2 Sheets--Sheet 1.

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Mowing-Machine.

No. 163,183. Patented May 11, 1875.

Fig. 1.

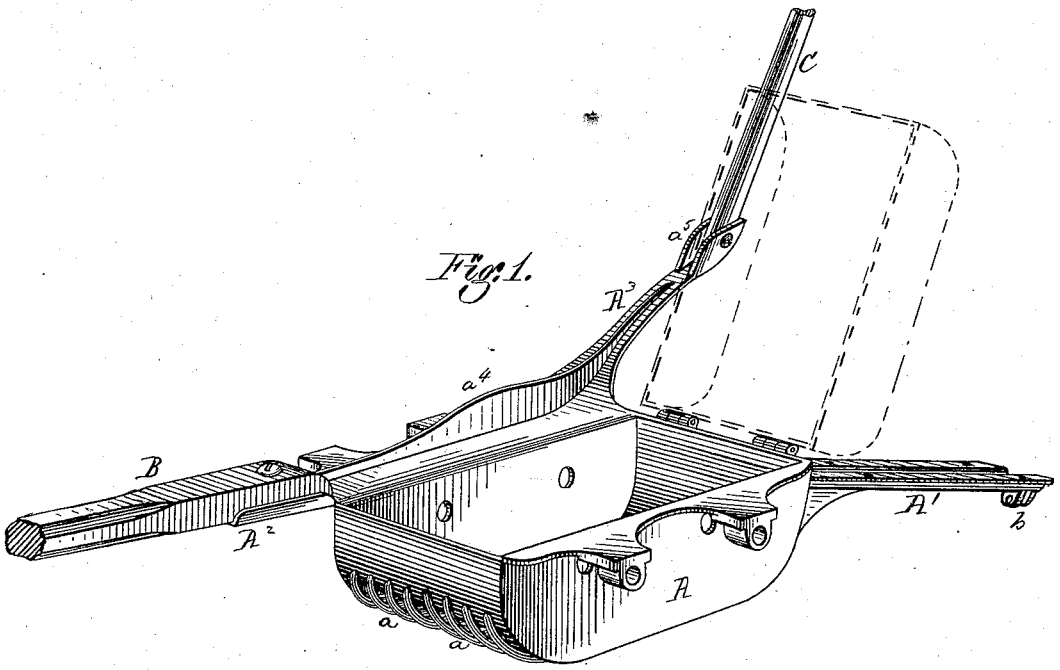
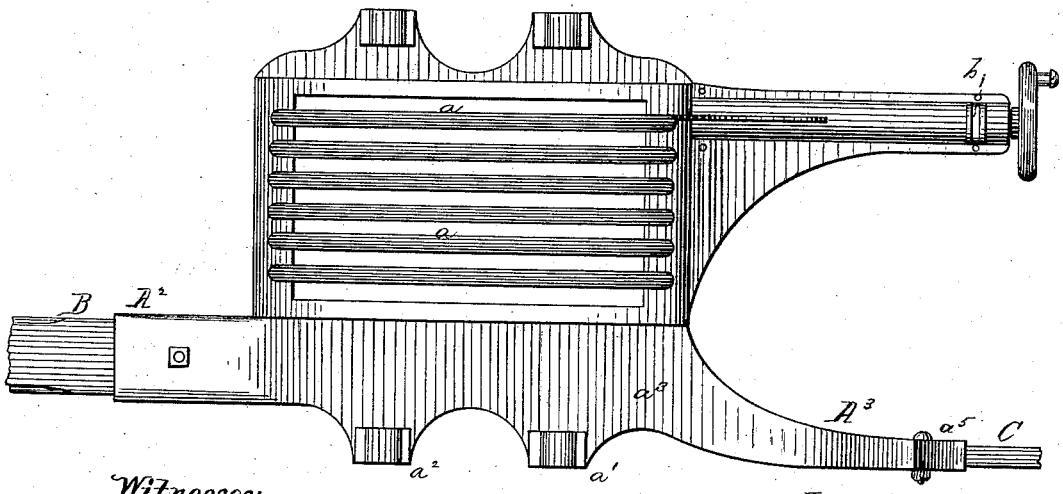


Fig. 2.



Witnesses:

Alex Mahon

W. B. Chappie

Inventors.

Alexander Gordon,
George Telford,
Jacob H. Myers.
by A. L. Smith.
Attorney

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A. GORDON, G. TELFORD & J. H. MYERS.

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Fig. 3.

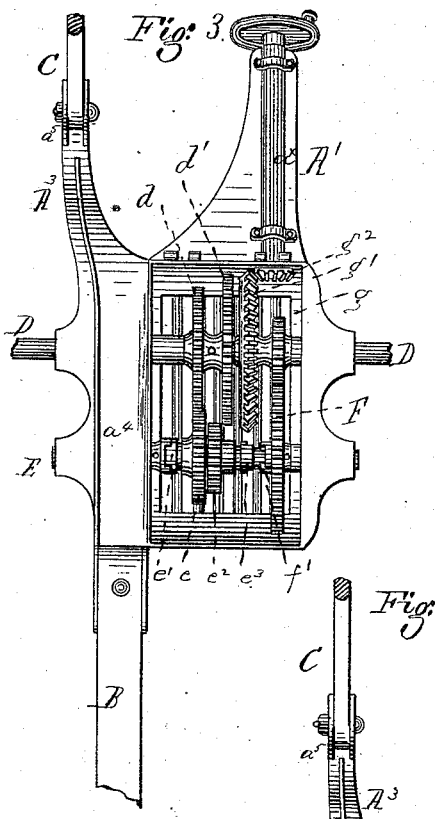


Fig. 4.

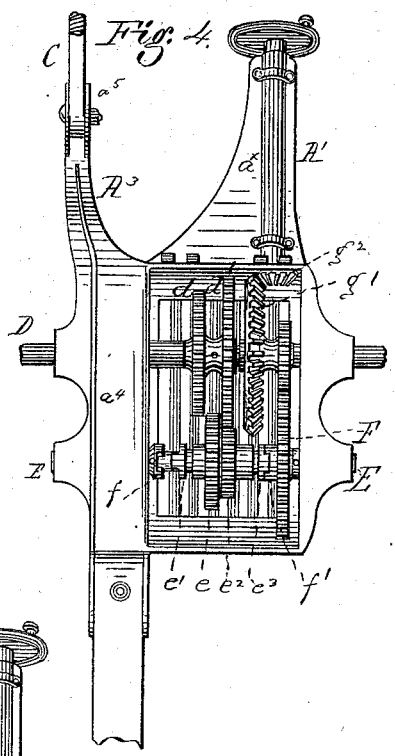
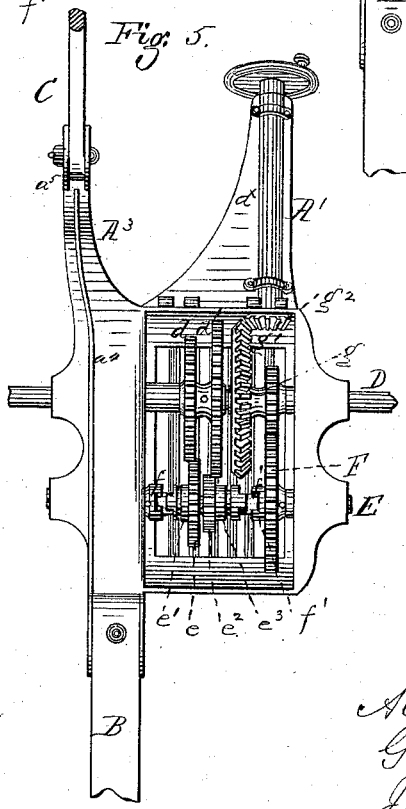


Fig. 5.



Witnesses:
Alex Mahon
W. C. Chaffee

Inventor:
Alexander Gordon,
George Telford,
Jacob H. Myers
by A. M. Smith
Attorney

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

ALEXANDER GORDON, GEORGE TELFORD, AND JACOB H. MYERS, OF ROCHESTER, NEW YORK, ASSIGNORS TO THE HUBBARD HARVESTER COMPANY, OF MINNEAPOLIS, MINNESOTA.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. **163,183**, dated May 11, 1875; application filed February 20, 1875.

To all whom it may concern:

Be it known that we, ALEXANDER GORDON, GEORGE TELFORD, and JACOB H. MYERS, of Rochester, county of Monroe, State of New York, have invented a new and useful Improvement in Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1 is a perspective view of a harvester-frame constructed in accordance with our improvement, showing the tongue attached, also showing the hinged cover in dotted lines. Fig. 2 is a bottom view of the same; and Figs. 3, 4, and 5, are plan views with the cover removed, showing the changeable speed-gearing, and its connections under three several adjustments.

Similar letters of reference denote corresponding parts in all the figures where used.

The invention consists in a novel construction of the main frame, comprising the body, within which the gearing is located, provided with a rack or longitudinally-barred bottom, a recessed semi-cylindrical arm forming a seat for the crank-shaft, an arm or socket for the pole or tongue, and an arm and jaw for the lifting-lever, these several parts having the relation to each other substantially as shown in the drawings.

In the accompanying drawings, A represents the body of the main frame, recessed or made concavo-convex in form from front to rear, and having vertical sides, within or between which the gearing is located, as hereinafter described. The bottom of this recessed body is composed of a series of longitudinal rods or bars, *a a*, constituting what we call a gear-rack for protecting the gearing from external obstacles, and adapting the frame to slide over such obstructions as it may meet with, while at the same time permitting the free escape of such substances as may accidentally get into the body or frame, and which would otherwise obstruct the gearing. These bars may be cast in one piece with the frame, but the frame will present a neater appearance if they are made separately from half-inch round iron, and afterward united to the body by casting in, or in any other convenient substantial manner. The vertical sides of the body terminate at the top in horizontal flanges, which afford a support for the sleeves a^1 a^2, in which the main axle and secondary shafts have their bearings, said bearings being either cast with the frame or bolted thereto, as preferred. At the rear end of the body is an arm, A^1, cast in one piece therewith and inclining downward to its outer end, as shown in Fig. 1, for depressing the crank-wrist and the point of attachment, at *b*, of the hinged brace connecting the heel end of the finger-bar therewith. The arm A^1 is provided with a semi-cylindrical groove formed therein as a socket for the reception of the crank-tube $a^\times$, which incloses and protects the crank-shaft, as shown in Figs. 3, 4, and 5. The horizontal flange a^3 upon the grain-side of the frame is expanded in width, and has a vertical stiffening-rib, a^4, which extends forward upon the tongue-arm A^2, stiffening the latter, and forming one side of the socket on said arm, in which the tongue B is secured, as shown. At the rear end of the body, and upon the grain-side thereof, is the lever-arm A^3, also cast in one piece with the body, the vertical longitudinal rib a^4 extending outward over and stiffening said arm. The rear end of the arm A^3 terminates in a socket, a^5, for the reception of the pivoted end of the lifting-lever C. To the frame thus formed a concave cover (shown in dotted lines, Fig. 1) is hinged, said cover serving to prevent the admission to the gearing of foreign substances, which would clog or obstruct its action, while the rack-bottom permits the ready escape of such clogging matter as may accidentally get into the body or frame A.

The object of the construction above described is the production of a frame combining in itself all necessary arms or points of support for the shaft, pole, or tongue, and lifting-lever, and for the attachment of the cutting apparatus, together with the protection of the gearing from clogging or obstructing matter that may accidentally drop on the

frame, while at the same time fully protecting the gearing from stumps, stones, or other large obstructions over which the frame may pass. The latter function is accomplished by the gear-guard, composed of the bars or rods *a* bent into runner form, and placed longitudinally of the frame, as described, which, while permitting the ready escape of all obstructing matter—such as accumulated grease, dripping from the gearing, and the dirt, hay-seed, &c., dropping in and accumulating therewith—at the same time adapt the frame to slide lightly and easily over obstacles in its path without permitting them to come in contact with the gearing.

The arrangement of the gearing is as follows: D represents the main axle, upon the ends of which the drive-wheels are to be mounted, connected therewith by the backing-ratchets, (shown in Letters Patent granted to M. G. Hubbard, November 29, 1864,) in such manner that either wheel advancing, or either wheel moving more rapidly than the other, will rotate the axle. Upon the axle D, centrally of the width of the frame A, is placed a double gear-wheel, or one having two spur-gears, *d d'*, of unequal diameter, said wheel being keyed to and rotating with the shaft. E is a secondary shaft placed parallel with the main axle, in suitable bearings in the frame; and *e* e^2 are two pinions, also of unequal diameters, mounted and turning loosely on the shaft E. The outer faces of these pinions are provided with sleeves or hubs e^1 e^3, grooved for the reception of the forked ends of the shifting forks or levers, and provided at their ends with clutch-faces, by means of which either pinion may be engaged with and made to rotate the shaft E. *f f'* are clutches keyed to the shaft E, one at each side, as shown, the clutch *f'* by preference being formed upon the hub of a spur-wheel, F, also keyed to and rotating with the shaft E. The pinions *e* e^2 being adapted to slide freely on the shaft for engaging them with or disengaging them from the shaft, clutches *f f'* are so arranged that both may be moved inward toward each other, as shown in Fig. 5, leaving both free to rotate on the shaft, or the larger pinion *e* may be moved outward and engaged with the shaft E through the clutch *f*, when it will also be engaged with and driven by the smaller spur-gear *d*.

If a more rapid motion of the shaft E and its spur-gear F is desired, the pinion *e* is disengaged from the clutch *f*, and the smaller pinion e^2 is moved into engagement with the clutch *f'*, and said pinion being in mesh with the larger spur-gear *d'*, the more rapid rotation of the shaft E and spur-gear F is produced. From the spur-gear F, whether actuated by the pinion *e* or e^2, motion is imparted to a spur-pinion, *g*, mounted and turning freely on the main drive-wheel axle, and rigidly connected with this pinion *g*, either by casting or otherwise, is a bevel-wheel, g^1, from which motion is imparted to the bevel-pinion g^2 on the crank-shaft, and thence to the sickle in the usual manner. The three several dispositions of the pinions *e* e^2 for changing the speed of vibration of the sickle, and for throwing the same out of action, are shown in Figs. 3, 4, and 5 of the drawings. The arrangements of the fixed clutches and the sliding pinions, as described, obviate the feathering of the shaft, and the use of clutches sliding thereon, and in connection with the arrangement of the other gears, as shown, bring the changeable gearings into a compact and practicable form adapted for general use.

Having now described our improvements, what we claim as new, and desire to secure by Letters Patent, is—

The open or slotted bottomed frame or body A, provided with the rack or gear guard *a*, grooved crank-axle arm A^1, tongue arm or socket A^2, and lever-arm A^3, constructed and arranged substantially as and for the purpose set forth.

In testimony whereof we have hereunto set our hands this 29th day of October, A. D. 1874.

A. GORDON.
GEORGE TELFORD.
J. H. MYERS.

Witnesses:
CHAUNCEY NASH,
LOUIS K. NASH.