2 Sheets—Sheet 1.

D. MAXWELL.

STRAW-CUTTER.

No. 186,261. Patented Jan. 16, 1877.

Fig 1.

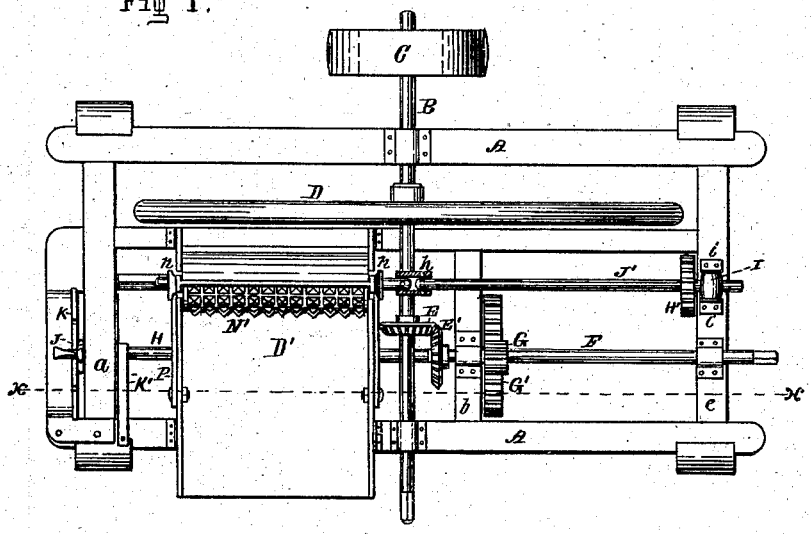
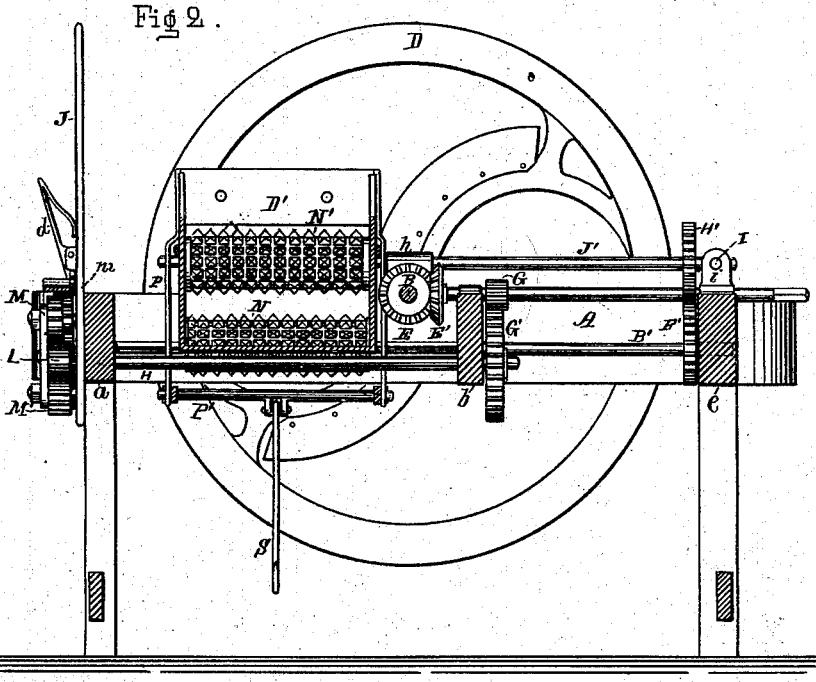


Fig 2.



WITNESSES:
N. H. Sherburne
N. Cowles

INVENTOR:
David Maxwell.
By Gridley & Sherburne,
attys.

2 Sheets—Sheet 2.

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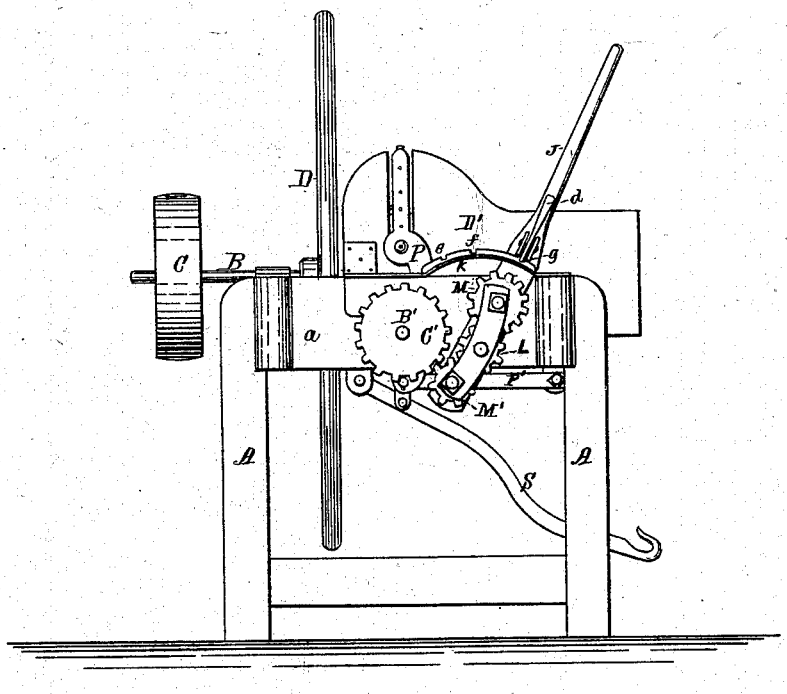
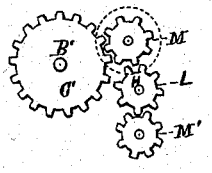
Fig 3





WITNESSES:
A. H. Sherburne
N. Cowles

INVENTOR:
D. and Maxwell
By Gridley & Sherburne
Attys

UNITED STATES PATENT OFFICE.

DAVID MAXWELL, OF PARIS, ONTARIO, CANADA.

IMPROVEMENT IN STRAW-CUTTERS.

Specification forming part of Letters Patent No. **186,261**, dated January 16, 1877; application filed May 8, 1876.

To all whom it may concern:

Be it known that I, DAVID MAXWELL, of Paris, in the county of Brant, Province of Ontario, and Dominion of Canada, have invented new and useful Improvements in Straw-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 represents a general plan or top view of a straw-cutting machine embodying my invention. Fig. 2 represents a longitudinal sectional elevation of the same, taken on line *x x*, Fig. 1; and Fig. 3 represents an elevation of that end of the machine which is at the left hand in Fig. 1.

Like letters of reference indicate like parts.

My invention relates to that class of straw-cutting machines in which the material to be cut is moved against the cutters by feed-rollers; and the object of my invention is to provide a means of determining the speed of the rollers, and the direction of their rotation, whereby the feed is increased or diminished at will, or the material removed from the cutters when desired. To that end my invention consists in the combination of the parts employed in actuating the feed-rollers, as will be more fully understood from the following description and claims.

In the drawing, A represents the frame of the machine, which may be made in the form shown, or in any other suitable form that will receive the operating parts. B is the main driving-shaft, journaled in the frame A, and so adjusted as to freely revolve. C is the driving-pulley, mounted on shaft B, and around which is passed a belt (not shown) communicating with any suitable motor, for imparting a rotary motion to the shaft. D is the balance-wheel, mounted on shaft B, and carrying revolving cutters, adjusted to act in conjunction with a stationary cutter affixed to the exit end of the feed-box D′. E is a beveled gear-wheel, mounted on shaft B, and adjusted to engage a like beveled gear-wheel, E′, on a longitudinal shaft, F, journaled in suitable boxes secured to the cross-pieces *b c* of the frame. G is a gear-pinion, mounted on the shaft F, and adjusted to engage a like gear-wheel, G′, on the longitudinal shaft H, passing under the feed-box D′, and journaled at its ends in suitable boxes secured to the cross-pieces *a b* of the frame. J is a vertical lever, fulcrumed upon shaft H, and so arranged as to admit of a free and easy oscillating movement. *d* is a spring-latch, hinged to the side of lever J, and adapted to take into notches *e f g*, formed in the periphery of a quadrant, K, permanently attached to the end of the frame. L is a gear-wheel, mounted on shaft H, and adjusted to engage with corresponding intermediate gear-wheels M M′, journaled to lever J on opposite sides of wheel L. Mounted upon the shaft of wheel M is an intermediate gear-wheel, *m*, adapted to revolve with wheel M. B′ is a longitudinal shaft, journaled in boxes secured to the cross-pieces *a e* of the frame, and carrying the lower feed-roller N. C′ is a gear-wheel, mounted on shaft B′, and adjusted to alternately engage with wheels M′ and *m*, when lever J is so adjusted as to allow spring-catch *d* to take into the respective notches *e* and *g* of the quadrant. Mounted on the end of shaft B′ opposite the wheel C′ is a gear-wheel, F′, which engages with a like gear-wheel, H′, on shaft J′, which shaft J′ is journaled at one end to a rock-shaft, I, secured in boxes *i i*, attached to cross-piece *c* of the frame, and is connected at the opposite end to the shaft of the upper feed-roller N′ by a knuckle-joint, *h*. (Shown in Fig. 1.) The shaft of the roller N′ is journaled in adjustable boxes *n n*, attached to the sides of the feed-box D′, by which means the roller is allowed to adjust itself to different thicknesses of material passing under it, and by means of the joint connecting the shaft of the roller to shaft J′ the inner end of said shaft J′ is allowed to ascend or descend with the roller without disengaging the gear-wheels F′ and H′. P is a depending frame, loosely secured on the shaft of the upper roller, and extending downward slightly below the lower feed-roller N, and is hinged at its lower end to a horizontal frame, P′, hinged to one of the side pieces of the frame. S is an adjusting-lever, fulcrumed at its inner end to the center-piece of the frame, and loosely connected to

the inner end of frame P′. This lever extends outward slightly from the frame, and is so arranged as to receive a weight. The arrangement of this lever, together with frames P and P′, is such as to exert a uniform pressure of the upper roller upon the material passing under it, thereby causing the material, without regard to its thickness, to be fed evenly between the rollers. The boxes supporting the end of shaft H, adjacent to lever J, is so arranged as to allow the shaft to be moved slightly toward wheel C′ by a movement of the upper end of the lever toward the front of the machine, when catch *d* is fulcrumed in notch *f* of the quadrant, by which means wheel L is made to engage wheel C′, for reversing the movement of the feed-rollers. K′ is a flat metal spring, permanently attached to the frame A, and adapted to bear against shaft H, by which means wheel L is held from contact with wheel C′, when the lever is in its normal position. One end of the main driving-shaft B, and of shaft F, is fitted to receive an ordinary crank, by which the machine may be operated by hand when desired.

In operating my said machine, the material to be cut is placed in the feed-box D, and lever J so adjusted as to allow the spring-catch *d* to take into notch *g* of the quadrant, thereby engaging wheel M′ with wheel C′, for operating the feed-rollers N and N′, and motion is then imparted to the main driving-shaft B, which is communicated to the feed-rollers through the medium of the gear-wheels, moving the feed-rollers in an opposite direction, and causing the material in the feed-box to pass between said rollers to and in contact with the cutters. To reduce the speed of feeding the material to the cutters, lever J is so adjusted as to allow spring-catch *d* to take into notch *e* of the quadrant, disengaging wheel M′ from wheel C′, and engaging wheel *m* with wheel C′. To reverse the movement of the feed-rollers should they become clogged, the lever is adjusted to bring catch *d* into notch *f*, disengaging wheel *m* from wheel C′. The upper end of the lever is then moved toward the front of the machine, thereby moving its lower end toward the rear of the machine, engaging wheel L with wheel C′, which reverses the rollers, and causes the material in the feed-box to move from the cutters

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

1. The combination of the feed-rollers N and N′, arranged on different shafts, one of said shafts being held adjustable, substantially as and for the purpose specified.

2. The combination, with the gear-wheels C′ and L, intermediate gear-wheels M, M′, and *m*, quadrant K, lever J, and shaft H, of the spring K′, substantially as and for the purpose specified.

DAVID MAXWELL.

Witnesses:
HENRY HART,
JAMES MORE.