2 Sheets—Sheet 1.

W. H. AHRENS.

Feed-Cutter.

No. 205,229. **Patented June 25, 1878.**

Fig. 1.

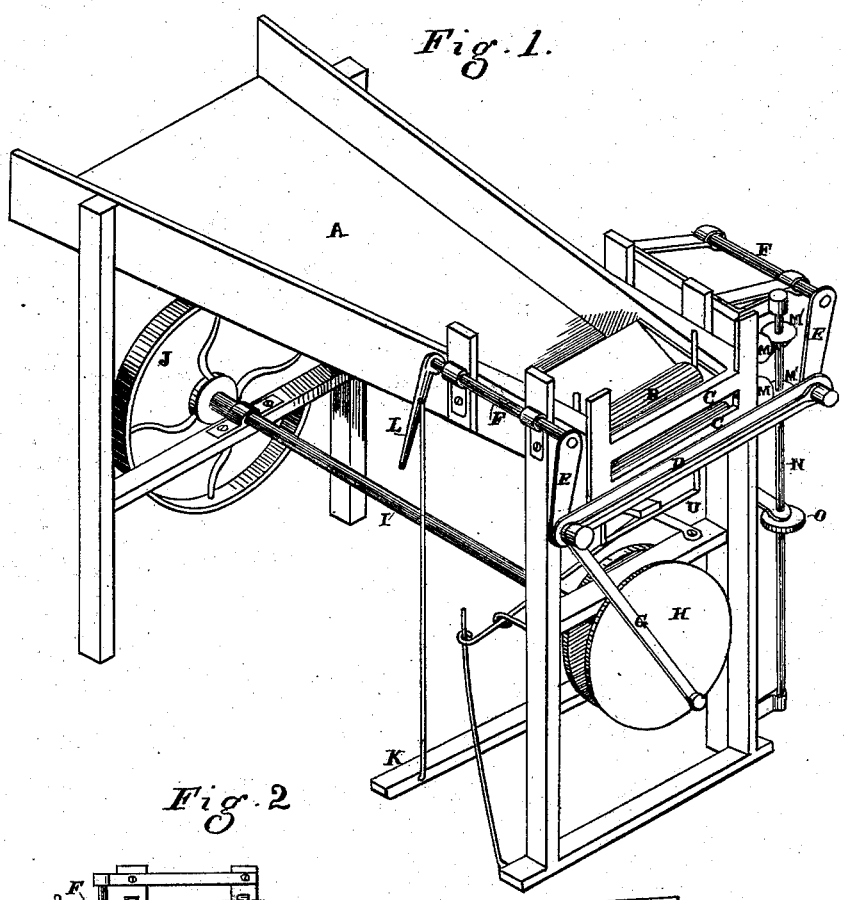
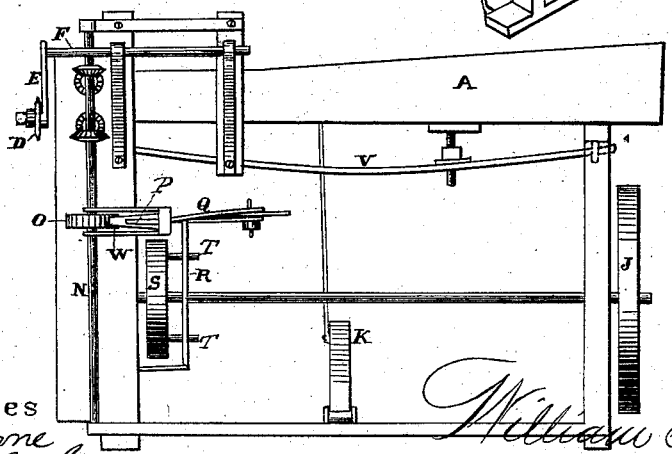


Fig. 2



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2 Sheets—Sheet 2.

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Fig. 3.

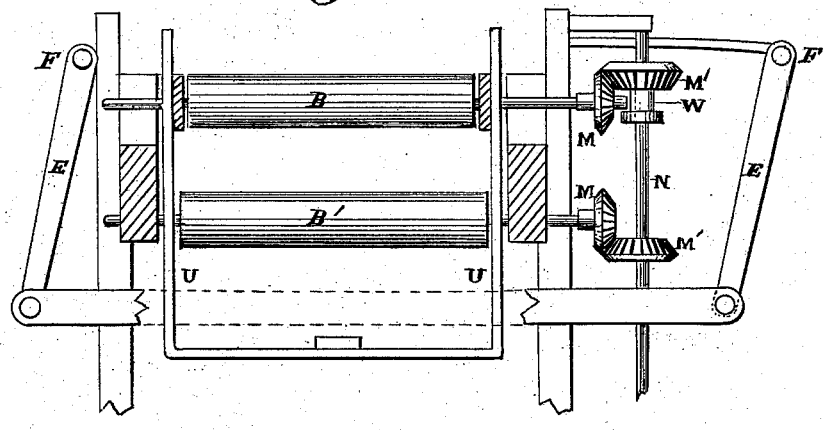
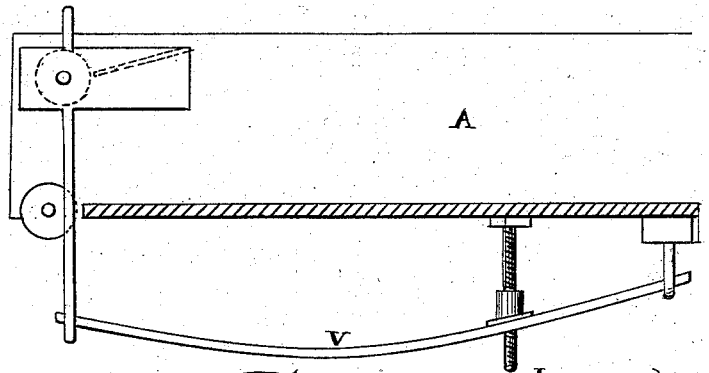


Fig. 4



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UNITED STATES PATENT OFFICE.

WILLIAM H. AHRENS, OF SAN LUIS OBISPO, CALIFORNIA.

IMPROVEMENT IN FEED-CUTTERS.

Specification forming part of Letters Patent No. **205,229**, dated June 25, 1878; application filed February 5, 1878.

To all whom it may concern:

Be it known that I, WILLIAM H. AHRENS, of the town and county of San Luis Obispo, and State of California, have invented an Improved Feed-Cutter; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to certain novel improvements in the construction of feed-cutters, which will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a view of my feed-cutter. Fig. 2 is a side elevation. Fig. 3 is a front view. Fig. 4 is a section, showing the adjusting of the upper feed-roller.

A is the box, into which the hay, straw, or other substance to be cut is placed. The feeding device consists of two corrugated rollers, B B′, between which the substance to be cut passes, and it is by them forced forward between the stationary cutter-jaws C C. The knife D is double-edged, and extends across the front of the stationary blades C, being connected at each end with crank-arms E. These crank-arms are mounted upon short shafts F F, one upon either side of the machine, so that as they are caused to rotate or oscillate in their bearings they will move the knife D by means of the crank-arms with a drawing or shearing cut across both of the stationary knives or jaws C, thus cutting both up and down with each movement of the knife.

Various means may be adopted to operate the knife; but I have shown a treadle, K, which is connected with the crank-arm L. This arm is secured to the same shaft with the operating-arm E of the knife, and is actuated by the treadle; or it may be operated by hand. A connecting-rod, G, reaches from the end of one of the crank-arms E to a crank, H, upon a horizontal shaft, I. This shaft is provided with a balance-wheel, J, so as to keep up the momentum of the knife.

The feed-rollers B B′ are operated by means of pinions M upon the ends of their shafts, which engage with similar pinions M′ upon a vertical shaft, N. This shaft has a ratchet-wheel, O, upon it, which is operated by a pawl, P, and lever-arms Q. These lever-arms are pivoted to the frame of the machine at one end, and are united by a vertical bar, R.

A wheel, S, is mounted upon the shaft I, and has pins T projecting from its face, so as to strike the bar R, and thus move the levers, pawl, and ratchet one, two, or more times, as may be desired, at each revolution of the shaft I.

In the present case, as the knife makes an up and a down cut at each rotation of the shaft, I have employed two pins, so that the feed-rollers are caused to rotate for each up-and-down cut.

R is a rod, connected with the pawl-levers, so as to draw them back after each impulse.

In order to adjust the upper feed-rollers to the varying thickness of the material as it is fed, the roller B has its journals mounted in two vertical sliding standards, U, which extend below the feed-box A, and may there be united, so that the spring V will act to draw these standards, and with them the roller, down.

Any unusual mass of material will overcome the tension of the spring and raise the roller. In order to allow the bevel-pinion M′ to follow this adjustment of the roller and the pinion M, it is mounted upon a sleeve, W, having flanges, or slotted to receive the end of the roller-shaft. This sleeve slides upon the vertical shaft N, with which, however, it revolves either by means of a feather or other well-known device, and as the feed-roller moves up and down it also moves this pinion, so that it continues to mesh with the roller-pinion.

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

1. The double-edged knife D, with its operating-arms E, mounted upon the shafts F, in combination with the arm L and treadle, substantially as and for the purpose herein described.

2. The knife D, with its operating-arms and treadle, in combination with the crank H, shaft I, and balance-wheel J to retain the momentum, substantially as herein described.

3. The feed-rollers B B′, with their bevel-gears M M′, and vertical shaft N, provided with the ratchet O and pawl P, in combination with the levers Q and operating-pins upon

the wheel S, substantially as and for the purpose herein described.

4. In combination with the adjustable feed-roller B, with its standards and spring, the pinion M′, with its sleeve slotted to receive the end of the roller-shaft and sliding upon the vertical shaft N, so as to be adjusted to the motion of the feed-roller, substantially as herein described.

In witness whereof I have hereunto set my hand and seal.

WILLIAM HENRY AHRENS. [L. S.]

Witnesses:
R. POLLARD,
S. M. TURNER.