

(No Model.)

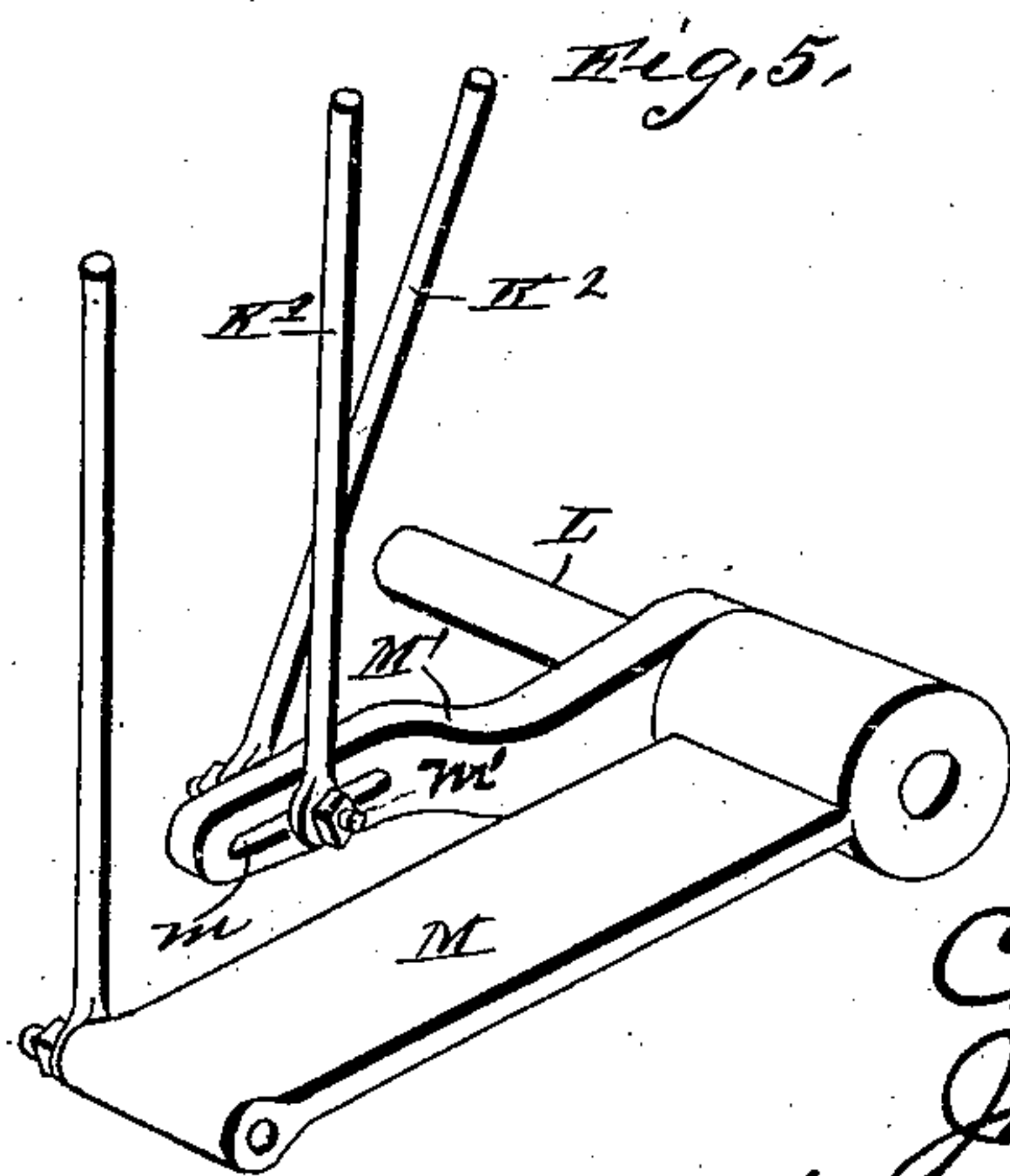
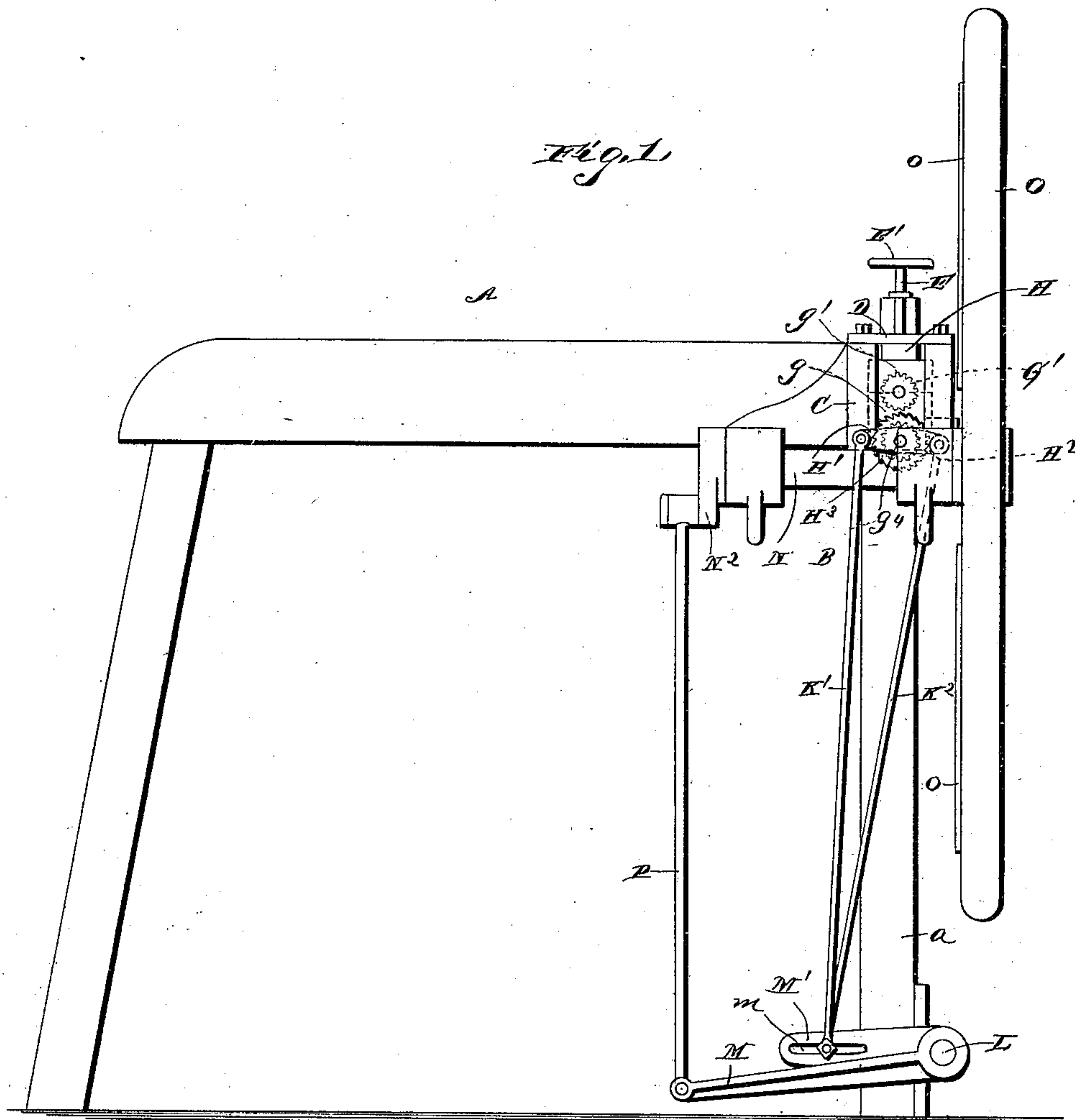
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C. HANSEN & J. BRANDT.

STRAW CUTTER.

No. 370,698.

Patented Sept. 27, 1887.



Witnesses

*C. B. Taylor,*

*C. E. Doyle,*

Inventors

*Chas Hansen*  
*James Brandt*

By their Attorneys

*C. A. Snowdon*

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2 Sheets—Sheet 2.

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Fig. 2.

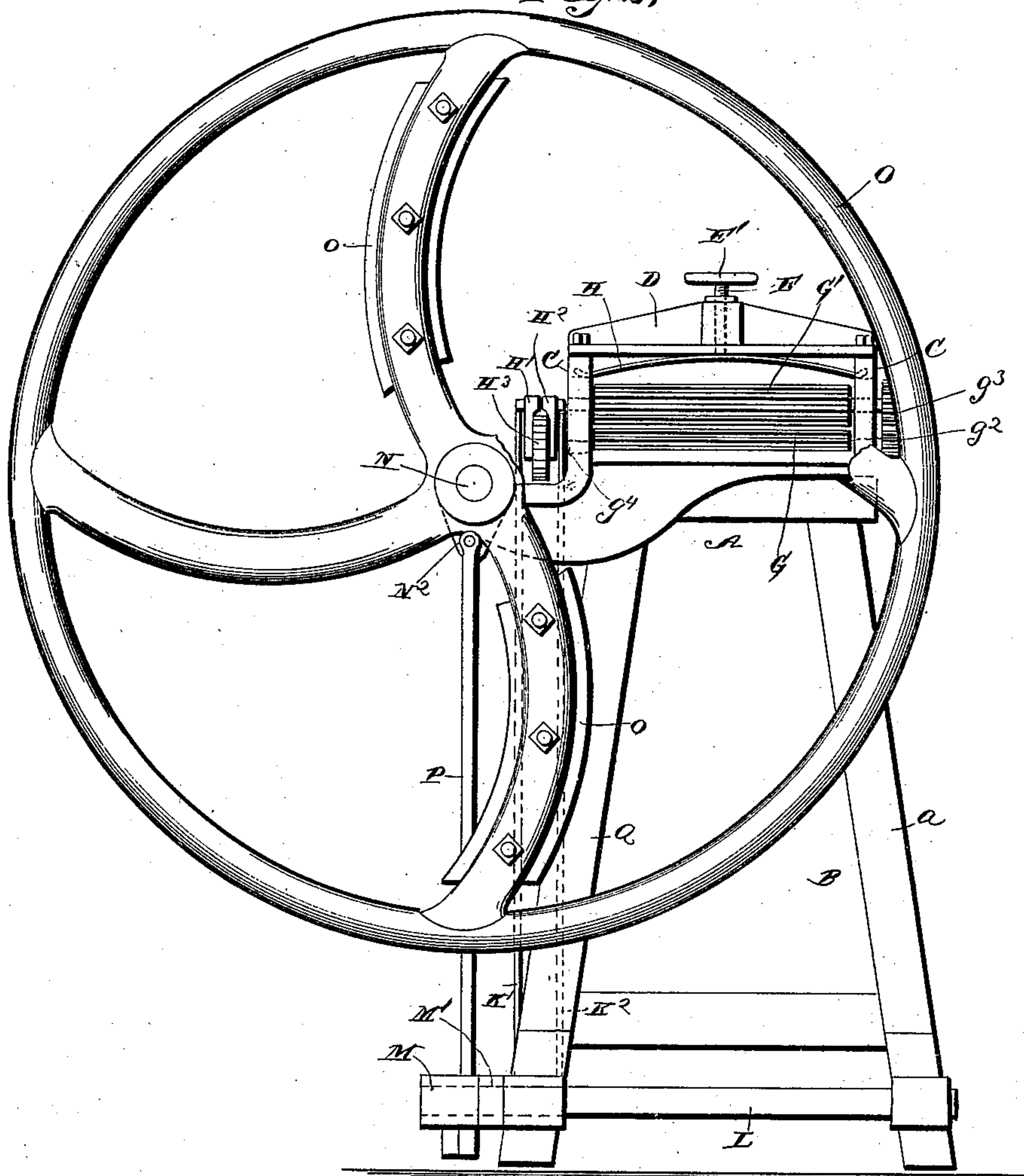
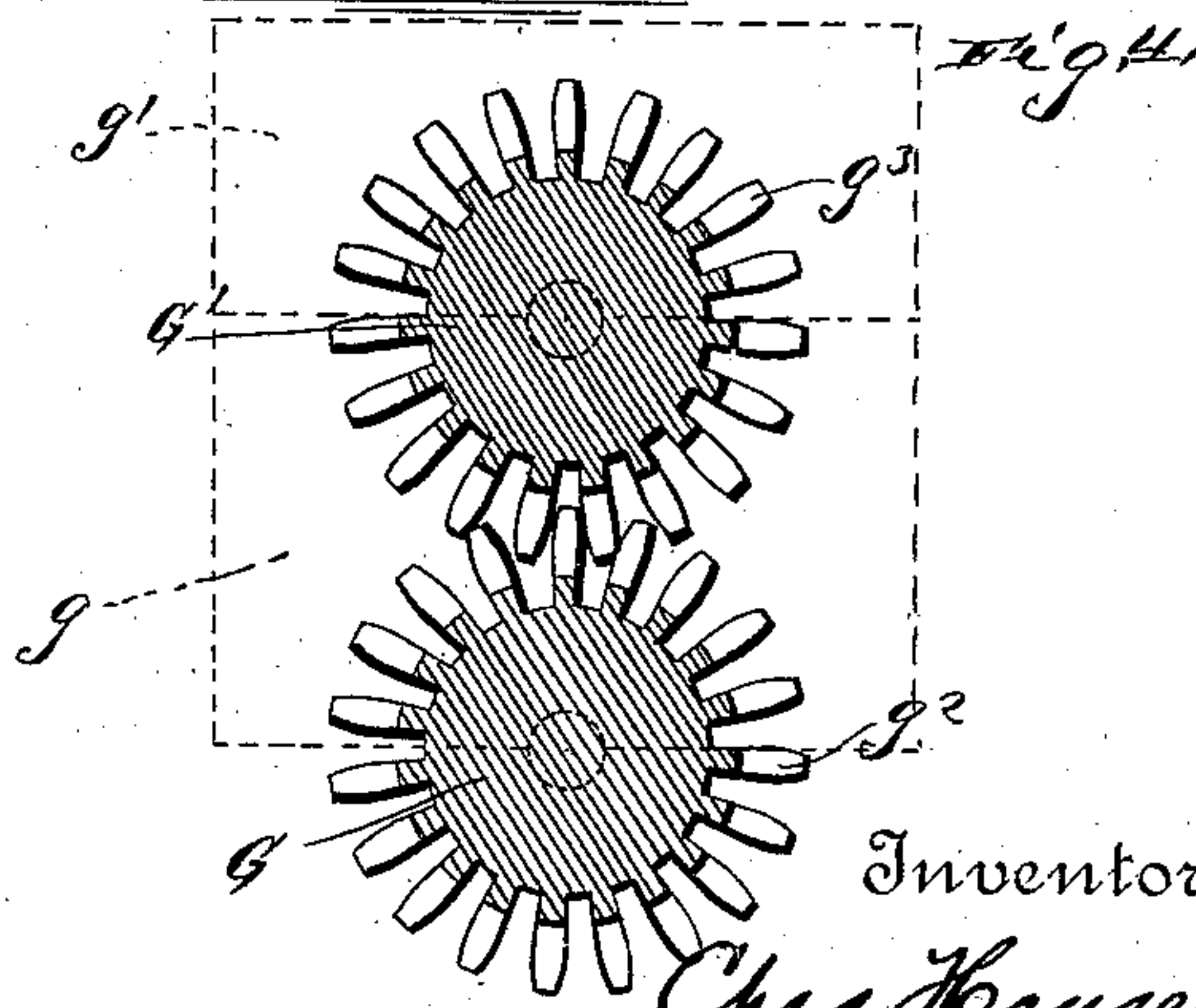
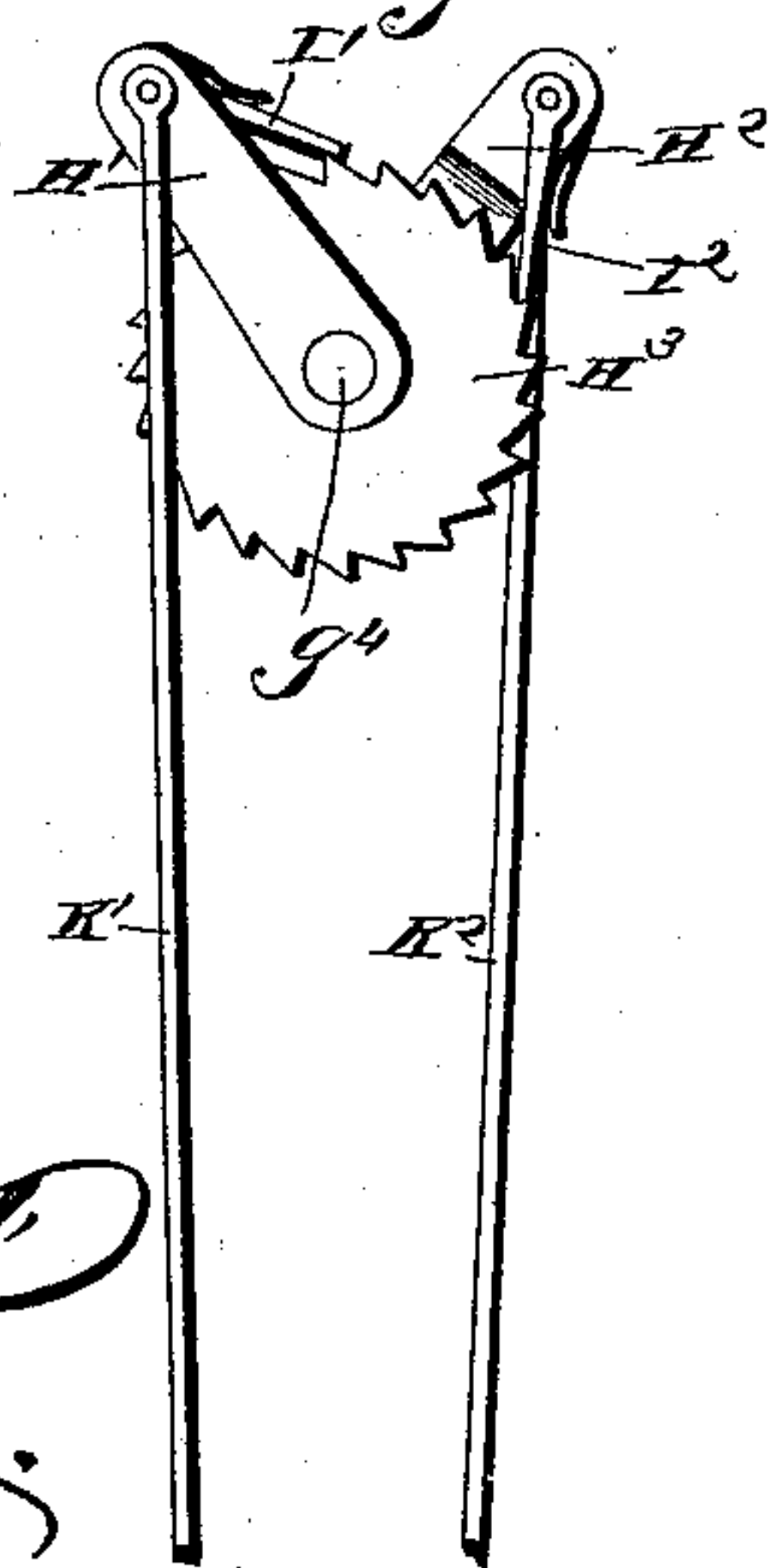


Fig. 3.



Witnesses

C. L. Taylor,  
O. E. Doyle.

Inventors

Chas. Hansen  
James Brandt

By their Attorneys

C. A. Howden



# UNITED STATES PATENT OFFICE.

CHARLES HANSEN AND JAMES BRANDT, OF MARINETTE, WISCONSIN.

## STRAW-CUTTER.

SPECIFICATION forming part of Letters Patent No. 370,698, dated September 27, 1887.

Application filed June 13, 1887. Serial No. 241,197. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES HANSEN and JAMES BRANDT, citizens of the United States, residing at Marinette, in the county of Marinette and State of Wisconsin, have invented a new and useful Improvement in Feed-Cutters, of which the following is a specification.

Our invention relates to improvements in feed-cutters; and it consists in a certain novel construction and arrangement of parts for service, fully set forth hereinafter, and specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side view thereof. Fig. 2 is a front view. Fig. 3 is a detail side view of the mechanism for operating the feed-rolls. Fig. 4 is a detail section through the feed-rolls. Fig. 5 is a detail view of the treadle, showing the manner of attaching the lower ends of the feed-operating rods thereto.

Referring to the drawings by letter, A designates the table of the cutter, at the front or cutting end of which is disposed the supporting-frame B, comprising the vertical parallel standards C C at each side of the table, and the horizontal cross-head D, having a vertical threaded opening in the center to receive the set-screw E, which is provided at the upper end with the hand-wheel E'. Between the said vertical standards are journaled the spindles of the lower feed-roll, G. A block,  $g$ , is placed on the upper side of the said spindles between the guide-standards of the frame, (the inner sides of which may be grooved to receive the edges of the said blocks.) The upper feed-roll, G', is placed in position with its spindles journaled in bearings in the upper side of the blocks  $g$ , and a movable block,  $g'$ , is placed on the upper side of the spindles of the upper roll between the guide-standards.

H designates a leaf-spring, bent upwardly toward the center and resting at the ends on the upper sides of the upper blocks,  $g'$ , and the lower end of the set-screw E is adapted to impinge against the said spring at the center. The tendency of the upper feed-roll is obviously upward when hay or material is passing between the rolls, and it will be evident that the spring H is designed to resist this tendency and hold the roll down sufficiently tight to engage the feed, the pressure, however, being yielding.

The strength or tension of the spring may be adjusted by turning the set-screw. The said feed-rolls are fluted or corrugated, to enable them to bite and hold the hay or straw, and  $g^2$   $g^3$  are gear-pinions rigidly keyed to the outer ends of the spindles of the rolls G G', respectively adapted to mesh with each other to cause the rolls to turn together in opposite directions. The spindle  $g^4$  at the opposite end of the roll G from the said gears is extended beyond the guide-standards C and provided with a ratchet-wheel, H<sup>3</sup>, and on the said spindle  $g^4$  are journaled the swinging arms or pawl-carriers H' H<sup>2</sup>, respectively on the outer and inner sides of the ratchet-wheel H<sup>3</sup>. The said arms H' H<sup>2</sup> are provided at the outer ends with the spring-actuated pawls I' I<sup>2</sup>, the pawl I' engaging in the ratchet as the arm H' is raised at the outer end, and the pawl I<sup>2</sup> engaging in the said ratchet as the outer end of the arm H<sup>2</sup> is lowered.

To the outer ends of the arms H' H<sup>2</sup> are attached the upper ends of the operating-rods K' K<sup>2</sup>, respectively.

L designates a shaft journaled in suitable bearings secured to the lower ends of the legs  $a a$  of the cutting-table, and to the outer end of the said shaft, under the pawl-carriers, is secured the treadle M, and rigid with the said treadle is an arm, M', having a slot,  $m$ , therein.

The lower ends of the rods K' K<sup>2</sup> are pivoted on the short pin  $m'$ , secured at any desired point of the slot  $m$ , and thus the rods are pivotally and adjustably attached to the treadle. As the treadle is forced down, the outer ends of both arms H' H<sup>2</sup> are drawn down, the pawl I<sup>2</sup>, carried by the arm H<sup>2</sup>, engaging and turning the ratchet-wheel H<sup>3</sup>, and consequently both feed-rolls, and the pawl carried by the arm H' slipping loosely over the ratchet-teeth. When the treadle is raised, the pawl I' will engage and turn the ratchet-wheel, (in the same direction as before turned,) and the pawl I<sup>2</sup> will slip loosely over the teeth.

It will be seen that at each motion of the treadle the feed-rolls are turned a certain distance, which distance may be altered by adjusting the lower ends of the rods K' K<sup>2</sup> farther from the shaft to which the arm M is secured or closer to the said shaft, it being obvious that the farther they are secured from the said shaft



the greater will be the vertical motion thereof and the farther the feed-rolls will turn at each motion of the treadle.

N represents a shaft journaled in suitable bearings on the side of the cutting-table, on the front end of which shaft is secured the cutting-wheel O, which is very large in diameter, provided on the two diametrically-opposite spokes with the cutting-knives *o o*, which are curved concavely on the cutting-edge, and are adapted to pass down close to the outer or front edge of the table of the machine. The rear end of the said shaft N is provided with a crank-arm, N<sup>2</sup>; and a pitman, P, connects the rear end of the treadle with the said crank-arm. It will be seen, therefore, that the machine makes two cuts for every complete revolution of the wheel, caused by an upward and downward motion of the treadle, and also the machine feeds twice during the same time.

The rim of the wheel O is made very heavy to overcome the resistance offered by the knives in cutting, and also to raise the treadle after the downstroke thereof. The treadle upon being pressed down causes one knife to cut, and also causes the machine to feed once, and the momentum acquired by the fly-wheel enables it to raise the treadle, feed again, and make a second cut. The manner of adjustment of the parts of this machine is very simple. It will cut rapidly and surely and with very little exertion to the operator.

Having thus described the construction, op-

eration, and advantages of our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a feed-cutter, the combination, with the box A, cutter-wheel O, feed-rolls journaled in the box and geared together, ratchet-wheel on the end of one of the rolls, and the pawls to engage with the said ratchet-wheel to operate it, of the treadle M, arm M', rigid with the treadle and having a longitudinal slot therein, and the connecting-rods K' K<sup>2</sup>, attached at the upper ends, respectively, to the pawls and pivoted at the lower ends at any point in the length of the slot, whereby the length of the throw of the pawls may be varied, substantially as specified.

2. In a feed-cutter, the combination, with the feed-rolls, ratchet-wheel secured to one of the rolls, and swinging pawls to engage said wheel, of the treadle M, provided with the arm M', having a slot therein, and the connecting-rods attached at the upper ends to the pawls and at the lower ends in the slot in the treadle, whereby the throw of the pawls may be varied, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

CHARLES HANSEN.

JAMES BRANDT.

Witnesses:

NIELS MADSEN,

CARL NIELSEN.