No. 817,157. PATENTED APR. 10, 1906.

W. H. COLDWELL.

LAWN MOWER.

APPLICATION FILED DEC. 11, 1905.

Fig. 1.

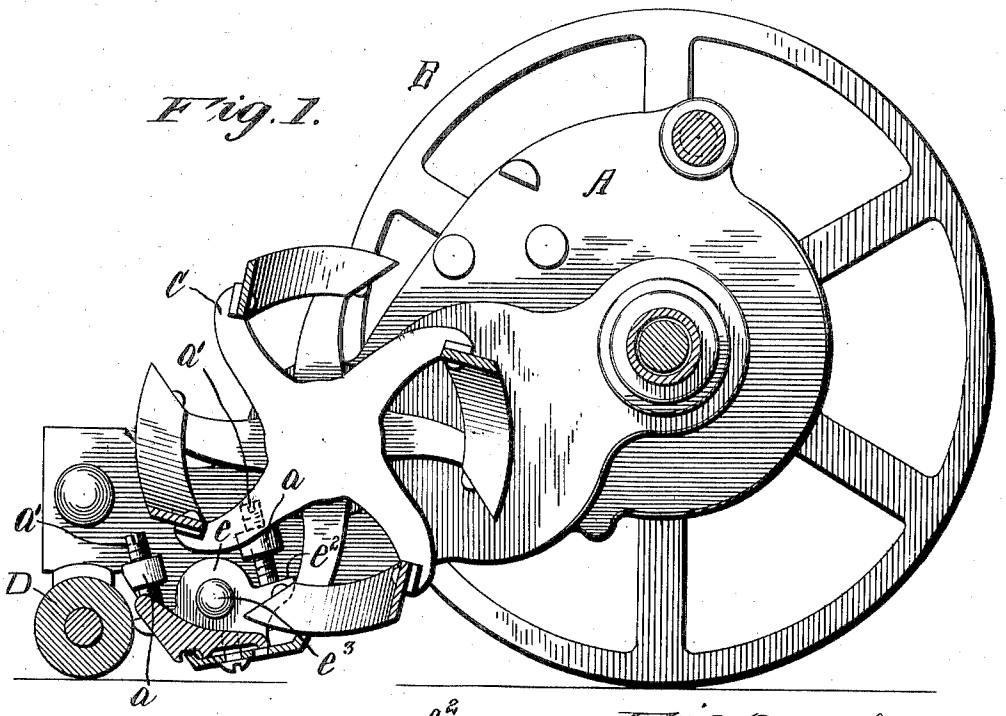


Fig. 2.

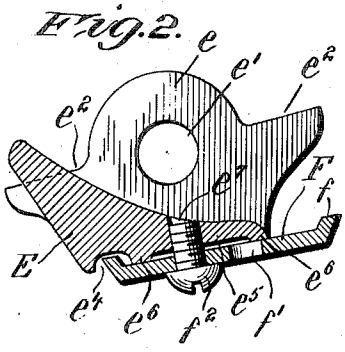


Fig. 3.

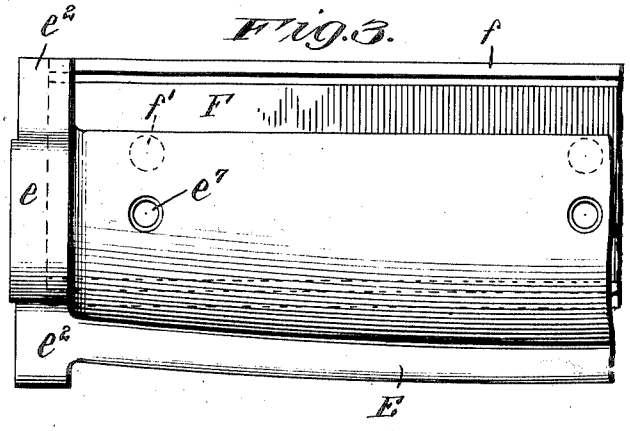
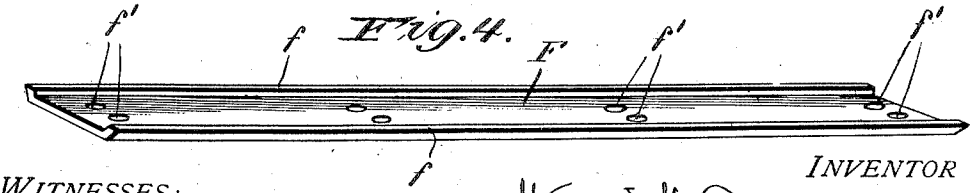


Fig. 4.



WITNESSES:

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LAWN-MOWER.

No. 817,157. Specification of Letters Patent. Patented April 10, 1906.

Application filed December 11, 1905. Serial No. 291,329.

To all whom it may concern:

Be it known that I, WILLIAM H. COLDWELL, a citizen of the United States, residing at Newburgh, in the county of Orange and State of New York, have invented certain new and useful Improvements in Lawn-Mowers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings, which illustrate one form in which I have contemplated embodying my invention, and said invention is fully disclosed in the following description and claims.

In the accompanying drawings, Figure 1 represents a central vertical longitudinal section of a lawn-mower embodying my invention. Fig. 2 represents a detail sectional view of the knife-bar and stationary knife or cutter detached from the machine, drawn to a larger scale. Fig. 3 is a partial top plan view of the knife-bar and stationary cutter. Fig. 4 is a detail perspective view of the stationary knife or cutter detached.

My invention relates particularly to the knife-bar and stationary cutting blade or knife of a lawn-mowing mechine. In machines as ordinarily constructed it is customary to use a cast-iron knife-bar extending across the machine and carrying the stationary blade or cutter, the latter being usually a flat thin piece of steel which is secured by means of rivets or screws to the knife-bar, and thereby maintained in proper relation to the rotary cutter of the machine. In using stationary knives of this character it is found that they frequently become bent between their ends so that the cutting edge is no longer straight, and therefore the stationary blade does not act accurately throughout its entire length in coöperation with the rotary cutter. This bending or deflection of the stationary blade occurs more frequently in machines for cutting a comparatiyely wide swath, such as high-class hand-machines, horse-mowers, and motor-mowers. Moreover, it is necessary to have the forward edge of the knife-bar, which is usually made of cast-iron, extremely thin and extended as close as possible to the cutting edge, the knife-bar being made thin at this point in order to enable the rotary cutting-blade to clear it and discharge the cut grass over it, so that it is difficult to secure the stationary blade with the desired rigidity to the cast-iron knife-bar on account of the excessive thinness of the latter and the lack of sufficient metal to give the attaching-screws a sufficient hold.

The object of my invention is to form the stationary knife in the shape of a channel-iron, the main body of the knife or blade being provided at its front and back edges with an inclined upwardly-extending flange or lip, forming a cutting edge and at the same time giving the blade great rigidity throughout its entire length.

My invention also contemplates the use of a knife-bar to which this channel-knife is attached, so constructed that the attaching-screws will enter portions of the knife-bar where sufficient metal is provided to give the screws a good bearing, said knife-bar being also formed so as to afford protection to the rear cutting edge of the knife to prevent its becoming injured or dull. It will follow from this construction that after the front edge of the knife has become worn and dull the knife itself may be reversed upon the knife-bar, so as to bring the fresh edge into operative relation with the rotary cutter.

In the drawings forming part of this specification I have shown in Fig. 1 a sectional view of a lawn-mower embodying my present improvement, in which A represents one of the side frames of the mower, of which there are necessarily two. B represents one of the ground-wheels, of which there are also two. C represents the rotary cutter, usually termed the "wiper," and D represents the rear supporting-roller of the machine. Said parts form no part of my present invention and need not be further described, it being understood that the usual or any preferred means for driving the rotary cutter from the ground-wheels B are present in the machine and that the machine here illustrated is a hand-operated machine.

E represents my improved knife-bar, which is preferably formed of cast-iron in the general shape illustrated in Figs. 1, 2, and 3 and provided at each end with an upwardly-extending attaching-lug *e*, provided with a central aperture *e'* and with horizontally-disposed shoulders e^2 e^2 on opposite sides of the central aperture. The knife-bar E is in-

serted between the two side frames A of the machine and secured pivotally by means of bolts e^3, one of which is shown in Fig. 1, which pass through the central apertures e' in the attaching-lugs and clamp them to the side frames. Each side frame is also provided with lugs a a, (see Fig. 1,) having threaded apertures to receive adjusting-screws a' a', which are passed through said lugs and engage the shoulders e^2 e^2 of the knife-bar, from which it will be seen that by loosening one of these screws a' and screwing in the other a slight movement of the knife-bar upon its pivot-bolts e^3 may be effected, which will adjust its relation to the rotary cutter of the machine to effect a proper adjustment of the stationary knife-blade carried by the knife-bar with respect to the rotary cutter. The knife-bar E is provided on its lower face adjacent to its rear edge with a recessed portion (indicated at e^4) extending longitudinally throughout the length of the bar to form a protecting offset portion for the rear edge of the channel knife-blade. The bottom face of the knife-bar is preferably planed, and I prefer to core out the central portion of this bottom face to reduce the amount of machine-work on the bar, as shown at e^5, leaving a front and rear planed bearing portion e^6 e^6 to receive the central portion of the stationary knife-blade and form an accurate seating therefor. The knife-bar E is also provided at intervals with threaded apertures e^7, located some little distance back from its front edge, where a sufficient thickness of metal is provided without danger of interfering with the rotary cutter.

F represents my improved stationary knife-blade, (shown in detail in Fig. 4,) which comprises a central portion having its longitudinal edges turned upward, preferably at an obtuse angle to the central portion, to form lateral strengthening-flanges and giving the knife-blade the shape of a channel-iron. Each of the upturned portions f is ground or sharpened on its upper face, thus forming at its outer edge an acute-angle cutting surface or edge adapted to coöperate with the rotary cutter C. The central portion of the blade F is provided at intervals corresponding with the intervals between the apertures e^7 of the knife-bar with apertures f', arranged in pairs in line transversely of the blade, as clearly shown in the drawings. The stationary blade F is placed against the bottom face of the knife-bar with its central portion in contact with the planed portions e^6 of the knife-bar, its front upturned flange f slightly in advance of the knife-bar, and its rear upturned flange lying within the protecting offset portion e^4 of the knife-bar. The blade is secured in this position by means of a series of screws f^2, which are passed through the rearmost holes f' in the blade and into the threaded apertures e^7 in the knife-bar, thus clamping the blade to the knife-bar throughout its length and securely protecting the rear cutting edge from injury.

By employing the channeled blade F herein described I am enabled to locate the attaching-screws farther back from the front cutting edge than is usual where a flat blade is employed, and I consider this desirable, as I am enabled to use longer screws in securing the blade to the knife-bar.

It will be obvious that the blade F can be reversed at any time when it is desired by removing the screws f^2 and swinging the knife-blade end for end, in which case the screws would be passed through the other set of apertures f', which would then be brought to the rear.

What I claim, and desire to secure by Letters Patent, is—

1. A reversible stationary knife for lawn-mowers consisting of a channel-shaped blade having upwardly-extending longitudinal edge portions forming cutting edges at opposite sides of the blade, and at the same time stiffening said blade, the central flat portion of said channel-blade, between said upturned cutting edges being provided at intervals with means for securing said blade to the stationary knife-bar of a lawn-mower, substantially as described.

2. A reversible stationary knife-blade for lawn-mowers consisting of a channel-shaped blade having upturned longitudinal edge portions disposed at an obtuse angle to the central portion of the blade, the top faces of said upturned portions being substantially parallel to the central portion of the blade, and forming acute-angled cutting edges at each edge of the blade, and also stiffening the blade, said central portion of the blade being provided at intervals throughout the length of the blade with apertures to receive retaining devices for securing the blade to the stationary knife-bar of a lawn-mower, substantially as described.

3. In a lawn-mower, the combination with the knife-bar provided with a recessed portion adjacent to its rear part and a channel-shaped knife-blade having upturned longitudinal edge portions forming cutting edges, one of said edges being adapted to lie within the recessed portion of the knife-bar and attaching devices engaging the said blade and knife-bar at intervals throughout their length, substantially as described.

4. In a lawn-mower, the combination with a knife-bar provided with a series of apertures at intervals throughout its length, of a channel-shaped knife-blade having its longitudinal edges upturned to form cutting edges and its central portion provided with securing-apertures arranged in pairs and at intervals corresponding to the intervals of the apertures in the knife-bar and detachable securing devices for engaging apertures in said

blade and knife-bar to secure the parts together, substantially as described.

5. In a lawn-mower, the combination with the knife-bar having its bottom face provided with plane portions to receive a stationary knife-blade, and having a longitudinally-extending recess in rear of said plane portion, of a channel-shaped knife-blade having its longitudinal edges upturned to form cutting edges, one of which is adapted to lie in said recess of the knife-bar, said blade being provided with securing-apertures arranged in pairs transversely of the blade and at intervals throughout its length and detachable securing devices engaging certain of said apertures in the blade and also engaging a series of apertures in the knife-bar, substantially as described.

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

WILLIAM H. COLDWELL.

Witnesses:
A. W. MAPES,
CHAS. K. COLDEN.