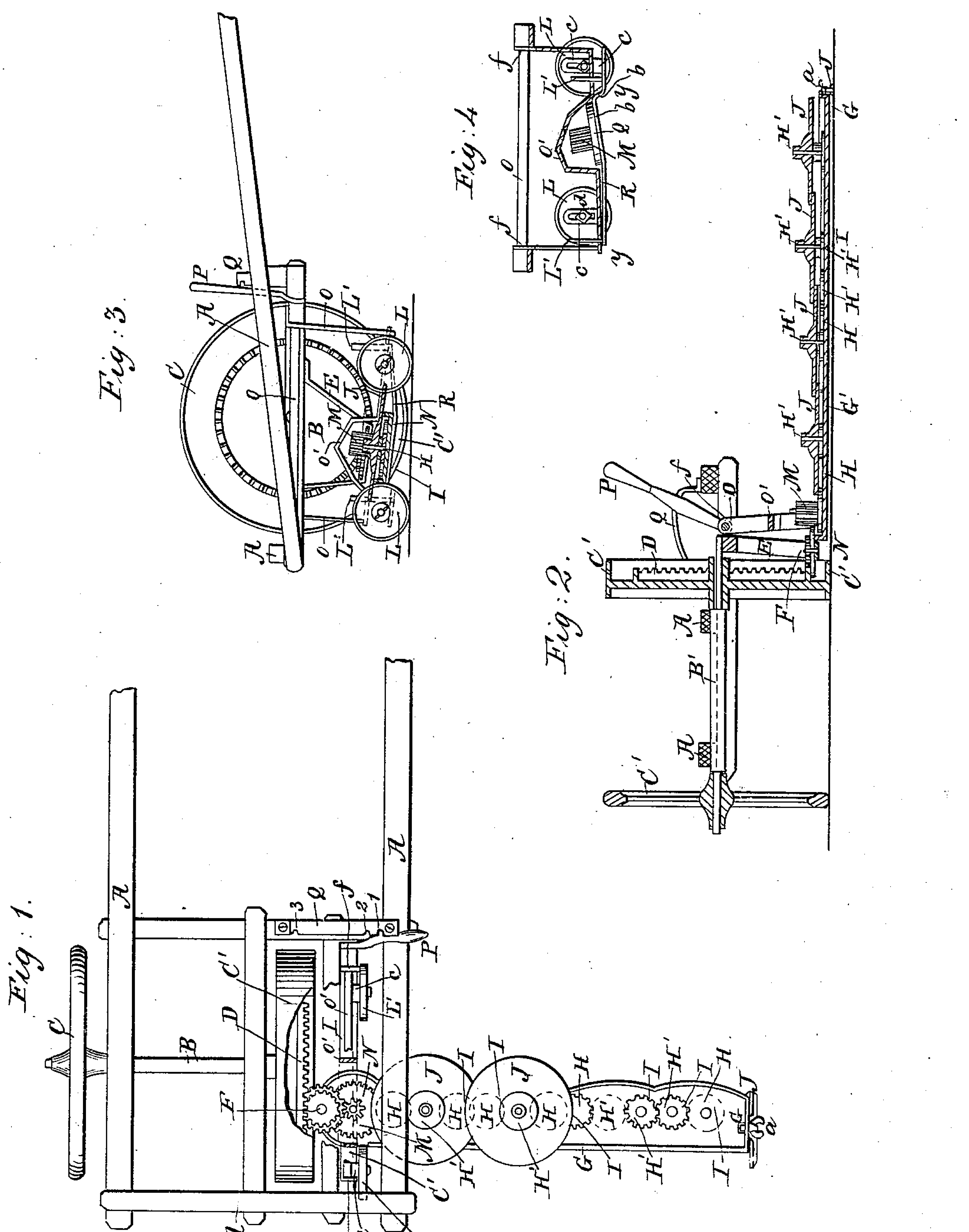
F. GARDINER.

Mower.

No. 29,371.

Patented July 31, 1860.



Witnesses.

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UNITED STATES PATENT OFFICE.

FREDERIC GARDINER, OF GARDINER, MAINE.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. **29,371**, dated July 31, 1860.

To all whom it may concern:

Be it known that I, F. GARDINER, of Gardiner, in the county of Kennebec and State of Maine, have invented a new and useful Improvement in Mowing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan or top view of my improved mowing-machine, a part of the frame being broken away. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a vertical longitudinal section of the same, looking toward the main frame. Fig. 4 is a similar section, looking in an opposite direction.

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

My invention consists, first, in the combination of a hollow cutter-bar, set inclined downward from its rear edge, circular plain-edged overlapping cutters or shears, cogged gearing for actuating said cutters, longitudinal shoe with slotted standards, two caster-wheels, long vertical pinion for receiving and transmitting the power, vertical guide-pins, swing-frame, toothed driving-wheel, and intermediate pinions, all in the manner and for the purpose hereinafter described.

It consists, second, in the combination of the swing-frame with the cutter-bar, substantially in the manner and for the purpose hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the main frame of the harvester; B, the shaft or axle; C C′, the traction-wheels. One of these wheels, C′, has a cog-wheel, D, cast or secured on its face, said wheel being guarded from dirt by the broad rim of the wheel C′.

E is a bracket or step projecting down from the under side of the main frame A, just in front of the wheel D. This step supports a vertical shaft, F, on which a large and small pinion, S T, fastened together, are placed loosely.

G is the cutter-bar, constructed hollow and with a series of vertical shafts, H H′, projecting up from its bottom. On each of the shafts H a small pinion-wheel, I, is placed loosely, so as to revolve, and on every third shaft, H′, a circular plain-edge cutter, J, is arranged so as revolve freely. The cutters are so placed that the outer portion of the one laps over the outer portion of another, as represented. The hubs of the cutters should not extend to the top of the shaft H′, as in practice it will be necessary to place nuts on the ends of the shafts in order to retain the cutters in place. At each end of the cutter-bar a shoe is placed.

The grain side or divider-shoe J is not essentially different from other shoes in use, and therefore it is only necessary to say that it is adjustable up and down by means of slots and set-screws *a a*, as shown.

The inner shoe, K, has some peculiarties which I will proceed to name. Near the center of its length it is constructed with an inclined shoulder, *b*, in order that the cutter-bar which rests on said shoulder shall have an inclination downward from its rear to its front edge, and the circular cutters thus caused to operate upon the grain in an oblique downward direction. At the front and rear ends of the shoe a caster-wheel, L, is placed, said wheels being fitted to slotted standards *c c* of the shoe by means of short axles, which are screw-threaded on their ends, so as to receive retaining-nuts *d d*, as represented. The slotted standards allow the caster-wheels to be raised and lowered, and thus the cutter-bar, with its attachments, to be set at different heights. By having two caster-wheels the cutter-bar is supported at front and rear, and therefore if the cutter-bar is thrown out of connection with the gearing of the main frame it will be sustained or prevented from falling down and dragging on its rear edge.

To combine the cutter-bar with the main frame and have it gear with the gearing thereof, two vertical pins, L′ L′, are set in the top of the shoe K, and a long vertical pinion, M, is arranged on the inner end of the cutter-bar, said pinion having a larger pinion, N, made fast to its base in order that the motion it receives shall be transmitted to the gearing which actuates the circular cutters.

On the main frame a swing-frame, *o o′*, is hung by means of brackets or bearing-eyes, *f f*. This swing-frame has its axis arranged so that it shall be capable of swinging transversely to the path of the machine. The lower bar, *o′*, of the swing-frame is rounded at its end and fitted loosely on the vertical bars of

the frame, so that it may be able to swivel. It also is arched near its center and notched on its outer side, in order to allow the long pinion M to pass under it, and to make room for the standards of the caster-wheels of the shoe. The frame thus constructed and hung to the main frame is connected to the shoe by means of the vertical pins L′ L′, which pass up through small holes *y y*, cut vertically through the swivel-bar of the swing-frame.

On one end of the shaft of the swing-frame, in close proximity to the driver's seat, a lever, P, is arranged. This lever serves for operating the swing-frame and throwing the gearing of the cutting apparatus out of gear with the traction driving-wheel, and also for throwing the entire cutting apparatus to a position that it can instantly detach itself from the main frame. The lever is held in any position desired by means of a notched bar, Q, of the main frame. The upper cutters are preferably provided with a beveled edge inclining downward, and the lower cutters a beveled edge inclining ward. Cutters with their edges formed otherwise may, however, be used.

The machine has been found to operate well in practice. The cut grass generally falls with its length at right angles to the track of the machine, the heads lying toward the main frame in just such a way as is necessary for binding.

To throw the cutting apparatus out of gear, all that has to be done is to shift the lever from notch No. 1 of the bar Q to the notch No. 2, and to throw the cutter-bar and all its attachments to a position which will allow a complete and instantaneous disconnection from the main frame the lever has to be moved to notch No. 3. The accomplishment of this last result is a very important matter, for it enables the operator, without turning the machine out of its path, to pass by stumps and other formidable obstructions without danger of injuring the cutting apparatus. To thus disconnect the cutting apparatus is not a matter of much inconvenience, as but a moment of time is required to readjust it to its place on the main frame.

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

1. The combination of a hollow cutter-bar, G, set inclined downward from its rear edge, circular plain-edged overlapping cutters or shears J J, cogged gearing I I N for actuating said cutters J, longitudinal shoe K, with slotted standards *c c*, two caster-wheels, L L, long vertical pinion M for receiving and transmitting the power, vertical guide-pins L′ L′, swing-frame O O′, toothed driving-wheel C′ D, and intermediate pinions, S T, substantially as and for the purposes set forth.

2. So combining the cutter-bar G, with all its attachments, with the main frame A and the gearing thereof by means of vertical pins L′ L′, and a swing-frame, *o*, having a swiveling bar, *o′*, or by equivalent devices, that the cutting apparatus may be thrown out of gear, and also, when desirable, the cutter-bar with all its attachments may be entirely disconnected from the main frame, substantially as set forth.

FREDERIC GARDINER. [L. S.]

In presence of—
C. J. NOYES,
I. T. RICHARDS.