

(No Model.)

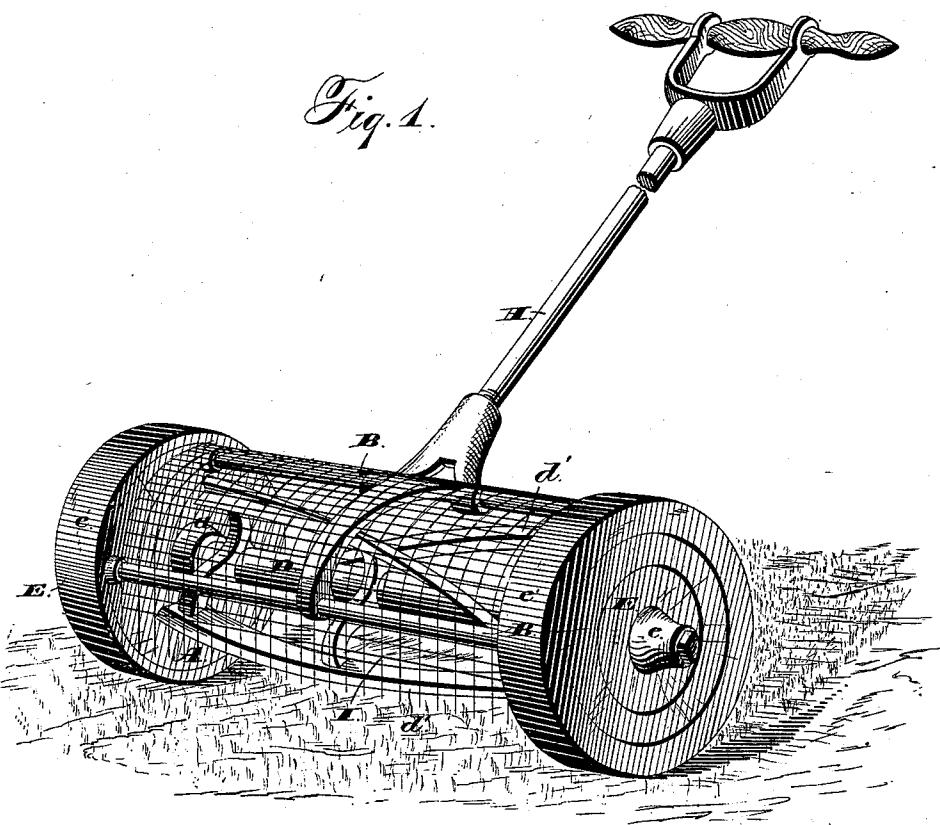
2 Sheets—Sheet 1.

T. & W. H. COLDWELL.

LAWN MOWER.

No. 273,469.

Patented Mar. 6, 1883.



*Fig. 1.*

Witnesses:

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

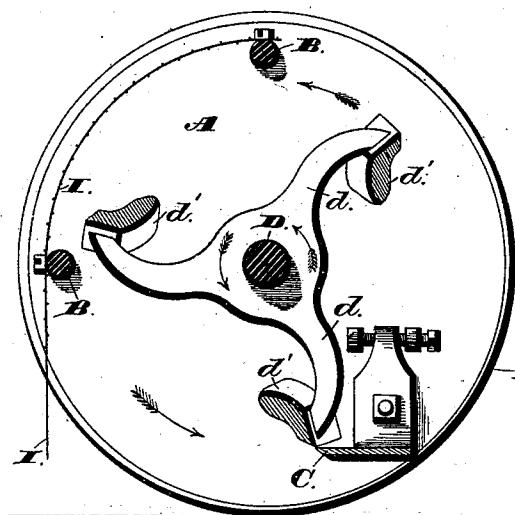


Fig. 3.

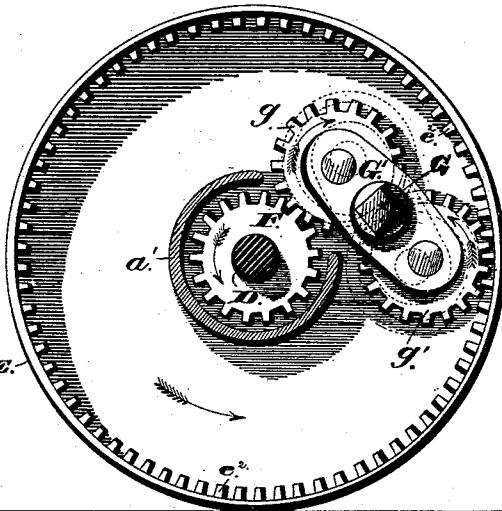
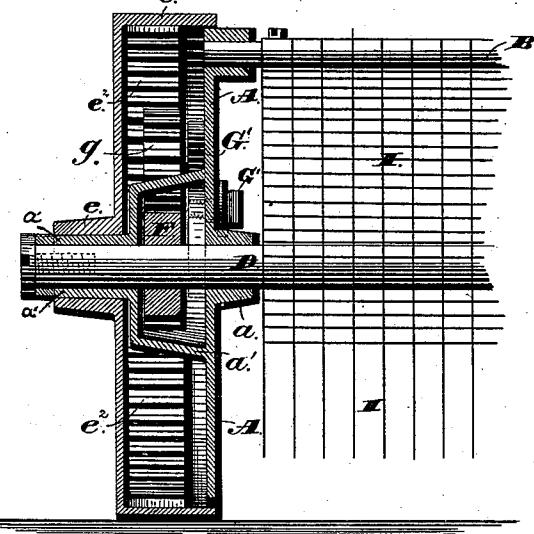


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 273,469, dated March 6, 1883.

Application filed December 18, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS COLDWELL and WM. H. COLDWELL, of Newburg, in the county of Orange, and in the State of New York, have invented certain new and useful Improvements in Lawn-Mowers; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of a lawn-mower containing our improvements. Fig. 2 is an enlarged cross-section of the same upon a line passing from front to rear between the ground-wheels. Fig. 3 is an elevation of the inner side of one of said ground-wheels, the covering or frame plate being removed; and Fig. 4 is a section upon a vertical line drawn through Fig. 2.

Letters of like name and kind refer to like parts in each of the figures.

The design of our invention is to increase the efficiency and ease of operation of lawn-mowers; and to this end it consists principally in the construction and operation of the gearing employed for connecting the ground-wheels with the wiper-shaft, substantially as and for the purpose hereinafter specified.

It consists, further, in the means employed for protecting the wiper from entanglement with weeds, high grass, or shrubbery, substantially as and for the purpose hereinafter shown.

In the annexed drawings, A and A represent two circular plates, which are connected together and held in relative parallel positions by means of two rods, B and B, that extend between the same, and by means of a straight cutter, C, which has its ends pivoted upon the inner faces of said plates, said rods and the pivotal bearings of said cutter being arranged at equidistant points near the peripheries of said plates.

Passing axially through the centers of the plates A is a shaft, D, upon which is secured a wiper that is constructed wholly from cast-iron, and consists of two or more sets of radial arms, d, that are united at their centers in the form of a hub, and at their outer ends are each connected with the corresponding arm of the other set by means of a bar, d', that is at all

points of its length equidistant from said shaft, and longitudinally is formed upon the line of a spiral, said wiper thus constructed having the usual form and operating upon and in connection with the cutter C in the usual manner. The shaft D is journaled in the plates A, and in order that a sufficient length of bearing may be had and bearings furnished for the ground-wheels E each of said plates is provided with a hub that extends outward in both directions, as shown, and has a length equal to about twice the width of one of said wheels. The outer portion, a, of said hub is in the form of a plain cylinder, and has sufficient thickness outside of said shaft to give to it the necessary strength, while the inner portion, a', of said hub is expanded radially, as shown in Fig. 4, and forms a recess for the reception of a pinion, F, that is secured to and revolves with said shaft.

The wheels E consist each of a plain disk provided at its outer face with a central hub, e, which corresponds to and fits over the outer part of the hub a', while from the inner face of said disk a peripheral flange, e', extends inward and forms the tread or bearing-face of said wheel. The inner face of said flange is provided with gear-teeth e'', so as to make of said wheel a female or internal gear.

Pivoted centrally upon the inner face of the frame-plate A, by means of a pivot-bolt, G, midway between the teeth e'' and the periphery of the pinion F, is a plate or yoke, G', upon the ends of which are journaled two pinions, g and g', that have each the same or substantially the same diameter as said pinion F. Said pinions g and g' mesh with each other, and by the movement of said plate G' may respectively be caused to mesh with said teeth e'' and said pinion F, to permit of which operation the hub a' is cut away upon the side adjacent to said pinion g', as shown in Fig. 3. The engagement of the pinions g and g' with the teeth e'' and pinion F causes the motion of the wheel E to be communicated to the shaft D, and the latter to rotate in the same direction as said wheel. When the wheel E is moved in a forward direction the positions of the pinions g and g' with relation to the teeth e'' and pinion F cause said parts to draw toward each other and to remain in engagement; but if the mo-

tion of said wheel E is reversed the pressure upon said pinions  $g$  and  $g'$  will cause them to automatically move out of engagement with said parts, and by thus breaking the connection between the same cause the said shaft D to cease its rotation. When said wheel E is again rotated in a forward direction said pinions  $g$  and  $g'$  are instantly drawn into engagement with said teeth  $e^2$  and pinion F, and are held in such engagement while motion in the direction last named is continued. A suitable stop is provided to limit the motion of the plate G', so as to prevent the teeth of said pinions from meshing too deep with their engaging parts. As thus arranged the oscillating pinions operate as pawls, and cause the shaft to be rotated whenever the machine is moved forward and to be at rest when said machine is moved in an opposite direction. As no springs are used in connection with said parts, and as they are wholly disconnected from each other, when said machine is moved backward no noise is caused and all unnecessary wear of parts is avoided.

25 The machine is moved by means of a handle, H, which is attached to the rods B, or in other suitable manner is connected with the stationary parts. In order that the cutting mechanism may be prevented from coming into contact with shrubbery, or with articles which might clog or injure said mechanism, a shield, I, composed preferably of wire-cloth, is secured upon the said rods B, and extends laterally between the plates A and from the upper part 30 of the machine forward and downward to or near the vertical position of the stationary

cutter C. The lower portion of said shield has preferably only vertical wires, so as to permit the same to pass freely over grass. The shield described enables the machine to be 40 safely used among and around shrubbery without danger of injury to the latter or to the cutting mechanism, by which means work may be done that has heretofore required the use of hand-shears, and a material saving in time 45 and expense is effected.

Having thus fully set forth the nature and merits of our invention, what we claim as new is—

1. In a lawn-mower, the combination of an 50 internally-toothed driving or ground wheel, a pinion secured upon the wiper-shaft, and two engaging-pinions journaled upon a pivoted plate and adapted to be moved into or out of engagement with said parts by the rotation of 55 said wheel in opposite directions, substantially as and for the purpose specified.

2. In combination with a lawn-mower, a shield secured upon its front side and extending nearly to the ground, and having its front 60 lower portion formed of vertical fingers, substantially as and for the purpose shown.

In testimony that we claim the foregoing we have hereunto set our hands.

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WM. H. COLDWELL.

Witnesses:

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As to Wm. H. Coldwell:

WM. N. MINTY,  
HENRY B. KNIGHT.