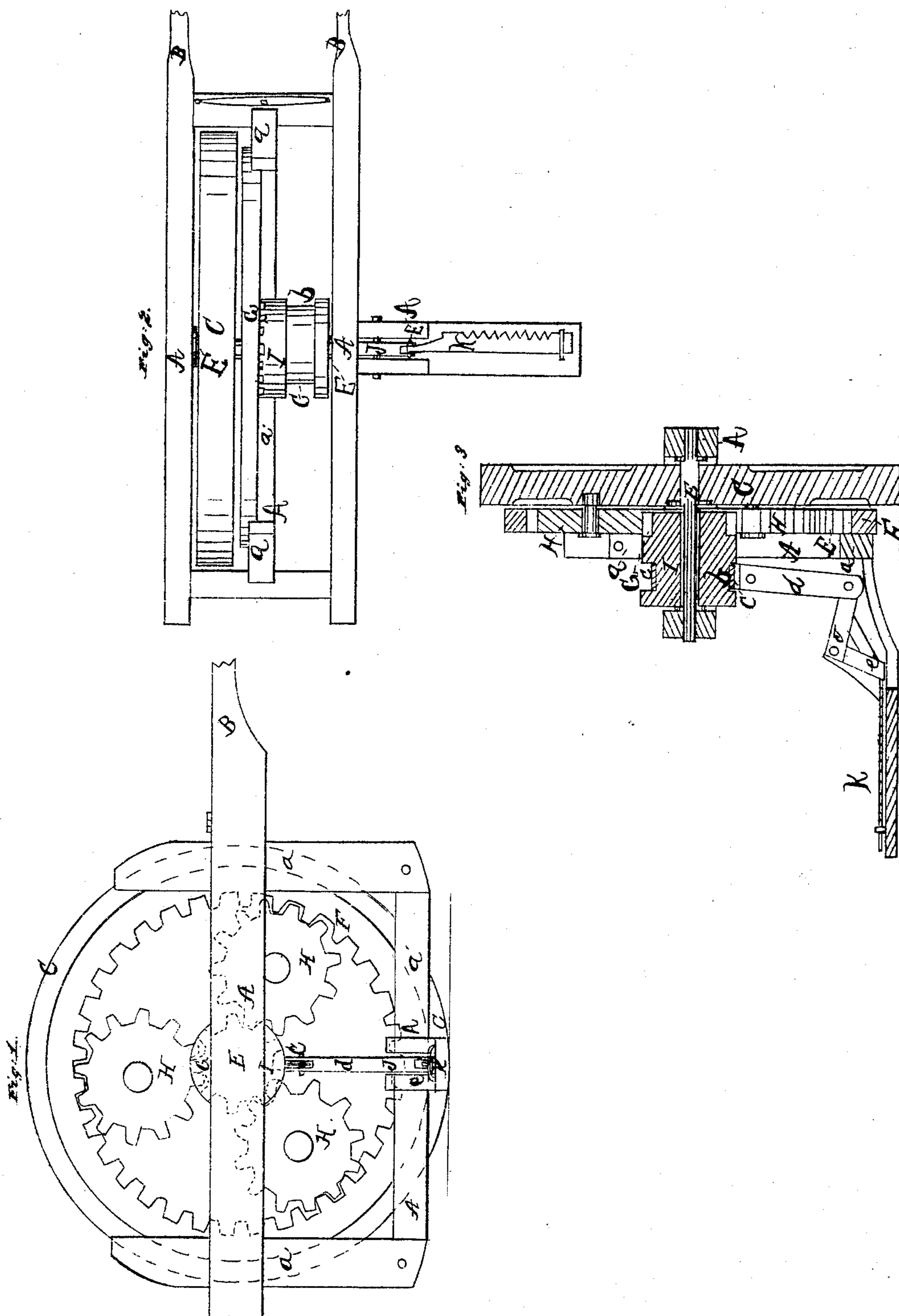


H. G. Vanderwerken,
Mower.

No. 18829.

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UNITED STATES PATENT OFFICE.

H. G. VANDERWERKEN, OF GREENBUSH, NEW YORK.

IMPROVEMENT IN REAPING AND MOWING MACHINES.

Specification forming part of Letters Patent No. 18,829, dated December 8, 1857.

To all whom it may concern:

Be it known that I, HENRY G. VANDERWERKEN, of Greenbush, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Reaping and 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 part of this specification, in which—

Figure 1 is a side view of a reaper with my improvements applied to it. Fig. 2 is a plan of the same, and Fig. 3 a vertical section of the same.

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

The nature of my invention consists in arranging the large internal spur-gear fast in an auxiliary frame and attaching said frame to the main or reaper frame and using the same, thus arranged, in combination with a series of planetary wheels which have their axes on the inner face of the propelling-wheel and gear with a central transmitting-pinion made loose on the shaft of the propelling-wheel. By thus arranging the large internal spur-gear the frame of the reaper is provided with a circular brace of great strength, which binds the frame together and keeps it perfectly firm and steady, and also leaves a free and open space for the operation of the planetary gearing within its inner toothed circumference, and, besides this, the auxiliary frame, besides supporting the large internal spur-gear, serves as a runner or guard to the said wheel, and prevents a chance of dirt collecting in the teeth of the gearing and interfering with its perfect operation. The large internal spur-gear, thus arranged, likewise admits of the well-known planetary system of gearing being employed, and thus the force of resistance between the large internal spur-gear and the planetary pinions is in a great measure overcome, owing to each of the gear-wheels having a rolling motion on its axis independently of the propelling-wheel, and therefore when applied to the reaping-machine the propelling-wheel of said machine, which is actuated by contact with the soil, can be operated with very little power or labor on the part of the team. The speed of the cutter-bar will also be increased, owing to the center wheel revolving on its axis at the

same time that the intermediate gear-wheels revolve round it, and thus performing one revolution more than would be due to it if the outer internally-gear wheel were revolved with the propelling-wheel and the axis of the intermediate spur-wheels detached from the propelling-wheel. The motion of the cutter-bar likewise will be more rapid, yet very regular and even, owing to the motion being taken by means of an eccentric direct from the speed-wheel.

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, with shafts B B extending forward.

C is the driving or propelling wheel. It runs upon the ground as usual, having its axis at E.

A' represents the auxiliary frame. It consists of two vertical posts, *aa*, and a transverse runner or guard, *a'*. The vertical posts *aa* are attached fast to the front and rear ends of the main frame in such position that the runner or guard shall just touch upon the ground.

F represents the internal spur-gear. It is attached firmly to the outer face of the posts *a* and runner *a'*. By being thus attached to the auxiliary frame A', which is in fact a part of the main frame, the frame is provided with a circular brace, which will keep it firm and steady under almost all circumstances, and the chance of dirt collecting between the gearing will be effectually prevented by the runner or guard *a'*.

G is the center transmitting-pinion. This pinion is fitted loosely on the shaft or axis E of the driving-wheel, so that it may revolve freely independently of said shaft or axis.

H H H are three intermediate spur-wheels, which are furnished with axes on the face of the driving or propelling wheel. These spur-wheels revolve on their own axis and still move round with the propelling-wheel. The teeth of the loose pinion and the teeth of the stationary rim F gear into these spur-wheels, and thus when the propelling-wheel revolves the spur-wheels are set in motion by the resistance of the teeth of the rim and the pinion driven rapidly by the motion acquired by the spur-wheels through the resistance of the teeth of the rims.

I is a sleeve or collar fastened to the pinion G so as to revolve with it. This sleeve, like the pinion, fits loosely over the axis or shaft

E of the driving or propelling wheel. On the sleeve or collar an eccentric, *b*, is formed, and round this eccentric a ring or loop, *c*, of the vertical rod *d* of an elbow-lever, *J*, is fitted loosely. To the inner lower end of this lever the cutter-bar *K* is pivoted, as at *e*.

The parts thus arranged operate as follows: The machine being set in motion, the propelling-wheel carries the spur-wheels round in a circle, while the stationary rim causes each of them to revolve on its own axis. In revolving they impart a rapid motion to the pinion and the cam attached, which latter consequently vibrates vertically the elbow-lever and causes

it to impart a rapid horizontal vibrating motion to the cutter-bar.

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

The combination of the stationary and bracing gear *F* with the auxiliary frame *A'*, main frame *A*, driving-wheel *C*, and pinions *H G*, arranged substantially as and for the purposes set forth.

H. G. VANDERWERKEN.

Witnesses:

G. YORKE AT LEE,
J. P. JACOBS.