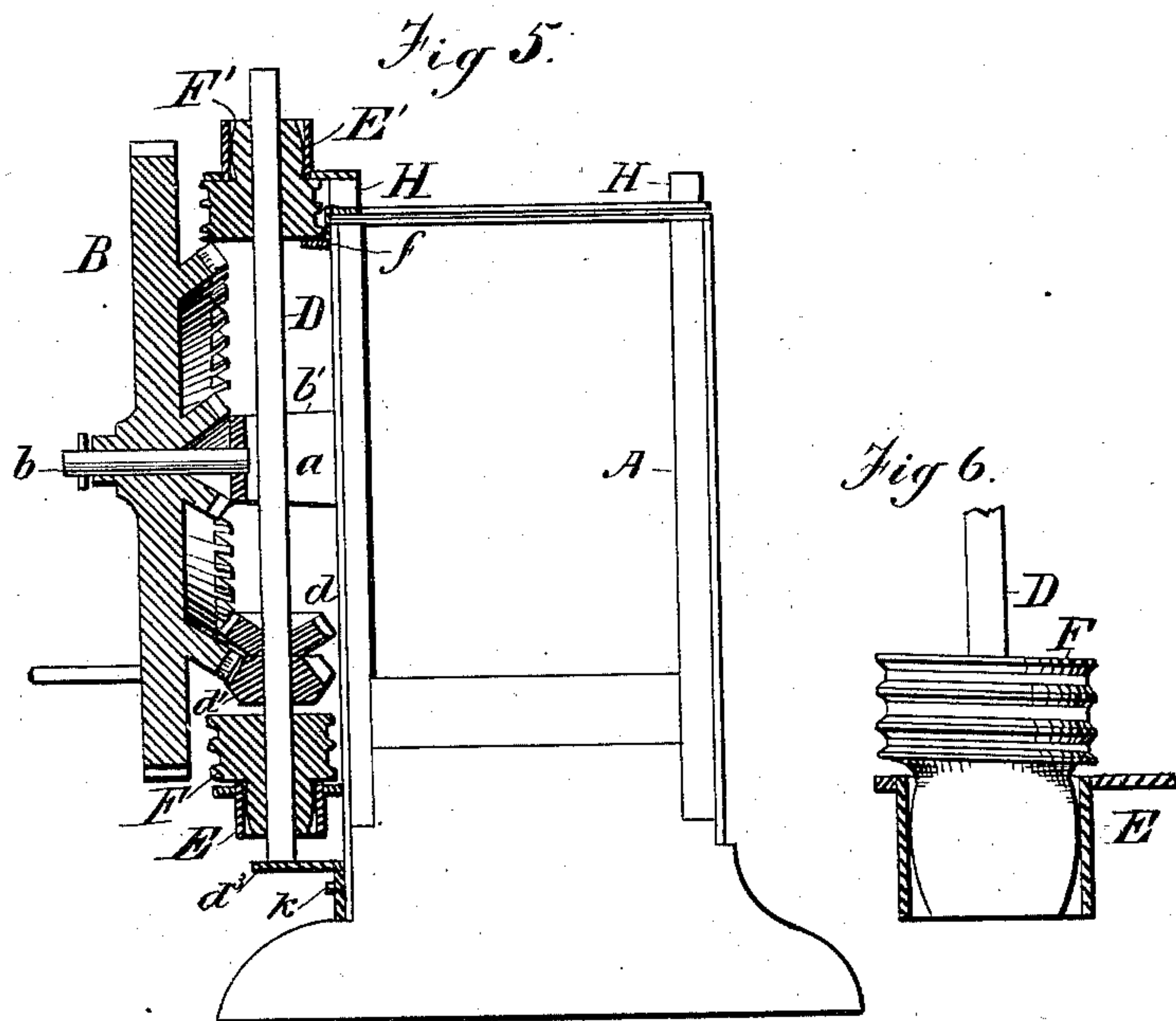




T. HANCOCK.  
Straw-Cutter.

No. 163,068.

Patented May 11, 1875.



Witnesses

Harry C. Clark.

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# UNITED STATES PATENT OFFICE.

THOMAS HANCOCK, OF MARIETTA, OHIO, ASSIGNOR TO HIMSELF AND  
ANSELM T. NYE, JR., OF SAME PLACE.

## IMPROVEMENT IN STRAW-CUTTERS.

Specification forming part of Letters Patent No. 163,068, dated May 11, 1875; application filed  
September 14, 1874.

*To all whom it may concern :*

Be it known that I, THOMAS HANCOCK, of Marietta, in the county of Washington and State of Ohio, have invented a new and useful Improvement in Machines for Cutting Straw, &c.; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention relates to the feed-gear of machines for cutting straw, &c.; and consists, mainly, in the employment of a vertically-adjustable shaft, having two or more bevel-gear wheels, in connection with the main wheel, having corresponding bevel-gear, for the purpose of regulating the speed at which the material to be cut is fed, and, consequently, the length of the cut. It consists, also, in the employment of a spring-frame for supporting the upper feed-roller, in connection with certain mechanism adapted to give the roller movement in any position in which it may be placed, all of which will be fully described hereinafter.

In the drawings, Figure 1 represents a perspective view of my invention as applied to a machine. Figs. 2, 3, 4, and 6 represent views in elevation of parts detached; and Fig. 5, a vertical sectional elevation.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully the construction and operation of the same.

A represents the box of the straw-cutter, constructed generally in any proper manner. B represents the main wheel, to which power is communicated in any proper manner from any proper source. This wheel is adapted to revolve upon the shaft *b*, Fig. 5, extending from the bracket *b'*, rigidly attached to the plate *a*, secured to the side of the case, as shown. This wheel has cogs upon its circumference, and also two or more bevel-gears upon its inner face, as shown. C represents a pinion upon one end of the shaft *c*, the latter carrying the cutting-cylinder *c'*, which receives motion from the teeth upon the circumference of wheel B, as shown. D represents a shaft, vertically held, as hereinafter

described, and provided with two or more bevel-gears, *d d'*, arranged one above the other, as shown. E represents a cylindrical socket, rigidly attached to the side plate of the cutter-box by means of a suitable bracket or plate; and E', a similar socket in an inverted position, which is attached to one of the bars of the spring-frame supporting the upper feed-roller, as shown in Fig. 1. F represents a worm-gear, having an angular opening through it vertically, adapted to receive the shaft D, and also a cylindrical dependent projection, with rounded edges, adapted to rest within the cylinder E, and form with it a ball-and-socket joint, as shown in Fig. 6. F' represents a similar gear, adapted to rest in an inverted position in the socket E', the same being supported in position by means of the flange *f*, Fig. 5, projecting from the bar to which the socket is attached. G represents a pinion upon the shaft of the lower feed-roller, and G' a similar pinion upon the shaft of the upper feed-roller, these being adapted to receive motion from the worms F F', as shown in Fig. 3. The shaft D is free to move vertically within certain limits, for the purpose of bringing either of its bevel-gears into operation, one being adapted to act in connection with the inner or central bevel-gear of the main wheel, and the other with the outer bevel-gear. To sustain the shaft D in either position, raised or lowered, the bracket *d<sup>3</sup>* is provided, which is pivoted to the frame by means of the set-screw *d<sup>4</sup>*, in such manner that it is adapted to turn and bring either the flange on its long or short side beneath the shaft D, as shown, the stops *k k* being adapted to limit the bracket properly in its movement. H H represent the side bars of the frame, pivoted at their rear ends to the upper edge of the box, and carrying at their front ends the upper feed-roller, as shown. I represents the block against which the knives act in the operation of cutting.

The operation is as follows: Motion having been communicated to the main wheel, the same is conveyed by means of the pinion C directly to the cutting-cylinder, and by means of one pair of bevel-gears upon the main wheel and shaft D, and the worm-gears, to the



shafts of the feeding-rollers. The upper feeding-roller, it will be observed, is held by a spring-frame, so that it is adapted to yield readily when the circumstances of the case require it. In order that it may receive rotary motion in any position in which it may be placed, its worm-gear is free to move vertically upon the shaft D, and the shaft itself is adapted, by means of the ball-and-socket joints of the worm-gears, to incline from the vertical position, so as to permit the frame to move in the arc of a circle. To change the speed, the main wheel is removed from its shaft, and the shaft D is adjusted up or down, as the case may be, to bring its other bevel-gear in contact with the corresponding bevel-gear upon the main wheel, the supporting-bracket being properly adjusted to support the shaft in the desired position. If desired, more than two bevel-gears may be employed upon the shaft D and the main wheel, and they may be arranged in such relation to each other so as to give any desired speed. The mechanism described is quite simple, and well adapted for the purpose designed. The ad-

justment to change the feed can be readily made without tools, and the upper roller is capable of vibrating while receiving constantly a positive motion.

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

1. The combination of the vertical shaft D, the ball-joint F, and its supporting-socket E, with the ball-joint and worm-gear F', and its supporting-socket E', and vibrating frame H, whereby the shaft is adapted to adjust itself to the vibration of the frame, substantially as described.

2. The combination of the vertical shaft D, loosely held in the ball-and-socket joints E E' F F', and the pivoted supporting-bracket d<sup>3</sup>, provided with unequal sides, as described.

This specification signed and witnessed this 20th day of August, 1874.

THOS. HANCOCK.

Witnesses:

EDWARD T. JETT,  
A. T. NYE, Jr.