M. W. KNOX.

Mowing-Machine Knife-Grinder.

No. 134,809. Patented Jan. 14, 1873.

Fig. I.

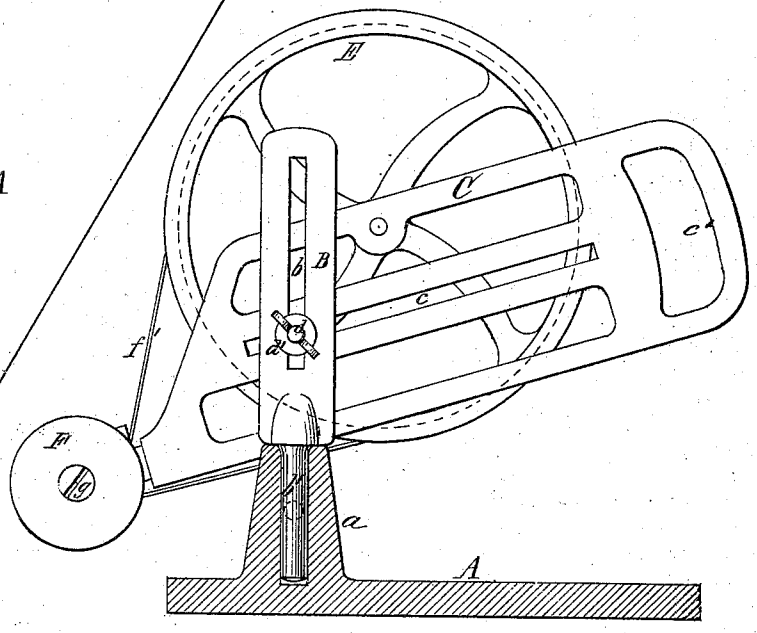

Fig. III.

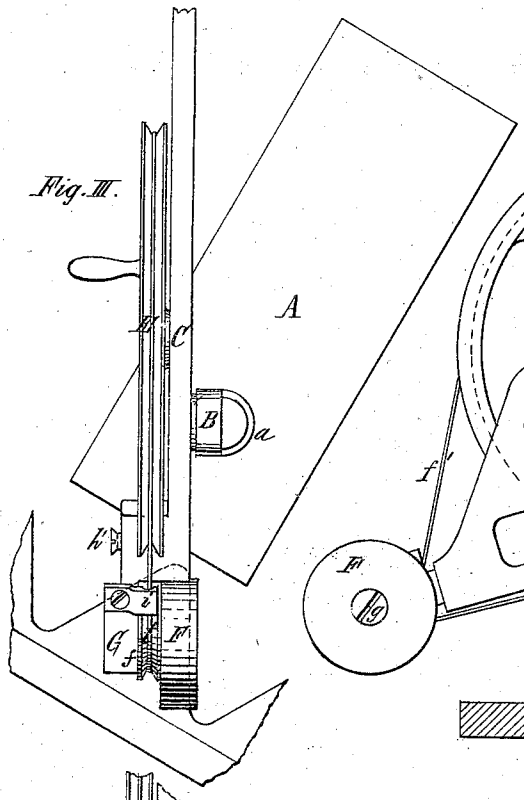

Fig. II.

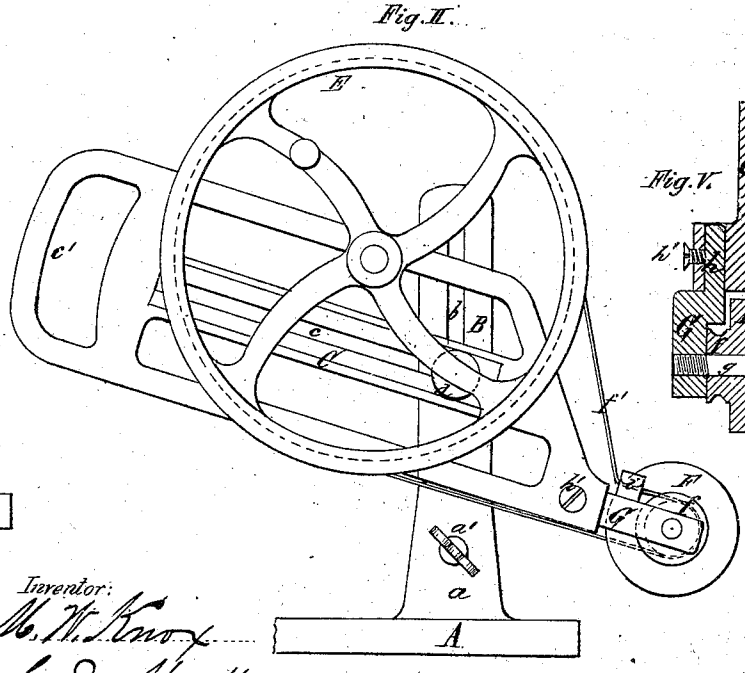

Fig. IV.

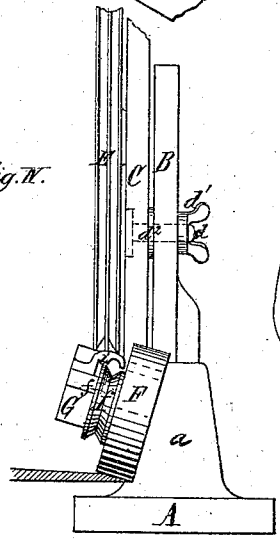

Fig. V.

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UNITED STATES PATENT OFFICE.

MELVIN W. KNOX, OF SHERIDAN, NEW YORK.

IMPROVEMENT IN MOWING-MACHINE KNIFE-GRINDERS.

Specification forming part of Letters Patent No. **134,809**, dated January 14, 1873.

To all whom it may concern:

Be it known that I, MELVIN W. KNOX, of Sheridan, in the county of Chautauqua and State of New York, have invented certain Improvements in Machines for Grinding the Knives of Mowing-Machines, &c., of which the following is a specification:

My invention relates to a portable machine provided with a grinding-wheel operated by hand for sharpening the knives of mowing and reaping machines while in place, and without removing them from the machines to which they are attached.

The invention consists, first, in the combination of a driving and grinding wheel with a pivoted and slotted frame-lever, in which the driving and grinding wheels are mounted, the slot in the frame allowing a longitudinal movement of the frame as the grinding-wheel traverses the beveled edge of the knife, while the pivot allows the frame to be used as a lever for applying the required pressure to the grinding-wheel when in contact with the knife; second, in the combination, with the supporting-frame, the driving and the grinding wheel, of a pivoted bearing for the latter, whereby the face of the grinding-wheel can be inclined in either direction to correspond with the bevel of the cutting edges of the knives, by turning the said bearing on its pivot; third, in the combination, with the supporting-frame and driving and grinding wheels, of a pivoted standard supporting said frame, whereby the frame carrying the grinding-wheel at its end is enabled to be adjusted parallel with either cutting-edge of the triangular knives; fourth, in the combination, with the pivoted and slotted frame, of a slotted standard, by which the pivot and fulcrum of the lever-frame are rendered vertically adjustable.

In the accompanying drawing, Figure I is an elevation of my improved machine; Fig. II is a reverse elevation thereof; Fig. III is a plan view, representing the supporting-frame and grinding-wheel adjusted to the cutting-edge of a knife; Fig. IV is a fragmentary front elevation, showing the grinding-wheel adjusted to the bevel of the cutting-edge of a knife; and Fig. V is a sectional view of the pivot-bearing of the grinding-wheel.

Like letters designate like parts in each of the figures.

A represents the base plate of the machine, provided with an upwardly-projecting step-bearing, *a*. B is the upright standard, provided with a vertical slot, *b*, while its lower end *b'* fits in the socket of the bearing *a*, so as to enable the standard to be turned about its vertical axis. *a'* is a set-screw arranged in the bearing *a*, by which the standard is fixed in place after it has been adjusted. C is the pivoted frame and lever to which the driving and grinding wheels E F are attached. It is constructed with a central longitudinal slot, *c*, through which passes the pivot-bolt *d*, by which the frame is secured to the standard B. This bolt passes through the slot *b* of the standard, in which it is secured by a thumb-nut, d^1, on the outside, and a shoulder, d^2, on the bolt between the standard and frame. The latter is provided at its rear end with a handle, *c'*, by which it is operated. The driving-wheel E turns freely on a stud-bearing projecting from the frame C. The grinding-wheel F is made of stone, emery, or other suitable material, and provided with a pulley, *f*, over which the endless band *f'* runs, by which the motion of the driving-wheel is transmitted to the grinding-wheel. G is the pivoted bearing of the grinding-wheel, which is mounted so as to freely turn upon a stud, *g*. The shank or stem *h* of this bearing fits in a socket arranged in the front end of the frame C, parallel to the slot *c*, so that the face of the grinding-wheel F can be inclined in either direction by turning the bearing G in its socket. *h'* is the set-screw by which the bearing is secured in place in the socket after it has been adjusted. *i* is a guide-piece arranged on the top of the bearing G to prevent the endless band *f'* from running off the pulley *f* when the grinding-wheel is inclined.

Operation.

The grinding-machine is placed in front of the cutter-bar and the frame C arranged parallel with the cutting-edge to be sharpened, (as clearly represented in Fig. 3,) by turning the standard B in its socket, when the set-screw *a'* is tightened to secure the standard in this position. The frame C is adjusted with

reference to the height of the knives by raising or lowering the pivot-bolt *d* in the slot *b* of the standard, and the grinding-wheel inclined so as to correspond with the varying bevel of the cutting-edges of the different knives, by turning the bearing G in its socket and securing it in place by the set-screw *h'*. The machine is now ready for grinding the knife, which is accomplished by placing the foot upon the base-plate A and turning the driving-wheel with one hand, while the other hand takes hold of the handle *c'* and moves the frame C forward and backward so as to cause the revolving grinding-wheel to travel lengthwise over the beveled edge of the knife. As the frame C is capable of turning freely on its pivot-bolt *d* while sliding thereon, the required pressure can be readily applied to the grinding-wheel in all positions by bearing upward on the handle *c'*. The pivoted standard enables the machine to be used and adjusted independent of the particular arrangement of the base of the machine, which is of great importance when grinding the knives at the inner end of the cutter-bar. The socketed bearing of the grinding-wheel not only enables the latter to be inclined, but it also serves as a ready means for tightening the driving-band.

What I claim as my invention, is—

1. The combination, with the standard or bearing B, of the pivoted and slotted frame-lever C and driving and grinding wheels E F, both mounted in the frame-lever C, substantially as hereinbefore set forth.

2. The combination, with the frame-lever C and grinding-wheel F, of the pivoted bearing G, for adjusting the face of the grinding-wheel to the bevel of the knife, substantially as hereinbefore set forth.

3. The combination, with the slotted frame C, driving-wheel E, and grinding-wheel F, of the pivoted standard B and socketed base *a*, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the slotted frame C, and standard B provided with the slot *b*, of the pivot-bolt *d* and nut *d'*, whereby said frame is rendered vertically adjustable and capable of longitudinal movement, substantially as hereinbefore set forth.

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Witnesses:
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