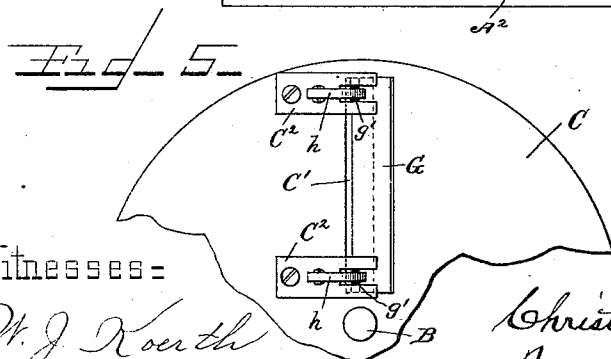
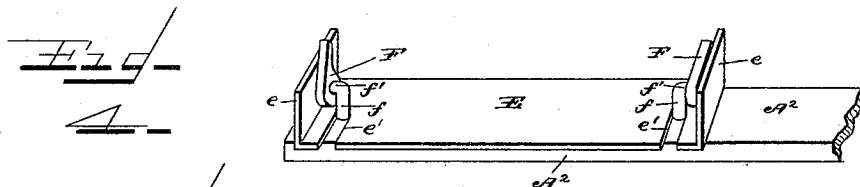
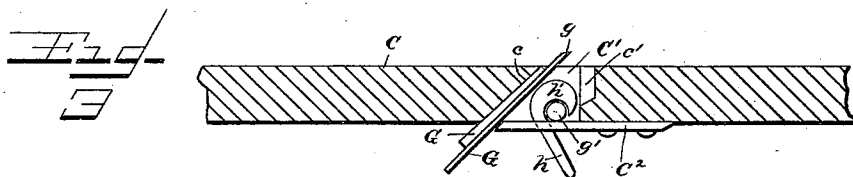
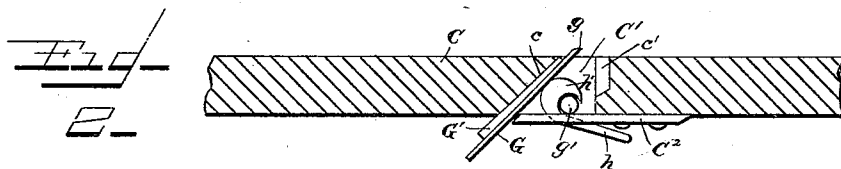
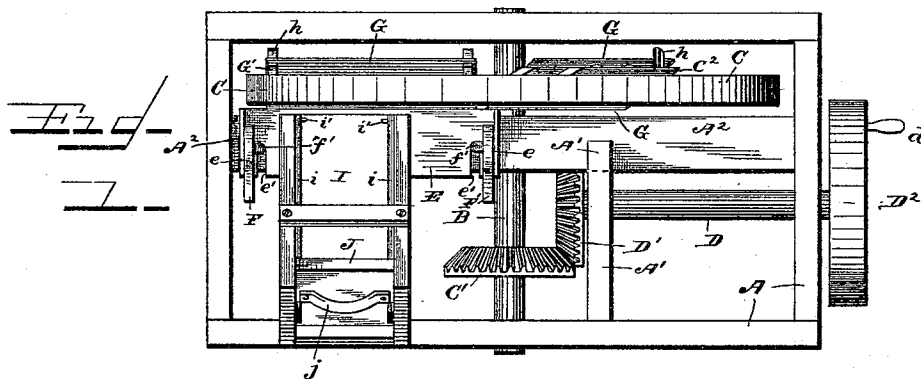


(No Model.)

C. J. MILLER.
SLAW AND ENSILAGE CUTTER.

No. 459,459.

Patented Sept. 15, 1891.



Witnesses:

W. J. Koerth
W. C. Garrett

Inventor:

Christopher J. Miller
By A. L. Smith & Son.
Attorneys.

UNITED STATES PATENT OFFICE.

CHRISTOPHER J. MILLER, OF MARION, OHIO.

SLAW AND ENSILAGE CUTTER.

SPECIFICATION forming part of Letters Patent No. 459,459, dated September 15, 1891.

Application filed December 18, 1890. Serial No. 375,118. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER J. MILLER, a citizen of the United States, and a resident of Marion, county of Marion, and State of Ohio, have invented a new and useful Improvement in Slaw and Ensilage Cutters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to the construction of the rotating cutter, disk, or wheel and to the manner of applying the cutter-blades thereto, whereby they are made to act in a manner resembling the action of a plane or a series of planes; also, to the construction of the stationary cutter bar or blade and to the means for securing the cutter-blades, both stationary and rotating, at any desired adjustment, all as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan or top view, with the cover or hood removed, of a machine embracing my improvements. Fig. 2 is a section through a portion of the cutter-wheel enlarged, showing in side elevation the cam-lever at one end of the rotary cutter-blade for holding the latter in place; and Fig. 3 is a similar sectional view showing the cam-lever adjusted or rocked to permit the adjustment of said cutter. Fig. 4 is a perspective view of the adjustable stationary cutter and of the cam-levers for holding said cutter at the desired adjustment. Fig. 5 is a rear elevation of a portion of the cutter-wheel, showing the knife, the cams, and the retaining-plates.

In the construction of the machine it is preferred to make the frame in the form of a strong rectangular box or of an upright frame, which may be cased in with lighter material to form a box A, which in practice will have a top or hood covering in the working parts or gearing and cutters embraced within the frame A.

B indicates the shaft carrying the cutter-wheel C near the rear side of the frame and provided near its forward end and the forward side of the frame or box with a bevel-wheel C', meshing with and operated through a bevel or miter wheel D', fast on the inner end of a counter-shaft D, which at its opposite end projects beyond the right-hand end of the frame and has a band-wheel D² and crank d, either or both fast upon it for driving said shaft and the cutter shaft and wheel

either by power or by hand, as the size of the machine or the work required of it may demand. The shafts B and D are supported in suitable bearings in the frame, the shaft B being supported at its inner end in a bar A', which is connected at its forward end to the machine-frame and at its inner or rear end to a broad transverse beam A², extending from side to side of the frame in front of the cutter-wheel C and parallel or substantially parallel with the forward face thereof, said beam A² constituting also the support for the stationary knife or cutter blade E.

The blade E, with a portion of the bar A², to which it is attached, is shown in Fig. 4. It is made in the form of a flat plate of metal with upturned ends *ee*, which serve not only to stiffen the blade and thereby adapt it to be made of lighter metal than would otherwise be practicable, but also to hold the cam-levers, which hold the plate at the desired adjustment without the aid of other retaining devices, as will appear. The plate or knife-bar E has slots *e'e'* near its end flanges and extending from the rear or inoperative edge of the bar to a point at or near the center of its width.

ff indicate two small posts or uprights secured at their lower ends in the beam A², and which, projecting up through the slots *e'e'*, are provided on their upper ends with short oppositely-turned studs or pivots *f'f'*, on which cam-levers F and F' are mounted in close proximity to and held in place on said pivots by the upturned ends or flanges *ee* of the plate E, which are thereby made to hold said levers in place on their supporting-pivots. The ends of these levers, pivoted on the studs *f'*, are cam-shaped, forming eccentrics, which by being rocked on the pivots by vibrating the handle ends of the levers are made to release the plate E for permitting its adjustment toward or away from the cutter-wheel, and also to lock said plate at the required adjustment. It will be apparent that this stationary knife-bar E may be used not only in the class of machines herein described, but in any cutting-machine in which a stationary cutting-edge is required, and where it may be desirable to adjust said stationary cutter.

The disk or cutter wheel C, instead of being made in the usual form, having a hub, radial arms, and an outer rim, is made in the form of a circular disk, solid, except as it is

slotted from its forward to its rear face to receive the plane or planes or cutter-blades and the clamping devices therefor, inserted in said slots and extending through the wheel.

5 The form of the slots is indicated at C' in Figs. 2 and 3, and is similar to that in an ordinary hand-plane, the rear wall of the slot (indicated at c) being inclined, so as to set the cutting-edge of the knives G well forward in
10 advance of the heel end for giving a shearing or shaving action to the cutter, while the forward wall of the slot is preferably at right angles to the faces of the wheel, as shown, thereby causing said walls to diverge from
15 front to rear and giving increasing clearance to the cut material passing through said slots similar to the passage of shavings through the plane by which they are cut.

Preferably between the knife G and the
20 inclined rear wall of the slot C' a backing or stiffening plate G' is employed, of greater width than the thickness of the wheel and tapering from heel to point or forward edge, as shown. By the use of this backing-plate
25 the knife is better supported in a thin wheel, the knife can consequently be made lighter than it otherwise could be, and the grinding or sharpening thereof is effected with greater ease. The cutting-edge is shown beveled at
30 g similar to that of a plane, thereby facilitating its easy cutting action.

The end walls of the knife-slots are provided each with a short stud or pin g', projecting into said slot, and either cast with the
35 wheel or otherwise rigidly secured in said end walls, as preferred. Upon these pins hook-shaped levers h are journaled through the inner faces of the hooks resting thereon, as shown in Figs. 2 and 3. These hooks are
40 made cam-shaped or in the form of eccentrics h', tapering toward the handle end of the lever, so that when said handle end is vibrated toward the wheel the knife is forced snugly down on its seat, as shown in Fig. 2, and there
45 firmly held, while by vibrating the handle end outward the knife is released, as shown in Fig. 3, for permitting its adjustment. The wedge-shaped backing-plate G' by its adjustment serves to compensate for wear of the retaining-cams.

The feed trough or box (indicated at I) is set on the frame in position inclining downward toward the cutter-disk for adapting it to feed readily thereto, and is provided on its
55 sides with longitudinal strips or cleats i, on which a feed slide or board J is mounted and slides for feeding the material in the trough to the cutters G, which move in close and shearing relation to the fixed cutter E, as
60 shown Fig. 1. The board or slide J is provided with a handle j for operating it and serves to prevent the hand of the operator from being caught and injured by the knives. Suitable stops are provided, as shown at i',
65 for preventing the feed-slide J from coming in contact with the rotating knives G.

The machine is especially designed for and adapted to use as a slaw-cutter, and whether used for that or other purpose its operation will be readily understood from the foregoing description. 70

When used for cutting feed or ensilage, the cutter will of course be adjusted to cut it of the desired length and the slide J can be dispensed with; but for cutting slaw the knives
75 can be set to shave with any desired degree of fineness. Slotted plates C² are shown secured to the rear face of the cutter-disk overlying the slots C', and the levers h pass through slots therein and are thereby held in
80 place on their pivots. Other suitable means may, however, be employed for the purpose. Grooves or slots are formed in the rear wall of the slot C' at the ends thereof, as shown
85 at c', to permit the insertion of the cam-levers h from the face side of the wheel C through the plate C², and the cutter G, being then placed in the slot C', extends over the cam end of the lever and prevents its accidental displacement. 90

Having described my invention, I claim—

1. The cutter disk or wheel made solid and provided with one or more knife-slots extending through the same, each slot having an inclined rear wall and the groove or slot c' in
95 its opposite wall for the introduction of the cam-levers, in combination with the knife-bar and the cam-levers for securing the same in said slot, substantially as described.

2. The combination, with the slotted wheel
100 provided with the pins or studs g', of the knife extending through the slot in said wheel and the cam-levers made in the open or hook-shape form described and mounted on said pins or studs for permitting the adjustment
105 of said knife and locking the same in operative position, substantially as specified.

3. The stationary knife bar or plate E, having the upturned or flanged ends, and the transverse slots permitting its adjustment,
110 substantially as described.

4. The stationary knife bar or plate E, having the flanged or upturned ends and the slots permitting its adjustment, in combination with the cam-levers pivoted to the machine-frame for holding said bar at the desired adjustment, substantially as described. 115

5. The combination, with the slotted stationary knife having the flanged or upturned ends, of the uprights passing through the
120 slots and provided with pivots for the cam-levers, and the cam-levers pivoted thereon and held on their pivots by the flanges on the ends of the knife, substantially as described.

In testimony whereof I have hereunto set
125 my hand this 15th day of December, A. D. 1890.

CHRISTOPHER J. MILLER.

Witnesses:

JNO. H. BARTRAMS,
GEORGE D. COPELAND.