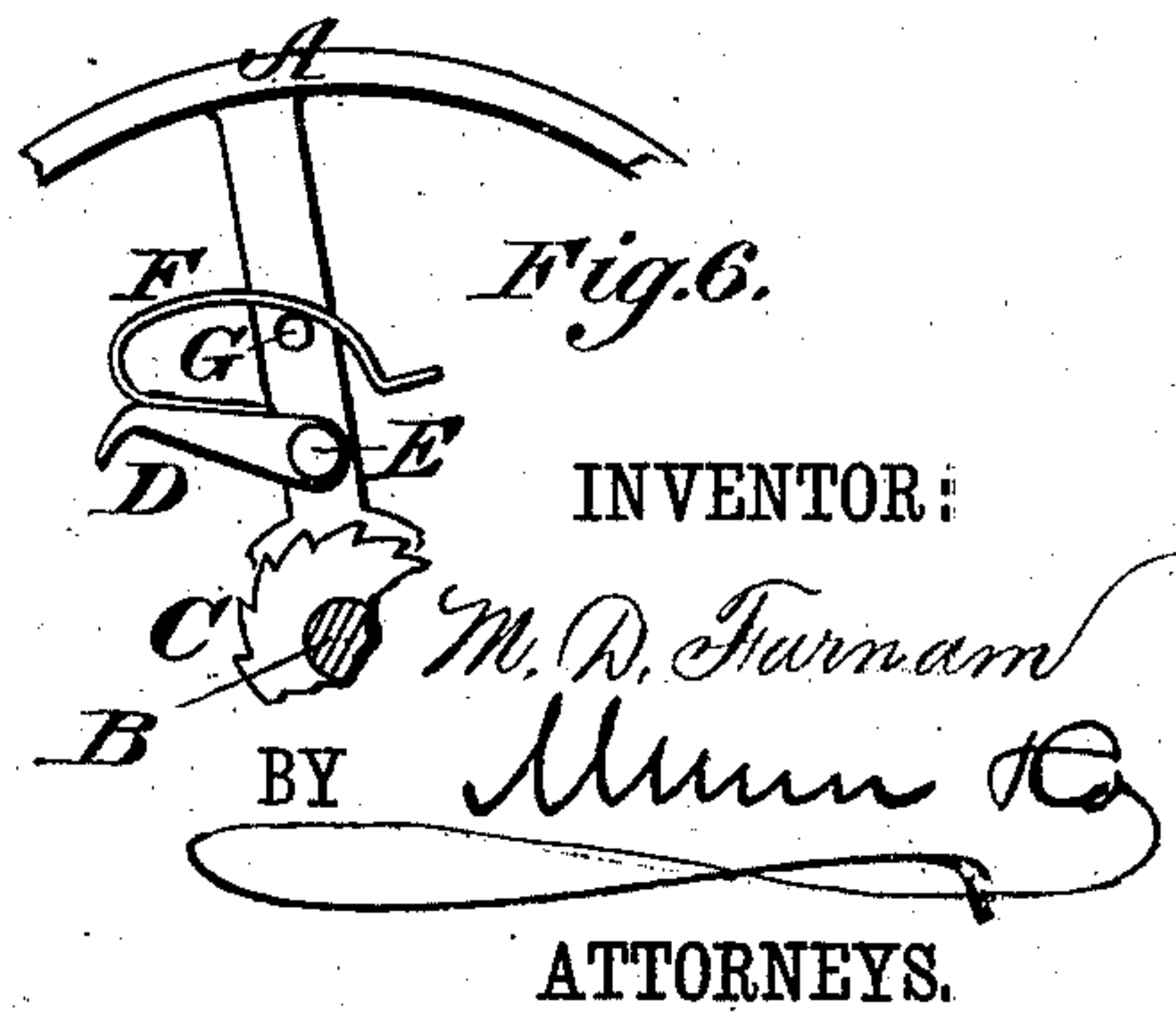
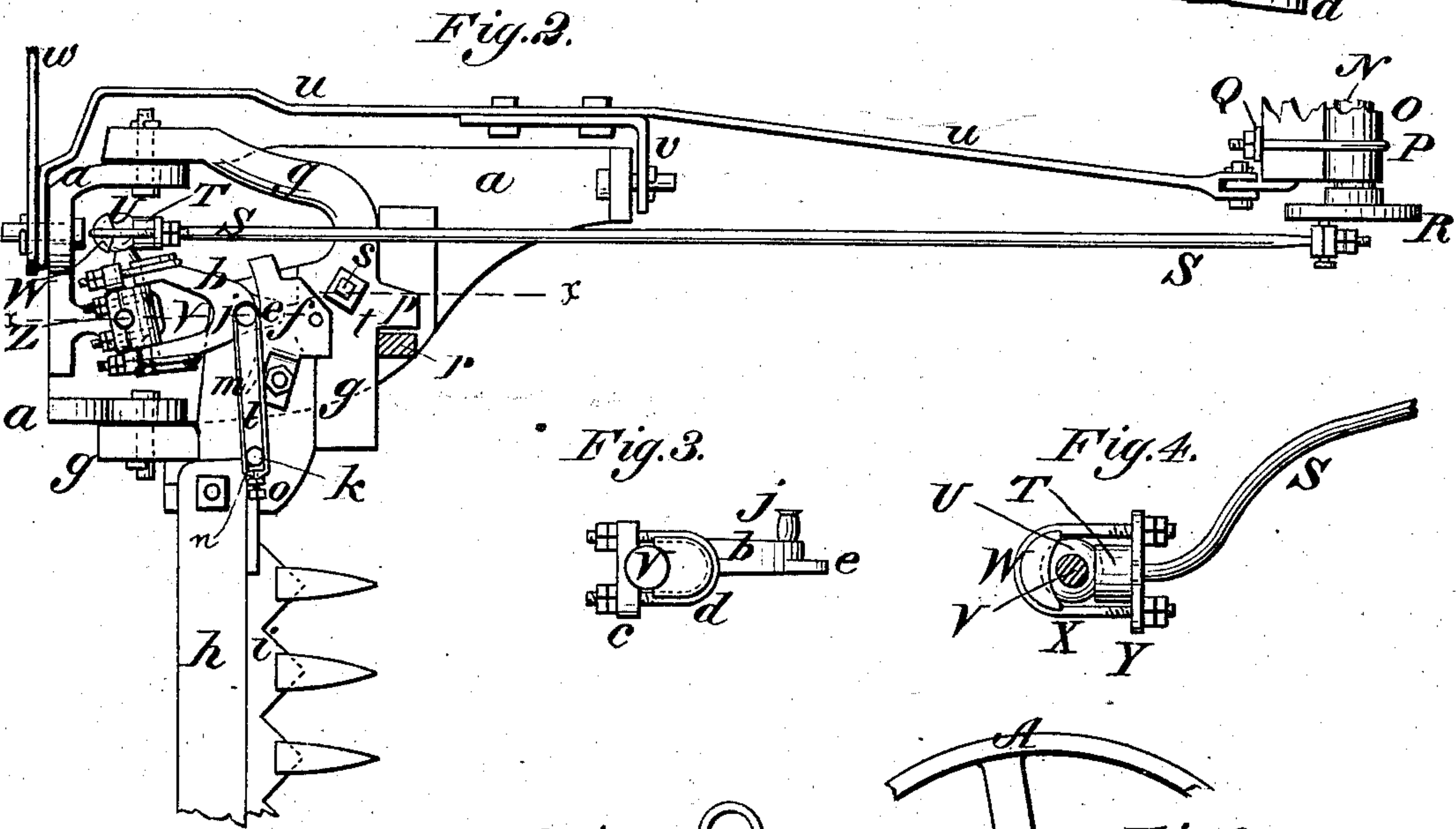
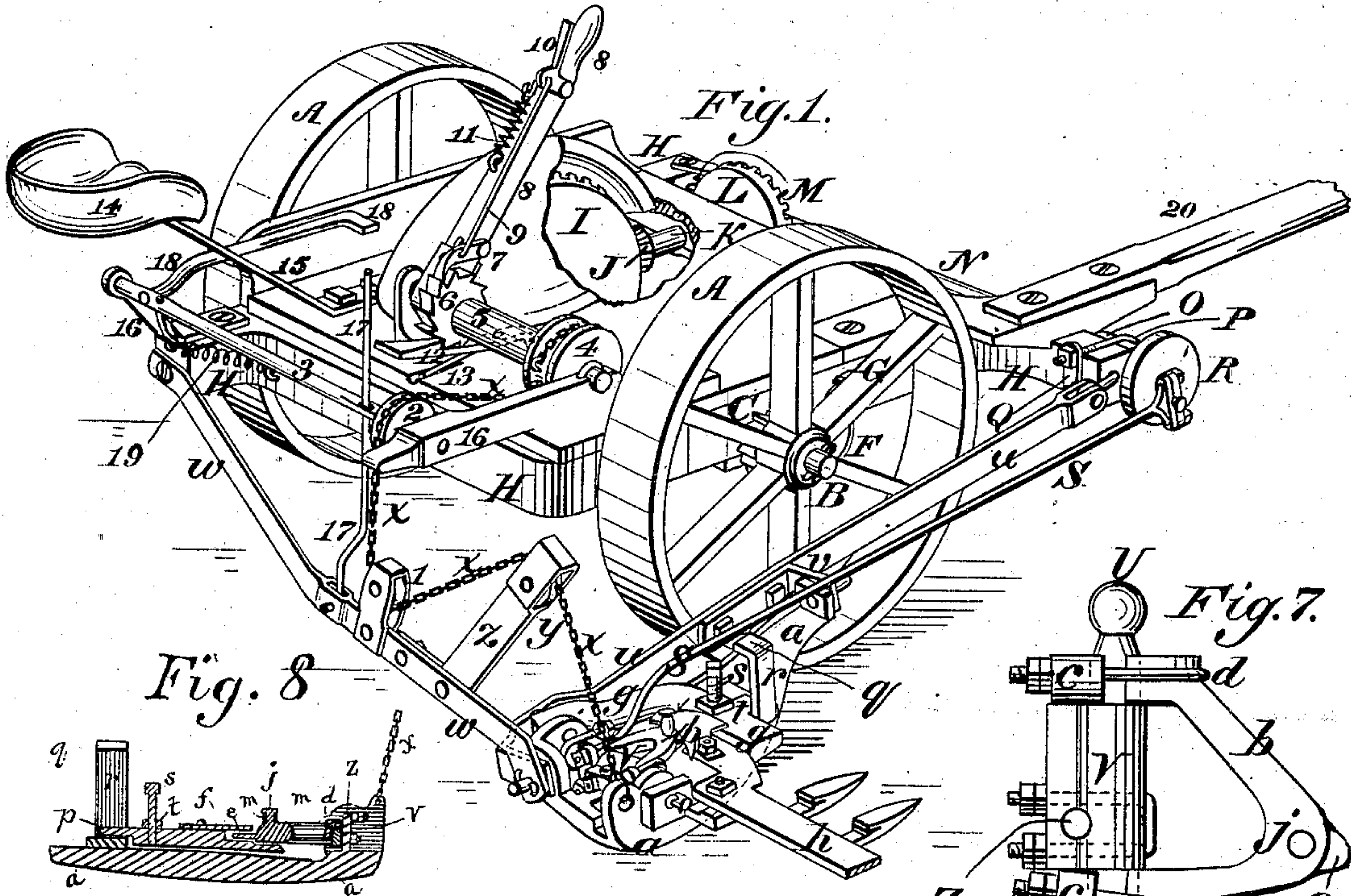


(Model.)

M. D. FARNAM.  
Mower and Reaper.

No. 238,874.

Patented March 15, 1881.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

MILAN D. FARNAM, OF IRA HILL, NEW YORK.

## MOWER AND REAPER.

SPECIFICATION forming part of Letters Patent No. 238,874, dated March 15, 1881.

Application filed July 1, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, MILAN DELAVAN FARNAM, of Ira Hill, in the county of Cayuga and State of New York, have invented a new and useful Improvement in Mowers and Reapers, of which the following is a specification.

Figure 1 is a perspective view of the improvement. Fig. 2 is a plan view of the mechanism for operating the cutter-bar. Fig. 3 is a side elevation of the elbow-lever that works the cutter-bar. Fig. 4 is a side elevation of the coupling that connects the pitman and elbow-lever. Fig. 5 is a plan view of the distance-link that connects the elbow-lever and the cutter-bar. Fig. 6 is a side elevation of the spring-pawl and a portion of the ratchet-wheel. Fig. 7 is a plan view of the elbow-lever. Fig. 8 is a sectional view taken on line *xx* of Fig. 2.

The object of this invention is to furnish mowers and reapers light, strong, and durable, easily operated and controlled, and free from side draft, which will allow the wear to be readily taken up, will adjust itself to the surface of uneven ground, and will not be liable to get out of order.

The invention consists in the peculiar construction of the mechanism for connecting the cutter-bar and shoe, and also for connecting the pitman with the shoe and the cutter-bar; also, in the combination, with the various bearings, of mechanism for taking up the wear; and, also, in the combination, with the brace or coupling, of a mechanism for holding the brace-bar and the shoe at the desired distance from the ground, as will be hereinafter fully described.

Similar letters of reference indicate corresponding parts.

A represents the wheels, which are placed upon the journals of the axle B.

To the axle B, at the inner ends of its journals, are attached ratchet-wheels C, with the teeth of which engage the pawls D. The pawls D are pivoted to the wheels A by pins or bolts E, and are held in gear with the ratchet-wheels C by the springs F. The forward ends of the springs F are attached to the forward ends of the pawls D, and the rear ends of the said springs F rest and slide upon pins G, attached to the wheel. With this construction the machine is thrown out of gear by raising the pawls D, the springs F sliding back upon the pins G,

and holding the pawls D raised until they are again pushed down to throw the machine into gear. The axle B revolves in bearings attached to the side bars of the iron frame H.

To the axle B is attached a large bevel-gear wheel, I, the teeth of which mesh into the teeth of a smaller bevel-gear wheel, J, attached to the rear end of the shaft K. The shaft K revolves in bearings attached to the frame H, is placed longitudinally with the said frame, and to its forward end, at the forward end of the frame H, is attached a large bevel-gear wheel, L, the teeth of which mesh into the teeth of the small bevel-gear wheel M, attached to the shaft N near its outer or left-hand end. The shaft N revolves in bearings attached to the forward corners of the frame H. The movable part O of the right-hand bearing for the shaft N is held against the said shaft by a bow, P, which passes around the bearing, and its arms pass through holes in a yoke, Q, which rests against the rear side of the stationary part of the said bearing, so that by tightening the nuts upon the ends of the arms of the bow P the wear will be taken up horizontally or in the direction of the strain that caused the wear.

To the inner or right-hand end of the shaft N is attached a small crank-wheel, R, to the crank-pin of which is pivoted the forward end of the pitman S.

To the rear end of the pitman S is attached, or upon it is formed, a half-bearing, T, the face of which is concaved, to rest against the side of a ball, U, formed upon the short bar V. Against the other side of the ball U rests the concaved face of a half-bearing, W, around which passes a bow, X. The arms of the bow X pass through holes in the ends of the yoke Y, placed upon the pitman S, at the outer side of the half-bearing T, so that the wear can be taken up in the direction of the said pitman S by tightening the nuts upon the ends of the arms of the bow X.

The short bar V is pivoted or hinged to a pin or stud, Z, attached to the middle rear part of the shoe *a*.

Upon the bar V, at points, upon the opposite sides of and unequally distant from its pivot Z, are formed journals, against the forward sides of which rest half-bearings formed



upon the ends of the arms of the U-shaped bar *b*. Against the rear side of the journals of the bar *V* rest half-bearings or yokes *c*, through holes in the ends of which pass the ends of the arms of the bows *d*. The bends of the bows *d* pass around projections formed upon the outer sides of the arms of the U-shaped bar *b*, so that the wear can be taken up in the direction of the bar *b* by tightening the nuts upon the arms of the bows *d*.

Upon the bend of the bar *b* is formed a projection or toe, *e*, which projects beneath a plate, *f*, attached to the U-shaped frame *g*, so as to keep the bar *b* always parallel with the frame *g*, without affecting the lateral vibration of the said bar *b*.

To the outer part of the bend of the frame *g* is rigidly attached the inner end of the finger-bar *h*, upon which works the cutter-bar *i*. The ends of the U-shaped frame *g* are pivoted to projections upon the rear corners of the shoe *a* about in line with the pivots of the bar *b*, so that the said bar *b* and frame *g* may work upon the same axis, and thus move together.

Upon the upper side of the bend of the bar *b* is formed, or to it is attached, a pin, *j*, which is made with a swell upon its middle part to prevent binding, and upon the upper side of the inner end of the cutter-bar *i* is formed, or to it is attached, a corresponding pin, *k*. Between the pins *j* *k* is placed a bar, *l*, the ends of which are concaved to fit against the said pins. Around the pins *j* *k* is placed a link, *m*, in the outer end of which is fitted a block, *n*, having its inner side concaved to fit against the pin *k*, and which is held forward against the said pin *k* by a set-screw, *o*, passing in through a screw-hole in the end of the link *m*, so that the wear can be taken up by turning the said screw *o*. The set-screw *o* is kept from working loose by a jam-nut, *o'*, placed upon it and screwed up against the end of the link *m*.

With this construction the bar *V* and the U-shaped bar *b* act as an elbow-lever to operate the cutter-bar *i* from the pitman *S*, and the forward edges of the finger-bar *h* and cutter-bar *i* are free to rise to adjust themselves to the surface of the ground. The upward movement of the forward edges of the finger-bar *h* and cutter-bar *i* are limited by the projection *p*, formed upon the bend of the frame *g*, and which strikes against the projection *q*, formed upon or attached to the upper end of a standard, *r*, attached to the forward part of the shoe *a*. The downward movement of the forward edges of the finger-bar *h* and cutter-bar *i* is limited adjustably by a set-screw, *s*, which passes through a hole in the bend of the frame *g* and rests against the shoe *a*. Upon the set-screw *s* is placed a lock-nut, *t*, to be turned down against the frame *g*, to prevent the said set-screw from working loose or changing its position. The set-screw *s* allows the forward edges of the finger-bar *h* and cutter-bar *i* to be adjusted at such a distance from the ground

as the character of the mowing may require. The lower side of the shoe *a* is slightly rounded, and its forward end is slightly curved upward, so that it will pass over the ground easily. The shoe *a* is drawn forward by the bar *u*, the forward end of which is pivoted to the forward corner of the frame *H*, as near as possible to the axis of the pitman-shaft *N*. The rear end of the bar *u* is bent outward, and to it is pivoted the rear inner corner of the shoe *a*. The forward end of the shoe *a* is pivoted to an outwardly-projecting bar or arm, *v*, attached to the bar *u*. With this construction the shoe *a*, and with it the cutter-bar, can be turned up into a vertical position for convenience in passing obstructions, and in passing from place to place. The shoe *a* is held at the proper distance from the frame of the machine by a bar, *w*, the inner end of which is pivoted to the left-hand rear corner of the frame *H*, and its outer end is pivoted to the rear end of the shoe *a* by the same pivot that pivots the draw-bar *u* to the said shoe, so that the brace-bar *w* will not interfere with turning the said shoe *a* and the cutter-bar into a vertical position.

To the outer rear corner of the shoe *a* is attached the end of a cord or chain, *x*, which passes over a pulley, *y*, mounted in the upper end of an outwardly-inclined bar, *z*, the lower end of which is rigidly attached to the brace *w*. From the pulley *y* the cord or chain *x* passes around the pulley 1, mounted in the brace *w* in the rear of the right-hand rear corner of the frame *H*, over a pulley, 2, mounted on a shaft, 3, and around and is attached to a pulley, 4, attached to a shaft, 5, which revolves in bearings attached to the rear part of the frame *H*.

To the inner part of the shaft 5 is attached a ratchet-wheel, 6, with the teeth of which engages the pawl 7, pivoted to the lever 8. The lower end of the lever 8 is pivoted to and rides upon the inner end of the shaft 5.

To the pawl 7 is pivoted the lower end of a connecting-rod, 9, which passes up along the lever 8, and its upper end is pivoted to the angle of a small bent lever, 10. The end of the short arm of the lever 10 is pivoted to the lever 8, and the upper arm of the said lever 10 passes up at the side of the upper end of the lever 8, so that it can be reached and operated by the hand that operates the said lever 8. The pawl 7 is held down against the teeth of the ratchet-wheel 6 by the spring 11, one end of which is attached to the angle of the lever 10, and its other end is attached to the lever 8. With this construction, by operating the lever 8, the cord or chain *x* will be wound upon the pulley 4, and the shoe *a* and the cutter-bar will be turned up into a vertical position. The shaft 5 is kept from being turned back, when the lever 8 is moved forward for another stroke, by the pawl 12, which is pivoted to the platform of the machine, and is held up against the teeth of the ratchet-wheel 6 by the spring 13, interposed between the said pawl 12 and the said platform. The rear end of the pawl



12 projects, so that it can be reached and operated by the driver with his foot.

14 is the driver's seat, which is attached to the upper end of the standard 15, the lower end of which is attached to the left-hand rear corner of the frame H. The shaft 3, to which the pulley 2 is attached, works in bearings in the outer ends of the rearwardly-projecting arms 16, the inner ends of which are attached to the rear corners of the frame H. Through a hole in the shaft 3, near the pulley 2, passes a rod, 17, the lower end of which is attached to the brace *w*. With this construction, by slightly turning the shaft 3, the rod 17 will be clamped, so as to hold the brace *w*, and with it the shoe *a*, at any desired distance from the ground, and prevent them from being raised when the lever 8 is operated to wind up the cord or chain *x*, and turn the shoe *a* and the cutter-bar into a vertical position.

To the shaft 3, near its left-hand end, is attached an arm or lever, 18, which projects forward into such a position that it can be conveniently reached and operated by the driver with his foot, to turn the shaft 3 and clamp the rod 17. The shaft 3 is turned back to release the rod 17, when the driver's foot is removed from the lever 18, by a spring, 19, one end of which is connected with the said shaft 3, and its outer end is attached to the frame H.

20 is the tongue, which is attached to the right-hand forward corner of the frame H, so that the draft of the machine will exactly balance the side draft of the cutter-bar, and thus make the machine draw true.

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

1. In a mower and reaper, the combination of the shoe *a*, standard *r*, having projection *q*, the finger-bar *h*, and the U-shaped frame *g*, having projection *p*, substantially as and for the purpose set forth.

2. In a mower and reaper, the combination, with the pitman S, the shoe *a*, and the cutter-bar *i*, having pin *k*, of the vibrating bar V, the U-shaped bar *b*, journaled upon said bar V and having pin *j*, and the link *l m n o*, substantially as herein shown and described,

whereby the motion will be transferred from the pitman to the cutter-bar in direct lines, as set forth.

3. In a mower and reaper, the combination, with the U-shaped bar *b*, that drives the cutter-bar *i*, and the U-shaped frame *g*, of the projection *e* and the plate *f*, substantially as herein shown and described, whereby the bar *b* and the frame *g* are kept in the same plane, as set forth.

4. In combination with the drag-bar, shoe, and pitman of a mower and reaper, the U-shaped frame *g*, pivoted to lugs arranged opposite each other upon the inner and outer sides of the shoe, the finger-bar *h*, secured to the shoe, the bar V, connected to the end of the pitman and pivoted, at Z, in line with the pivots of the frame *g*, and the bar *b*, connected by a link with the cutter-bar, as herein described, whereby the shoe may rock upon its pivots without affecting the pitman and cutter-bar connections, substantially as described.

5. In a mower and reaper, the combination, with pitman S, having half-bearing T, of the vibrating bar V, pivoted, by pin or stud Z, to the shoe *a*, ball U, formed upon said vibrating bar V, the movable half-bearing W, bow X, passing around said bearing W, and the yoke Y, substantially as and for the purpose set forth.

6. In a mower and reaper, the combination, with the vibrating bar V, of the U-shaped bar *b*, having projections on its outer sides, as shown, yokes *c*, and bows *d*, the ends of said bows passing through said yokes, while the eyes thereof pass around the projections on the bar, substantially as and for the purpose described.

7. In a mower and reaper, the combination, with the brace or coupling bar *w* and the shaft 3, having hole, of the rod 17, the lever 18, and the spring 19, substantially as herein shown and described, whereby the distance-bar *w* and the shoe *a* can be held at a desired distance from the ground, as set forth.

MILAN DELAVAN FARNAM.

Witnesses:

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ROSWELL COLLINS.