No. 679,168. Patented July 23, 1901.

E. W. HOYT.

ENSILAGE CUTTER.

(Application filed Jan. 4, 1901.)

(No Model.)

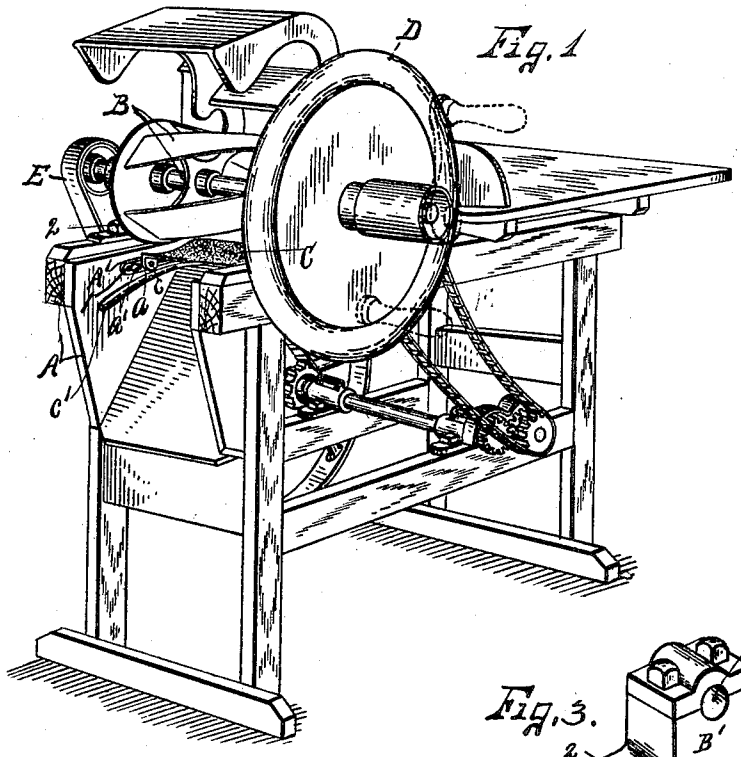


Fig. 1

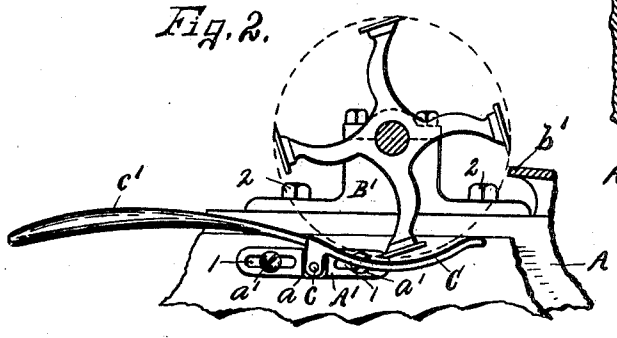


Fig. 2.

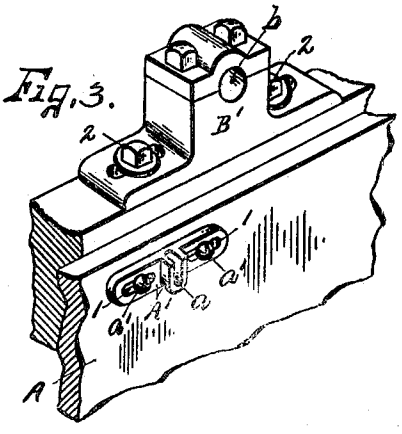


Fig. 3.

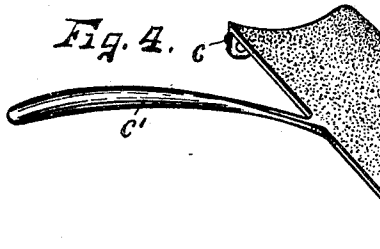


Fig. 4.

WITNESSES.

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ENSILAGE-CUTTER.

SPECIFICATION forming part of Letters Patent No. 679,168, dated July 23, 1901.

Application filed January 4, 1901. Serial No. 42,043. (No model.)

To all whom it may concern:

Be it known that I, EDWIN W. HOYT, of Stamford, in the county of Delaware, in the State of New York, have invented new and useful Improvements in Ensilage-Cutters, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in ensilage-cutters, and particularly to the mechanism for sharpening the cutting-knives.

The object of this invention is to provide a simple and practical means whereby the cutting-knives may be readily sharpened or ground without removing any of the parts of the machine and in which the grinding-bar may be readily placed in position or removed when desired.

To this end the invention consists in the construction, combination, and arrangement of the parts of a grinding or sharpening mechanism for ensilage-cutter heads, as hereinafter fully described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective view of an ensilage-cutting machine, showing the rotary cutter-head as provided with a plurality of spirally-arranged knives, the grinding-bar being shown in operative position. Fig. 2 is a transverse vertical sectional view through the cutter-head, showing the relative position of the grinding-bar to the cutting edges of the cutting-knives. Fig. 3 is an isometric view of the inner face of a portion of one side of the frame of the machine, showing one of the bearings for the rotary cutter-head and also one of the bearings for supporting the grinding-bar. Fig. 4 is an isometric view of the detached grinding-bar and the means for controlling its position relative to the cutting edges of the rotary cutter.

Similar reference characters indicate corresponding parts in all the views.

A represents the frame of an ensilage-cutting machine, upon which is mounted a rotary cutter B, journaled in bearings *b*, which are preferably adjustable forwardly and rearwardly toward and away from a fixed cutter-bar *b'*. The cutter-head B may be rotated by any suitable driving mechanism. (Illustrated in the drawings, but not necessary to further describe, since this driving mechanism forms no part of my present invention.) The frame A is provided with suitable bearings *a*, preferably secured to the inner face of its longitudinal side walls and adjustable forwardly and rearwardly and adapted to support a grinding-bar C.

The bearing *a* usually consists of a vertical slot or recess extending downwardly from the upper face of the bracket A'. This bracket is held in position by suitable screws *a'*, which are adapted to enter slots 1, formed in the bracket, and are engaged with threaded apertures in the adjacent walls of the frame A. It is evident from the foregoing description that the bearings *a* are open at the upper ends, are provided with rounding bearing-faces at their lower ends, and are adjustable forwardly and rearwardly for permitting the grinding-bar to be properly adjusted to the cutting edges of the rotary cutter. The bearings *b* are generally provided on brackets B', which are formed with lengthwise slots for receiving suitable clamping-bolts 2, said clamping-bolts being engaged with the threaded apertures in the adjacent portions of the frame A. These clamping-bolts and slots permit the rotary cutter to be adjusted rearwardly toward the shearing-knife *b'* for the purpose of compensating for the wear incidental to the continued use of the cutter.

The grinding mechanism usually consists of an elongated plate or bar C, having a concave upper face provided with suitable grinding or sharpening material, such as emery or its equivalent. The plate C is pivotally mounted upon the frame A and is preferably provided with trunnions *c* at its opposits ends, which are usually arranged in proximity to one of its longitudinal edges, thereby pivotally supporting the plate at one side of its longitudinal center. These trunnions are movable into and out of engagement with the bearings *a*, and when in operative position the plate C is controlled by a suitable handpiece *c'*, by which said plate is rocked into and out of engagement with the cutting edges of the rotary cutter, as may be desired. The bearings *a* are preferably arranged beneath and in advance of the axis of the rotary cutter, and the upper grinding-face of the bar C is usually of substantially the same curvature

as the path of movement of the cutting edges of said rotary cutter in order that as much of the surface of the grinding-bar as possible may be brought into contact with said cutting edges. It is apparent from the foregoing description that the plate C extends in one direction from the pivot or trunnions *c* and that the handpiece extends in the opposite direction from said trunnion, thereby affording a sufficient leverage to manually control the position of the grinding-bar with relation to the cutter-knives.

Although I have shown the plate C as formed of a single piece of sheet metal to which is adhesively applied a suitable grinding paste or surface, it is evident that if desired I may construct a skeleton frame and mount thereon a suitable block of emery or grindstone, and that instead of securing the handpiece substantially midway between the trunnions *c* said handpiece may be arranged at one end of the frame C and that other changes may be made in the detail and construction and arrangement of the parts of my invention without departing from the spirit thereof. Therefore I do not limit myself to the precise construction and arrangement shown and described.

The trunnions *c* are preferably provided on suitable ears depending from the opposite end edges of the grinding-plate C, thereby disposing the trunnions in the plane beneath the grinding-surface of said grinding-bar in order that there may be no projections extending into the path of movement of the cutting edges of the rotary cutter.

In the operation of my invention when desired to grind or sharpen the knives of the rotary cutter the grinding bar or plate C is inserted beneath the rotary cutters, the trunnions *c* are registered with the open-ended bearings *a* and are forced into engagement with the lower wall of said bearings, and the cutter-head is then rotated in the direction opposite to the direction of rotation during the cutting of the ensilage, and the handpiece *c'* is depressed for forcing the grinding-surface of the plate C into engagement with the cutting edges of the rotary cutter. Any desired means may be employed for effecting this reverse rotation of the cutter-head; but I preferably employ a suitable crank, which may be attached directly to the shaft of the rotary cutter or may be secured to the balance-wheel D, if desired, as indicated by dotted lines, or when desired to rotate the cutter automatically I may cross the driving-belt E to effect the desired reverse rotation. It is understood, however, that the cutter-head may be rotated in the usual manner for cutting the ensilage and the grinding-surface of the plate C forced into engagement with said cutter-knives in the manner previously described, although it is preferable to rotate the cutting-knives in the reverse direction against the grinding-surface of said plate, this means being less destructive to the grinding-bar and producing a better cutting edge upon the knives.

The operation of my invention will now be readily understood upon reference to the foregoing description and the accompanying drawings.

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

1. The combination with the frame and rotary cutter of an ensilage-machine, said frame being provided with open-ended bearings, of a grinding-bar pivotally supported in said bearings beneath the cutter and provided with a grinding-surface and a handpiece at opposite sides of its pivot.

2. The combination with the frame and cutter-bar of an ensilage-machine, of a rotary cutter journaled on the frame and adjustable toward and away from said bar, brackets secured to the frame and provided with open-ended bearings adjustable toward and away from the cutter-bar, and a grinding bar or plate provided with trunnions adapted to be supported in said bearings for the purpose described.

3. The combination with the frame and rotary cutter of an ensilage-machine, of a grinding bar or plate adapted to be pivotally supported on the frame and provided with a concave grinding-surface and a handpiece at opposite sides of its pivot, the handpiece being arranged to control the position of the grinding-surface relative to the cutting edges of the rotary cutter.

4. The combination with the frame and cutter-bar of an ensilage-machine, of a rotary cutter mounted on the frame and adjustable toward and away from said bar, open-sided bearings secured to the frame and adjustable toward and away from the cutter-bar, and a plate removably mounted in said bearings and provided with a concave grinding-face, and a handpiece for rocking the plate for the purpose described.

5. The combination with the frame and cutter-bar of an ensilage-machine, of journal-boxes mounted on the frame and adjustable toward and away from the cutter-bar, brackets secured to the inner faces of the opposite side walls of the frame and adjustable toward and away from the cutter-bar, each of the brackets being provided with an open-sided bearing, a concavo-convex plate having trunnions journaled in said open-sided bearings and provided with a grinding-surface extended beneath the rotary cutter-knives, and a handpiece secured to the plate for moving the grinding-surface into and out of engagement with the cutter-knives.

In witness whereof I have hereunto set my hand this 29th day of December, 1900.

EDWIN W. HOYT.

Witnesses:
JAMES R. COWAN,
JOHNSON HAMILTON.