W. BOYCE.

Straw-Cutters.

No. 157,488. Patented Dec. 8, 1874.

fig: 1.

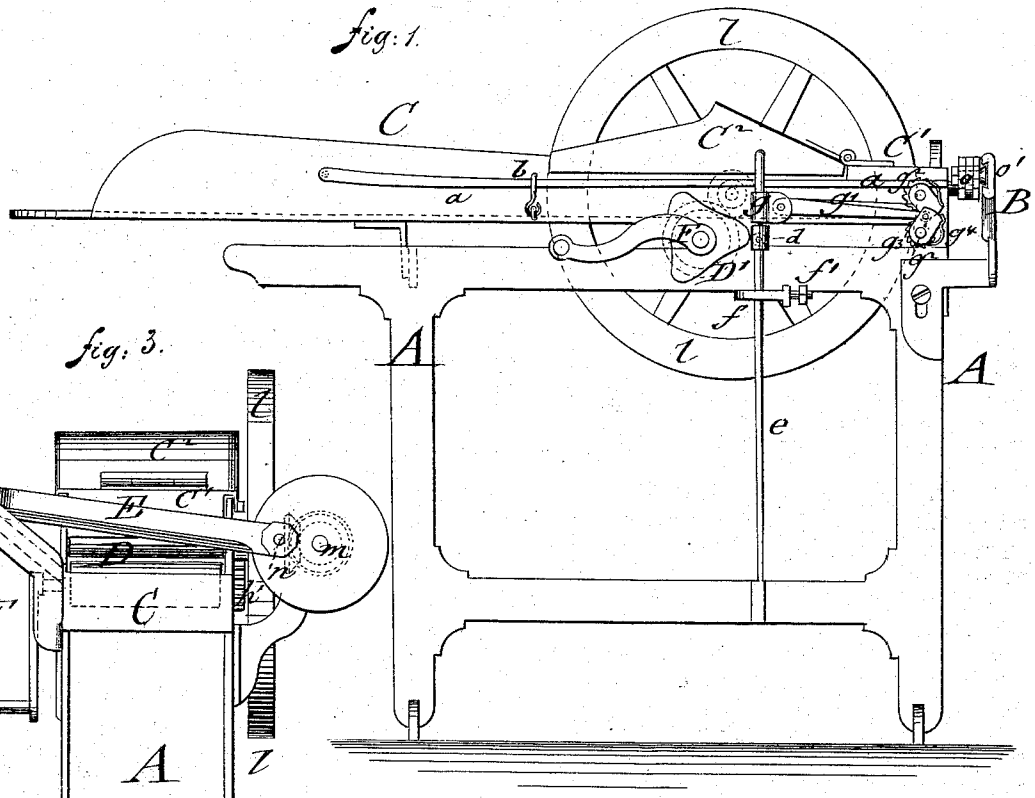
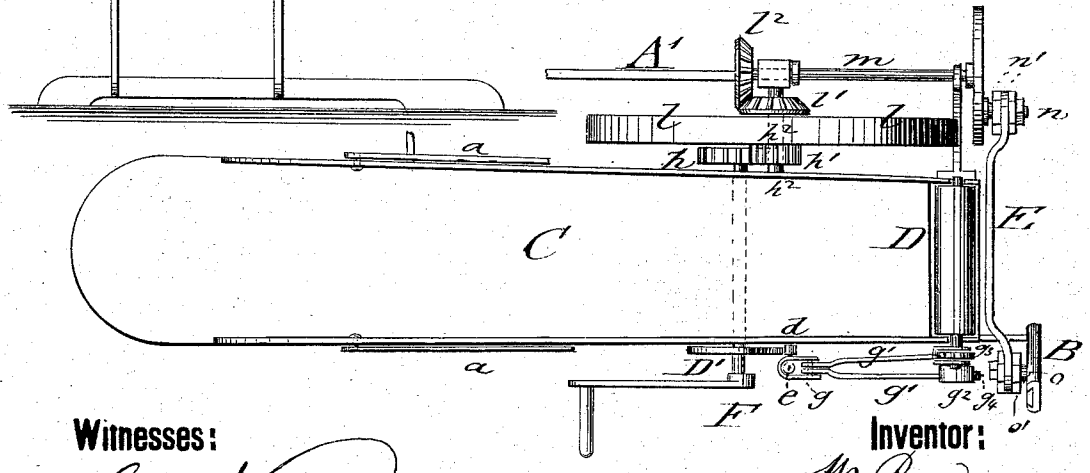


fig: 3.

fig: 2



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UNITED STATES PATENT OFFICE.

WILLIAM BOYCE, OF LOWELL, MICHIGAN.

IMPROVEMENT IN STRAW-CUTTERS.

Specification forming part of Letters Patent No. **157,488**, dated December 8, 1874; application filed March 14, 1874.

To all whom it may concern:

Be it known that I, WILLIAM BOYCE, of Lowell, in the county of Kent and State of Michigan, have invented a new and Improved Feed-Cutter, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation, Fig. 2 a top view with cover detached, and Fig. 3 an end view, of my improved feed-cutter.

Similar letters of reference indicate corresponding parts.

This invention relates to certain improvements in feed-cutting machines; and consists in the novel construction and arrangement of a double-hinged hood and lid, in combination with the other parts of the machine, as will be hereinafter more fully described.

A in the drawing represents the main supporting-frame, of suitable size, constructed of vertical standards with lateral stiffening-bars. An additional bar, A′, is supported by brackets at the side of the main frame, and outside of the balance-wheel, for carrying the bearings of the balance-wheel and pitman-shafts. At the opposite side of bar A′ is applied to the front part of frame A, under an inclination of about forty-five degrees, the grooved guide-piece B for the roller-pin attachment of the cutting-knife. The grooved piece B is made adjustable, to be moved up and down, as may be required, for raising or lowering the end of the cutting-knife. The feed-box C is attached in the usual manner to frame A, and provided with a lid, C^1, closing over front part and upper feed-roller. Lid C^1 is attached to side rods *a*, which are pivoted at the rear part of the feed-box C, so that lid C^1 may be swung back to the rear, completely out of the way, for repairing the front parts, and admitting the inspection of the feed to be cut at any moment. A pivoted hook, *b*, fastens the side rod *a*, and secures the lid C^1 firmly on the feed-box C. A hood, C^2, is hinged to the rear part of lid C^1, as shown in Fig. 1, resting sidewise on rods *a*, and swinging up with lid C^1. This hood C^2 forms the mouth through which the material to be cut is passed into the feed-box, and prevents it from getting into the shafts or other working parts of the machine. The feed-rollers D at the front end of the feed-box feed the material to the cutting-knife E. The motion of the feed-rollers D and knife E is imparted by the main crank-shaft F, which turns in bearings of the main frame A. The feed-rollers are turned intermittently by a cam-wheel, D′, of triangular or other shape, keyed to shaft F. Cam-wheel D engages a small friction-roller, *d*, of a spring-lever, *e*, which is guided in a loop-shaped guide-sleeve, *f*, and regulated by a finger-nut and screw, *f′*, to the length of the feed required. Spring-lever *e* carries the loose sleeve *g* at its upper end, to which the connecting lever-rods g^1 are attached. Sleeve *g* is adjusted by means of a set-screw. The front ends of lever-rods g^1 are pivoted sidewise of each other to the arms g^2, playing loosely at both sides of ratchet-wheels g^3, keyed to the shafts of the feed-rollers D in such a manner that the spring-pawls g^4 of arms g^2 engage the teeth of the ratchets g^3 in opposite direction, and turn, consequently, the feed-rollers, also in opposite directions, toward the cutting-knife. The stroke of the ratchet-arms, as regulated by the finger-nut and screw *f*, allows the shorter or longer cutting of the feed. A cog-wheel, *h*, at the opposite side of crank-shaft F gears with a pinion, h^1, whose shaft, h^2, turns in bearings of the main frame A and side bar A′. A balance-wheel, *l*, is keyed on this second shaft for producing uniformity of motion, and also a bevel-wheel, l^1, which gears with a bevel-wheel, l^2, of pitman-shaft *m*, which turns parallel to feed-box in bearings of side bar A′. The front end of pitman-shaft *m* carries vertically to it a wheel with eccentric wrist-pin *n*, to which the cutting-knife E is applied by a thimble slipped over the wrist-pin, to which the knife is applied by jam-nuts at both sides thereof. The pitman-wheel *m* gives lateral motion to the knife, while the roller-pin O, to which the opposite end of the knife is applied in similar manner, moves by means of a small roller, O′, in the groove of the inclined guide-piece B, imparting thereby, simultaneously, up-and-down motion, and cutting, in connection with the cutting-edge of the front piece of main frame A, the straw, hay, or other feeding material at the adjusted length.

The feed-rollers may be made of any suitable material, covered with card-clothing or

other substance, which takes a firm hold of the material to be cut, so as to feed it regularly and without slipping to the knife.

The different parts are fully within sight, and not liable to get out of order, while the strong yet simple construction allows a rapid and effective working of the cutter.

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

The combination, with a straw-cutter, of a hood, C^2, hinged to lid C^1, which is fastened to the long pivoted arms *a*, the hood C^2 folding forward, and the lid C^1 folding to the rear with hood C^2, and leaving the entire top of the cutter exposed, substantially as and for the purpose specified.

WILLIAM BOYCE.

Witnesses:
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