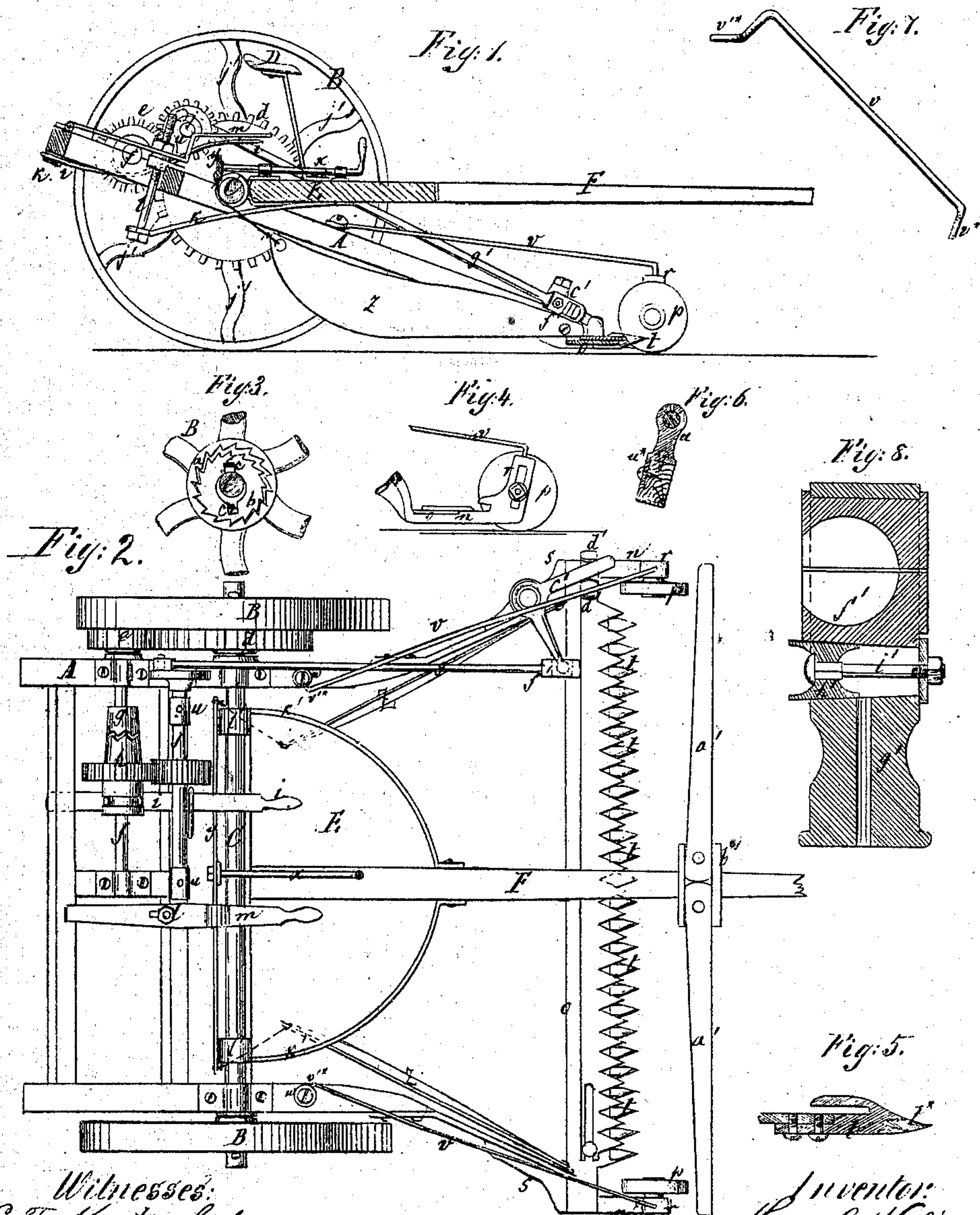


H.C. Velie, Mower.

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UNITED STATES PATENT OFFICE.

HENRY C. VELIE, OF POUGHKEEPSIE, NEW YORK.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 105,612, dated July 19, 1870.

To all whom it may concern:

Be it known that I, HENRY C. VELIE, of Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and Improved Mowing-Machine; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a longitudinal section of this invention. Fig. 2 is a plan or top view of the same.

Similar letters indicate corresponding parts.

This invention relates to a mowing-machine which is provided with an adjustable spring attached to the hoisting-lever, in such a manner that the pressure of the bar on the ground, and, consequently, the power required for drawing the machine along, are diminished, the bar is preserved from injury when suddenly dropped, the machine is relieved when in operation, or in striking obstructions, and it is prevented from being overturned when getting clogged or fast to obstructions. The track-boards are suspended from the ends of a double-armed lever, to which an oscillating motion can be imparted from the driver's seat, in such a manner that, when one track-board is lowered the other is raised, and vice versa, and consequently the grass is spread over more surface and the draft reduced. The driving-wheels are provided with internal ratchets, which are locked to the axle by gravitating-plates when the machine moves forward, and released when the machine runs back. The platform which supports the driver's seat and the draft-pole, and which also carries the track-board lever, is attached to the axle by means of straps and loops, which slide on the axle, so that said platform, together with the draft-pole, can be adjusted in a transverse direction, and the draft can be accommodated to the varying position of the track-boards. The track-boards are pivoted to flanges extending from the rear of the shoes, and which serve to keep said track-boards in the proper position. The ordinary double-tree and single-trees are replaced by two levers pivoted to a guide-block secured to the draft-pole, and the

horses are spread, so as to walk either inside or outside of the cut, or right in front of the leading-wheels. Suitable track-clearers attached to the shoes keep the grass clear from the driving-wheels.

In the drawing, the letter A represents a frame, made of wood or any other suitable material, and provided with journal-boxes, to receive the axle C of the driving-wheels B. These wheels are mounted loosely on the ends of the axle, and they are provided in their hubs each with an internal ratchet, *a*, and with a gravitating-stop, *b*, which is connected to the axle by lugs projecting from a disk, *c*, and catching in slots of the stop, said disk being keyed to the axle. (See Fig. 3.) The stop drops in gear with the ratchet-teeth by its own gravity, and compels the axle to turn with the driving-wheels when the machine is drawn forward, but in backing or turning the machine either both or only one of the driving-wheels turn independent of the axle.

By placing the ratchet-teeth and the gravitating-stop in the interior of the hub, these parts are protected against dirt or impurities, and a correct operation of this mechanism is insured.

To one of the driving-wheels is secured a cog-wheel, *d*, which gears in a pinion, *e*, attached to the end of the counter-shaft *f*. On this shaft is mounted a clutch, *g*, and a sliding cog-wheel, *h*, which can be thrown in or out of gear with the clutch by means of the shipper-lever *i*, and which, when in gear with said clutch, transmits its motion to the crank-shaft *j*, from which the motion is further transmitted to the cutter-bar. This crank-shaft has its bearings in standards *u*, which are provided with ears or flanges *u**, (see Fig. 6,) overlapping the edges of the cross-bar of the frame, to which they are secured, so that they have a firm hold, and are not liable to work loose.

The shipper-lever *i* is provided with a fork, which catches in a groove in the hub of the sliding cog-wheel *h*, and its rear end rests in a loop or eye, K, which is secured to the under surface of the rear cross-bar of the frame, so that the lever is firmly held in position without being weakened by a hole, and that in operating said lever the frame is not scratched.

The lifting-lever is operated from the driver's seat D, which is supported by the platform E. From this platform extends the draft-pole F, and to its under surface is secured a spring, *k*, which connects, by a screw-bolt, *l*, with the hoisting-lever *m*.

By screwing up the nut of the screw-bolt *l* the front end of the frame A can be so adjusted that it just bears on the ground, so that the power required for drawing the machine along is materially reduced; and, furthermore, if the cutters or fingers come in contact with an obstruction, the front end of the machine is free to rise and to pass over said obstruction, and the machine is not liable to be overturned. The balance-spring *k* also prevents the front end of the machine, when being lowered, from dropping suddenly to the ground, and injury to the cutters and fingers is avoided.

To the front end of the frame A are secured the shoes *n*, which support the finger-bar *o* and the leading-wheels *p*. These leading-wheels are secured on the inner sides of the shoes, and their axles have their bearings in slotted standards *r*, rising from the front ends of the shoes, (see Fig. 4,) so that the leading-wheels can be adjusted higher or lower, and the height of the cut can be regulated.

The upper surfaces of the shoes are provided with recesses like the fingers, to receive the knives attached to the ends of the cutter-bar.

The rear ends of the shoes form track-clearers *s*, which prevent the grass from coming in contact with the driving-wheels.

The fingers *t* are provided with steel points *t**, (see Fig. 5,) which are cast into them, the object being to prevent the points of the fingers from getting bent or dull.

The slotted standards *r* of the shoes are provided with holes in their tops, to receive the guide-rods *v*, which are formed as shown in Fig. 7, their ends *v** being bent obliquely, so that when the same are dropped into the holes of the standards *r*, and the other ends, *v'**, are bent down and fastened on the top of the frame A, said guide-rods will assume the curved shape desired, without any further trouble. The ends *v'** of the guide-rods are clamped under washers *w*, as shown in Fig. 2.

On the platform E is secured a rod, *x*, which has its bearings in suitable loops and staples, and one end of which is turned up at right angles, so that an oscillating motion can be imparted to it by the action of the foot of the person occupying the driver's seat. To the rear end of this rod is attached a double-armed lever, *y*, from the ends of which are suspended the track-boards *z*. These track-boards are pivoted to the shoes *n*, and they serve to scrape together the grass, as the same is cut by the action of the cutters, and to clear a track for the machine in coming back.

When both track-boards are lowered, the grass is collected on a comparatively narrow space, and much power is expended in draw-

ing the machine without producing an adequate result.

In my machine the track-boards, being suspended from a double-armed lever, are brought in operation successively, that one of the track-boards which is next to the standing grass being down, while the other one is up. The grass, therefore, is scraped out of the path of the machine in returning, but it is allowed to spread over a much greater surface than it would be if both track-boards should be brought in operation simultaneously.

The platform E is attached to the axle C by straps *k'* and loops *l'*, so that the same, together with the draft-pole, can be moved in a lateral direction to equalize the draft, according to the position of the draft-boards and to the increased weight on one side of the machine.

The horses are either spread by means of a common double-tree with two single-trees, so as to walk just in front of the leading-wheels, or I use, by preference, two levers, *a'*, which are pivoted at their inner ends to a block, *b'*, which is fastened to the draft-pole, as shown in Fig. 2.

By this arrangement the double and single trees can be dispensed with, and yet the horses are not allowed to pull against each other.

The motion of the cutter-bar is produced by a bell-crank lever, *c'*, the end of one arm of which catches between V-shaped lugs *d'*, projecting from the cutter-bar, while its other arm terminates in a ball, *e'*, which is embraced by the box *f'* in the connecting-rod *g'*. A detached section of this box is shown in Fig. 8. It consists of two parts, which are bored out to form a spherical socket to receive the ball *e'*, and these two parts are held in the proper relation to each other by a wedge, *h'*, which is adjusted by a screw, *i'*.

By this arrangement all dead motion in the box and between the bell-crank lever and the V-shaped lugs of the cutter-bar can be avoided, and the motion of the cutter-bar is effected with comparatively little power.

The arms *j'* of the driving-wheels are undulating, as shown in Fig. 1, so that the same preserve a certain degree of elasticity, whereby the tires of the wheels are prevented from cracking, as the same shrink in cooling, or from breaking by blows, to which the same are exposed when the machine is drawn over stones or rugged ground.

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

1. The arrangement of the lifting-lever for raising the finger-bar with the balance-spring and adjusting-screw for relieving the front part of a mowing-machine, substantially as described.

2. The block *b'*, formed with flanges, as described, in combination with the separately-pivoted draft-bars *a'* *a'* and the draft-pole of a mowing-machine, substantially as set forth.

3. The eyes *u*, attached to the platform E, and sliding on the axle C, in combination with the truck-boards *z* and oscillating lever *y*, substantially as set forth.

4. The combination of the gravitating-stop with the ratchet-wheels in the interior of the hubs of the driving-wheels, substantially as described.

5. The double-armed lever *y*, in combination with the oscillating rod *x* and truck-boards *z*, substantially as described.

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Witnesses:

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