

J. D. MITCHELL.  
Cotton-Chopper.

No. 159,436.

Patented Feb. 2, 1875.

FIG I

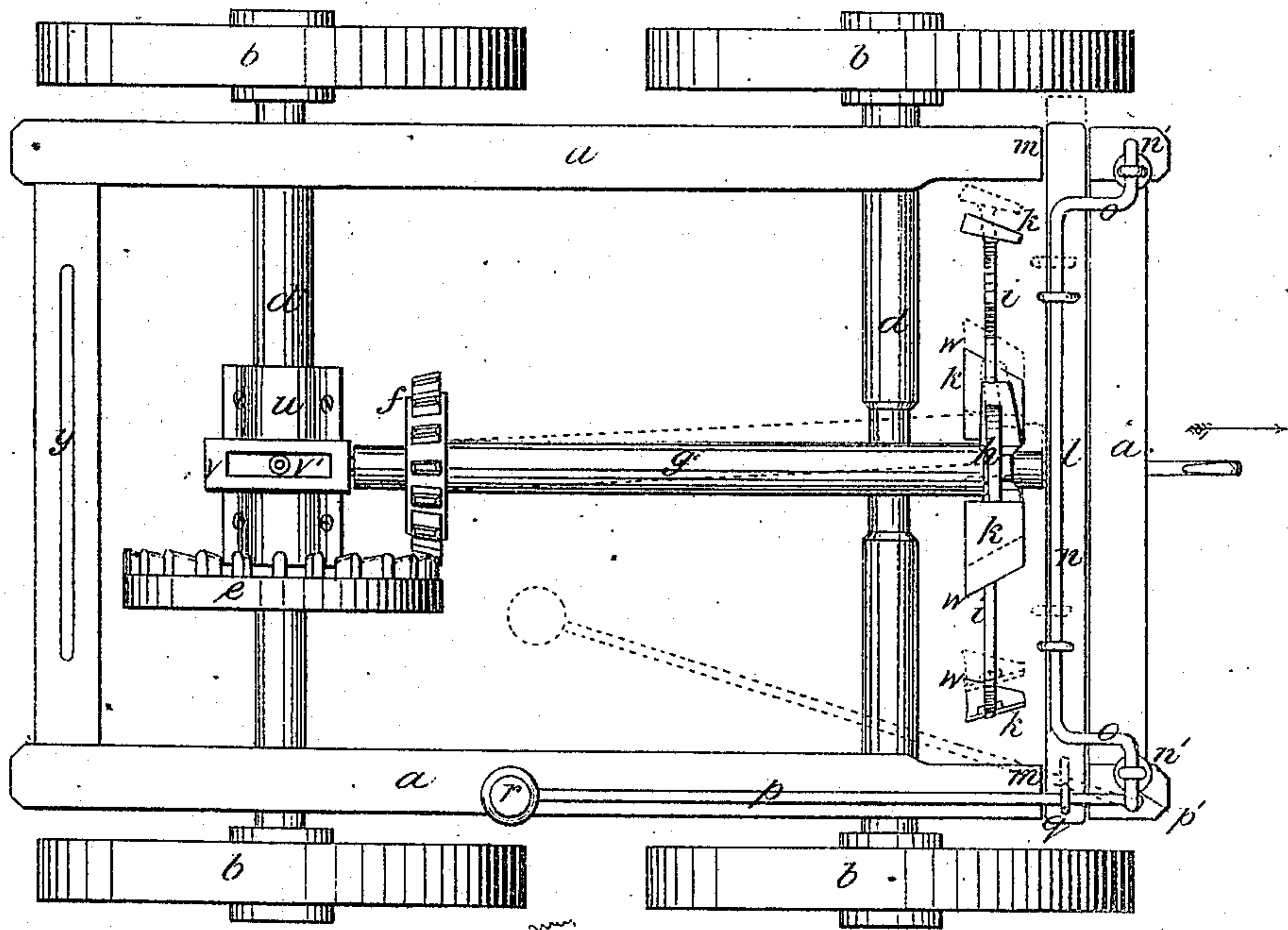


FIG II

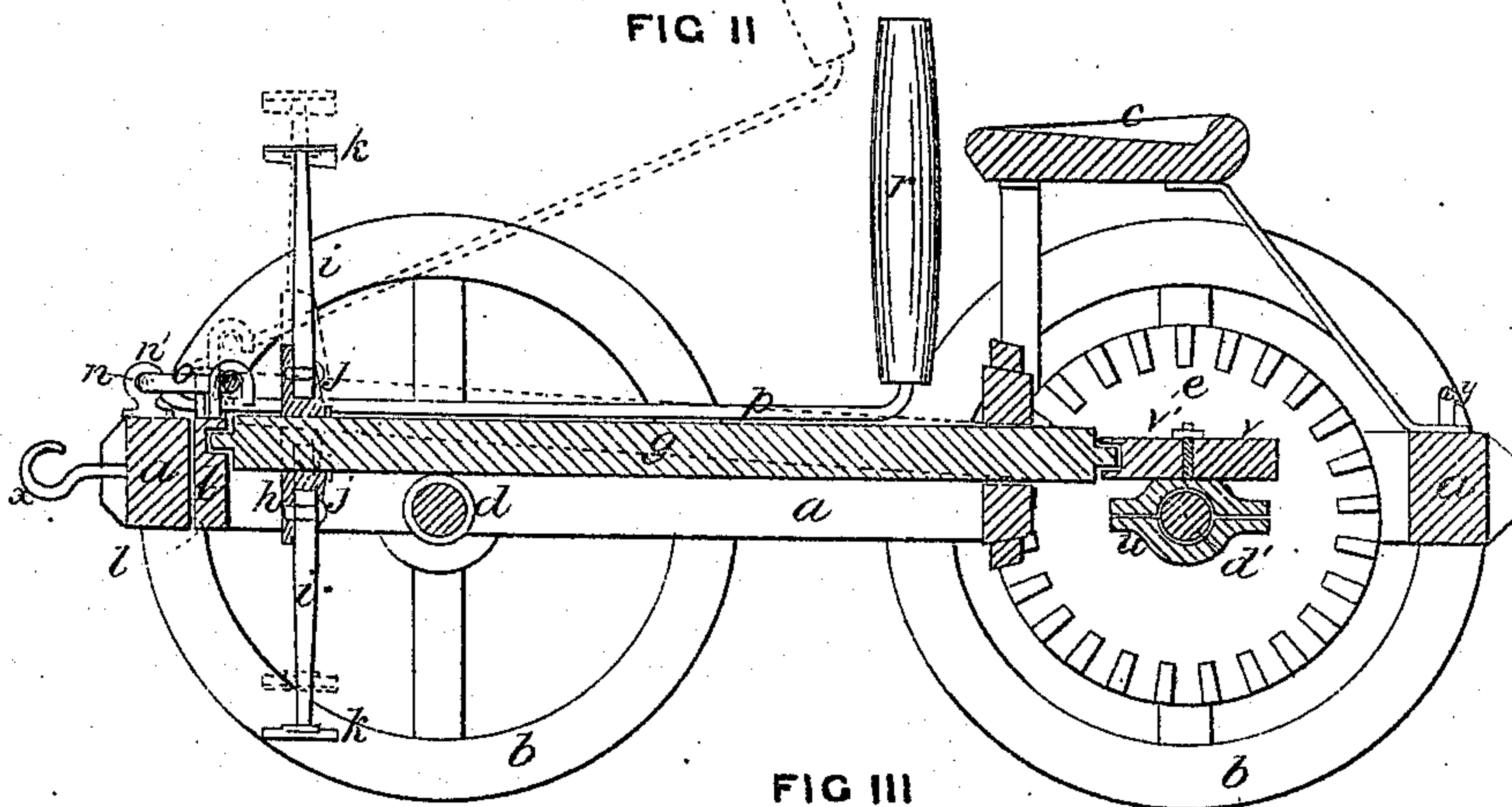
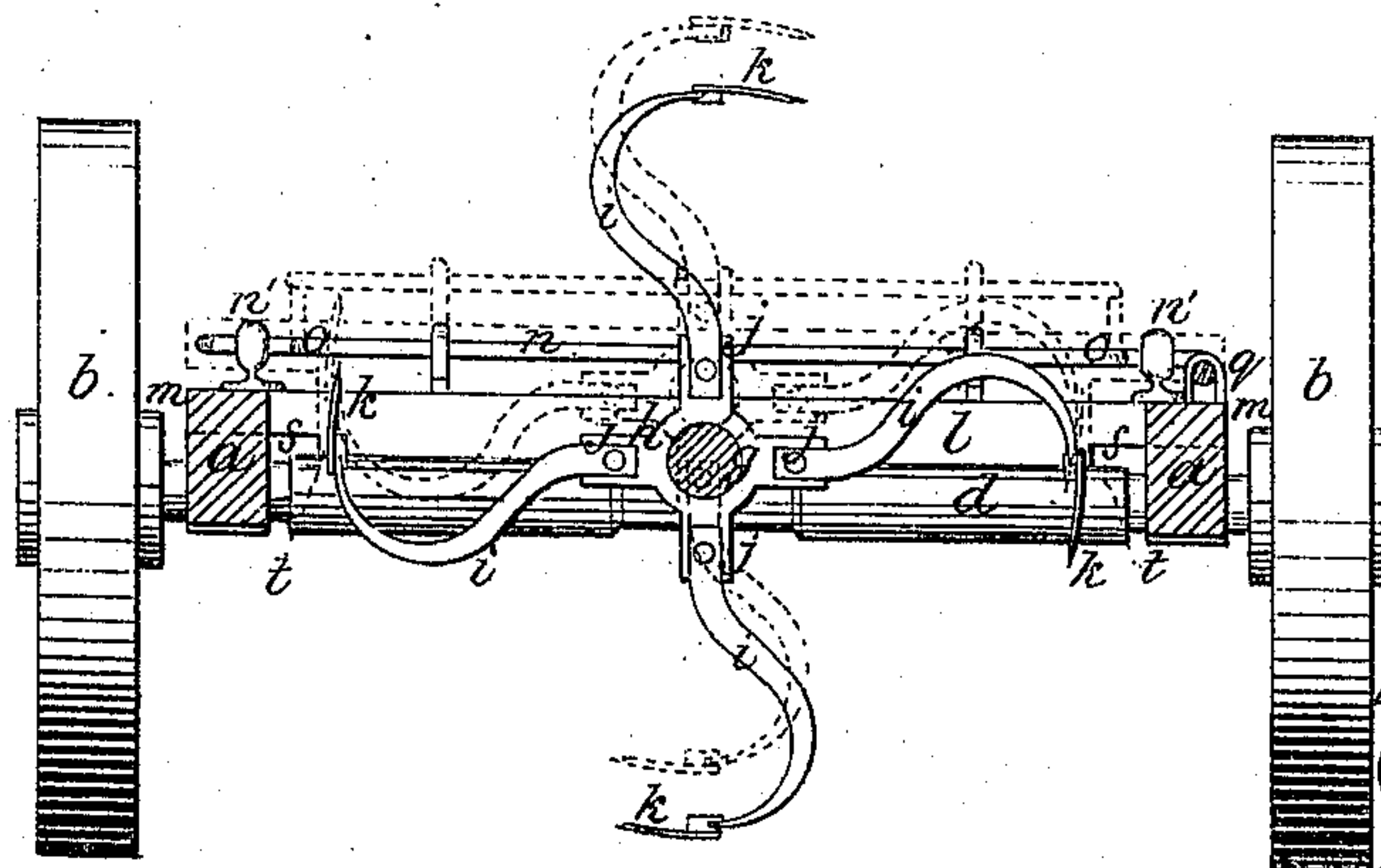


FIG III



WITNESSES

*John Rutherford*  
*John C. Laing*

INVENTOR

*John D. Mitchell*  
*By his Atty*  
*Johnson & Johnson*



# UNITED STATES PATENT OFFICE.

JOHN D. MITCHELL, OF DRY CREEK, ALABAMA.

## IMPROVEMENT IN COTTON-CHOPPERS.

Specification forming part of Letters Patent No. 159,436, dated February 2, 1875; application filed August 12, 1874.

*To all whom it may concern:*

Be it known that I, JOHN D. MITCHELL, of Dry Creek, in the county of Lawrence and State of Alabama, have invented certain new and useful Improvements in Cotton-Choppers; and do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification:

In the cultivation of cotton, it requires to be chopped or thinned out, so as to leave it in bunches at proper distances apart. For this purpose double cutting-hoes have been constructed, to be vibrated by a pivoted carrying-arm across the cotton-ridge and chop out a bunch at each back and forth stroke, as the machine is carried forward. Revolving hoes have also been used to pass across the cotton-ridge, as the machine moves, and leave the cotton in small groups or bunches.

My invention relates to the latter class of cotton-choppers; and the particular features of my said invention consist in the combination of a revolving hoe with a carrying head block or bar, capable of being moved or adjusted vertically and horizontally crosswise upon the machine, whereby the hoe may be raised and lowered and moved sidewise as the machine moves forward, and in this way adapt the hoe to the irregularities of the ridge, both as to the hilly and curved or irregular condition thereof, keeping the hoe directly over the cotton-row. These adjustments of the hoe may be made separately or simultaneously, by means of a single lever, or any suitable device under the control of the driver or attendant, so that he can shift and adjust the hoe, as required, without stopping the machine. My invention further consists in the combination, with a hoe having a capacity for vertical and lateral adjustment during the progress of the machine, of a combined bearing-box for the hoe-shaft, carried by the driving-axle and capable of a compound movement thereon, to allow of the compound movement of the hoe-shaft without binding in its bearings or interrupting the connection of the driving-gear. A further novel feature consists in the combination of a lever with a lifting-rod

and the hoe head-block, these devices being connected in a manner to admit of the lever having a compound vertical and lateral movement imparted to it by the driver to give the required adjustment of the hoe.

In the accompanying drawings, Figure 1 represents a top view of a cotton-chopper embracing my invention; Fig. 2, a vertical section of the same, and Fig. 3 a cross-section, looking toward the front of the machine.

The chopper has a frame, *a*, mounted upon four wheels, *b*, and is provided with a seat, *c*, for the driver and controller for the hoe. The wheels are fixed upon their axles *d d'*, and the rear axle, *d'*, carries a bevel-gear, *e*, which matches into a bevel-gear, *f*, on the hoe-shaft *g*, which occupies a central longitudinal position in the frame, and carries a hoe at its front end, arranged to be revolved across the cotton-ridge. The hoe consists of a socketed web or armed head, *h*, fixed upon the shaft *g*, and four curved arms, *i*, secured in the sockets *j* of said head, and carrying the hoe-blades *k* at their outer ends. The front end of the hoe-shaft *g* has its journal-bearing in a head-block or cross-bar, *l*, the ends of which are shouldered and fitted within notches *m* in the upper sides of the side timbers of the frame, in order to allow the head-block, with the hoe and its shaft, to be raised and lowered, to bring the hoes higher or lower to cut the ridge of a uniform depth, by conforming to its unevenness, and prevent thereby cutting too deep in the high portions of the ridge, and passing over the low portions without cutting out the cotton at all. This adjustment of the hoe is made by means of a lifting or double crank-rod, *n*, fitted in boxes *n' n'* on the front timber of the frame and suitably connected to the head-block *l*, so that the latter can slide thereon between cranked ends *o o* of said rod. A lever, *p*, is connected with one end of the cranked rod *n* and extends back within reach of the driver, who, holding the handle *r* in his right hand, can raise and lower it, and, with it, the cranked portions of the rod *n*, and thereby elevate and let down the head-block with the hoe, according as the height of the ridge may change, as shown by dotted lines in Figs. 2 and 3.

In connection with this vertical adjustment of the hoe, I also employ therewith a



lateral adjustment or movement of the head-block *l* within its guides *m*; and, to accomplish this, the lever *p* is pivoted to the bearing end *p'* of the cranked rod, and connected, by a loose joint, *q*, to the head-block, so that a horizontal movement of this lever to right or left will carry the head-block and its hoe over sidewise of the machine, and, by this means, keep the hoe in the line of the ridge of cotton, and adjust it to conform to the curves or bends in the row, as shown by dotted lines in Fig. 1.

The connection of the lifting-rod with the head-block allows the latter to be moved thereon endwise, and the guides *m* serve to support and keep the head-block in place.

The vertical and lateral movements of the hoe are, therefore, effected and controlled by the same lever, and by the driver or attendant sitting upon the machine and observing, in advance of the progress of the machine, whether the ridge be high or low, or straight or curved, and governing the hoe in accordance therewith.

In the lowest position of the hoe the head-block rests upon its shouldered ends *s* in the guides *m*, and the range of its vertical movement is sufficient to carry it over the highest ridges; while the limit of the lateral movement of the hoe is governed by the shoulders *t* and the inner sides of the frame, and is sufficient to keep the hoe at all times directly over the ridge, and to conform to any curves therein.

These adjustments of the hoe may be made separately or simultaneously; and they may be made gradually or quickly, as may be required.

The rear bearing of the hoe-shaft serves as a pivot to admit of this compound adjustment, and for this purpose the bearing is made of a double box, one, *u*, mounted upon the driving-axle *d'*, and turns thereon as the front end of the shaft *g* is raised and lowered; while the other, *v*, is mounted upon the lower one by a pivotal connection, *v'*, and within which the inner-end bearing of the hoe-shaft is fitted, so that the lateral adjustment of this shaft moves the box *v* upon its pivot in the same line, and thereby causes the boxes to conform to the movements of the hoe-shaft without binding or interfering with the driving-gear.

The cutting-edges of the blades *k* are made oblique, so as to bring their advance-points *w* at the rear as the machine progresses. They are also secured to the arms *i* in oblique positions with respect to the axis of the shaft *g*, so as to cause them to both strike and cut through the ridge obliquely. (See Fig. 1.)

This gives the advantage of making an easier cut, and preventing the back of the blade from striking and washing down the cotton.

This construction and arrangement of the hoe-blade are clearly shown in the drawings to give a draw-knife cut as the machine moves forward, the rear point of the hoe entering first, and cutting its way in a double oblique position.

A rest may be arranged for the lever; but the driver can easily hold, and, by its great leverage, control, the hoe.

Scrapers are arranged in the frame, either in front or rear of the hoe, to scrape the sides of the ridge, and cultivate the cotton; but, as these form no part of my invention, I do not deem it necessary to describe or represent them.

The carriage-wheels are fixed upon iron axles by keys; and the axles may extend out some distance beyond the frame, so that the wheels can be set closer or wider, as the case may require to adapt the machine to ridges of any width.

The team is attached to the hook *x* in front, and a handle-rod, *y*, in the rear serves as a means by which to lift the machine in turning.

I claim—

1. The combination, with a revolving hoe, of a carrying head-block, *l*, capable of lateral adjustment to keep the hoe directly over the cotton-ridge as the machine moves forward.

2. The combination, with a revolving hoe, of a carrying head-block, *l*, capable of both vertical and lateral adjustment for the purpose set forth.

3. The combination of the head-block *l* for carrying the hoe-shaft, and capable of vertical and lateral adjustment, with a lifting or cranked rod, *n o o*, and the lifting-lever *p*, whereby the hoe is raised and lowered directly by the cranked rod.

4. The combination of a revolving hoe, having a capacity for vertical and horizontal adjustment, with a combined double bearing, *u v*, and the driving-shaft *g*, whereby the gearing end of the hoe-shaft and its bearing-box may have a compound movement to conform to the adjustment of the hoe.

In testimony that I claim the foregoing I have affixed my signature in presence of two witnesses.

JNO. D. MITCHELL.

Witnesses:

J. M. SHOEMAKER,  
W. T. COUCH.