

I. & J. F. WENTZEL.

CORN STALK CUTTER AND CRUSHER.

No. 177,304.

Patented May 9, 1876.

Fig. 1.

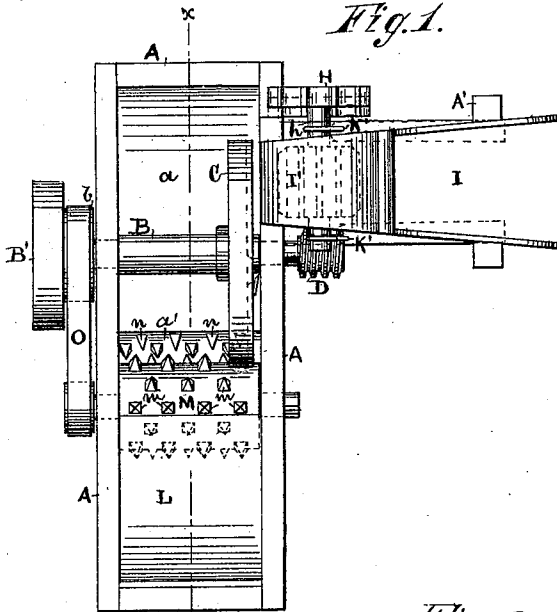


Fig. 2.

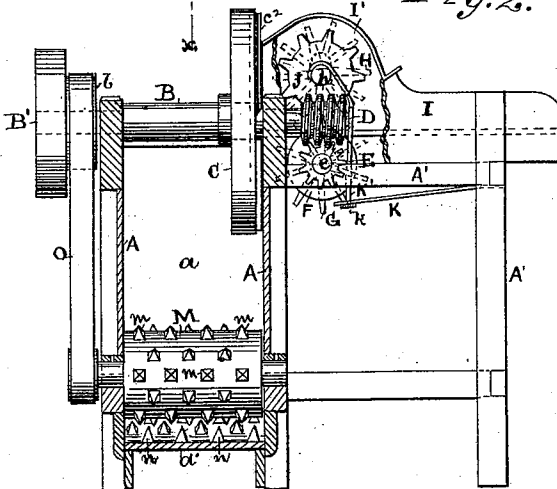
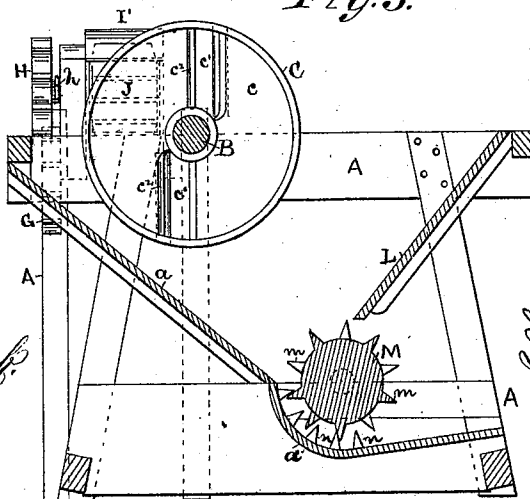


Fig. 3.



Witnesses:
L. Van Rensselaer
D. G. Stuart

Inventors:
Isaac Wentzel
John F. Wentzel
A. McCallum
Attys

UNITED STATES PATENT OFFICE.

ISAAC WENTZEL AND JOHN F. WENTZEL, OF KUTZTOWN, PENNSYLVANIA.

IMPROVEMENT IN CORN-STALK CUTTERS AND CRUSHERS.

Specification forming part of Letters Patent No. **177,304**, dated May 9, 1876; application filed November 23, 1875.

To all whom it may concern:

Be it known that we, ISAAC WENTZEL and JOHN F. WENTZEL, of Kutztown, in the county of Berks, and State of Pennsylvania, have invented certain new and useful Improvements in Corn-Stalk Cutters and Crushers; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to machines for cutting and crushing corn-stalks, so that they can be used as fodder, &c.

The invention consists in certain new and improved combination of devices, whereby the stalks are fed to the cutting-wheel, cut into suitable length, and then crushed and broken up, the process being continuous, and all the mechanism operating automatically by means of power derived from a common source, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a plan view of our improved machine; Fig. 2 is an end view, partly in section, to show the operating mechanism; Fig. 3 is a vertical sectional view taken in the line *xx*, Fig. 1.

Referring to the parts by letters, A represents a suitable frame, in which the main driving-shaft B is journaled, A' being the frame of the feed-box, arranged at right angles to the frame A, as clearly shown in Fig. 1 of the drawings. The main shaft B is provided with a suitable driving-pulley, B', and a smaller band-wheel or pulley, *b*, on one end, which projects beyond the side of the frame A. On the opposite side, and within the frame A, the cutter-wheel C is keyed to the shaft B, and on the other extremity or end of said shaft a worm-gear, D, is secured. This worm-gear D gears with a spur-wheel, E, keyed to the end of a short shaft, *e*, which is journaled in proper bearings on the frame A', at right angles to the shaft B. F is a roller keyed to the shaft *e* within the frame A', and G is a spur-wheel, which is keyed to the outer end of said shaft on the outside of frame A'. This wheel G gears

with another spur-wheel, H, mounted on a shaft, *h*, which is loosely journaled in adjustable bearings formed by elongated slots in the sides of the feed-box I, the latter being of usual form, and secured to the top of frame A'. Within the elevated and covered portion I' of the feed-box a toothed feed-roller, J, is keyed to the shaft *h*, so as to revolve within the box under the cover I'. K are spring-bars secured at one end to the under sides of the frame A', their other ends being left free. K' K' are rods, the upper ends of which are bent around the shaft *h*, and their other ends passed through holes in the spring-bars K, and are provided with adjusting-nuts *k*.

The cutter-wheel C is made with a solid web, *c*, on one side, through which are formed radial slots *c'* *c'*, and on the outside of the web, *c*, on one side of the slots *c'*, are secured cutting knives or blades *c''*.

The frame A is inclosed to form a box, provided with a suitable cover, and having an inclined end, *a*. At the bottom of this incline is a concave recess, *a'*, formed in the bottom of the box, the lower end of the concave joining a slightly upwardly-inclined bottom, which continues to the end of the box.

The concave surface *a'* is armed with a series of projecting teeth, *n*, arranged laterally across the width of the box. L is an incline on the end of the box, opposite to the incline *a*. M is a cylinder or wheel mounted on a shaft journaled in the frame A, near the bottom of the box, said shaft being connected by a band, O, with the pulley *b*. *m* are a series of teeth projecting from the cylinder M, corresponding in shape with the teeth *n* of the concave *a'*, and arranged so as to interspace with them as the cylinder M revolves.

The operation of the machine is as follows:

Power being applied to the pulley B', so as to turn the shaft B, the worm-gear D on its end, gearing with the spur-wheel E, will cause the shaft *e* to revolve, carrying with it the roller E, the gear-wheel G, on the other end of the shaft *e*, at the same time causing the toothed feed-roller J to revolve in the contrary direction through the operation of the gear H. The springs K K and rods K' K' operate to keep the roller J down on the corn-stalks, in sufficiently close contact with the roller E,

and between the rollers E and J the stalks are fed inward toward the cutter-wheel C, automatically, all that is necessary being to supply the feed-box with the stalks as the rollers draw them inward.

The cutter-wheel C will, of course, revolve with, and in the same direction, as the shaft B, and as the stalks are fed inwardly by the rollers E J they are cut into small pieces by the knives c^2 , and, as cut, pass through the slots c^1 into the box.

The inclines a and L conduct the cut stalks down between the concave a' and the cylinder M, the teeth of which crush them, breaking up all the hard pieces, and turning them out thoroughly crushed and broken up into small fragments suitable for feed.

With a machine of this construction it will be seen that the process is continuous and effectual, all parts of the machine operating automatically and directly from the movement of the shaft B, which may be driven by any suitable or convenient power.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The feed cutting and crushing machine, consisting of an automatically-operating feed device, comprising the rollers F and J, gears G H, and worm-gear D, a revolving cutter-wheel, C, and a crushing-cylinder, M, and concave a' , all arranged for continuous operation through the revolution of the shaft B and belt O, substantially as and for the purpose specified.

In testimony that we claim the foregoing as our own, we affix our signatures in presence of two witnesses.

ISAAC WENTZEL.
JOHN F. WENTZEL.

Witnesses:

SVETOSAR T. KOSSOVATZ,
JONAS HOCH.