J. BRAUN.
Lawn-Mower.

No. 208,788. Patented Oct. 8, 1878.

Fig. 1.

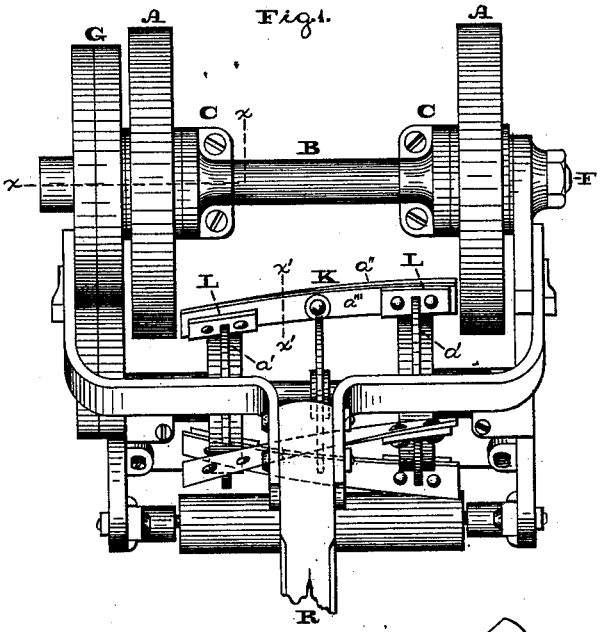


Fig. 2.

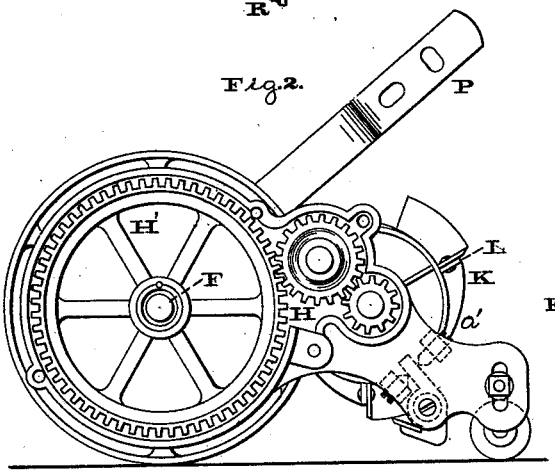


Fig. 3.

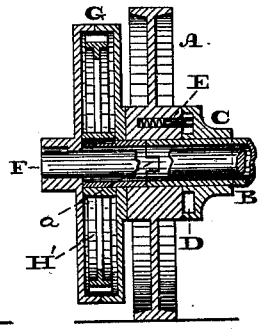


Fig. 4.

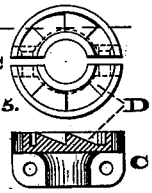


Fig. 5.

Fig. 6.

Fig. 7.

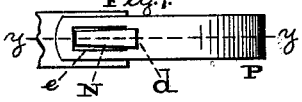


Fig. 11.

Fig. 8.

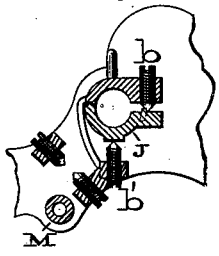
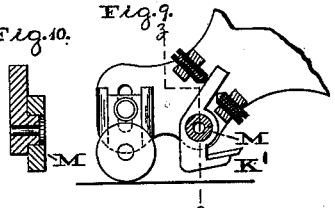


Fig. 10.

Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN BRAUN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN LAWN-MOWERS.

Specification forming part of Letters Patent No. **208,788**, dated October 8, 1878; application filed August 7, 1878.

To all whom it may concern:

Be it known that I, JOHN BRAUN, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Lawn-Mowers, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a top or plan view of the lawn-mower embodying my invention. Fig. 2 is a side view, a portion being removed. Fig. 3 is a vertical section of a portion in line *x x*, Fig. 1. Fig. 4 is a view of the inner face of one of the sectional caps. Fig. 5 is a sectional view of the same. Fig. 6 is a horizontal section in line *y y*, Fig. 7. Fig. 7 is a side elevation of the attachment of the handle. Figs. 8 and 9 are views, partly sectional, of detached portions. Fig. 10 is a vertical section in line *z z*, Fig. 9; and Fig. 11 is an enlarged transverse section in line *x' x'*, Fig. 1.

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

My invention consists of sectional caps fitted to the driving-shaft, and having ratchets on their inner faces for imparting proper motions to the gearing of the rotary knives or cutters, and inclosing the ratchets and pawls.

It also consists of the driving-shaft, constructed of tubular form, clutched to one of the wheels of the gearing, and inclosing a stay-rod for firmly binding together the side plates or frame of the machine.

It also consists of the bearings of the cutter-shaft, formed with adjustable bearings, caps, or parts, which may be moved in right lines and axially.

It also consists of a cupped or dishing box, inclosing the gearing or portions thereof, and made in sections of equal or nearly equal parts, for making the same of equal or nearly equal strength.

It also consists in mounting the stationary knife or cutter on bosses projecting from the side plates or frame, whereby said knife may be readily adjusted and the wearing action is removed from the holding bolt or screws.

It also consists of lugs formed on the side plates or frame, and overlapping the slots of the handle-arms, for the easy and firm attachment of the handle to the apparatus.

It also consists of the cutter formed of the blade portion projecting from a stock, whereby a large surface and strong piece are provided for the attachment of the cutter, and the cutting-edge may be readily sharpened without sharpening the thickness of the stock, thus saving time and material.

Referring to the drawings, A represents the driving-wheels, which are fitted loosely on a hollow or tubular shaft, B; and firmly attached to said shaft are sectional caps C, which are arranged adjacent to the inner faces of the wheels.

The inner faces of the caps have circularly-arranged ratchets D, with which engage spring-pawls E, fitted in openings in the hubs of the wheels, and projecting horizontally and transversely therefrom.

F represents a stay-rod, which is passed through the tubular shaft B, and its ends are keyed or otherwise secured to the side plates or frame of the apparatus. The rod serves to bind together or stay the side plates or frame of the apparatus and increase the strength of the structure.

One side of the apparatus consists of a box, G, within which is fitted gearing H, for communicating motion from the driving-shaft to the rotary cutter; and the master-wheel H' of said gearing is fixed to a piece of tubing, which is tongued or clutched, as at *a*, with the tubular shaft B. By this provision the apparatus may be separated or dismembered without disturbing or removing the master-wheel within the box, as the shaft B and the piece of tubing on which the said wheel is mounted may be readily disconnected.

K represents the rotary cutter, which is properly mounted on the side plates or frame, and it may be of skeleton or solid form. On the face of the disks or heads of the cylinder there are transversely-extending lugs L, cast therewith, and at the back of the lugs are ribs *a'*. The knives or cutters are riveted to said lugs, which are backed by the ribs, and they are thus braced and securely held.

In order to compensate for the wear of the shaft of the rotary cutter, a portion, J, of each bearing or cap of said shaft is made removable, and it is fitted to the stationary portion by a hinge-like joint. Screws *b b'* are fitted to

proper portions of the frame, and one of them is adapted to bear against the center of the cap or removable portion of the bearing, and the other against the free end of the cap. The two screws permit the cap to be moved against the shaft, both in right lines and axially, and thus the cap may be nicely adjusted relatively to the contour of the shaft, and the wear and tear of the same.

Projecting inwardly from the sides of the frame, at the rear of the apparatus, are bosses M, and on the same are fitted the upright portions of the bed of the stationary knife K′. (See Figs. 9 and 10.) Holding screws or bolts are passed through the frame and bosses, and by means of bolts or studs said bed, and consequently the knife, may be adjusted, and the wearing action is removed from the holding screws or bolts.

At the sides of the frame there are lugs N, which are cast therewith, and have upward-projecting portions *d*. The arms P, attached to the handle R, are provided with slots *e* at their lower ends, the size and form thereof corresponding to the lugs N, proper.

In order to attach the handle to the apparatus, the arms P are fitted over the lugs N, the projections *d* overlapping the walls of the slots *e*. The upper ends of the arms are then bolted to the handle R, and as said arms are prevented from movement in any direction, there is provided a firm, simple, and convenient attachment of the handle and apparatus.

It is evident that when the apparatus is moved forward against the grass, the pawls E on the driving-wheels engage with the ratchets of the caps C. This imparts motion to the shaft B, and thus to the gearing H, whereby the rotary cutter is operated. When the apparatus is drawn back, the pawls E, being permitted to yield, ride freely over the ratchets without imparting movements thereto, whereby the rotary cutter remains stationary.

The caps C, being made in sections, are easily applied to and removed from the driving-shaft; and as the ratchets D are on the inner faces of the caps, the ratchets and pawls are inclosed, and they are prevented from being clogged by grass, dirt, &c.

The gear-box G is made in sections of two equal or nearly equal cupped or dishing parts, which, when in position, meet at or about the center of the box, so as to properly inclose the gearing, thus also providing convenient means of opening and closing the box, and constructing the two parts of equal or nearly equal strength. Moreover, the gearing H H′ is entirely inclosed and protected from clogging.

The rotary cutter K consists of a blade, *a″*, projecting from the solid stock *a‴*, which is an enlarged continuation of the blade, whereby a large surface and strong piece are provided for the attachment of the cutter to the supporting lugs or arms. The blade portion *a″* projects from the stock to such extent that its cutting-edge may be readily sharpened without sharpening the thickness of the stock, thus saving time and material.

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

1. In a lawn-mower, the ratchet-caps C, with ratchets on their inner faces, formed in sections, fitted to the driving-shaft, and adapted to inclose the pawl mechanism, substantially as and for the purpose set forth.

2. The tubular driving-shaft formed in sections, coupled together or clutched, one of said sections being keyed to the master-wheel of the gearing of the rotary cutter, substantially as and for the purpose set forth.

3. In a lawn-mower, the tubular driving-shaft with an inclosed stay-rod, binding the side plates of the frame, substantially as and for the purpose set forth.

4. The bearings of the cutter-shaft of a lawn-mower, formed with movable portions J, which are jointed to the stationary portions and provided with screws, so as to be adjusted in right lines and axially, substantially as and for the purpose set forth.

5. The gear-box G of a lawn-mower, formed in cupped or dishing sections of equal or nearly equal parts, substantially as and for the purpose set forth.

6. In a lawn-mower, the stationary knife, mounted on bosses M, through which the holding screws or bolts are passed, substantially as and for the purpose set forth.

7. The handle of a lawn-mower attached to the side plates or frame thereof by means of the arms P and lugs N, with overlapping portions *d*, substantially as and for the purpose set forth.

8. The cutter consisting of the blade *a″*, projecting from the enlarged stock *a‴*, substantially as and for the purpose set forth.

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