

## Straw Cutter.

Patented July 30, 1867.



WITNESSES

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J. D. BURDICK, OF NEW HAVEN, CONNECTICUT.

*Letters Patent No. 67,261, dated July 30, 1867.*

## IMPROVEMENT IN STRAW-CUTTERS.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. D. BURDICK, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new and improved Straw and Hay-Cutter, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent. In the accompanying sheet of drawings—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, fig. 2.

Figure 2, a plan or top view of the same.

Figure 3, a section of a portion of the same, taken in the line *y y*, fig. 2.

Figure 4, a section of a portion of the same, taken in the line *z z*, fig. 1.

Figure 5, a section of a portion of the same, taken in the line *x' x'*, fig. 2.

Similar letters of reference indicate like parts.

A represents the frame of the machine, which may be constructed in any proper manner to support the working parts. B B' represent the feed-rollers, C the feed-box, and D the metal head or frame at the discharge end of the feed-box, and in which the feed-rollers work. The lower feed-roller B' has its journals *b* working in fixed bearings, but the journals *b* of the upper feed-roller B pass through curved slots *c* in the side plates of the head or frame D, and also pass through the upper ends of curved bars E, the lower ends of which are connected to the upper ends of springs F, attached to the frame A, said springs having a tendency to keep the upper roller B down upon the substance to be cut, so that the latter, under the action of the two rollers, may be fed to the cutter hereinafter described. On one of the journals of each feed-roller there is secured a pinion, *d*, and on the journal of the lower roller B', which has a pinion, *d*, upon it, there is fitted a spur-wheel, G, which has a concentric pinion, H, secured to its inner side. This wheel G gears into a pinion, I, on the cutter-shaft J, and said wheel G may be shifted on the journal of the lower feed-roller B', so that the pinion H may be thrown out of gear with or made to gear into a pinion, K, the stud or axis *e* of which is fixed and projects from the head or frame D of the feed-rollers. (See fig. 5.) The pinion K has a smaller pinion, L, attached concentrically to it, and into this pinion L the pinion *d* of the lower feed-roller B' gears. The pinion *d* of the upper feed-roller gears into a pinion, *f*, which turns on a fixed stud or axis, *g*, projecting from the frame or head, D, and this pinion *f* gears into the pinion L. When a slow feed is required, in order that the fodder may be cut quite short, the spur-wheel G is adjusted on the journal *b* of the lower feed-roller in such a manner that the pinion H will gear into the pinion K, which is larger than L and H, and the wheel G turns loosely on the journal *b* of the lower feed-roller, the latter being turned through the medium of the pinion L and the pinion *d* on the journal *b* aforesaid. When a more rapid feed and longer cut are required, the pinion H is moved out of gear with L, and the wheel G is keyed to the journal of the lower feed-roller, so that the upper feed-roller will be rotated through the medium of the pinion *d* on the journal *b* of the lower feed-roller, the pinions L *f* and the pinion *d* on the journal of the upper feed-roller. Thus by this simple arrangement the fodder may, by a very simple manipulation, be cut long or short, as required. M represents a fixed cutter or leger-blade, which is secured to its bed-piece N by bolts *h h*, the latter passing vertically through the bed-piece and cutter or leger-blade, and having their heads *i* fitted in oblong slots *j*, in the leger-blade M, in order to admit of the latter being adjusted further forward or backward, as desired. The leger-blade is thus readily adjusted, after the nuts of the bolts *h* are relaxed, by means of keys O O, which pass vertically through slots in the cutter or leger-blade, and bear or rest at their rear sides against the head or frame D of the feed-rollers. The fixed cutter or leger-blade M is curved so as to incline downward at its rear part, and the rear edge has a series of slots, *k*, made in it. This curvature or rounding and inclining downward of the fixed cutter or leger-blade, in connection with the slots *k* in the blade, admits of dust, dirt, sand, or gravel, passing down from the fodder before it reaches and is acted upon by the rotary cutter, as will be fully understood by referring to fig. 1. By this simple means, therefore, the fodder, while being cut, is deprived of a great deal of dust, dirt, and other impurities. P represents the rotary cutter which works over the edge of the fixed cutter or leger-blade M. This cutter P is bolted to arms Q Q, on the shaft J. The arms Q are fitted loosely on the shaft J, and are



secured thereto by keys *l*. (See fig. 3.) By properly adjusting these keys, which pass through hubs *m* of the arms *Q*, driving them more or less in their slots, they may be made to bind in a greater or less degree against the shaft *J*, so as to prevent the arms from slipping on the shaft while the cutter is performing its legitimate work; but in case of the cutter coming in contact with any hard foreign substance, such as a spike, bone, &c., it is designed that the arms should slip, or, rather, that the shaft *J* may turn within the hubs of the arms, and thereby preserve the cutter. Within the feed-box *C* there is fitted or suspended on a shaft or pivots, *n*, a plate, *R*, the shaft or pivots being near one end of the plate, so that the opposite end may rest or bear upon the substance being cut, and prevent it from passing over the upper feed-roller, as will be fully understood by referring to fig. 1.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

1. The shifting spur-gear *G*, provided with a concentric pinion, *H*, in connection with the pinions *d d* on the feed-roll shafts, and the intermediate pinions *K L f*, all arranged to operate so as to vary the speed of the feed-rollers according to the length of cut required, substantially as shown and described.

2. The intermediate pinions *K L f* placed on fixed studs or axes, in combination with the pinions *d d* on the feed-roll shafts, arranged substantially as and for the purpose specified.

3. Securing the fixed cutter or leger-blade *M* to its bed-piece by means of bolts *h h*, the heads of which are fitted in oblong slots *j j* in the cutter or plate, substantially as and for the purpose set forth.

4. The adjusting-keys *O O*, passing vertically, or nearly so, through the fixed cutter or leger-blade, and arranged in relation with the frame or head *D* of the feed-rollers, substantially as and for the purpose specified.

5. Constructing the fixed cutter or leger-blade *M* of curved form in its transverse section, and having the inner edge of the same slotted, as shown, for the purpose set forth.

6. Securing the arms *Q Q* of the cutter *P* to their shaft *J* in the manner shown, or in an equivalent way, to admit of the slipping of the arms on the shaft, or the turning of the latter within the former in case the cutter meets with any material obstruction in the prosecution of its work.

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Witnesses:

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