J. W. Shaw,

Mower.

No. 89509. Patented. April. 27. 1869.

Fig 1.

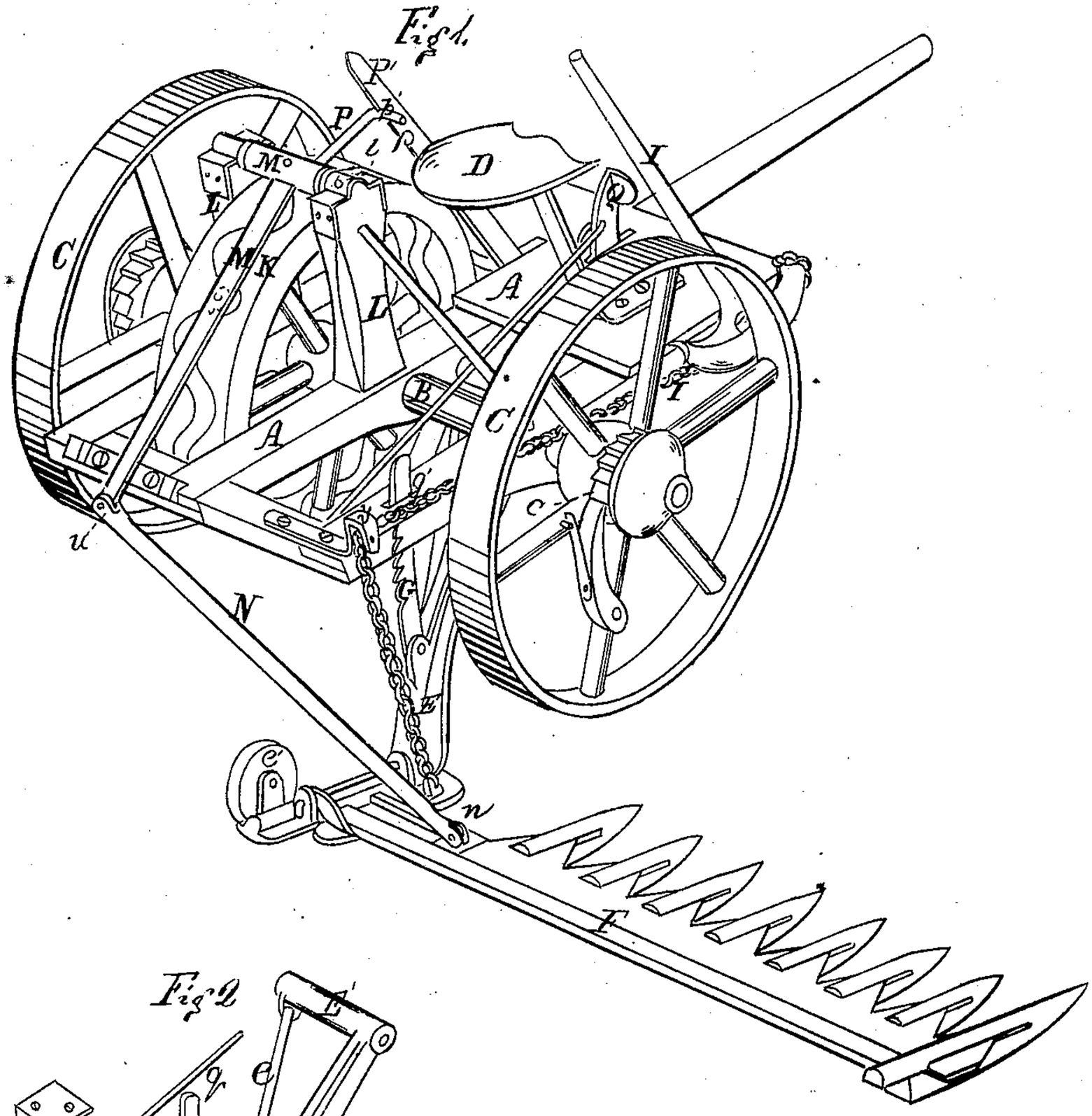

Fig 2.

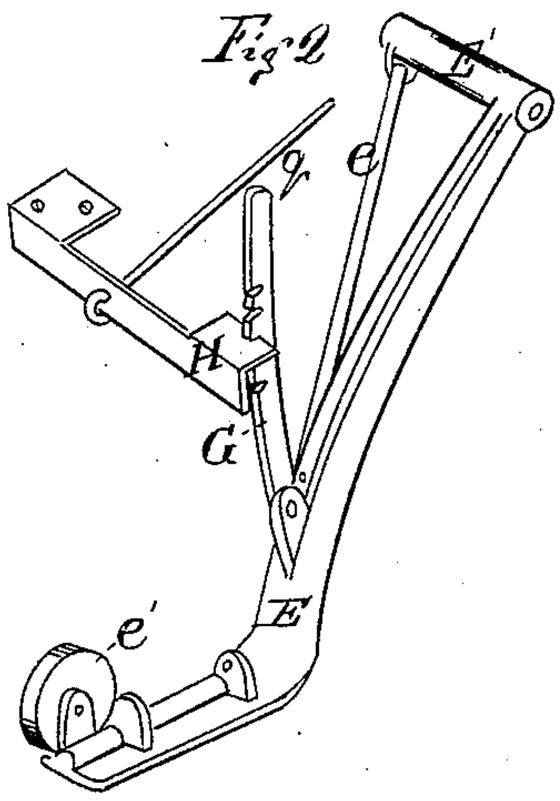

Fig 3.

Witnesses
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JUDSON W. SHAW, OF CONCORD, NEW HAMPSHIRE.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **89,509**, dated April 27, 1869.

To all whom it may concern:

Be it known that I, JUDSON W. SHAW, of Concord, in the county of Merrimack and State of New Hampshire, have invented certain new and useful Improvements in the Construction of Mowing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, in which—

Figure 1 is a rear perspective view of the mower. Fig. 2 represents the shoe or drag-bar, together with the latch for maintaining the vertical adjustment of said shoe, and Fig. 3 represents the way or guide-plate with adjustable buffers for the vibrating lever.

Similar letters of reference indicate corresponding parts in all the figures.

The invention relates to that class of mowers in which the complicated system of cogged gearing is dispensed with and the vibrating motion is imparted to the cutters by means of a serpentine cam; but several of the devices are also adapted to be used upon the machine in which the cogged gearing is used.

The nature of the improvements will be fully understood from the following description.

A is the main frame of the machine, mounted upon the axle B and driving-wheels C C. The wheels C C are connected with and drive the axle B by means of the usual backing-ratchets *e e*. D is the driver's seat. E is a drag-bar or shoe, provided at the end opposite to that at which the cutter-bar is attached with a rock-shaft or sleeve, E′, usually made in one piece with the shoe, but not necessarily so. A brace, *e*, extends diagonally across the angle formed by the sleeve or rock-shaft and the drag-bar, thereby strengthening said drag-bar against lateral strain, and saving both expense and weight.

The shoe E is hinged to the machine either by passing the axle through the sleeve, or else by means of a bar or rod, supported in any desired manner at a suitable point upon the main frame A; or the end of the drag-bar E, instead of being formed into a sleeve, may be made solid, conforming in its general outline to the sleeve, and provided at each end with wrists, which may be supported in suitable bearings.

F represents the cutting apparatus, hinged to the shoe E in the usual manner. *e′* is a small carrying-wheel, mounted upon the shoe E in such manner as to be adjustable. G is a sector-arm, provided with notches, as shown at *g*, Fig. 2, and rigidly attached to the drag-bar E, said arm being in the arc of a circle the center of which is the center of the sleeve E′, so that during the vibrations of the shoe E the said arm G may move freely through the slot *g′* in the main frame A.

If preferred, the arm G may be made straight, and pivoted upon the shoe E, the pivot allowing it (the arm) to move freely through the slot *g′* in main frame A without varying its line of travel relative to the spring-latch H, bolted to the frame A, and engaging with notches *g* on the arm G, for purpose hereinafter explained.

I is a segment-lever, pivoted to the main frame A at *i*. I′ is a chain, attached at one end to the lever I, then, passing over a guiding and supporting pulley, *i′*, is connected at the other end with the cutter-bar a short distance outside the point at which it (said bar) is hinged to the shoe E. Q is a foot-treadle, located within reach of the driver while sitting in his seat. This treadle is pivoted to the main frame A, and connected, by the link *q*, with the spring-latch H. This latch is bolted or otherwise secured to the frame A in such position that it is never engaged with the notches in arm G, except when forcibly held in such contact by the foot of the driver pressing forward the treadle Q.

When operating the machine, if I wish to elevate the inner end of the cutting apparatus, I simply pull the top of the lever I toward me, winding up, as it were, the chain I′ upon the segment of said lever, and when up it (the finger-bar) may be held at will by drawing the latch H into the notches *g*, pressing the treadle forward with my foot for that purpose.

In elevating the outer end of the finger-bar I first cause the spring-latch H to engage with a notch in the sector-arm G by pressing the treadle Q and link *q*, as before set forth. This will prevent any upward movement of the inner end of the finger-bar. Then by pulling back the lever I, drawing up the chain I′, the outer end of said cutting apparatus can be elevated to any desired height, the hinge uniting the finger-bar with the shoe or drag-plate E, serving as a fixed fulcrum for that purpose.

K is a serpentine cam-wheel, keyed rigidly to the axle C.

L L are standards secured to the frame A. Mounted in suitable bearings *l l* upon the upper end of these standards is a rock-shaft, M.

M′ is the pitman-lever, pivoted in rock-shaft M. *m′* is a friction-wheel, mounted upon a spur projecting from lever M′. Said friction-wheel engages with and is operated by the cam K, thereby vibrating the pitman-lever M′, and also the cutters, by means of the pitman N.

O is a guide-plate, secured to the rear end of main frame A at such an angle that the inclination of the face of said plate shall correspond closely to the inclination of the pitman-lever M′. This guide-plate O is constructed with sockets or recesses at each end, as shown at *o o*, Fig. 3, into each of which are fitted buffers o^1 o^1. These buffers may be made either of rubber or other elastic material, or, if not elastic in themselves, rendered practically so by means of springs. I prefer, however, the first-named plan, and so represented them in the drawing. The set-screws o^2 o^2 serve to adjust these buffers for a purpose which I will proceed to explain.

It is well-known that one of the principal causes of wear and failure in mowing-machines of this class is the amount of power consumed in checking the momentum and overcoming the inertia of the cutters and the mechanism which connects said cutters with the driving-cam. Now, in order to overcome this difficulty, I have invented the above-described device, in which the buffers o^1 o^1 are adjusted by means of set-screws o^2 o^2, so as to receive the pitman-lever M′ just before it shall have reached the limit of its throw, thereby absorbing the momentum above spoken of, while at the same time the recoil of the buffer will overcome the inertia of the parts alluded to, while the friction-wheel m^1 is passing each dead-center in the cam, thus relieving the machine of much of the usual wear and tear, and at the same time reducing the power required to operate it. o^3 o^3 are set-screws, used to assist in retaining said buffers in proper position.

The body of the rock-shaft M is shorter than the space between the bearings *l l*, and all end play is prevented by the use of washers m^2 m^3, one or more upon each end. The object of these washers is to provide means for adjusting the throw of the cutters relative to the finger-bar and guard-fingers, as follows: It will be apparent that, when the cutting apparatus is raised for the purpose of reaping, the outer end, *n*, of the pitman N moves in the arc of a circle of which the inner end of said pitman at *n′* is the center, and the point *n*, and of course the cutters, will be thrown out—that is, from the main frame of the machine—while at the same time the shoe and cutter-bar, although moving in the arc of a circle with reference to the point at which the sleeve E′ is suspended, yet with reference to the pitman N their movement is strictly perpendicular and actually toward the point *n′*, thus disturbing materially the relative position of the cutters and guard-finger. In order to overcome this difficulty and restore the parts to a proper working relation, I take off one or more washers from the end at m^2 of the rock-shaft M and crowd said shaft endwise, filling up the space thus left. This movement of course carries the upper end of lever M′ in the direction of arrow *x* and the lower end in an opposite direction, the friction-wheel m^1 serving as a fulcrum for this purpose, although when the machine is in operation the point at which the said lever is pivoted in the rock-shaft forms the fulcrum.

P is an arm projecting from the rock-shaft M, by means of which the driver can elevate the lever M′, withdrawing the friction-wheel m^1, thereby throwing the cutters out of action.

P′ is a latch, provided with notches *p p′*. These, by engaging with the arm P, serve to keep the lever M′ and friction-wheel in such position as the driver shall place them.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The way or guide-plate O, provided at either of both ends with elastic buffers, for the purpose set forth.

2. Adjusting the position of the cutters relative to the finger-bar and guard-fingers by changing the point at which the vibrating bar M′ is pivoted relatively to the cam.

3. The latch P′ and arm P, in combination with the rock-shaft *m*, for the purpose set forth.

4. The spring-latch H, in combination with the foot-treadle Q and link *q*, constructed and operated substantially as set forth.

5. The shoe E, provided with the pivot-head E′, cast in one piece with the shoe, and constructed and operating substantially as set forth.

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Witnesses:
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