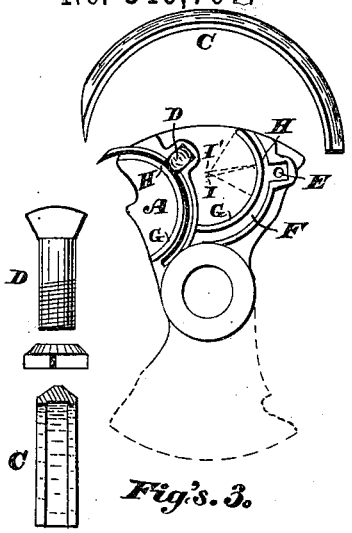
(No Model.)

L. M. BATTY.

FEED CUTTING MACHINE.

No. 346,707. Patented Aug. 3, 1886.



Fig's. 3.

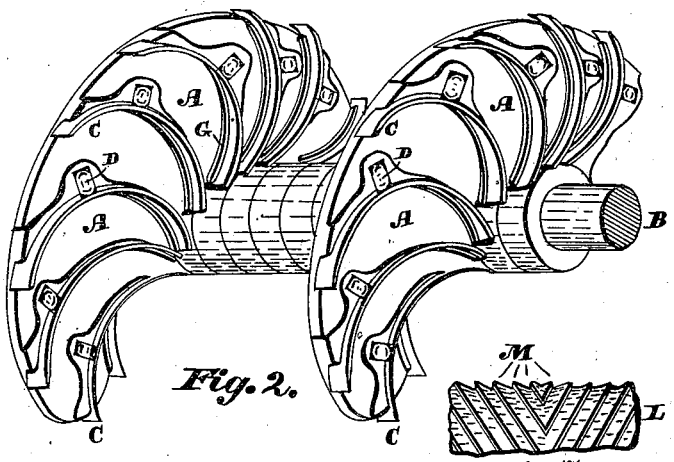


Fig. 2.

Fig. 7.

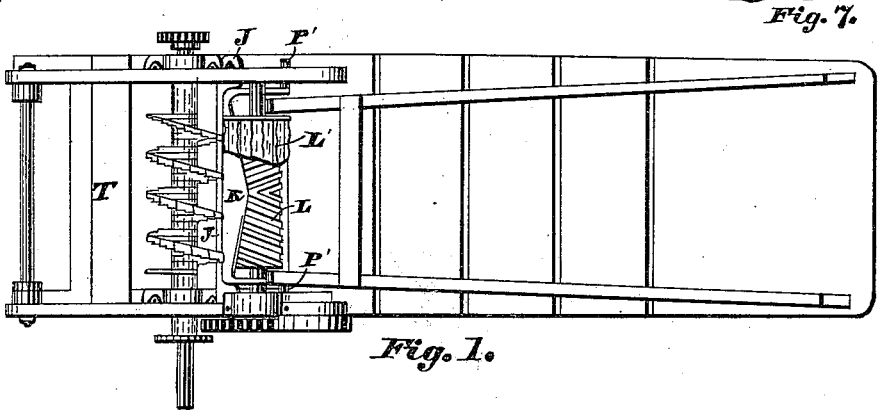


Fig. 1.

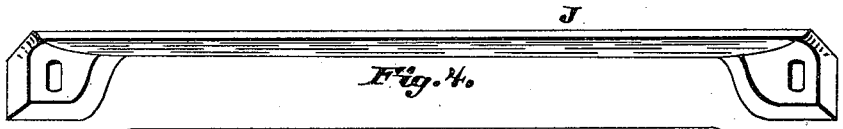


Fig. 4.

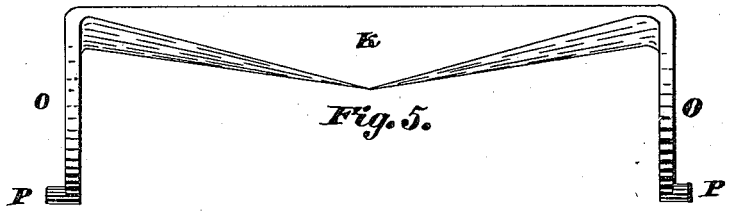


Fig. 5.

Fig. 6.

WITNESSES

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FEED-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 346,707, dated August 3, 1886.

Application filed October 7, 1885. Serial No. 179,270. (No model.)

To all whom it may concern:

Be it known that I, LINDLEY M. BATTY, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Feed-Cutting Machines, of which the following is a specification.

My invention relates to improvements in feed-cutting machines in which feed-rolls and spirally-arranged cutting-knives are used; and the objects of my invention are, first, to so secure a series of narrow cutting-blades to spirally-arranged arms that they may be very easily inserted, removed, or adjusted; second, to overcome certain difficulties in the operation of the feed-rolls by the use of such mechanism as will effectually prevent all choking or clogging of material between the lower feed-roll and the cutter-bar of the machine. I attain these objects by mechanism shown in the accompanying drawings, in which—

Figure 1 is a top view of the machine having some of its parts removed and a part of the upper feed-roll cut away to show the position of my improvements. Fig. 2 is a perspective view of a series of semicircular adjustable blades secured in sectional arms arranged spirally on a shaft. Fig. 3 is a side view of a single cast arm made to receive two of the semicircular blades, having one of the blades inserted and the other left out, also a side view and cross-section of the blade, and an elevation of the bolt and nut, by which the blade is secured to the arm. Fig. 4 is a top view of the cutter-bar of the machine. Fig. 5 is a top view of a pivoted stripper, hereinafter more fully described. Fig. 6 is a top view of another form of the cutter-bar, to be used when the pivoted stripper is omitted; and Fig. 7 is an enlarged view of part of the under feed-roll.

Similar letters refer to similar parts.

The blade C (shown in Fig. 3) is bent in semicircular form, having its back and outward part beveled from each edge toward the center to provide a beveled surface for the beveled head of the bolt D to bear against, as shown at the left hand in Fig. 3. The bolt D has its head flattened on two opposite sides, and made of even thickness, to fit a correspondingly-shaped countersink in the bolt-hole E. (Shown at the right edge of the arm A in Fig. 3.)

As shown at the left edge of the arm A, the blade C is inserted in a curved recess, F, which is more plainly shown at the right-hand edge of the figure. The back wall of the recess F is semicircular and suitably formed to receive the blade C, and the forward wall of the recess F consists of an elevated rib, G, the inner surface of which is described by two segments of a circle so meeting as to form a slight apex at H, located a little outward circumferentially from the bolt-hole E, as indicated by the dotted radii meeting at I and I'. The object of this apex H is to form a fulcrum for the inner and forward surface of the blade C to bear against, so that by tightening the bolt D the outer and cutting end of the blade C is firmly pried back against the back wall of the recess F. In this construction I combine three mechanical forces—viz., the screw, the wedge, and the lever—by means of which the blade C is held so firmly that it cannot slip back in performing its work, while by a slight loosening of the bolt D the blade C may be easily adjusted or removed. In cases of breakage by accident or otherwise this construction is of great advantage over any similar arrangement of narrow spirally-arranged knives in public use, in which the blades are permanently and immovably fastened to the arms.

The dotted lines shown under the arm A in Fig. 3 indicate the manner in which the arm A may be made double—that is, having blades C secured in each end, by which two spiral rows of blades or knives are produced, instead of one.

The under feed-roll, L, is supplied with ribs M, which, commencing at the middle portion of the roll, diverge spirally each way, for the double purpose of preventing the roll from slipping under the feed and of preventing the accumulation of loose material between the roll L and the back edge of the stripper K, or of the cutter-bar R, by gradually moving said material outward in two nearly opposite directions and off at the ends of the roll L. This arrangement of the ribs M, however, does not operate satisfactorily without an additional improvement, which

consists of making the back edge of the cutter-bar R or of an intervening plate or stripper, K, in the form shown in Figs. 5 and 6. The middle of the cutter-bar R, or of the plate or stripper K, is made wide on its top, extending back as far as practicable over the roll L, while the back edge, commencing at the middle part, is rounded downward and tapered outward in opposite directions to about half of its full width, where it reaches points a little beyond the ends of the roll L, the contour of the edge being such that it fits the roll L closely over the middle, but preferably more loosely toward and at the ends.

The form of cutter-bar R shown in Fig. 6 is preferred on small machines operated by hand; but in large machines operated by power the pivoted stripper K, combined with the cutter-bar J, (shown in Figs. 1 and 4,) is preferred.

As the stripper K overlaps and rests loosely on the bar J, no crowding of material against or under it can spring the bar J against the cutting-blades C, and thereby cause injury to them or to any part of the machine, while by the forward and downward inclination of the back edge of the stripper K, combined with the outward action of the spiral ribs M, any loose material not passing freely through between the feed-rolls L and L′ will be gradually moved down and out in a lateral direction, and deposited off at the ends of the roll L.

The stripper K is provided with pivots P, at the back extremities of the elbows O, by which it is attached to the main frame of the machine T at P′, so that should any small hard substance be drawn under the back edge of the stripper it rises up a little, allowing the obstruction to pass through, and immediately falls back to its place again.

I am aware that narrow cutting-blades secured to sectional arms, arranged spirally around a shaft, are in public use; hence I make no broad claim to all such devices.

I am also aware that it is common to put spiral ribs on the under feed-roll of feed-cutting machines; hence I do not broadly claim such a device; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a feed-cutter, the combination of the arm A, secured to the shaft B, and provided with suitable recesses, with the bolt D, having a beveled head, and the narrow semicircular plate or cutter C, which is beveled upon its back for the beveled head of the bolt to bear against, substantially as shown.

2. In a feed-cutter, the combination of the arm A, provided with a suitable recess, F, and bolt-hole E, with a narrow semicircular plate or cutter, C, beveled upon its back, and the bolt D, having a beveled head for fastening the plate in position, substantially as described.

3. The combination of the arm A, secured to the revolving shaft D, and provided with a recess to receive the cutter, the cutter having a beveled back, a fulcrum or flange, H, for the cutter to bear against, and the clamping-bolt D, having a beveled head, which catches over the cutter and holds it securely in position, substantially as set forth.

4. The combination, in a feed-cutter, of the blade, the stripper K, provided with pivots P, and pivoted to the main frame T at P′, with the cutter-bar J and the spirally-ribbed feed-roll L, substantially as and for the purpose set forth.

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Witnesses:
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