivoted thereon, a lever pivoted to said arm, a sector on said frame, and pawl mechanism between said sector and lever releasable upon movement of said lever in opposite directions and normally locking said arm against movement in one direction.

4. In combination, a frame, an arm pivoted thereon, a lever operatively connected to said arm and held against longitudinal displacement relative to its pivot, a sector on said frame, and an automatically locking and unlocking connection controlled by said lever and between the same and said sector sustaining said arm in a predetermined position.

5. In combination, a frame, a lifting arm

pivoted thereon, a lifting lever pivoted on said arm in front of the pivot of said arm on the frame, and means engageable with said lever and limiting the movement thereof whereby upon movement of said lever said arm is raised.

6. In combination, a frame, a lifting arm pivoted thereon, a lifting lever pivoted to said arm, a notched sector carried on said frame, and means including a pawl pivoted on said lever and received in a notch in said sector whereby upon movement of said lever said arm is raised.

7. In combination, a frame, a lifting arm pivoted thereon, a lifting lever pivoted on said arm, a notched sector on said frame, a pawl pivoted on said lever engageable with said sector, and means whereby upon movement of said lever in either direction said arm is raised.

8. In combination, a frame, a lifting arm pivoted thereon and projecting forward from its pivot, a lifting lever pivoted on said arm at a point below and in front of the pivot of said arm, a sector carried on said frame and extending above the pivot of said lifting arm, and a pawl carried on said lever above its pivot and engaging with said sector.

9. In combination, a frame, a lifting arm pivoted thereon and projecting forward from its pivot, a lifting lever pivoted on said arm at a point below and in front of the pivot of said arm, a sector carried on said frame and extending above the pivot of said lifting arm, a pawl carried on said lever above its pivot and engaging with said sector, and means for varying the operative position of said pawl.

10. A mowing machine including, in combination, a mower frame, a rising and falling coupling frame operatively connected thereto, a finger bar hinged to said coupling frame, means for swinging said bar to a substantially vertical position comprising a hand lever operatively connected to said coupling frame and bar, a notched sector, and means including a pawl pivotally mounted upon said lever and engageable with said sector for sustaining the weight of said coupling frame and said finger bar, and operative connections between said lever and said mower frame whereby said pawl is released from said sector and turned on its axis when said lever is moved in a direction to lower said coupling frame and finger bar.

11. A mowing machine including, in combination, a mower frame, a rising and falling coupling frame operatively connected thereto, a finger bar hinged to said coupling frame, means for swinging said bar to a substantially vertical position comprising a hand lever operatively connected to said coupling frame and finger bar, a notched

sector, and means including a pawl pivotally mounted upon said lever and engageable with said sector for sustaining the weight of said coupling frame and said finger bar, and operative connections between said lever and said mower frame whereby said pawl is turned axially when said lever is moved in a direction to lower the finger bar and coupling frame.

12. In combination, a frame, a lifting arm pivoted thereon and adjustable in a plurality of positions with respect thereto, a lifting lever pivoted to said arm, a sector carried on said frame, a pawl pivotally connected to said lever engageable with said sector for retaining said arm in its different positions of adjustment, and adjustable operative connections between said pawl and said lever whereby the positions of adjustment of said arm may be varied.

13. A mowing machine including, in combination, a rising and falling coupling frame, a finger bar hinged thereto, means for swinging said bar to a substantially vertical position comprising a hand lever, a notched sector, and means including a pawl pivotally mounted upon said lever and engageable with said sector for sustaining the weight of said coupling frame and said finger bar, and means for adjusting the axis of said pawl relative to the axis of said lever.

14. A mowing machine including, in combination, a rising and falling coupling frame, a finger bar hinged thereto, means for swinging said bar to a substantially vertical position comprising a hand lever operatively connected to said coupling frame and finger bar, a notched sector, and a pawl pivotally mounted upon said lever and engageable with said sector to sustain the weight of said coupling frame and said finger bar, and means for adjusting the axis of said pawl relative to the axis of said lever, said means comprising an eccentric bearing member having said pawl journaled thereon.

15. A mowing machine including, in combination, a rising and falling coupling frame, a finger bar hinged thereto, means for swinging said bar to a substantially vertical position comprising a pivoted lifting arm, a notched sector concentric with the axis of said arm, a hand lever pivoted upon said arm eccentric to its axis, and means including a pawl pivotally carried by said lever and engaging said sector, for locking said coupling frame in a raised position and automatically releasing the same when the hand lever is moved in a direction to lower said finger bar.

16. A lifting lever mechanism having, in combination, a pivoted arm having means whereby it may be connected with the weight to be raised or lowered, a lever pivotally connected with said arm, a toothed sector

concentric with the axis of said arm, a pawl pivotally carried by said lever and engageable with said sector to sustain a weight, the axis of the second lever being eccentric with
 5 the axis of said arm whereby said pawl is automatically releasable by a movement of said second lever in a direction to lower the weight.

17. In combination, a main frame, a secondary frame, a lever for raising and lowering said secondary frame, and means provided with and including a plurality of pivots for connecting said lever to said
 10 main frame, said pivots being so located with relation to each other and to the main and secondary frames that the secondary frame must first be raised before the same can be lowered.

18. In combination, a mower frame, a rising and falling coupling frame, a lever for raising the latter, and means cooperating with said lever and operatively connected to said mower frame and utilizing the weight
 20 of said coupling frame for locking the same in raised position, said means being releasable from locked position upon movement of said lever in either direction.

19. In combination, a mower frame, a rising and falling coupling frame, a lever for raising and lowering said coupling frame, means cooperating with said lever and
 30 mower frame for sustaining the weight of said coupling frame and for locking said lever against movement in a certain direction, and operative connections between said

lever and said mower frame whereby movement of said lever in said direction after the same has been locked will lift said coupling frame and release said locking means.

20. In combination, a mower frame, a sector secured thereto, a rising and falling coupling frame, a lever for raising and lowering said coupling frame, a pawl operatively connected to said lever and cooperating with said sector to sustain the weight of
 45 said coupling frame and lock the lever against movement in one direction, and operative connections between said lever and said mower frame whereby movement of said lever in said direction will lift said coupling frame and release said pawl.

21. In combination, a mower frame, a rising and falling coupling frame, a sector on said mower frame, means cooperating with said sector and including a lever and
 55 pawl for raising said coupling frame and sustaining the weight thereon, the weight of said coupling frame locking said lever and pawl in position, and operative connections between said lever and said mower frame
 60 whereby the movement of said lever in either direction after the pawl is locked will lift said coupling frame and release said pawl.

In testimony whereof I affix my signature, 65
 in the presence of two witnesses.

CHARLES PEARSON.

Witnesses:

RAY PATTISON,
 R. N. MARTIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
 Washington, D. C."