

(No Model.)

2 Sheets—Sheet 1.

H. MOON.

CUTTING APPARATUS FOR MOWING MACHINES.

No. 515,603.

Patented Feb. 27, 1894.

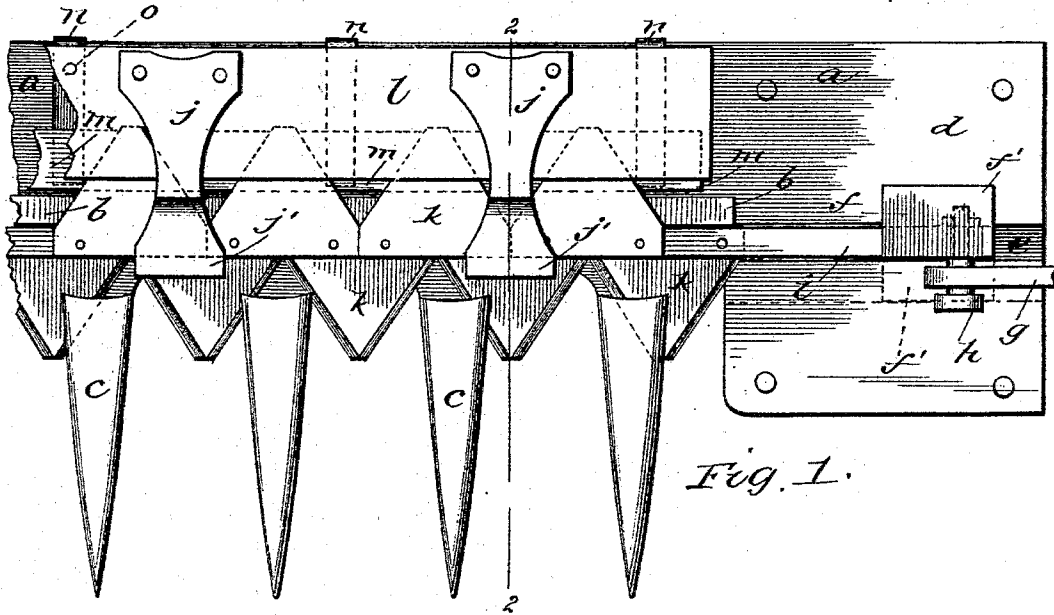


Fig. 1.

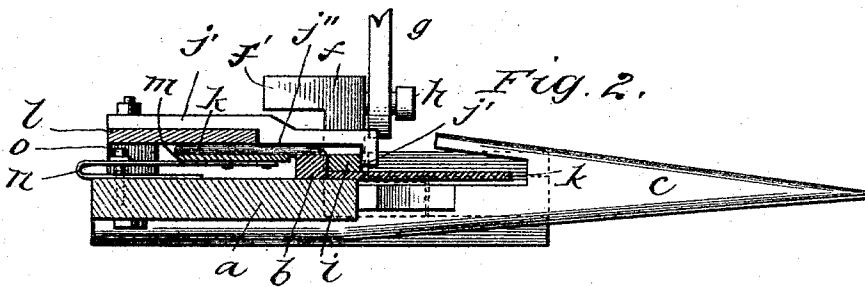


Fig. 2.

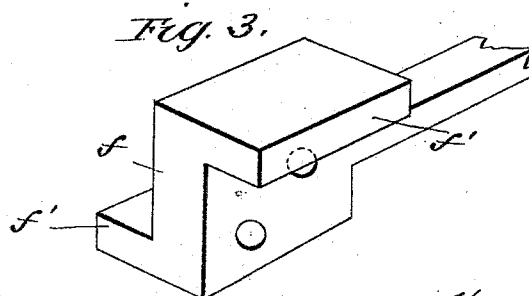


Fig. 3.

Witnesses
J. A. Criswell.
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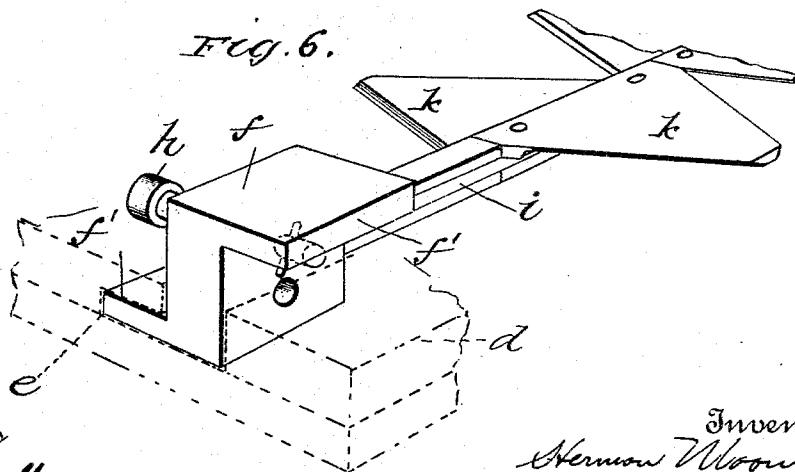
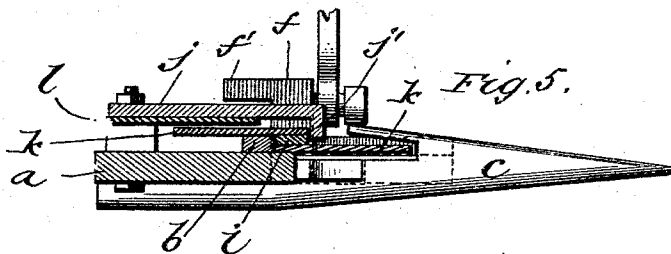
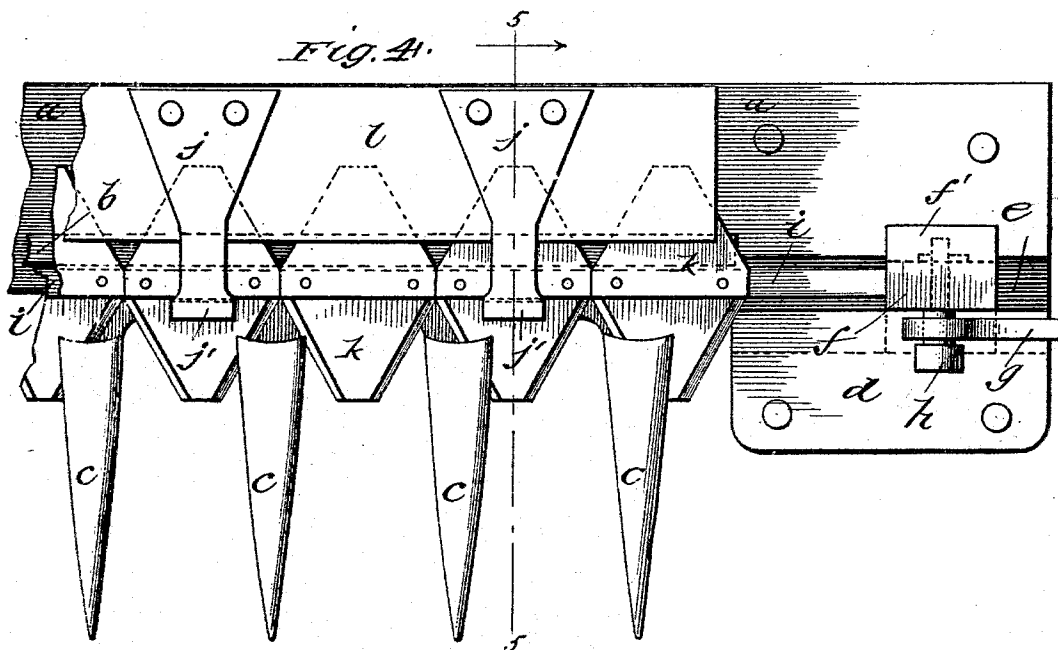
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UNITED STATES PATENT OFFICE.

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CUTTING APPARATUS FOR MOWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 515,603, dated February 27, 1894.

Application filed June 19, 1893. Serial No. 478,155. (No model.)

To all whom it may concern:

Be it known that I, HERMON MOON, a citizen of the United States, residing at Grove, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Cutting Apparatus for Mowing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in cutting apparatus for mowing machines, and it has for its object to provide a reversible knife for said cutting apparatus whereby when one set of knives becomes dulled or injured, the knife bar may be reversed and an entirely new set of knives brought into use, all of which is hereinafter fully set forth.

The invention has other minor objects in view which are fully set forth in the course of this specification.

In the drawings:—Figure 1 is a plan view showing a portion of the cutter-bar with the knife in position thereon. Fig. 2 is a sectional view on line 2—2 of Fig. 1; and Fig. 3 is a perspective view of the knife-bar reciprocating guide-block. Fig. 4 is a plan view of a modification of my device. Fig. 5 is a sectional view of this modification; and Fig. 6 is a detail of the modification.

Referring to the various parts by letters, *a* designates the cutter-bar; *b* a guide mounted on the upper side thereof near its forward edge; *c* the guard-fingers carried by the cutter-bar in the usual manner; *d* the enlarged inner end of the cutter-bar; *e* a longitudinal slot formed in said enlarged portion, said slot being L-shaped in cross section; *f* a Z-shaped block the lower half of which fits said slot and is adapted to be reciprocated therein by the pitman *g* which is connected to the removable wrist-pin *h* carried by the block *f*, said block being formed at its upper and lower edges with the outwardly extending flanges *f'* *f'*.

i is the knife bar which is connected to the block *f* at its inner end, and extends along the forward edge of the cutter bar, and is guided thereon by the guide *b*, at its rear, and by the depending portions *j'* of the arms *j*, on its forward side.

k k are the knife blades which are of the

usual construction and are secured to the upper and lower sides of the knife bar, the knives on the lower side of the bar *i* extending transversely of the bar in one direction and those secured on the upper side thereof extending in the opposite direction. The knives secured on each side of the bar *i* are placed in such relation to each other that the joints between the knives on one side of said bar will "break-joints" with those on the opposite side thereof, that is, the center of the knives of one series will be directly opposite the ends of the knives of the other series. By this arrangement of the knives the bar *i* is greatly strengthened and stiffened throughout its length, and a much lighter bar may therefore be employed.

l is a guide plate which is secured to the upper side of the cutter-bar, its forward edge extending over the rearwardly projecting set of knives *k*, thereby protecting said knives from any dirt, grass, &c., which would be likely to interfere with their free movement. The arms *j* are secured on the upper side of this guard plate and extend forwardly over said plate and the knife-bar *i* as clearly shown in the drawings.

A spring controlled presser-bar *m* is supported by the flat or leaf springs *n* under the rearwardly extending set of knives *k*. This bar bears against the under side of said knives and forces them against the under side of the depending forward portion *j''* of the guide arms *j* and thereby securely holds the entire knife bar steady, and secures it in accurate operative position. This presser bar also by its upward pressure on the rear set of knives, holds the forward operating set of knives down to the guard fingers and thereby secures the "shear cut" and produces the best results from their operation. Another important advantage of this bar *m* is that it will take up the wear on the knives and always hold them steadily in place to the guard fingers, thereby materially lengthening the life of the knives. In order to adjust the pressure of this bar *m* on the knives, adjustable screw-bolts *o* are passed through the springs *n* and into the cutter bar *a*, whereby the pressure of said bar may be regulated as desired, which will be readily understood by reference to Fig. 2 of the draw-

ings. These springs may be of any desired formation, as is evident.

In Figs. 4, 5 and 6 of the drawings is illustrated a modified arrangement of the parts of my device. By reference to these figures it will be observed that the presser-bar *m* is removed, thereby permitting the knife-bar to reciprocate freely guided by the bar *b* and the guides *g'*. It will also be observed that the knives *k* are placed on each side of the knife bar in such relation that they are directly opposite each other, which in some instances may be found desirable, but I wish it understood that I prefer the construction shown in Figs. 1 and 2 as combining great strength with accurate working and lightness.

In operation the knife is reciprocated in the usual manner by its pitman connection, the guard plate *l* protecting the set of knives which project rearwardly and are out of use. When the set of knives are in use have become dulled or injured and it is desired to bring the unused set into operation, the pitman is released from the block *f* by means of the removable wrist-pin, and the knife bar is removed from the cutter-bar, the block *f* being also removed from the slot *e*. The block *f* and the knife-bar are now reversed, and the block *f* in its reversed position is again inserted in the slot *e* and the knife bar is again supported on the cutter bar as before described. The wrist-pin and pitman are now connected to the block *f*, a series of perforations being formed in said block to secure the proper adjustment of the wrist-pin, and the knife bar reciprocated as before. The block *f* being formed with the two outwardly extending flanges *f'* *f'* is readily inserted in either of its positions in the slot *e* of the cutter bar, as will be readily understood. It will thus be seen that I provide an exceedingly simple cutting apparatus whereby the knife may be readily, and without disconnecting any of the parts (except the wrist-pin) reversed, and a new set of knives brought into use.

Having thus fully described my invention, what I claim is—

1. A cutting apparatus for a mowing machine consisting of a cutter-bar, guard fingers carried thereby, a knife bar, knives secured on the upper and lower sides of said bar, each set of knives extending in opposite directions, a guard plate extending over the unused set of knives, means for reciprocating said knife

bar, and means whereby said bar may be reversed substantially as described.

2. A cutting apparatus for a mowing machine consisting of a cutter-bar, guard fingers carried thereby, a knife-bar, knives mounted on the upper and lower sides of said bar as described, a guard for the rearwardly extending unused set of knives and guides carried by the cutter-bar and engaging the knife-bar at its front and rear sides, and means for reciprocating said bar, substantially as described.

3. A cutting apparatus for a mowing machine consisting of a cutter-bar, guard fingers, a knife-bar carrying knives on its upper and lower sides as described, guides for said knife-bar, a block secured to the end of the knife-bar, said block at its upper and lower ends being enlarged, said enlarged ends being adapted to fit and reciprocate in a slot formed in the cutter-bar, a wrist-pin removably connected to said block, whereby the knife bar may be reversed, substantially as described.

4. A cutting apparatus for a mowing machine consisting of a cutter bar, guard fingers carried thereby, a knife bar, knives secured on the upper and lower sides of the bar as described, a presser-bar carried by the cutter-bar and bearing on the under side of the unused set of knives, means for reciprocating the bar.

5. A cutting apparatus for mowing machines consisting of a cutter-bar, guard fingers, a knife bar, knives secured to the upper and lower sides of said bar said knives extending in opposite directions as described, a presser-bar, *m*, bearing on the under side of the unused set of knives, springs supporting said presser-bar, means for adjusting the pressure of said springs, means for reciprocating said bar, substantially as described.

6. A mowing apparatus for a mowing machine, consisting of a cutter-bar, guard-fingers, a knife-bar, knives secured on the upper and lower sides of said bar, said knives extending in opposite directions and being secured to the knife-bar in such manner that those on one side thereof will "break joints" with those on the other side, means for reciprocating said bar, substantially as described.

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

HERMON MOON.

Witnesses:

LYLE W. ORR,
J. Y. TEMPLETON.