

(No Model.)

H. H. KENDRICK.
STRAW CUTTER.

3 Sheets—Sheet 1.

No. 419,455.

Patented Jan. 14, 1890.

FIG. I.

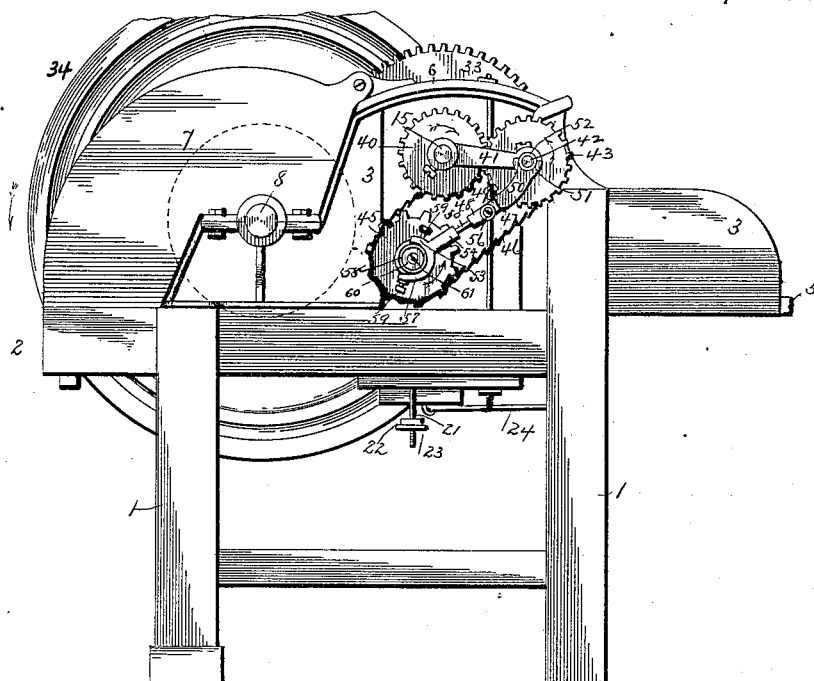
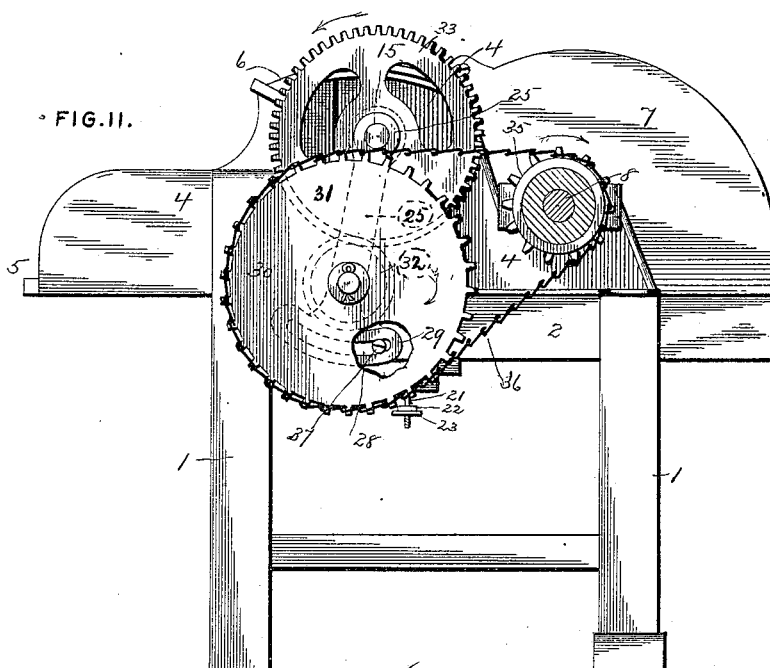


FIG. II.



Witnesses

H. P. Denison
R. Denison

Hiland H. Kendrick Inventor

By his Attorney
A. Smith

(No Model.)

3 Sheets—Sheet 2.

H. H. KENDRICK.
STRAW CUTTER.

No. 419,455.

Patented Jan. 14, 1890.

FIG. III.

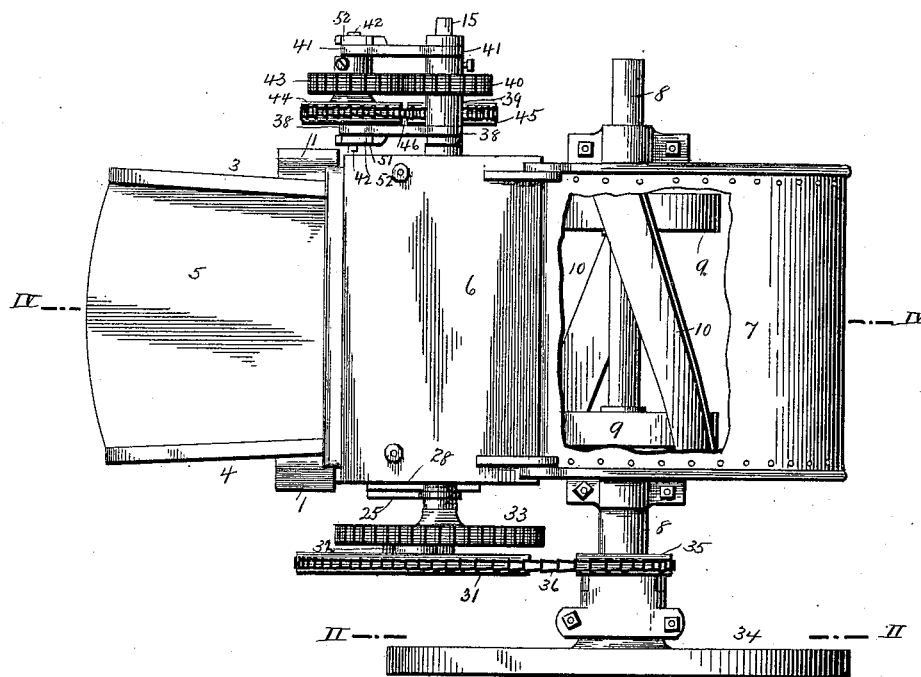


FIG. VII.

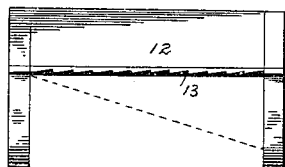


FIG. V.

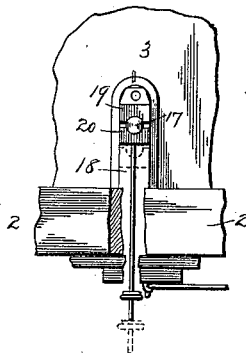
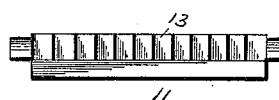


FIG. VIII.



Witnesses

A. P. Denison
F. Denison

Hiland H. Kendrick Inventor
By his Attorney
A. Smith

(No Model.)

3 Sheets—Sheet 3.

H. H. KENDRICK.
STRAW CUTTER.

No. 419,455.

Patented Jan. 14, 1890.

FIG. IV.

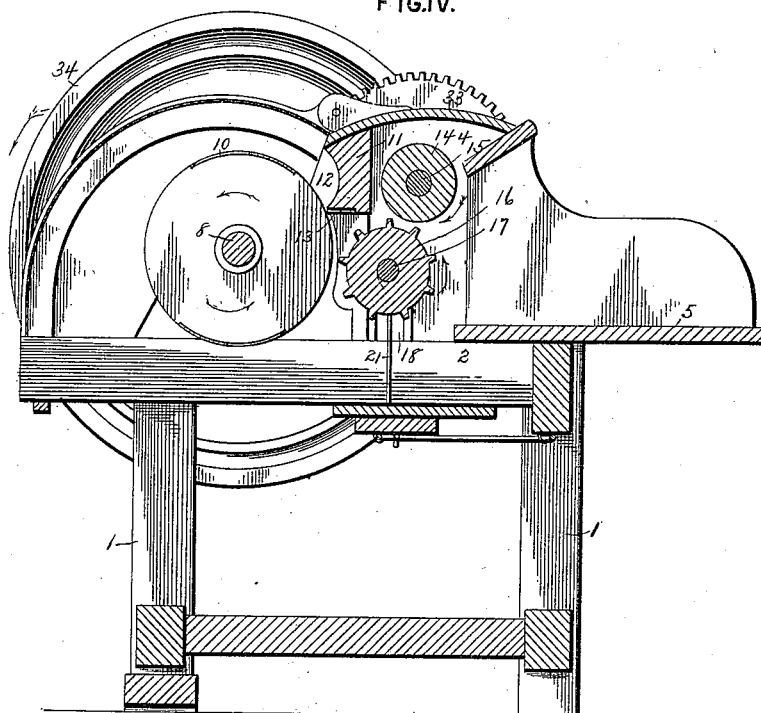


FIG. IX.

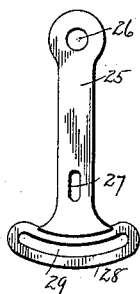


FIG. VI.

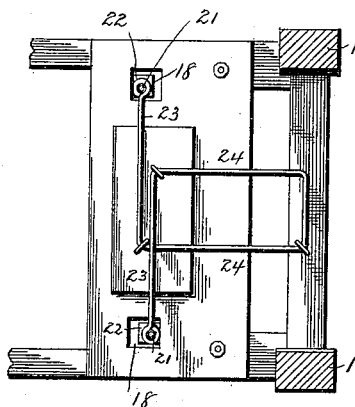
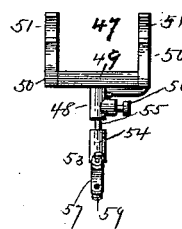


FIG. X.



Witnesses
H. P. Denison
F. Denison

Alfred H. Kendrick Inventor
By his Attorney
A. Smith

UNITED STATES PATENT OFFICE.

HILAND H. KENDRICK, OF FULTON, NEW YORK.

STRAW-CUTTER.

SPECIFICATION forming part of Letters Patent No. 419,455, dated January 14, 1890.

Application filed November 25, 1887. Serial No. 256,109. (No model.)

To all whom it may concern:

Be it known that I, HILAND H. KENDRICK, a citizen of the United States, and a resident of the village of Fulton, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Straw-Cutters, of which the following is a specification.

My invention relates to the following features of construction: first, a swinging frame suspended from the outer end of the shaft or arbor of the fixed feed-roll and employed to adjust the tension upon the belt which connects with the driving-shaft; second, mechanism for supporting the feed-rolls to permit the rocking and vertical movement thereof; third, a torsion-spring mechanism under the adjustable feed-roller and connected to its bearings to permit either end to be depressed independently of the other, or the whole roller to be depressed evenly or unevenly.

My invention consists in the several novel features of construction and operation and novel combinations of elements hereinafter described, and specifically set forth in the claims annexed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure I is a side elevation of my improved straw-cutter. Fig. II is a side elevation looking in the opposite direction, the fly-wheel being omitted, and showing a section on the line II II, Fig. III. Fig. III is a top plan view, a portion of the hood being omitted to exhibit the rotary cutter-head beneath. Fig. IV is a longitudinal section on the line IV IV, Fig. III, looking in the direction of the arrows. Fig. V is a detail showing an end elevation of the adjustable roller-bearing. Fig. VI is a detail showing a bottom view of the torsion-spring for supporting the adjustable roller-bearings. Fig. VII is a side view of the shear plate or block. Fig. VIII is a bottom view thereof. Fig. IX is a side view of the swinging frame. Fig. X is a top view of the strut.

The frame of the machine is constructed with legs 1, side sills 2, side pieces 3 4, table

5, cover 6, and hood 7, hinged to the cover. In suitable bearings in the side pieces I mount the transverse main or driving shaft 8, which, between said side pieces and beneath said hood, carries the rotary cutter-head 9, having the spiral or shearing cutters or knives 10, removably connected thereto and cutting upwardly as it rotates (in the direction indicated by the arrow in Fig. IV) against a shear plate or block having a body 11, formed with a concave face 12 and provided with a serrated lower edge 13, and rigidly secured to the side pieces beneath the cover. The serrated edge may extend part way or wholly across the bottom of the shear plate or block and extend over the path of the material to keep it from sliding or being crowded to the right hand when the cuts begin at the left hand, as shown by the dotted line in Fig. VII.

14 is the fixed plain feed-roller mounted on a shaft 15, journaled in the side pieces, and 16 is the adjustable ribbed feed-roller mounted on the shaft 17, which is journaled in boxes set into vertical slots or openings in the side pieces, having fixed upper members 19 and loose lower members 20, adapted to slide up and down when the adjustable roller moves toward or from the fixed roller. The lower members are supported by the following means: 21 are vertical rods secured to the lower members, pendent therefrom and sliding therewith, having nuts 22 adjustable thereon, and by which they are supported on the ends of the arms 23 of a torsion-spring 24, bent substantially as shown and secured to the under side of the frame. When the adjustable feed-roller is depressed evenly, a uniform torsion strain is produced on both arms, and when said roller is unevenly depressed then an unequal torsion strain is produced upon them.

I do not limit myself to the precise form of torsion-spring shown, for part of my invention consists in the provision of torsion-arms operated by the depression of the adjustable feed-roller, whether such depression is uniform on both ends of the roller or not.

From the projecting end of the shaft 15 on one side of the machine I suspend a swinging frame formed with a body 25, having an eye 26 at the upper end fitting loosely upon the

shaft, also with a longitudinal slot 27, and also with a segment 28, having a curved slot 29 at the lower end. In the longitudinal slot I secure an adjustable stud or arbor 30, on which is mounted the sprocket-wheel 31 and pinion 32, fast to the sprocket-wheel.

33 is a gear-wheel secured to the shaft over the pinion, with which the pinion meshes and rotates the shaft carrying the fixed feed-roller.

34 is a fly-wheel or driving-pulley mounted on the main shaft, and 35 is a small sprocket-wheel, also mounted on the main shaft, the fly-wheel or driving-pulley being fixed and the sprocket-wheel being loose on the shaft and having clutch-connection. The sprocket-wheel 31 and the sprocket-wheel 35 are connected by a sprocket-chain 36.

The swinging frame 25 is adjusted by a set-screw 37, working in the sill 2 through the curved slot 29, to tighten or loosen the chain by increasing or decreasing the distance between the sprocket-wheels.

On the projecting end of the shaft of the fixed feed-roller, at the other side of the machine, I mount an inner arm 38, collar 39, gear-wheel 40, and outer arm 41. The arms 38 and 41 form a hanger for a short shaft 42, journaled in their outer ends and carrying a gear-wheel 43 and sprocket-wheel 44, secured together, the gear-wheels 40 and 43 meshing together.

On the end of the shaft of the adjustable feed-roller I secure the sprocket-wheel 45, connected by a sprocket-chain 46 with the sprocket-wheel 44.

As a support for the short shaft I provide a strut extending from the projecting end of the shaft of the adjustable feed-roller. This strut is constructed in two parts, one part 47 consisting of a tubular body 48 and cross-bar 49, having arms 50 formed with seats 51 for journal-boxes 52, in which the short shaft is journaled. The other part 53 consists of a body 54, provided with an adjustable stem 55, fitting in the tubular body and secured by a set-screw 56 in the desired position. At the lower end of the body 54 are arms 57, secured to a collar 58 on the shaft 17 by means of set-screws 59, the collar being held in place by a washer 60 and screw 61. It will be observed that when the adjustable feed-roll is depressed or raised the strut will follow its movement while the gearing is kept in mesh. The shafts rotate in the direction indicated by the curved arrows.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination, with the main shaft having a sprocket-wheel, of the fixed feed-roller having a shaft, the gear-wheel secured to the shaft, the swinging frame suspended from the shaft formed with a segment having a curved slot, the set-screw passing through the slot, by which the frame is adjusted, the stud secured to the frame, the sprocket-wheel and the gear-wheel secured together and mounted upon the stud, and the chain connecting the sprocket-wheels, substantially as described.

2. The combination, with the fixed feed-roller having a shaft and the adjustable feed-roller having a shaft, of the gear-wheel secured to the shaft of the fixed roller, the arms extending from the shaft of the fixed roller, the short shaft journaled in the arms, the gear-wheel, and the sprocket-wheel secured to the short shaft, the sprocket-wheel secured to the shaft of the adjustable roller, the chain connecting the sprocket-wheels, and the strut supporting the short shaft on the shaft of the adjustable roller, substantially as described.

3. The combination of the fixed feed-roller having a shaft, the collar, the gear-wheel, and the arms on said shaft, the short shaft journaled in the arms, the gear-wheel, the sprocket-wheel, and the journal-boxes on the short shaft, the adjustable feed-roller having a shaft, the sprocket-wheel and the collar on the latter shaft, the chain connecting the sprocket-wheels, and the strut supporting the short shaft on the shaft of the lower roller, substantially as described.

4. The strut constructed with the part consisting of a tubular body 48 and the cross-bar 49, having arms 50 formed with seats 51, the part 53, consisting of a body 54, provided with an adjustable stem 55, fitting in the tubular body and formed with arms 57, the set-screw 56, and the set-screws 59, substantially as described.

5. The combination, with the adjustable feed-roller having a shaft, of the journal-boxes having fixed upper members and loose lower members, the vertical rods, and the torsion-spring having arms on which the rods are supported, the rods in turn supporting the loose members, substantially as described.

In witness whereof I have hereunto set my hand this 5th day of March, 1887.

HILAND H. KENDRICK.

In presence of—
C. W. SMITH,
J. G. ALLEN.