

(No Model.)

G. M. WILLIAMS.
PAWL AND RATCHET MECHANISM.

No. 348,083.

Patented Aug. 24, 1886.

Fig. 1.

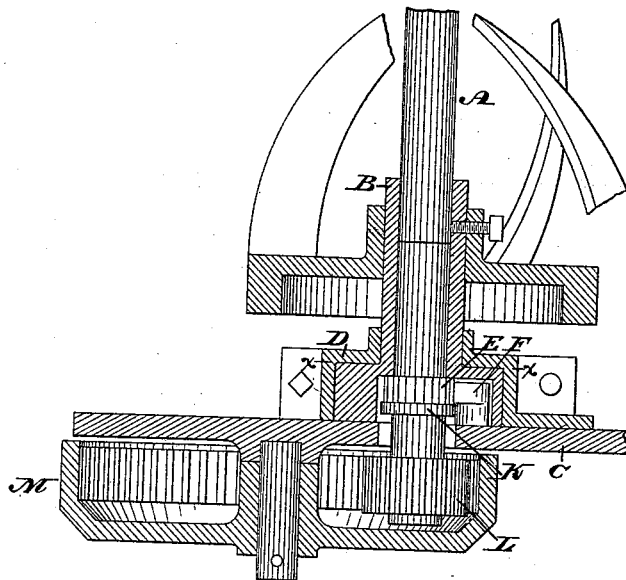


Fig. 2.

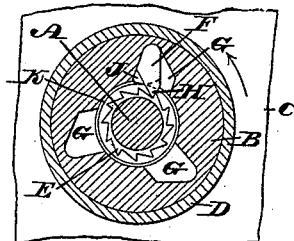
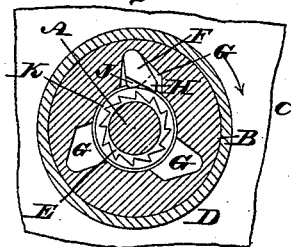


Fig. 3.



WITNESSES:

Th. Rolle:

W. F. Fischer

INVENTOR:
Geo. W. Williams
BY
John A. Dierschke
ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE M. WILLIAMS, OF NEWARK, DELAWARE, ASSIGNOR TO THE W. L. NASSAU MANUFACTURING COMPANY, OF SAME PLACE.

PAWL-AND-RATCHET MECHANISM.

SPECIFICATION forming part of Letters Patent No. 348,083, dated August 24, 1886.

Application filed April 3, 1886. Serial No. 197,609. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. WILLIAMS, a citizen of the United States, residing at Newark, in the county of New Castle, State of Delaware, have invented a new and useful Improvement in Pawl-and-Ratchet Mechanism, which improvement is fully set forth in the following specification and accompanying drawings, in which—

10 Figure 1 represents a partial top or plan view and a partial horizontal section of a pawl-and-ratchet mechanism embodying my invention. Figs. 2 and 3 represent sections thereof in line *x x*, Fig. 1.

15 Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a pawl-and-ratchet mechanism in which, when the device to which the mechanism is applied is moved in reverse direction or run back, as in the case of lawn-mowers, the pawl is automatically raised, so that the clicking noise of the same is avoided.

Referring to the drawings, A represents a divided or sectional shaft, the adjacent ends of the sections of which are fitted within a sleeve, B, one of the sections of the shaft being bolted to said sleeve and the other section being loose therein.

C represents a plate or portion of the frame of a machine—in the present case a lawn-mower—to which my invention is applied, said plate forming the bearings for the loose section of the shaft A, and having firmly secured to it a box, D, which encircles the sleeve B and retains it in position, and may be said to form the bearings of said sleeve. The end of the sleeve adjacent to the plate C is enlarged to contain a ratchet, E, which is secured to or cast with the divided section of the shaft, and a pawl, F, which rests loosely in the sleeve, the inner wall of the latter having a recess, G, therein against which the opposite sides of the pawl are adapted to abut. The pawl is formed with a tooth, H, which is adapted to engage with the ratchet E, and a shoulder, J, with a rounded or cam face, which is adapted to ride on a collar, K, formed on the loose section of the shaft aside of the ratchet E. The outer end of the loose section carries a pinion, L, which engages with the power-

wheel M, the latter in the present case being the running-wheel of the lawn-mower, and having an internal toothed rim which meshes with said pinion.

It will be seen that when the machine is run forward the pawl is thrown rearward by the contact of the collar K with the shoulder J of the pawl, whereby the tooth of the pawl engages with one of the teeth of the ratchet. (See Fig. 2.) This forces the pawl against the wall of the recess G of the sleeve B and locks the sleeve and pawl, whereby they rotate as one. As the sleeve is bolted to one of the sections of the shaft A said section is rotated, and, as it carries with it the cutter or knife cylinder of the lawn-mower, said cutter is properly operated. When the mower is run back the ratchet rotates, as shown in Fig. 3. The shoulder J now rides on the collar K and automatically raises the tooth of the pawl clear of the ratchet, whereby the pawl is released from the ratchet and rests freely in the recess G, while the shoulder J remains freely in contact with said collar, so that the pawl is entirely removed from the teeth of the ratchet, and the clicking noise usual in pawl-and-ratchet mechanism is avoided.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A shaft having a ratchet and a collar, and a pawl formed with a tooth and a shoulder, the latter having a cam-face, said collar being of greater diameter than the ratchet, whereby the tooth of the said pawl engages with said ratchet, the shoulder riding on said collar during the forward movement of the ratchet and being automatically disengaged therefrom when the ratchet is reversed, all combined substantially as described.

2. A divided shaft, one part having a ratchet and collar, a sleeve encircling said shaft and secured to one of the sections thereof, a pawl loosely inclosed in an enlarged portion of the sleeve, and having a tooth adapted to engage the ratchet, and a shoulder formed to ride on the said collar, all of said parts combined substantially as described.

3. A divided shaft, one section thereof being provided with a ratchet, a collar, and a

gear-wheel, a sleeve, B, encircling said shaft and secured to the other one of said sections of the shaft, and a pawl adapted to engage with the ratchet and be locked with said sleeve
5 when the ratchet rotates in one direction, and be automatically disengaged therefrom when the ratchet rotates in the other direction, all combined substantially as described.

4. A shaft having a ratchet and collar, a
10 sleeve encircling said shaft and having an enlarged portion, a box encircling the said en-

larged portion of the sleeve and forming a bearing therefor, a pawl having a tooth adapted to engage the ratchet, and a shoulder formed to ride on the collar, all of said parts being
15 combined, substantially as and for the purpose set forth.

GEORGE M. WILLIAMS.

Witnesses:

JOHN A. WIEDERSHEIM,
A. P. GRANT.