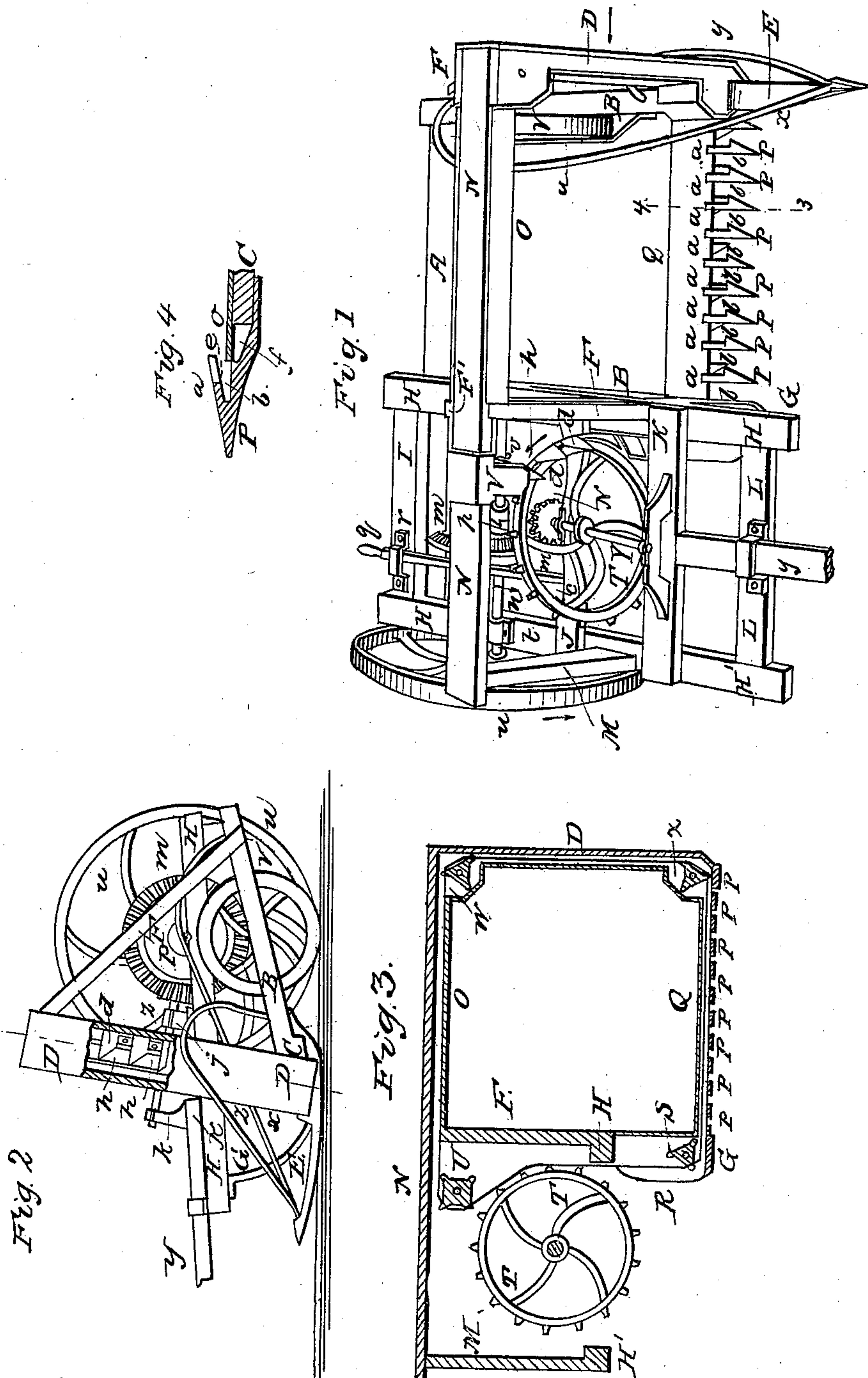


S. COMFORT, Jr.

Mower.

No. 14,445.

Patented March 18, 1856.



Witnesses
 Henry Howson
 William E. Walton

Inventor
 Samuel Comfort Jr.

UNITED STATES PATENT OFFICE.

SAML. COMFORT, JR., OF MORRISVILLE, PENNSYLVANIA.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. 14,445, dated March 18, 1856.

To all whom it may concern:

Be it known that I, SAMUEL COMFORT, Jr., of Morrisville, Bucks county, Pennsylvania, have invented new and useful Improvements 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, and to the letters of reference marked thereon.

My invention relates to that class of mowing-machines in which endless chains of cutters are used; and it consists in causing, by gearing and driving apparatus hereinafter more fully described, such chains to traverse a passage formed by a cutter-bar, fingers, and cover-plate, passing from thence upward over suitable guide-wheels, and again horizontally a sufficient height above the cutter-bar to allow the mown grass to pass between it and chain, then downward over other guide-wheels to the above-mentioned passage—an arrangement which enables me to make use of an advantageously-narrow cutter-bar, and to adopt a simple and light system of gearing for driving the said chain of cutters at an increased speed and with better cutting effect.

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

On reference to the drawings which form a part of this specification, Figure 1 is a perspective view of a mowing-machine, showing my improvements; Fig. 2, an end view of the same, looking in the direction of the arrow, Fig. 1, and showing a part of the inclined box removed for the purpose of exhibiting a portion of the endless chain of cutters. Fig. 3 is a sectional view on the line 1 2, Fig. 2, and represents the course taken by the endless chain of cutters. Fig. 4 is a transverse section, drawn to an enlarged scale through the line 3 4, Fig. 1.

The same letters of reference allude to similar parts throughout the several views.

A is the back bar of the frame-work, to which are attached the two diagonal side bars, B and B'. In front the side bar B, cutter-bar C, the inclined box D, and the shoe E are secured together, as are also the bar B', the opposite end of the cutter-bar C, the inclined bars F, and the bent shoe G. To the latter is also secured the bar H, which is framed into the inclined bars F, secured to the back bar, A, and connected to the bar H' by the cross-pieces

I, J, K, and L. This bar H' is likewise secured to the end of the back bar, A, and has another inclined bar, M, framed into its side. The top of this bar M is connected to the bars F and box D by the horizontal bar N, part of which forms the top of the box O. The interior of the latter communicates with the interior of the box D at one end, and terminates in an opening at the other end, where the inclined bars F meet the horizontal bar N.

To the under side of the cutter-bar C are secured any convenient number of teeth, P, of the peculiar shape shown in Figs. 1 and 4. These teeth are flat at the bottom, under the cutter-bar, a short distance from the front of which they incline upward with a curve and terminate in points. From this point they incline upward in a contrary direction and terminate in projections *a*, a short distance from the end of which are notches *b*. In the plan view of the teeth, as shown in Fig. 1, it will be seen that they are on one side straight and at right angles to the cutter-bar from the point to the ends of the projections *a*, and on the other side inclining from the points to the notches *b*. From this point to their termination the projections *a* are parallel.

On again referring to Fig. 4, it will be observed that a plate, Q, is secured to the top of the cutter-bar C. This plate projects in front of the latter so that its edge shall cover but not touch the small lips *e* on the teeth. The bar C and plate Q are so arranged in respect to each other and to the teeth P as to form a passage, *f*, which communicates at one end with the interior of the box D and at the other end with the interior of the box R, situated at the junction of the shoe G, bar B', inclined bars F, and bar H. This box is open at the top, as seen in Fig. 3. In order to steady the upper portion of the frame-work, I connect the horizontal bar N by a diagonal brace, F', to the lower frame.

An endless chain formed of angular cutters *d* and links *h*, jointed together in any suitable manner, traverses the passage *f*, so that the cutters projecting from the said chain shall pass between and be guided by the lips *e* on the teeth P and the plate Q on the bar C, the points of the cutters reaching nearly to the point of junction of the projections *a* with the body of the teeth. The chain passes horizontally along the passage *f* until it reaches the treble-toothed guide-wheel S, which turns

loosely on a pin in the box R. The chain, with its links caught on the teeth of this wheel, takes an upward direction until it meets the teeth on the wheel T. From this point it inclines toward the guide-wheel U, turns over the latter, passes along the interior of the hollow box O, over the guide-wheel W, down the box D, round the guide-wheel X to the passage *f*, before described.

It will be observed that the toothed wheel U turns on a pin in the bracket V, suspended from the horizontal bar N. This bracket is so arranged as to be capable of being slid backward and forward on the bar, and so adjusted thereto as to keep the chain sufficiently tight against the wheel T for the teeth on the latter to catch into the links. The wheel T is secured to the shaft Y, which has its bearings at one end in the standard *k* on the cross-bar K and at the other end on the cross-bar J. Beyond the latter the shaft is furnished with a beveled pinion, Z, which gears into the bevel-wheel *m* on the shaft *n*. The wheel itself is loose on the shaft, and has a projecting hub with ratchet-teeth fitting into similar teeth on the clutch *p*, which is secured permanently to the shaft *n*.

On the back of the wheel *m* is another hub with a groove into which fit projections from the lever *q*, which has its fulcrum on the cross-bar J, and which is guided at the opposite end in a staple, *r*, on the cross-bar I. This lever is so arranged that by removing a pin in the staple *r* it may be so operated as to draw the wheel *m* out of gear with the pinion Z when required. The lever is moreover sufficiently yielding, when even the wheels are in gear, to cause the inclined portion of the ratchet-teeth on the hub of the wheel to slip over those of the permanent clutch *p* whenever the shaft is turned in a contrary direction to that pointed out by the arrow.

The shaft *n* has its bearings in boxes secured to the bars H and H', and is furnished at the end with a driving-wheel, *u*, similar to those of ordinary mowing-machines.

The opposite corner of my machine is furnished with a supporting-wheel, *v*, which turns

on a pin attached to the bar B and bent stay *w*. Two bent rods, *x* and *y*, are connected at one end to the shoe E and at the other to the bar B, the rod *x* serving to divide the stalks of grain or grass and bend them toward the cutters, and the rod *y* bending them to one side of the machine in another direction. A pole, *z*, by which the machine is drawn over the ground, is framed into the cross-bar K and confined by a staple to the cross-bar L.

The machine being in operation, motion is communicated through the driving-wheel *u* to the bevel-wheel *m*, thence through the pinion Z to the shaft Y and toothed wheel T, which causes the chain of cutters to traverse in the direction already explained, and shown in Fig. 3. The object of the notches *b* on the cutters P is in order to confine the stalks of grain or grass while they are acted upon by the inclined edge of the cutters.

I am aware that endless chains of knives have been heretofore used in connection with mowing-machines, arranged, however, to traverse horizontally and confined to the cutter-bar, which involves the necessity of having the latter of inconvenient width. By my arrangement the cutter-bar is advantageously narrow, and by a simple and light system of gearing I am enabled to operate the chain at a most effective speed.

I do not desire to claim the use of endless chains of cutters for mowing-machines, nor any particular method of constructing such chains; but

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

The employment, in mowing-machines, of an endless chain of cutters which shall traverse along the cutter-bar and a sufficient distance above the same to allow the mown grass to drop between, the said chain being operated substantially in the manner set forth.

SAMUEL COMFORT, JR.

Witnesses:

HENRY HOWSON,

WILLIAM E. WALTON.