(No Model.)

C. A. KELLOGG.

MOWING MACHINE KNIFE GRINDER.

No. 406,739. Patented July 9, 1889.

Fig 1

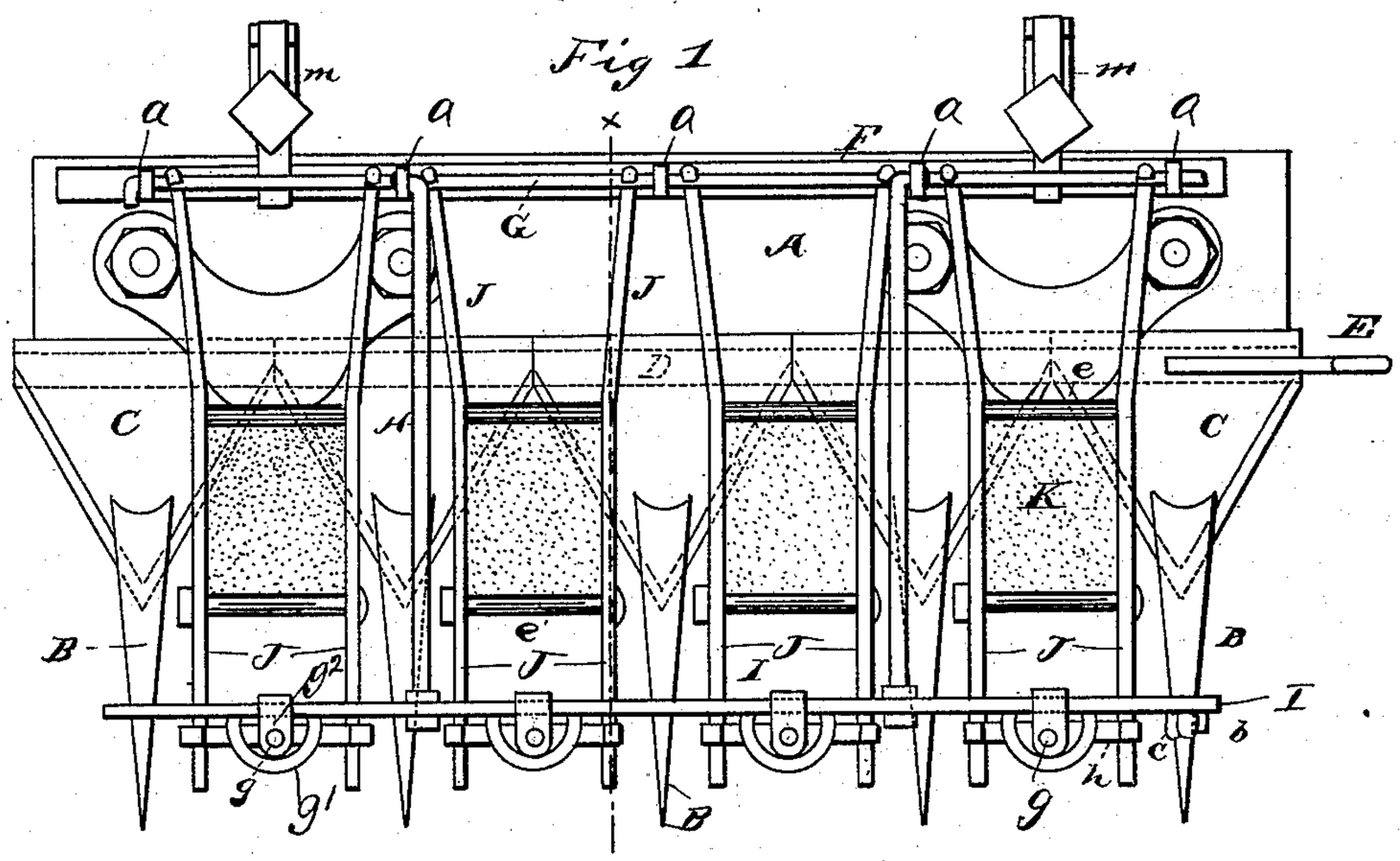


Fig. 2

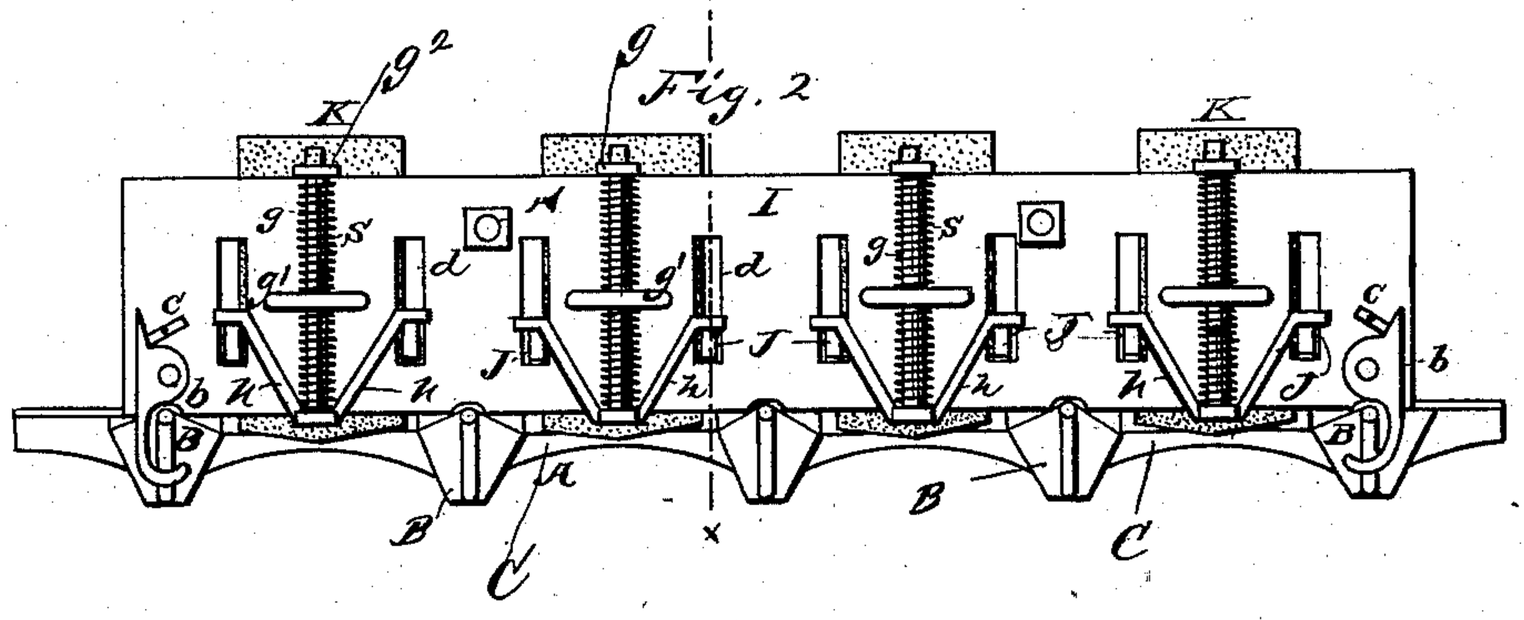


Fig. 3.

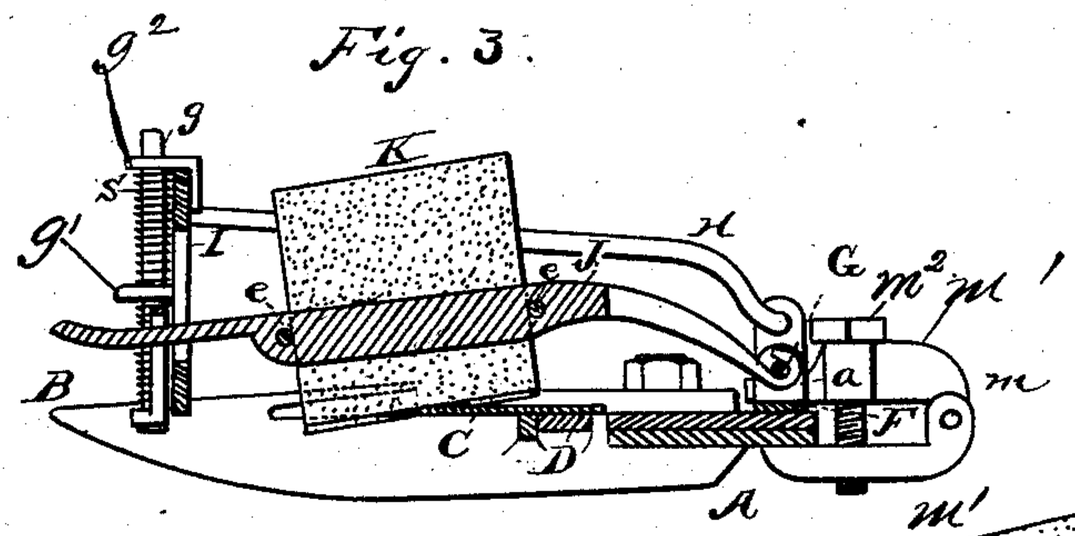


Fig. 4.

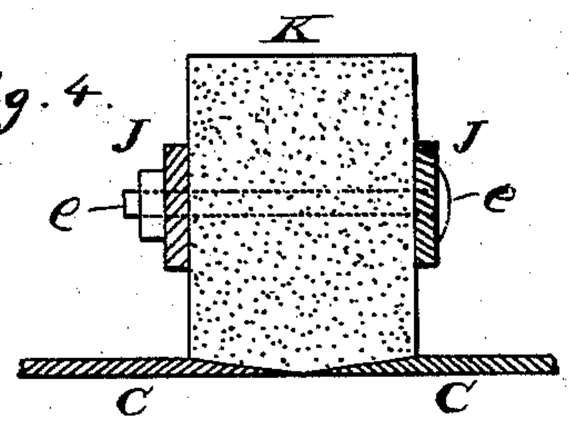
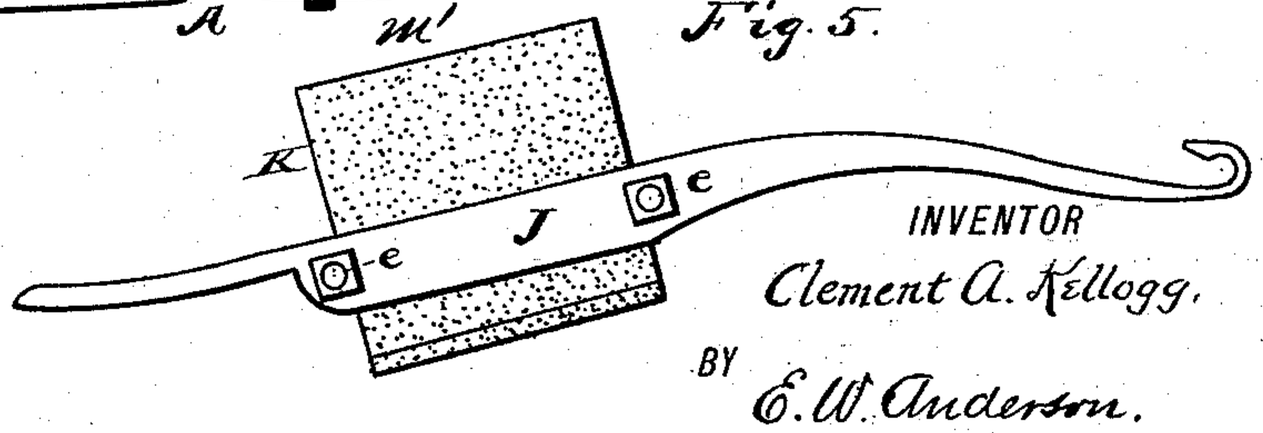


Fig. 5.



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MOWING-MACHINE-KNIFE GRINDER.

SPECIFICATION forming part of Letters Patent No. 406,739, dated July 9, 1889.

Application filed February 15, 1889. Serial No. 299,954. (No model.)

To all whom it may concern:

Be it known that I, CLEMENT A. KELLOGG, a citizen of the United States, and a resident of East Carmel, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Mowing-Machine-Knife Grinders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a top view of a cutter-bar, showing the grinding attachment. Fig. 2 is a front view. Fig. 3 is a transverse section. Fig. 4 is a sectional view of the grinding-stone between the clamps. Fig. 5 is a side view of the grindstone in the clamping-holders.

This invention has relation to devices for grinding the knives of mowing-machines; and it consists in the construction and novel combination of parts constituting an attachment to the mowing-machine and adapted to operate upon the knives without taking them out of the guards or throwing the machine out of gear, all as hereinafter set forth, and pointed out in the claims.

The grinder is designed to be readily and quickly secured to the cutter-bar, and when in position the machine is drawn forward by the horses as in the mowing operation, and the movement of the machine reciprocates the knives under the grinding-stones, causing them to operate upon the knives.

In the accompanying drawings, the letter A designates a portion of the frame of the mowing-machine, being the finger-bar, and B are the guards thereof.

C C indicate the cutters, which are of the usual angular form and are secured to the reciprocating bar D, which is reciprocated when the machine is in motion by the cutter-moving mechanism operating through a pitman E, connected to said bar D.

F represents a bar of iron which forms a part of the grinder-frame and is located on the rear portion of the finger-bar, extending the length thereof, and provided with the perforated lugs or bearings *a* for a pivot-rod G, which extends along the finger-bar above the bar F and is connected to said bar F by said lugs. The bar F is secured to the rear of the finger-bar by detachable clamps *m m*.

H H are arms of the frame of the grinder, pivotally connected to lugs of said attachment in rear and extending forward to carry the plate or guide I, which is secured to the front ends of said arms and extends the length of the cutter-bar, resting when in operating position upon the upper surface of the guards, and when in such position being secured thereto by hooks *b*, which may be locked in engagement by buttons *c*, the hooks which are pivoted to the plate I catching under the forward beveled ends of the guards, while the buttons, also pivoted to the plate, engage shoulders of the hooks above their pivots. The plate I rests edgewise on the guards, and is provided with vertical slots *d d*, through which extend the front ends of the straps J J, which are arranged in pairs to form clamping-holders for the grinding-stones or emery-blocks K, each stone being secured by bolts *e e* between two of said straps. The rear ends of these straps are provided with pivotal hook-bearings, which engage the pivot-rod G of the grinder-frame and are preferably detachable therefrom. The downward movement of the clamping-holders is limited by the slots of the limiting guide-plate I.

Each grinding-stone is made with its under surface beveled laterally in both directions from its middle line, and will wear away in this proper shape when in operation. As each pivoted holder extends forward over the interval between two guards, its stone will extend downward between said guards, and, its lowest position being determined by the slotted plate I, it will be held in proper relation to the edges of the cutters which are to be operated upon.

To the slotted plate I are connected vertical guide-rods *g*, which carry the springs S, which bear on the yokes *h*, which are connected to said guide-rods and have some play in the vertical direction. The spring-encircled rods *g* are held to the plate I by keepers or staples *g'*, through which they pass and which project from said plate, while the upper ends of the springs upon said rods bear against and are

held in place by means of apertured angular plates g^2, which are secured to the rear side of said plate, and through which also pass said rods g at their upper ends. These yokes h engage the forward ends of the clamp-straps J, and the springs acting on said yokes hold the grindstones in the clamping-holders down to their work, while allowing them to yield upward as the edges of the cutters pass under the stones in their reciprocating motion. At the same time the slots of the plate I prevent the clamping-holders and their grindstones from being carried laterally out of their true grinding position.

m m are clamps which hold the frame-bar A to the cutter-bar, and consist each of two sections m' m', hinged or pivoted together at their outer ends, the upper one carrying a screw m^2, which engages a screw-threaded aperture in the lower section.

When the grinder is locked on the finger-bar in the position described and the mowing-machine is driven forward, reciprocating the cutters, each cutter will engage by one of its bevel edges one of the bevels of a grindstone above it, and as the point of the cutter passes under the stone the latter will rise slightly to allow the passage, and then descending will operate by its other bevel upon the opposite bevel edge of said cutter. Upon the return movement of the knives the action of the knives under the grindstones will be similar, but in the opposite direction.

The grinder can be readily detached from the cutter-bar by unfastening the front hooks and taking off the rear clamps m.

As the spring clamping-holders are detachable from the attachment-frame when the latter is unfastened in front and thrown back, only such clamping-holders as are needed may be allowed to remain in connection with the grinder for work. The rod G is now moved so as to detach it from the hooked ends of the holders of the stone or stones it is desired to remove, when, by pushing inward or downward upon the required holders, the same are removed from the plate I, permitting the removal of the holders with said stone or stones. Any of the cutters which need grinding can therefore be operated upon without touching the other cutters.

This grinder is designed for use in connection with any ordinary mowing-machine having cutters of the common angular form indicated. Its construction is simple and not easily injured or put out of order.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a mower, of the spring grindstone-holders, their attaching-frame, the slotted plate connected to the arms of said frame and provided with pivoted hooks engaging the finger-bars, and buttons engaging said hooks for securing said holders in position upon the finger-bar, whereby the grindstones are held between the guards to engage the edges of the cutters as they are reciprocated during the motion of the mowing-machine over the ground, substantially as specified.

2. The combination, with the finger-bar of a mowing-machine, of a detachable spring grindstone-holder, its attaching-frame, the plate connected to the arms of the attaching-frame, and a button-and-hook connection between said plate and finger-bar, substantially as specified.

3. The combination, with a mower, of pivoted spring-holders, grindstones, and limiting-guides consisting of yokes engaging said holders, preventing lateral motion of said holders, while allowing the vertical motion thereof, substantially as specified.

4. The combination, with a mower and clamps to hold the same to the cutter-bar, of the pivoted detachable grindstone-holders, their springs, the limiting-guides consisting of yokes engaging said holders, preventing lateral motion of said holders, and the fastenings whereby the holders are secured to the guards in front, substantially as specified.

5. The combination, with a mower, of the slotted front plate or guide, the detachable pivoted clamping-holders engaging said plate or guide, springs to press the holders down to their work, and fastenings to secure the holder-frame to the cutter-bar of a mowing-machine, substantially as specified.

6. The cutter-bar grinder for mowers, consisting of the detachable frame and its clamps and front fastenings, the pivoted clamping-holders for the grindstones, and the guide-slots of the frame-plate, through which the straps of said holders extend, the spring-guides and yokes, and the pressure-springs, substantially as specified.

7. A grinder for cutter-bars of mowers, consisting of the pivoted spring-holders and beveled grindstones projecting downward from said holders between the guards of the cutter-bar, and yokes engaging said holders permitting vertical play of said spring-holders, but preventing lateral movement, said attachment being designed to be detachably secured to the finger-bar to grind the cutters thereof as they are reciprocated during the motion of the machine over the ground, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

CLEMENT A. KELLOGG.

Witnesses:
O. R. SAINT,
L. T. FARR.