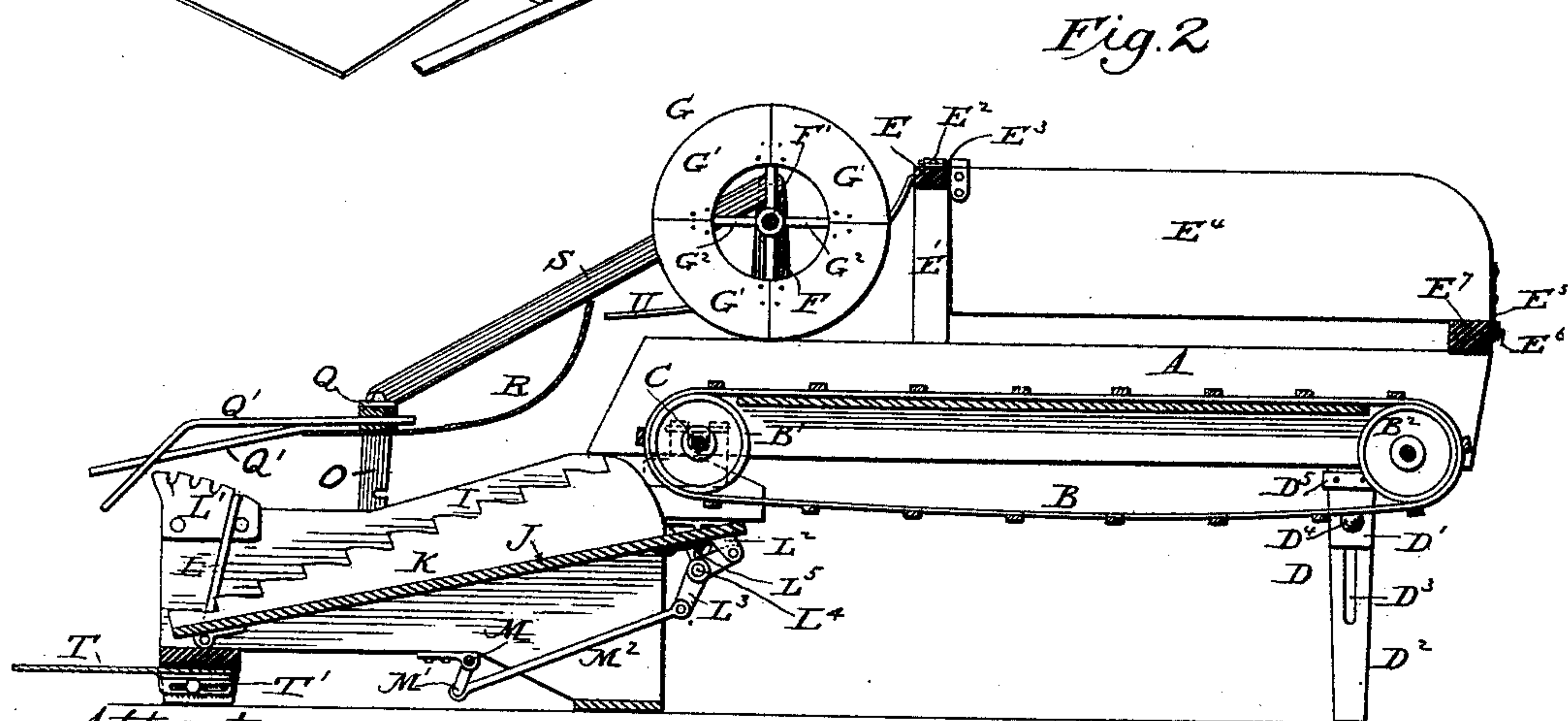
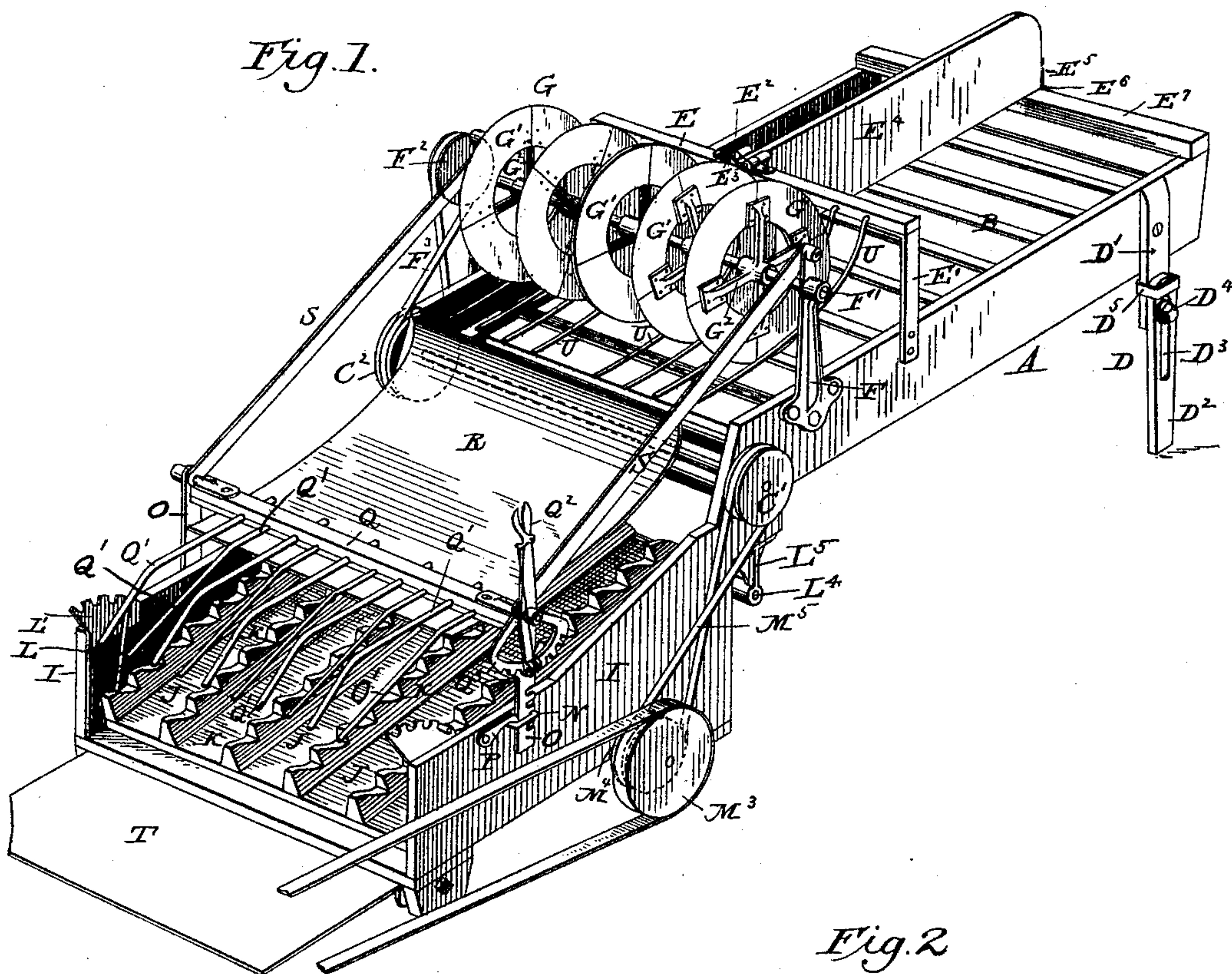


2 Sheets—Sheet 1.

## BAND CUTTER AND FEEDER.

Patented Oct. 29, 1889.



*Attest.*

Sidney P. Folting Smith  
Horace A. Dodge

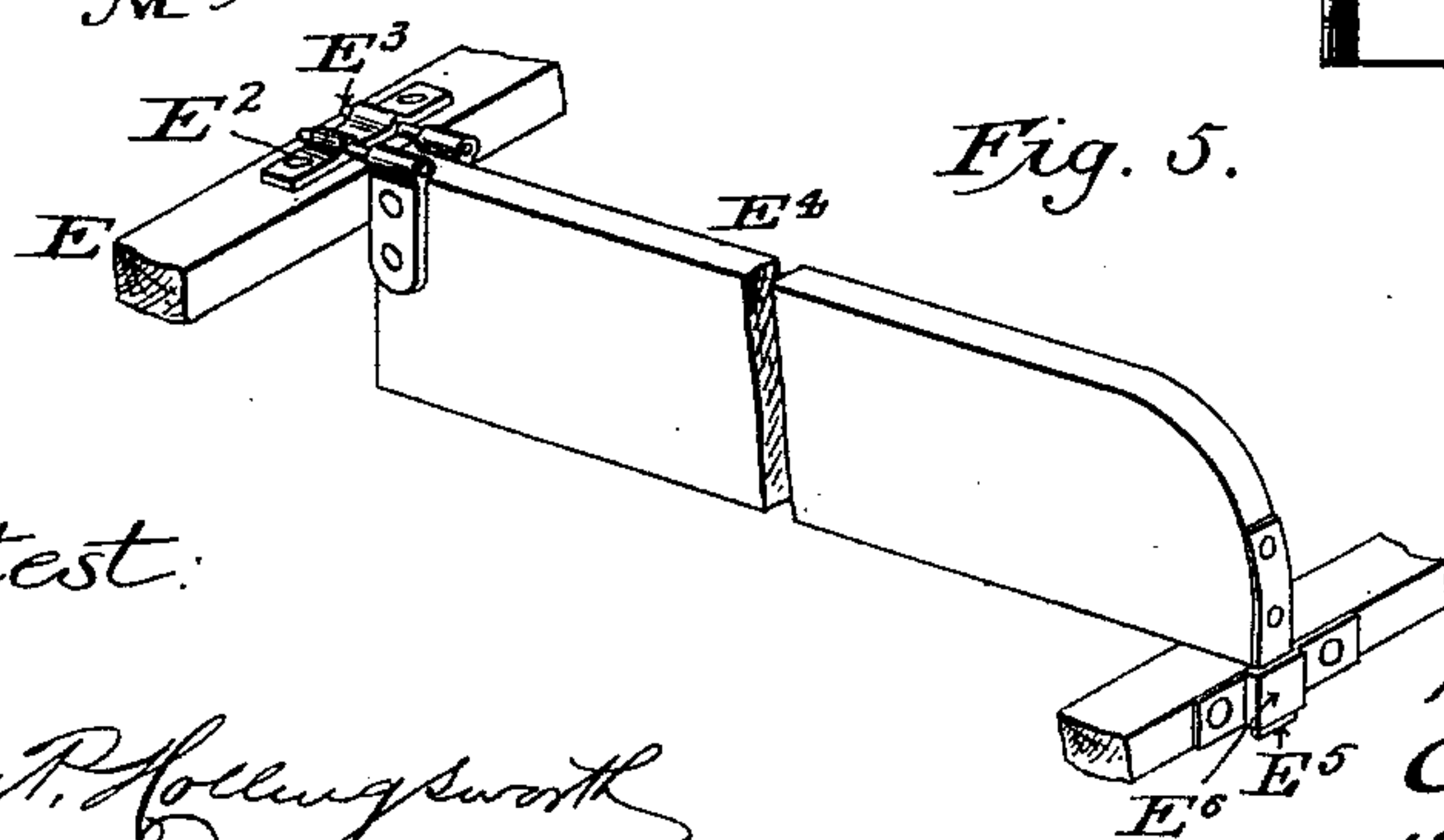
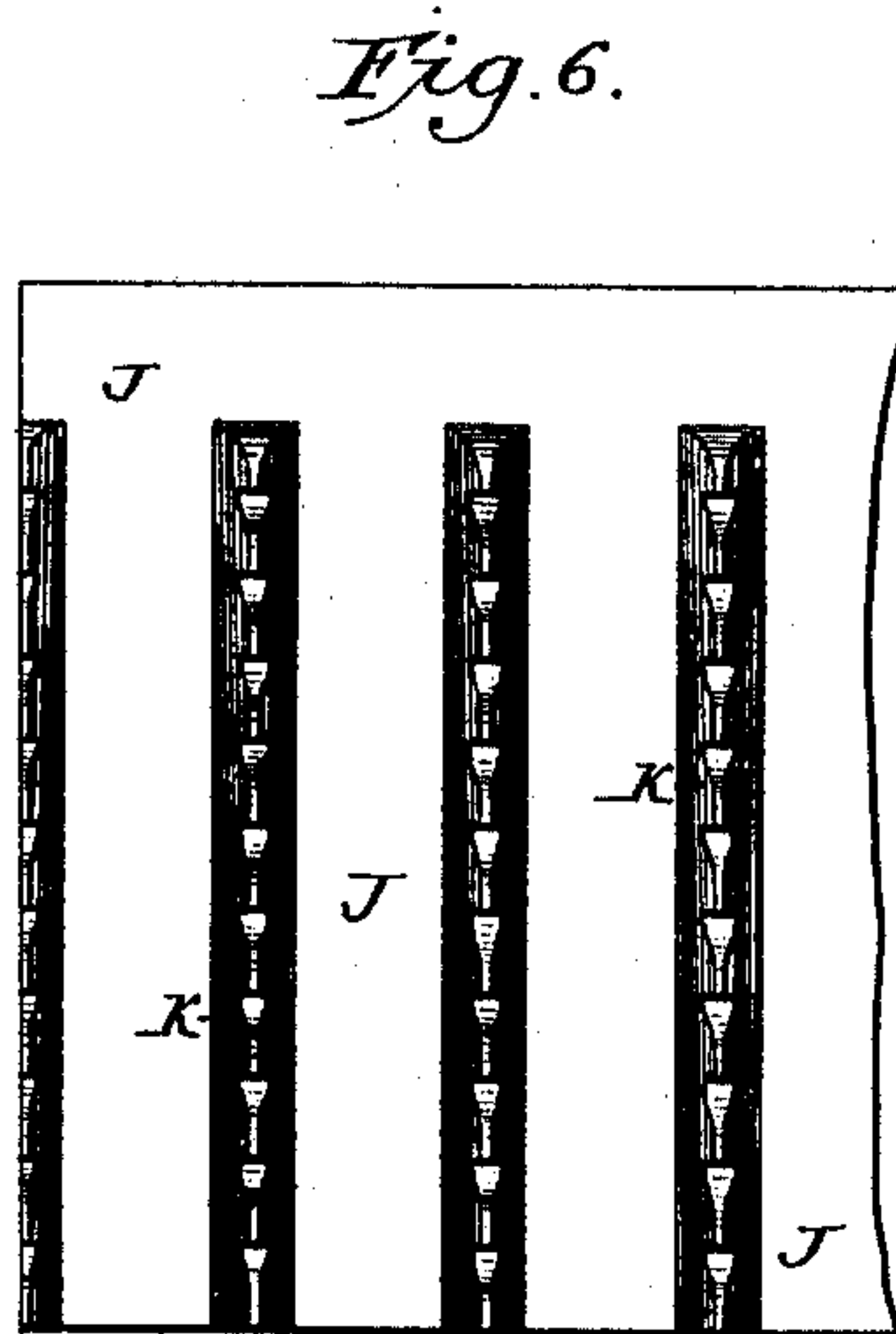
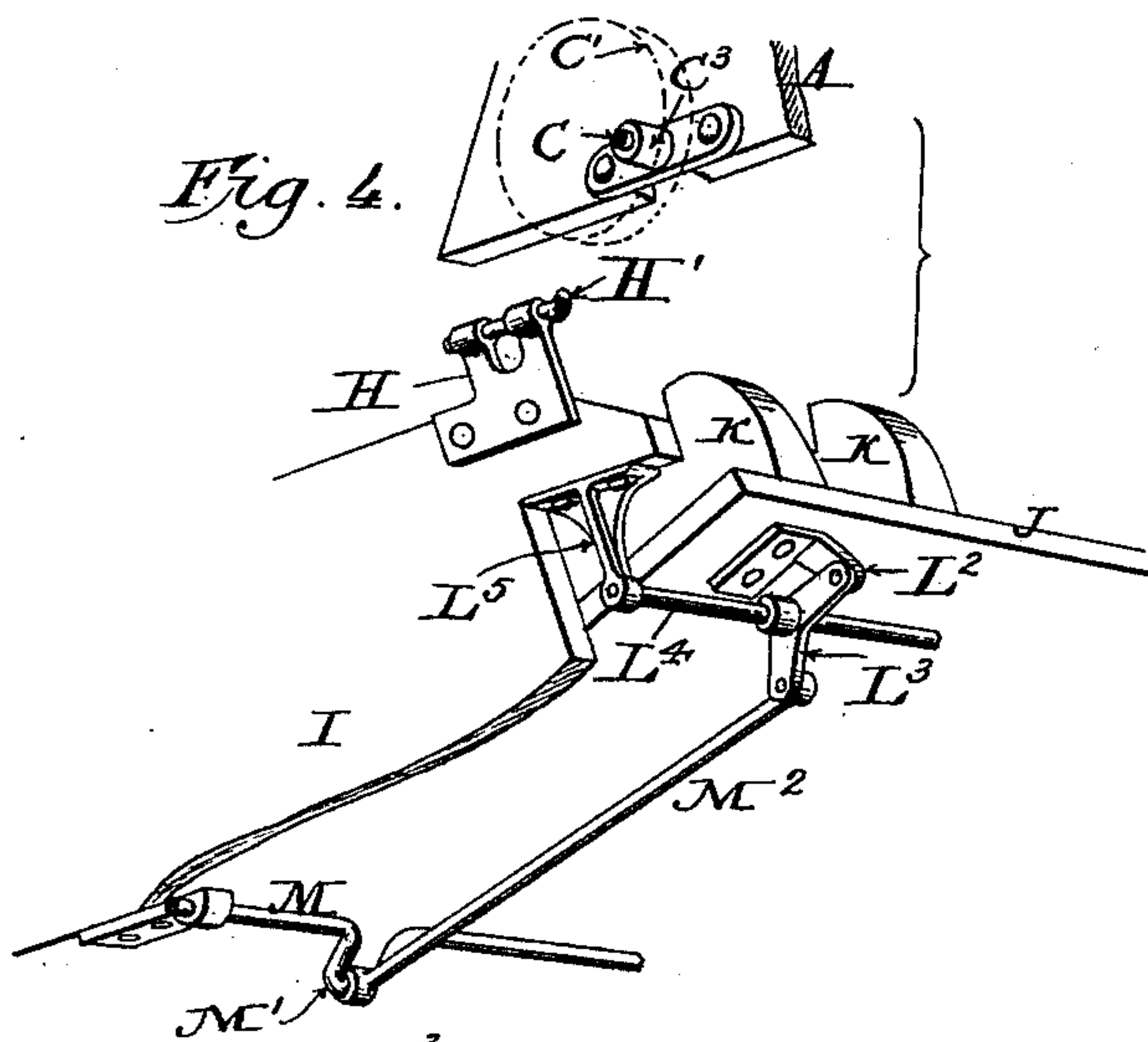
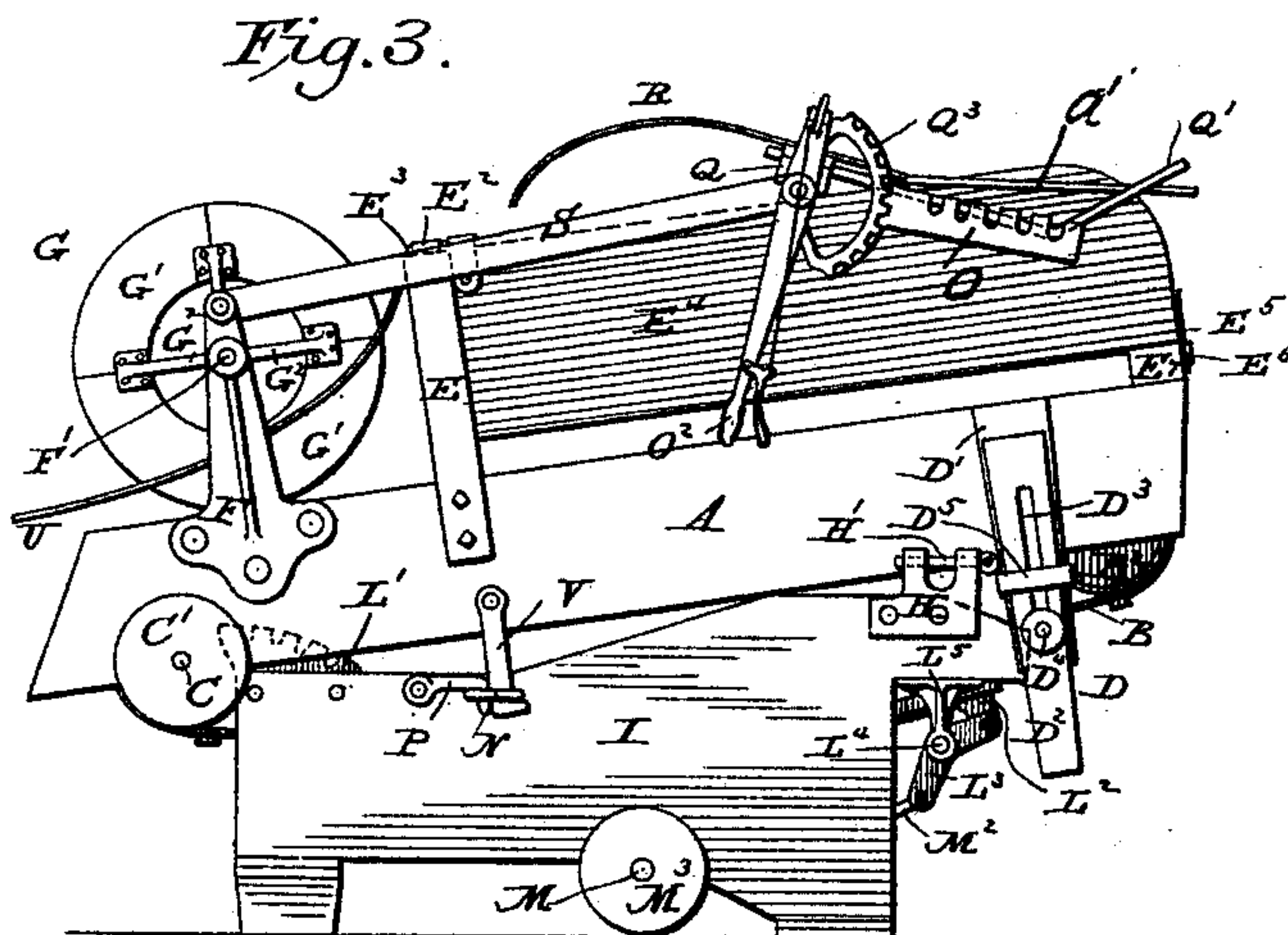
*Inventors:*

Adolphus J. Wirtz,  
Charles H. Wirtz,  
Henry J. C. Richter,  
by Dodge & Sons, Attys.

2 Sheets—Sheet 2.

## BAND CUTTER AND FEEDER.

Patented Oct. 29, 1889.



Attest:

Sidney P. Hollingsworth  
Horace A. Dodge.

*Inventors:*

Adolphus J. Wirtz,  
Charles H. Wirtz,  
Henry J. C. Richter,  
by Dodge & Sons,  
Attys.



# UNITED STATES PATENT OFFICE.

ADOLPHUS J. WIRTZ, CHARLES H. WIRTZ, AND HENRY J. C. RICHTER, OF  
GRAND HARBOR, DAKOTA TERRITORY.

## BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 413,992, dated October 29, 1889.

Application filed January 22, 1889. Serial No. 297,113. (No model.)

*To all whom it may concern:*

Be it known that we, ADOLPHUS J. WIRTZ, CHARLES H. WIRTZ, and HENRY J. C. RICHTER, citizens of the United States, residing at Grand Harbor, in the county of Ramsey and Territory of Dakota, have invented certain new and useful Improvements in Combined Band-Cutters and Feeders, of which the following is a specification.

Our invention relates to combined band-cutters and feeders; and it consists in various features and details hereinafter referred to and claimed.

In the accompanying drawings, Figure 1 is a perspective view of our machine; Fig. 2, a longitudinal central sectional view of the same; Fig. 3, a side view of the machine folded for transportation; and Figs. 4, 5, and 6, detail views.

A indicates the main frame of the band-cutter, in which is mounted an endless belt or apron B, which is carried at its ends by wheels B' and B<sup>2</sup>, as clearly shown in Fig. 2. The shaft C of wheel B' extends outward beyond the sides of the frame A, and is provided at one end with a band-wheel C', and at the opposite end with a similar wheel C<sup>2</sup>.

The main frame A is supported at its receiving end by means of legs D, which are made in two parts D' and D<sup>2</sup>, the latter provided with a slot B<sup>3</sup>, to receive a bolt D<sup>4</sup>, projecting from the part D'. The lower portion D<sup>2</sup> is guided in its movement by means of a band D<sup>5</sup>, secured to the part D', and from this construction it will be seen that the receiving end of the apron may be raised or lowered as desired by simply loosening the bolt D<sup>4</sup> and sliding the part D' upon the part D<sup>3</sup>.

E indicates a bar extending transversely across the frame A, at a distance above the apron, said bar being supported at its ends by uprights E', secured to the sides of the frame A, and provided at the middle of its upper face with a plate E<sup>2</sup>, having sockets to receive pins E<sup>3</sup>, secured to a dividing-board E<sup>4</sup>, which extends lengthwise of the frame A, as shown in Figs. 1 and 2. The board E<sup>4</sup> is provided at its rear end with an arm or lug

E<sup>5</sup>, which fits into a loop E<sup>6</sup>, secured to a cross-bar E<sup>7</sup> of the frame A, as clearly shown in Fig. 5.

F F indicate uprights secured to the sides of the frame A, near its inner end, in which is journaled a shaft F', which in turn is provided with a series of cutting-disks G. These cutting-disks will be made up of sections G', and secured by means of screws or in any other suitable manner to spiders G<sup>2</sup>, which are rigidly secured upon the shaft F', as shown in Figs. 1 and 2. The cutting-blades may be removed for sharpening, when necessary. At one end the shaft F' is provided with a band-wheel F<sup>2</sup>, adapted to receive a cross-belt F<sup>3</sup>, which passes also about the band-wheel C<sup>2</sup>, as shown in Fig. 1.

The number of cutting-disks G upon the shaft F' may be varied as desired, but it will be found advisable to employ two on each side of the central dividing-board E<sup>4</sup>, and one non-cutting disk directly in line with said board, to form, in effect, a continuation of the dividing-board.

The pulleys C' and C<sup>2</sup> of the shaft C are set away from the sides of the frame A a slight distance and journaled in bearings C<sup>3</sup>, secured to the sides of frame A, the bearings projecting out, so as to be seated in bearings H, secured to the receiving end outside the face of frame A. The bearings C<sup>3</sup> are held in place by means of pins H', passing through eyes in the bearings H, as clearly shown in Fig. 4, thereby pivotally connecting the cutter-frame with the feeder-frame.

The feeder-frame I is provided with a vibrating platform J, which inclines downward from its receiving to its delivery end and is provided on its upper face with a series of longitudinal notched bars K, which also decrease in height from their upper to their lower ends and decrease in width from the face of the platform to the upper face of the bar.

The platform J is supported at its lower end by means of the swing L, extending along the underneath side of the platform J at its discharging end, and held in place by bear-



ings secured to the under face of the platform J, the upper ends of said swing L extending laterally and engaging with plates L', having a series of notches, as shown in Figs. 1, 2, 5 and 3.

Journalled in the bearings secured to the under face of the frame I is a shaft M, provided with cranks M', which cranks are connected by pitmen M<sup>2</sup> with the elbow-lever L<sup>3</sup> of shaft L<sup>4</sup>, as clearly shown in Figs. 2 and 4, motion being imparted to the shaft M through a band-wheel M<sup>3</sup> from any convenient source. The shaft is further provided with a band-wheel M<sup>4</sup>, (shown in dotted lines in Fig. 1,) about which passes a crossed belt M<sup>5</sup>, said belt also passing about a band-pulley C' on the shaft C. The rock-shaft L<sup>4</sup> is carried in brackets or hangers L<sup>5</sup>, secured to the under side of the overhanging ends of frame I, while the elbow-levers L<sup>3</sup>, carried by said shaft, are connected with the platform J by means of brackets L<sup>2</sup>, secured to the under side of the platform J, as shown in Figs. 2 and 4. As the shaft M is turned or rotated, acting through the pitmen M<sup>2</sup> and the elbow-lever connection L<sup>3</sup>, it imparts an up and forward and down and backward (one-quarter circle) movement to the platform J up at the receiving end and a forward and backward movement at the discharging end, which latter movement is permitted by the swinging connection L. By placing the lateral arms of the swing L in the different notches of the plates L' the throw of the platform will be varied correspondingly.

Secured to the sides of the frame I are loops or eyes N, which are adapted to receive uprights O, provided with notches in one edge to engage with the loops or eyes, the said uprights being held in engagement with the loops by means of pivoted dogs or catches P, pivoted to the side of the frame I and adapted to fall into the loop or eye behind the plain face or edge of the uprights, as shown in Fig. 1.

Q indicates a bar or shaft composed of two flat bars held together by means of screws or bolts, said bar or shaft being journaled at its ends in uprights O O, and provided with a flat upwardly-extending shield R, which is curved at its upper end and serves as a press-rake to prevent the grain from rising as the bars K cut or pass through it by their upward motion, which causes the grain to spread or divide and fall into the channels between the bars. The bar Q is further provided with two series of teeth Q', which extend outwardly toward the delivery end of the platform, as shown in Figs. 1 and 2, one series having their ends bent downwardly to check or diminish the flow of grain to the cylinder and the other or straight series forming an extension of the press rake or shield R. In order to vary the position of the shield R and teeth Q' relatively to the reciprocating platform, the shaft or bar Q will advisedly be

provided with a handle or lever Q<sup>2</sup>, Fig. 1, which is adapted to move over a rack Q<sup>3</sup>, and provided with a pawl to engage said rack and hold the lever in any of its adjusted positions. In order to brace the uprights O O, links S are pivotally connected to the uprights F at one end and to the cross-bar Q at the other end, as shown in Figs. 1, 2, and 3. The shield R, which is attached to the bar Q, can also be raised or lowered bodily and adjusted in any of its positions by means of the notches in the uprights O O, which uprights are held in the desired place by the eyes M and pawls P.

T indicates a bridge or plate extending transversely across the frame I at its lower end beneath the platform J, so as to bridge over the space between the platform and the thrashing-machine proper, said plate being adjustably secured to the inner side of frame I by means of bolts T', passing through slots in the plate, as shown in Figs. 1 and 2.

Projecting from the forward face of the cross-bar E, and extending nearly to the upper edge of the shield R, is a series of arms or fingers U, which serve to straighten out the grain and prevent its rising from the apron at the point where the latter delivers the grain to the platform, as shown in Figs. 1 and 2.

The grain is fed to the apron D and is carried forward thereby to the cutting disks or knives G, which sever the bands of the bound grain. From this point the grain is delivered onto the reciprocating platform, provided with notched A-shaped bars or sheaf-spreaders, where it is spread and loosened by the bars under the press rake or shield R, and thoroughly shaken up by the peculiar motion imparted to the platform and delivered to the thrashing-machine.

The peculiar formation of the bars K of the platform J from the face of the platform J to the upper face of the bars K produces channels which increase in width from the face of the platform J to the upper face of the bars K, thereby insuring the free discharge of the grain from between the bars.

By pivotally connecting the frame A and the frame I and providing the former with adjustable legs we are enabled to compensate for any inequalities in the surface of the ground and to adapt the machine to different conditions.

Another advantage of pivotally connecting the two frames is, that we are enabled to compactly fold the machine for transportation, which is a matter of considerable importance. If desired, the frame A may be provided with hooks V to engage the eyes or loops N of the frame I when folded, as shown in Fig. 5, thereby preventing movement of the parts.

The bars K, which decrease in height from the receiving to the discharging end, and in



width from their base to their apex, pass or cut through the sheaf and spread or divide the grain on their upward motion.

The shield, comprising the shield proper R and the teeth Q', may be raised and lowered bodily without changing the inclination relatively to the platform to suit the size of the sheaves; or, if desired, it may be tilted forward to press upon the sheaves at the receiving end, and to thereby divide and spread out the grain.

The straight fingers O' at the delivery end of the platform take the place of the shield R, and form in effect a gate through which the attendant may see the flow of grain, the fingers checking or stopping the flow of grain according to their adjustment.

The fingers U, secured to the cross-bar E, are of importance, as they hold the grain down at the point where the bands are cut, thereby preventing the disks from scattering the grain, or the latter from winding about the shaft.

The essential features of the present invention consist of the press-rake, the platform, and the mechanism for imparting the necessary upward and forward and downward and backward movement to the platform, the bars on the platform cutting their way through the grain as it is held by or pressed up against the press-rake, and thereby dividing and spreading the grain more perfectly than any of the machines now in use of which we are aware.

Having thus described our invention, what we claim is—

1. In combination with a feeder-frame and platform, a series of teeth Q', extending in the same general direction with the platform, vertically-adjustable supports for said teeth, and means for securing the supports rigidly in position.

2. In combination with a feeder-frame and platform, a series of teeth Q', extending in the same general direction with the platform, a rocking frame in which said teeth are mounted, vertically-adjustable supports for the rocking frame, and means for securing the supports rigidly in position.

3. In combination with a feeder-frame and platform, a series of teeth Q', extending in the same general direction with the platform, a rocking frame in which said teeth are carried, a shield R, secured to the rocking frame, and means for securing the rocking frame in its adjusted positions, all substantially as shown.

4. In combination with a feeder-frame and platform, a series of teeth Q', extending in the same general direction with the platform, a shield, as R, a rocking frame by which said teeth and shield are carried, vertically-adjustable supports for said rocking frame, and means for locking the supports and rocking frame in position.

5. In combination with a feeder-frame and

platform, a cross-bar Q and supports for the same, teeth Q', projecting from one side of the bar, and a shield R, projecting from the opposite side, said shield and teeth being substantially parallel with the platform.

6. In combination with a feeder-frame provided with eyes N, a series of teeth Q', notched uprights supporting the teeth and engaging the eyes, and pawls P, all substantially as shown.

7. In combination with a feeder-frame I and its platform J, links pivotally supporting the lower end of the platform, a rock-shaft L, and an elbow-lever secured to the rock-shaft and connected with the upper end of the platform, all substantially as shown, whereby the upper end of said platform has an up and down and backward and forward movement, while the lower end has only a swinging movement.

8. In a combined band-cutter and feeder, the combination, with a frame I, having a feeder, of a frame A, in which the cutters are mounted, detachably connected with the frame I, and a series of rake-fingers mounted upon the feeder-frame and having their supports pivotally connected with the frame A, whereby the machine is adapted to be folded into compact form.

9. In a machine substantially such as shown, the combination, with frame A and apron B, of the center board E, the rotatable disk in line with the center board and forming a continuation thereof, and the cutting-disks on both sides of the said center board, all substantially as shown.

10. In combination with frame A and apron B, cutting-disks G, teeth U, extending in the same general direction with the apron, between the disks and terminating at the delivery end of the apron, a frame I, provided with a platform J, and a shield R, carried by said frame I and extending up to the ends of the teeth U.

11. In combination with frame I, a platform J, mounted therein and provided with bars K, extending lengthwise thereof, a press rake or shield R, extending across the frame directly above the platform, and means, substantially such as shown, for imparting an upward and forward and downward and backward motion to the platform.

12. In combination with frame I, a platform J, mounted therein and provided with a series of longitudinal A-shaped bars, means for imparting motion to the platform, and a shield, as R, directly above the bars, all substantially as shown.

13. In combination with frame I, a platform J, provided on its upper face with a series of notched A-shaped bars separated from one another and extending lengthwise of the platform, a shield R, extending across the frame at the receiving end, and means for imparting motion to the platform.

14. In combination with frame I, a platform

J, provided on its upper face with notched  
A-shaped bars K, higher at the receiving end  
than at the delivery end, and separated to  
form channels, as shown, means for impart-  
5 ing an upward and forward and downward  
and backward movement to the receiving end  
of the platform, and a press rake or shield R,  
extending across the frame above the receiv-  
ing end of the platform.

In witness whereof we hereunto set our 10  
hands in the presence of two witnesses.

ADOLPHUS J. WIRTZ.  
CHARLES H. WIRTZ.  
HENRY J. C. RICHTER.

Witnesses:

T. T. LEE,  
W. W. WISHART.