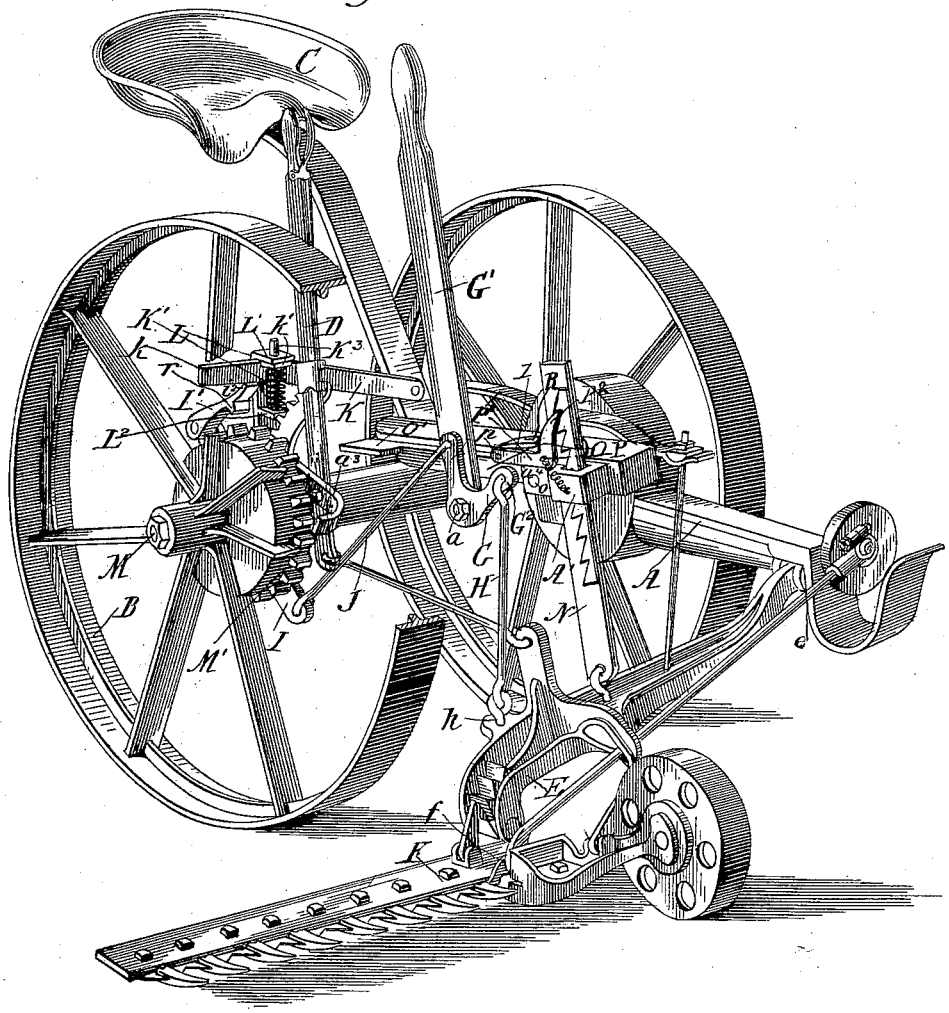
(No Model.) 2 Sheets—Sheet 1.

J. GILCHREST.

MOWING MACHINE.

No. 347,481. Patented Aug. 17, 1886.

Fig. 1



Witnesses:
Frank L. Blanchard
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Inventor
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Our Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

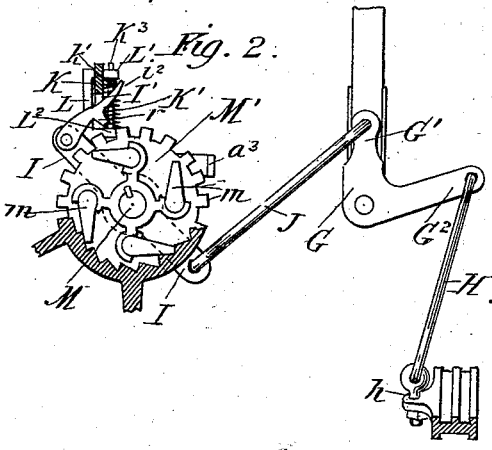


Fig. 3.

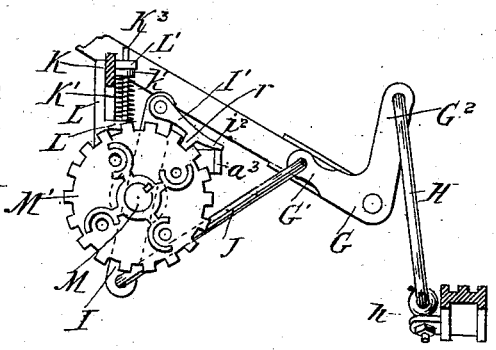


Fig. 5.

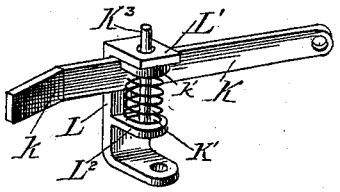


Fig. 4.

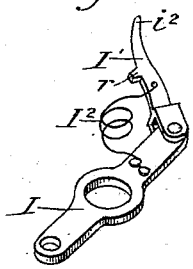


Fig. 6.

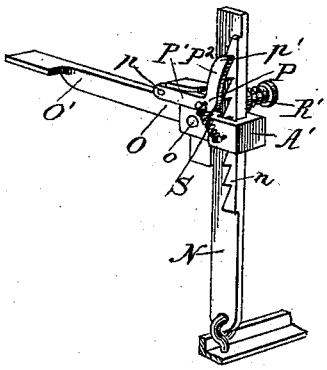


Fig. 7.

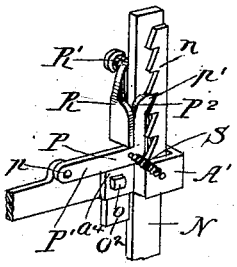
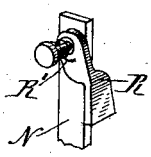


Fig. 8.

Fig. 9.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES GILCHREST, OF CHICAGO, ILLINOIS.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 347,481, dated August 17, 1886.

Application filed September 18, 1885. Serial No. 177,424. (No model.)

To all whom it may concern:

Be it known that I, JAMES GILCHREST, 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, which are fully and particularly described in the following specification.

This invention relates to the raising and lowering devices of a mower. Its purpose is to provide mechanism whereby the driving-power may be employed at will to raise the cutter-mechanism frame.

In the drawings, Figure 1 is a perspective view of a mower from the outer front corner, showing my improvements attached. Fig. 2 is a detail elevation of a wheel on the driving-axle and levers for connecting it with the cutter-mechanism frame, the same being shown out of engagement, as when the cutter-mechanism frame is down. Fig. 3 is a detail elevation of the same parts with the wheel and lever engaged, as when the cutter-mechanism frame is being raised. Fig. 4 is a detail perspective of the dog by which the wheel is engaged with the lever and of said lever. Fig. 5 is a detail perspective of the foot-lever by which the dog is forced into engagement with the wheel, and of the bracket on the frame by which the lever is guided. Fig. 6 is a perspective from the front inner corner of the machine of the foot-lever and its connections with the cutter-mechanism frame, by which the latter is lowered and locked at all positions, the position illustrated being with the cutter-mechanism frame down. Fig. 7 is a perspective of the locking and unlocking devices, the position being as when the cutter-bar is locked at the highest position. Fig. 8 is a detail plan of a clasp-bracket to which the foot-lever by which the lowering is effected is pivoted. Fig. 9 is a perspective of the locking-latch and its pivot.

A is the main frame.

B is the inner drive-wheel.

C it the driver's seat.

D is the tilting lever.

E is the cutter-mechanism frame, hinged to the main frame at *e*.

F is the finger-bar, hinged to the cutter-mechanism frame at *f*.

G is a bell-crank lever, pivoted to the main frame at *a*, and having the handle G′ extended up within reach of the driver's seat. The arm G^2 of the lever G is connected by the link H to the cutter-mechanism frame at *h*.

M is the driving-axle.

M′ is a notched disk or spur-wheel, rigid with the axle. It may be the same wheel which carries the clutch-pawls *m*, whereby in a familiar manner the drive-wheel B communicates motion to the axle, and I have so illustrated it; but I do not confine myself to using the same wheel for both purposes.

I is a lever having its fulcrum most conveniently on the hub of the wheel M′, though it may instead be on the journal-box of the axle M or on the axle itself. It is located close by the side of the wheel M′, and has pivoted to one end the dog I′, overhanging the notched rim of the wheel M′, and provided with the tooth *i*, adapted to engage in the notches of the wheel M′ and with the light spring I^2, tending to throw it out of such engagement. The other end of said lever I is connected by the link J with the arm G′ of the bell-crank lever G.

K is a lever pivoted at any convenient point on the main frame, preferably in front of the seat, and extending across toward the wheel B, passing between the stop L′ and L^2 of the bracket L, which is secured to the frame A, over the axle-bearing and inside the lever I. Beyond said bracket the end *k* of the lever K overhangs the dog I′, and it has the lug *k*′, extending under the stop L′ of the bracket L, and between said lug and the lower stop, L^2, there is placed the spring K′, tending to hold the lever against the upper stop, L′. A guide-stud, K^3, may be secured in the lug L′, and extended up through the spiral spring K′ and through holes bored through the lug *k*′ and the stop L′. The nose i^2 of the dog I′ is elongated and curved upward, and to the main frame is fastened the spur or bracket a^3, to act as a cam to disengage said dog, as hereinafter explained.

When it is desired to raised the cutter-mechanism frame while the mower is running, my improvements will be brought into use. The driver will depress with his foot the lever K, whose end *k*, acting upon the nose i^2 of the dog I′, depresses it until its tooth *i* enters a notch of the notched wheel M′, which is revolving

with the axle and now carries with it the dog I′, and rocks the lever I on its fulcrum, and causes its lower arm to recede, and, by means of the link J, to rock the bell-crank lever G on its pivot, so that its arm G^2 rises, and, by means of the link H, draws up the cutter-mechanism frame E and the finger-bar F. All this is accomplished while the wheel M′ is revolving from the position shown in Fig. 2 to that shown in Fig. 3. At the latter position the nose i^2 of the dog I encounters the cam a^3, and as it continues to revolve the tooth i is, by said switch, forced out of engagement with the notched wheel M, and the lever I is positively stopped by the said tooth coming into contact with said cam. The spring I^2, while strong enough to retain the pawl I′ out of engagement with the notched wheel M′, is not strong enough to disengage it, if once engaged in one of the notches, so long as the wheel is revolving; but the tooth of said dog will be kept in engagement by the friction of the tooth against the side of the notch until forced out by the cam a^3, as described.

I will now describe the mechanism for locking the cutter-mechanism frame in the position to which it may be lifted, and for lowering it and sustaining it at intermediate positions.

At the forward of the main frame, as nearly as possible directly above the cutter-mechanism frame E, there is secured to or formed integrally with the main frame the clasp-bracket A′, through which passes the link-bar N, which is connected at its lower end to the cutter-mechanism frame E. Behind the link-bar I pivot to said clasp-bracket A′ the angle-bar or bell-crank lever O, having its long arm O′ extended back toward the seat and terminating within reach of the foot of the driver, and its shorter arm depending vertically immediately behind the link-bar N, within the clasp of the bracket A′. The pivot-bolt which secures the lever O to the said bracket A′ is preferably below its angle—that is, in the shorter arm. This lever will be hereinafter referred to as the "foot-lever" O. To the longer arm, O′, a short distance back from the corner a^4 of the bracket A′, I pivot the L-shaped trip-lever P with its horizontal arm P′ resting on the upper edge of the bracket A′, and its vertical arm P^2 standing up alongside the link-bar N, at its inner side. To the upper end of the link-bar N, I pivot the latch R, formed, preferably, as illustrated, so that it may be pivoted at the outer side of said link-bar and extend around over the rear edge and inward across the edge of the arm O′ of the foot-lever O and over the arm P′ of the trip-lever P. It is provided with the spring R′, coiled around its pivot and tending to swing it forward against the link-bar N, as seen in Fig. 7, with its lower end standing across the trip-lever P, close into the angle of said lever. This position requires the link-bar and the cutter-mechanism frame connected to its lower end to be in their highest position, and when in this position the said latch R, resting its lower end upon the trip-lever P, which rests upon the bracket A′, which is rigid with the main frame, sustains and positively locks the cutter-mechanism frame at its highest point. When it is desired to drop the cutter-bar, the driver presses his foot upon the arm O′, of the foot-lever O, which, turning on its pivot o, carries the pivot p of the trip-lever P downward, and rocks said trip-lever over the corner a^4 of the bracket A′, and thereby throws the upper end of the upright arm P^2 of the trip-lever P rearward against the depending latch R, and swings its lower end out of the angle of the trip-lever and into such oblique position with reference to the arm P′ and to the arm O′ of the foot-lever G that it slides out rearward on the said arms P′ and O′ and allows the cutter-mechanism frame to descend; but the pressure exerted by the driver upon the arm O′ of the foot-lever O causes the short arm O^2 to press forward against the link-bar N and bind it between itself and the front side of the clasp-bracket A′, and so to act as a brake to control the descent of the said link-bar and cutter-mechanism frame; and sufficient pressure may be thus exerted to hold the cutter-bar at any desired position. In order, however, to lock it at any intermediate position, I provide the ratchet n, secured to or integral with the link-bar N, upon the inner side thereof, and provide the upper end of the arm P^2 of the trip-lever P with a tooth, p', adapted to engage said ratchet. I also provide the spring S, secured at one end to the bracket A′ and at the other end to the trip-lever P, forward of the corner a^4 of the bracket A′, over which said trip-lever rocks, as described. This spring S tends to restore the trip-lever P and the foot-lever O to their respective positions shown in Fig. 7. If, now, after the latch R has been disengaged, and while the link-bar N and the cutter-bar frame are descending, the lever O be released from the pressure of the foot, the spring S will rock the trip-lever P over the corner a^4 of the bracket A′—incidentally lifting the arm O′—and will throw its tooth p^2 forward into engagement with the ratchet n, and arrest thereby the descent of the cutter-bar frame. Obviously, also, while the cutter-bar frame is being lifted, the tooth p', riding over the ratchet n, is in position constantly to prevent the fall of the cutter-mechanism frame, if the dog L′ should accidentally become disengaged from the notched wheel M. At the highest position the cutter-mechanism frame is locked both by the latch R and by the trip-lever P, acting as a pawl with the rack n.

The advantage of being able to control the cutter-mechanism frame wholly by the foot, and, by employing the driving-power, to lift it by the use of only the slight force necessary to throw the lever, leaving the driver's hands at all times free to direct and control the horses, is gained without sacrificing any of the advantages of controlling the cutter-mechanism frame by hand, since the hand-lever G′

can be employed at any time precisely as if the other devices for lifting were omitted, and the trip-lever and pawl P will engage with the rack *n* and lock the parts in position equally well when the adjustment is effected by the hand-lever as when it is done by means of the foot-operated devices.

It will be obvious that many modifications may be made in the specific devices employed in the above-described structure without departing from the essence of my invention. Thus, a cam or ratchet wheel—suitable changes being made in the connected devices—may be substituted for the notched wheel M′. The link J might be adapted to be engaged directly with the notched wheel M, and disengaged by a suitable stop. A hand-lever might be substituted for the foot-lever K, or a handle added thereto. Instead of the links H and J and the bell-crank lever G, a chain running over a guide pulley or sheave might be substituted. I do not therefore limit myself to the specific devices hereinabove described in detail, though I consider them the preferable devices for the purpose.

I claim—

1. In combination, substantially as hereinbefore set forth, the main frame, the driving-axle journaled therein, a notched wheel rotated by the axle, the cutter-mechanism frame adjustably connected to the main frame, the lever I, pivoted concentrically with the axle, the dog pivoted on said lever and engaging the notched wheel and provided with a spring tending to disengage it, the lever K, pivoted on the frame and acting on the dog to force it into engagement with the notched wheel, and the links and levers which connect the lever I with the cutter-mechanism frame.

2. In combination, substantially as set forth, the main frame, the driving-axle journaled therein, the cutter-mechanism frame adjustably secured to the main frame, the notched wheel rotated by the axle, the lever I, pivoted concentrically with the axle, the dog pivoted on said lever, engaging the notched wheel, the lever K, pivoted on the frame and acting on the dog to force it into engagement with the notched wheel, the spring K′, to lift said lever from the dog, and the links and levers which connect the lever I with the cutter-mechanism frame.

3. In combination, substantially as set forth, the main frame, the driving-axle journaled therein, the notched wheel revolved by the axle, the lever I, pivoted concentrically with the axle adjacent to the notched wheel, the dog on said lever engaging the notched wheel, and the cam a^3, rigid with the frame, adjacent to the notched wheel, engaging the dog as the wheel revolves and disengaging it from the wheel.

4. The combination of the drive-wheel, the axle, the clutch-disk, and the raising mechanism, the clutch-disk being provided with the notched rim which operates the raising mechanism, substantially as set forth.

5. In combination, substantially as set forth, the main frame, the driving-axle journaled therein, the notched wheel rotated by said axle, the lever I, adjacent to said wheel, the spring-sustained dog I′, pivoted to said lever and adapted to engage the notches of said wheel, the spring-sustained foot-lever K, having its end overhanging said dog, the cutter-mechanism frame adjustably connected to the main frame, and the connections from the lever I to the cutter-mechanism frame, whereby the former lifts the latter.

6. In combination, substantially as hereinbefore set forth, the main frame and cutter-mechanism frame adjustably connected, an upright bar connected to the cutter-mechanism frame and a guiding-bearing for the same on the main frame, and the latch R, pivoted to the upright bar above the guiding-bearing thereof, and adapted to depend from its pivot alongside the upright bar, with its lower end above the said guiding-bearing, to prevent the descent of the bar, and means for swinging it aside to allow such descent.

7. In combination, substantially as set forth, the main frame, the cutter-mechanism frame hinged thereto, the upright link-bar N, and the guide-bracket A′ on the main frame, clasping said link-bar, the bell-crank lever O pivoted behind the link-bar, and having its arm O^2 adapted to bear against it and clamp it in its bearing in the bracket A′.

8. In combination, substantially as set forth, the link-bar N, the bell-crank lever O, the bracket A′, the trip-lever P, and the latch R, whereby the cutter-mechanism frame is unlocked and its descent checked by the same movement of the controlling-lever.

9. In combination, substantially as set forth, the bracket A′, the link-bar N, having the ratchet *n* and the lever O, the pawl P, pivoted to said lever, rocking over a pivot on the bracket and adapted to engage the rack, and the spring S, tending to throw it into such engagement, all co-operating to lock the cutter-mechanism frame automatically and release it at will.

10. In combination with the bracket A′, link-bar N, having the ratchet *n*, the latch R, and the lever O, the part P, adapted to serve both as a trip-lever to disengage the latch R and as a pawl to engage the ratchet *n*, substantially as set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 31st day of August, A. D. 1885.

JAS. GILCHREST.

Attest:
JOHN B. KASPARI,
W. J. LUKENS.