

ORSON BILLINGS

Impts in Harvesting & Mowing Machines
 No. 118,837. Patented Sep. 12, 1871.

Fig: 1.

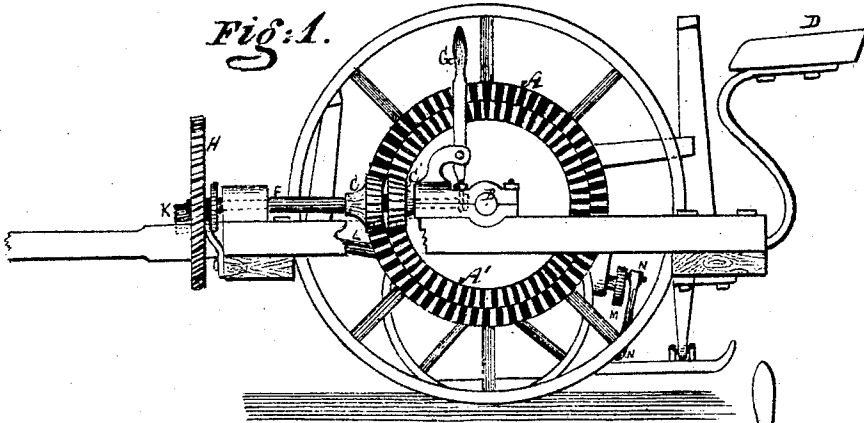


Fig: 2.

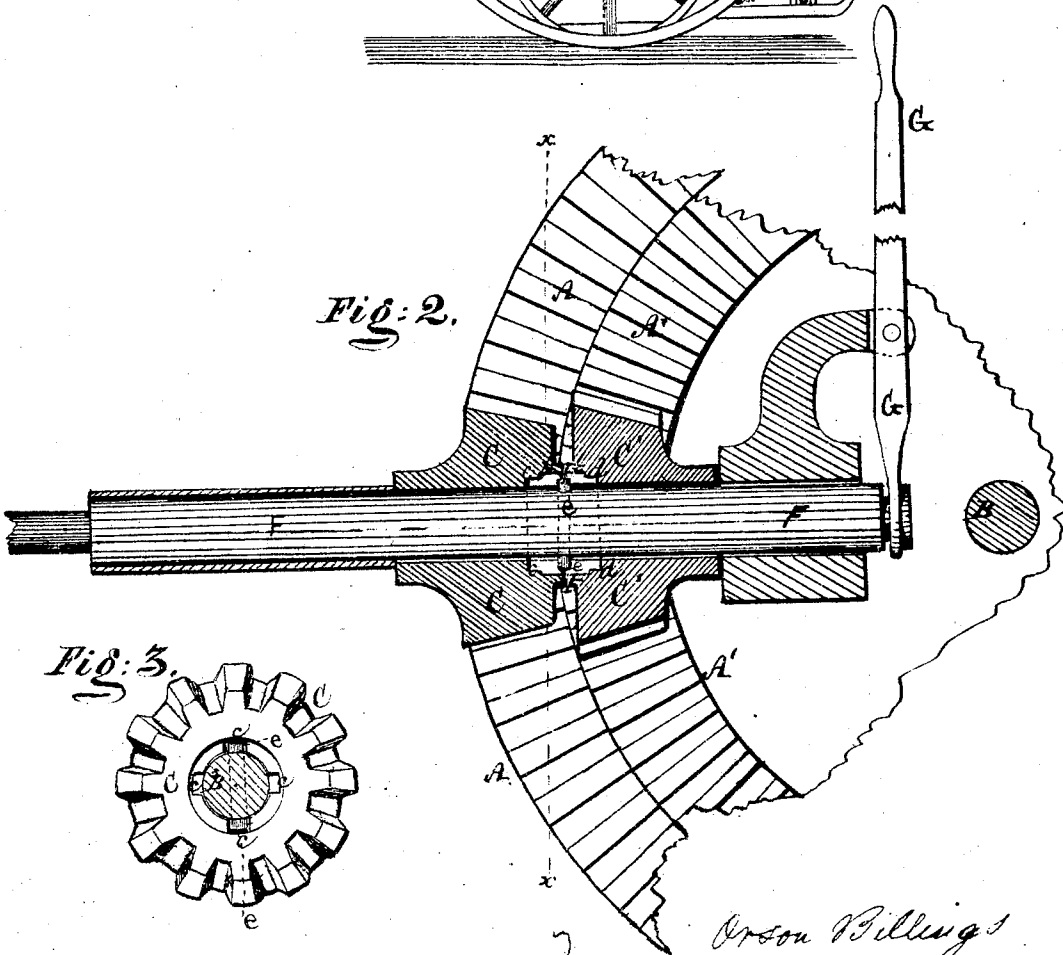
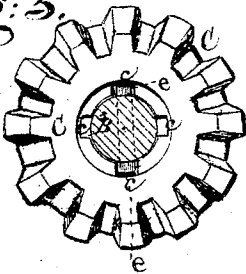


Fig: 3.



Witnesses
 David A. Brown
 Edw. T. Brown

Orson Billings
 By J. A. Fay *Attys*

UNITED STATES PATENT OFFICE.

ORSON BILLINGS, OF ELYRIA, OHIO.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 118,837, dated September 12, 1871.

To all whom it may concern:

Be it known that I, ORSON BILLINGS, of Elyria, in the county of Lorain and State of Ohio, have invented certain new and improved combinations of mechanism for increasing or diminishing the vibratory motion of the cutters of Mowing or Harvesting Machines, of which the following is a specification.

The nature of my invention consists in the employment of two concentric rims of cog-gearing rigidly united and firmly secured to the main driving shaft, combined with two beveled pinions having their axes on a sliding-shaft, and each furnished on their adjacent ends with an annular recess or socket, and with four or more slots therein, which, when brought in register with a pin projecting from either side of the face of the sliding-shaft will, when said shaft is moved forward and backward by a hand-lever, alternately clutch and engage the beveled pinions, and thus cause one or the other of them to revolve the sliding-shaft, thereby imparting to said shaft the rotary motion each receives from its appropriate concentric rim. By this arrangement the operator may, at will, while the machine is mowing or harvesting, increase or diminish the vibrations of the cutters, or stop their motion entire, without the slightest detriment to any part of the machine, and with very slight exertion on the part of the operator.

In the accompanying drawing, Figure 1 is a side elevation of one form of mowing-machine frame and driving-wheel, and illustrates the manner of applying my improved arrangement for regulating the vibrations of the cutters and for stopping their motion altogether. Fig. 2 is a central vertical section through the sliding-shaft on an enlarged scale, to illustrate the clutches in the adjacent ends of the pinions, and also the pin projecting from the sliding-shaft in the required position for stopping the motion of the cutters. Fig. 3, section through line *x x*, Fig. 2.

The two concentric rims of cogs *A A'* are rigidly connected to each other and firmly secured to the main driving-shaft *B*, or they may be secured to the face of the left-hand driving-wheel in such a manner as to revolve therewith, and so arranged thereon as to be in gear with two beveled pinions, *C C'*, each having its axis on a horizontal sliding-shaft, *F*, and each provided with an annular projection, *f*, and a recess and slots, *c* and *d*,

in their adjacent ends, as shown clearly in Figs. 2 and 3 of the drawing, said slots being so arranged as to come in register and engage with a pin or projection, *e*, on sliding-shaft *F*, which slides within suitable journal-boxes secured to the frame of the machine, and is moved backward and forward therein by a hand-lever, *G*, having a fixed fulcrum, as shown in the drawing, for the purpose of bringing alternately the pin or lug *e* within the clutches *c* or *d*. A steel pin, *e*, is diametrically and firmly inserted in the shaft *F*, equidistant between the pinions *C C'*, and projecting from the shaft on either side thereof of the required length to bring each projection to correspond with the sockets or slots *c* and *d*. By this arrangement an inclosed space is provided in which pin *e* operates, and is thereby protected from all dust and obstructions, and the pinions are thereby prevented from approaching each other. Through preference I locate the lever *G* on the left-hand side of the driver's seat *D*; however it may be located on the frame, it is to be secured to one end of the sliding-shaft *F*, as shown in Fig. 2; thus, by working said lever the pin *e* on shaft *F* will laterally and alternately be brought in register with the slots *c* and *d*, and thereby cause whichever pinion it may engage to revolve the sliding-shaft *F*. Secured to the forward end of shaft *F*, opposite the lever *G*, is a gear-wheel, *H*, which engages a pinion, *K*, on the adjacent end of a pitman shaft, *L*, connecting with a crank-wheel, *M*, and thus the required vibratory motion is imparted to the cutters through the crank-arm and pitman *N*, connecting the crank-wheel with the cutter-bar. When the projection *e* engages the slots *c* in pinion *C* the shaft *F* receives its rotary motion from the outer concentric rim *A*, and acts upon a higher motion. When the projection *e* engages the slots *d* in pinion *C'* the shaft *F* receives its motion from the inner concentric rim *A'*, and acts upon a lower motion. Thus it will be seen that the pinions *C C'* remain always in gear with their appropriate concentric rims *A A'*, though motion is imparted to shaft *F* only by such a pinion as engages the pin *e*, so that when pin *e* engages neither of the pinions shaft *F* remains motionless, though both pinions revolve with the concentric rims *A A'*, whether they be engaged with pin *e* on shaft *F* or not. Thus it will be seen that the vibrations of the cutters may

be increased or lessened, or entirely stopped, while the machine is in full working order and swath.

I also contemplate adapting my improvements to the various forms of mowers and harvesters now in use, as it may readily be done without departing from the invention for regulating the speed of the cutters as hereinbefore fully set forth, merely requiring variations as to size and location of the shaft F and pinions C C'.

I claim as my invention—

The concentric rims of cog-gearing A A', and the loose bevel-pinions C C', placed contiguously

upon the shaft, and having annular recesses and slots *c* and *d*, in their adjacent ends, in combination with pin *e*, arranged to slide between the recessed pinions and clutch them to the shaft, substantially as and for the purpose hereinbefore specified.

The foregoing specification of my improvements in mowing and harvesting machines signed by me this 30th day of April, 1870.

ORSON BILLINGS.

Witnesses:

E. NICKERSON,
N. L. JOHNSON.