

(No Model.)

2 Sheets—Sheet 1.

R. LYONS.  
LISTED CORN CULTIVATOR AND HARROW.  
No. 496,884.  
Patented May 9, 1893.

Fig. 1.

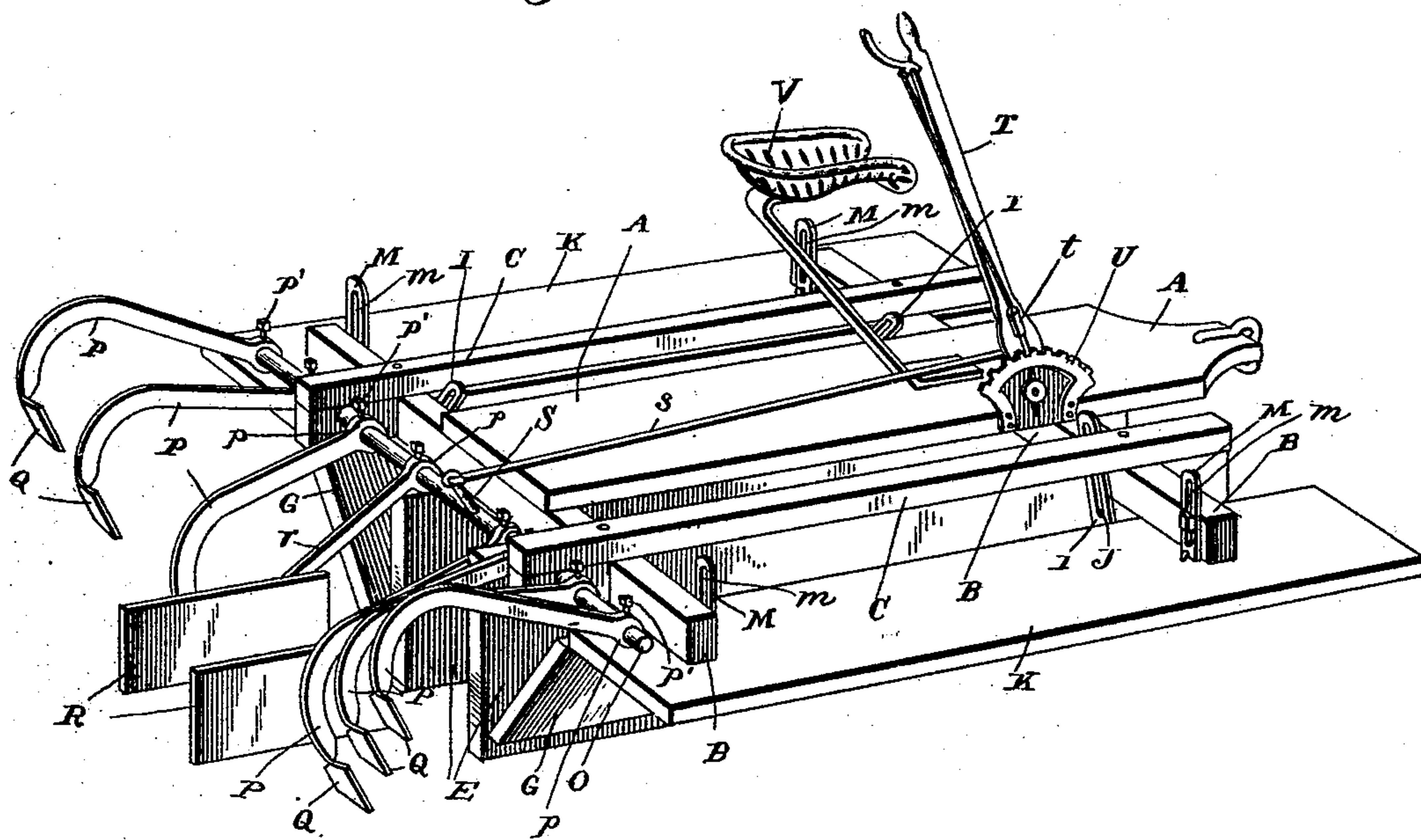
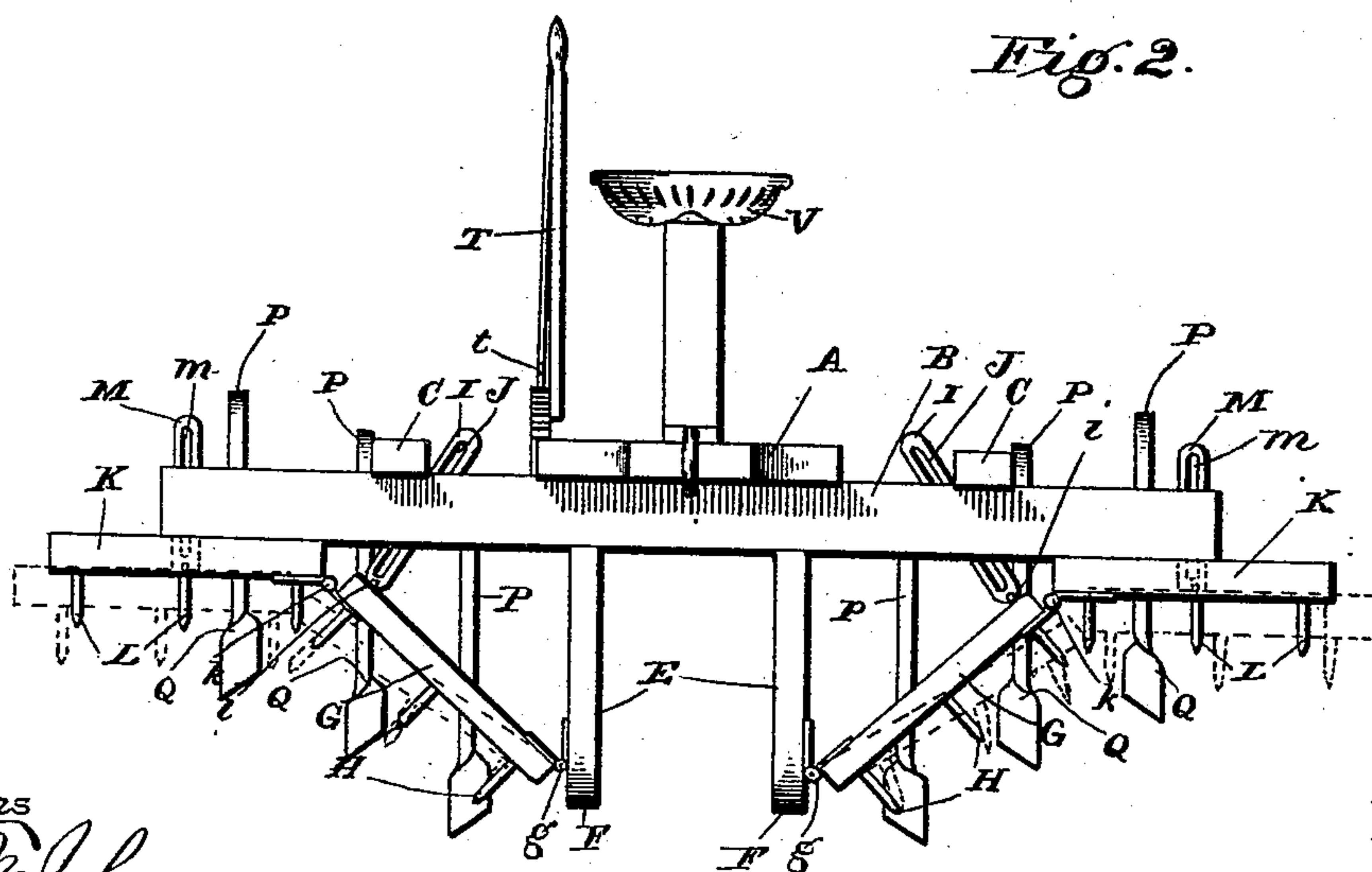


Fig. 2.



Witnesses

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By *his* Attorneys,

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(No Model.)

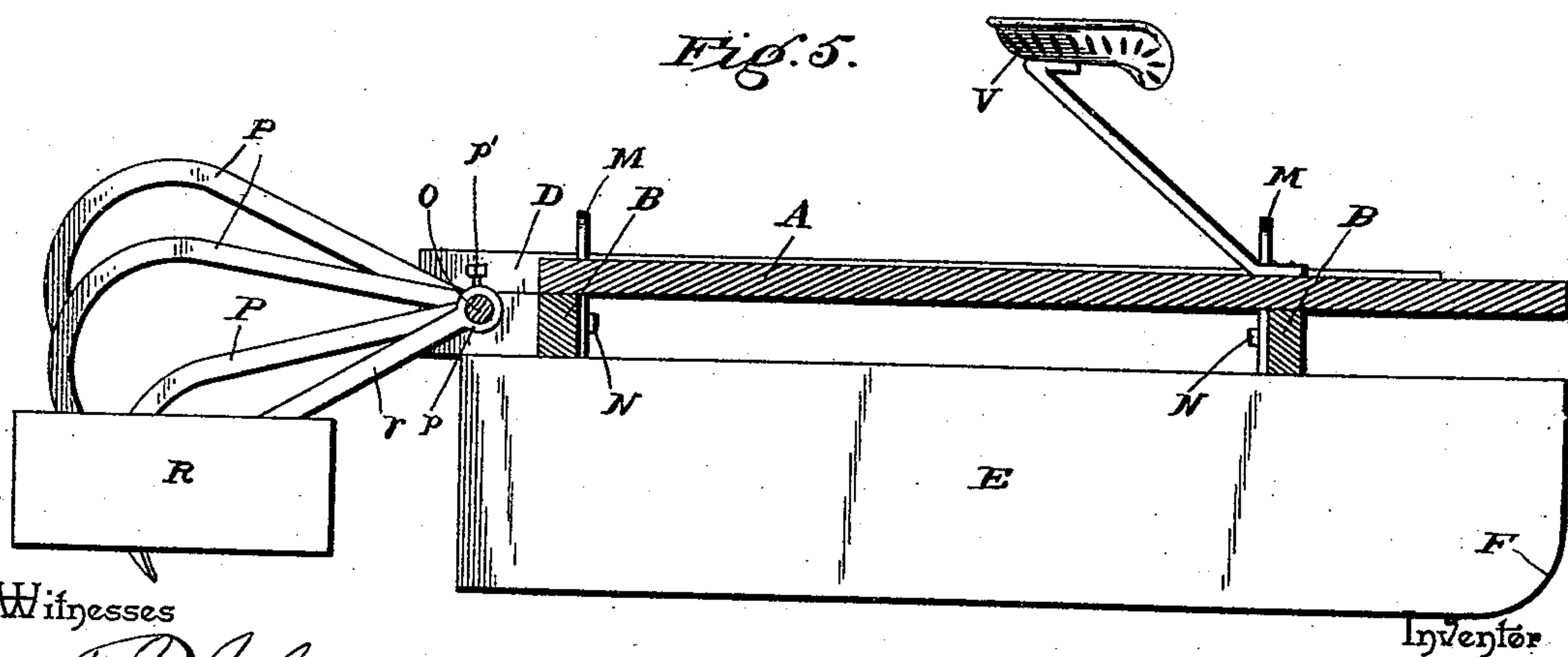
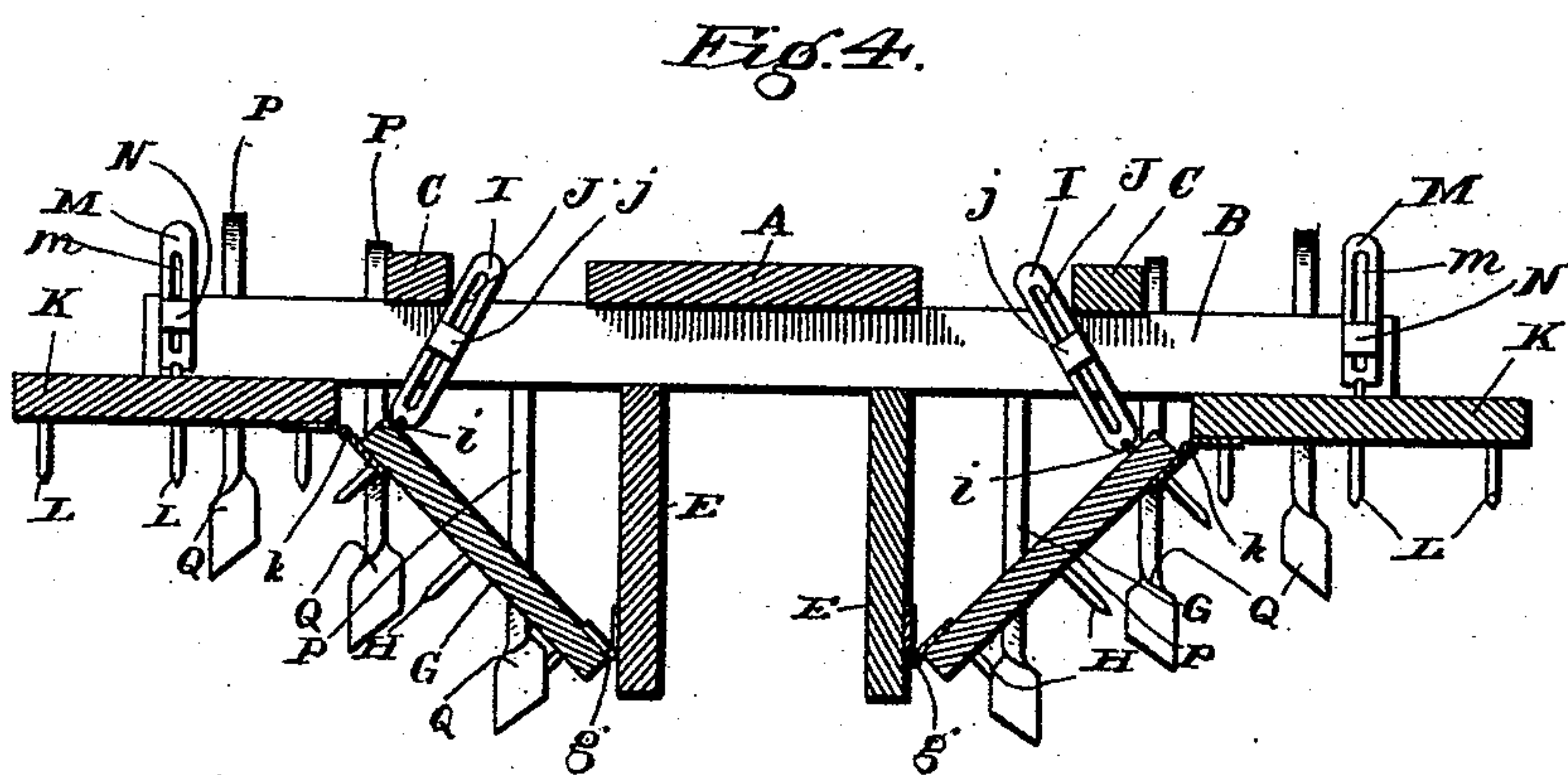
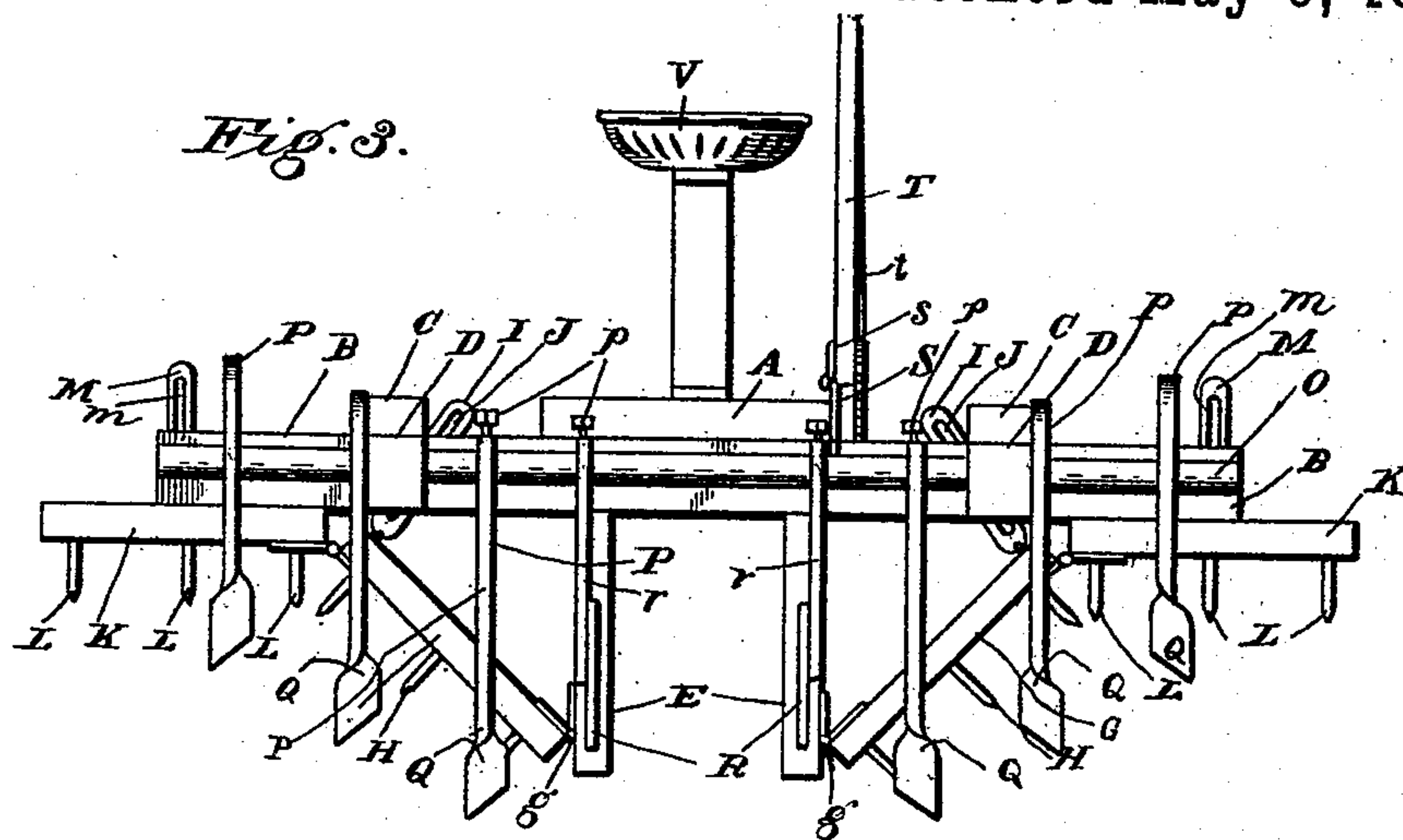
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Witnesses

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# UNITED STATES PATENT OFFICE.

ROBERT LYONS, OF PEIRO, IOWA.

## LISTED-CORN CULTIVATOR AND HARROW.

SPECIFICATION forming part of Letters Patent No. 496,884, dated May 9, 1893.

Application filed March 11, 1890. Serial No. 465,585. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT LYONS, a citizen of the United States, residing at Peiro, in the county of Woodbury and State of Iowa, have invented a new and useful Listed-Corn Cultivator and Harrow, of which the following is a specification.

This invention relates to combined harrows and cultivators adapted especially for cultivating listed corn.

To this end the main and primary object of the present invention is to provide an improved machine of the character described which embodies certain features of improvement over my former patents, Nos. 446,624 and 481,634, so as to complete a machine simple in construction, yet highly efficient, enabling the farmer to cultivate the young corn with perfect safety to the same.

With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of a combined harrow and cultivator constructed in accordance with this invention. Fig. 2 is a front end view of the same showing the harrow wings in two positions. Fig. 3 is a rear end view showing more clearly the position of the cultivator shovels. Fig. 4 is a central transverse sectional view of the combined harrow and cultivator, showing more clearly the connection of the adjusting links to the frame end bars of the machine. Fig. 5 is a central longitudinal sectional view of the same.

Referring to the accompanying drawings A represents the driver's platform, resting on the opposite frame end bars B, which extend to opposite sides of the platform nearly the entire width of the machine, and have connected to such extended ends the opposite parallel side bars C, which are spaced from the opposite side edges of the platform A, and have their rear ends extended beyond the rear end bar, and carry on such extended ends the bearing boxes D, the function of

which will be hereinafter more particularly referred to.

Secured at their upper edges to the opposite end bars B, and depending therefrom directly under the platform A, are the parallel slide runners E, having rounded beveled front ends F, which insures their free travel upon the ground, said parallel slide runners E, being adapted to travel in the furrow and straddle the row, in which the young corn to be listed is planted. To the outer sides of the parallel slide runners E, near their lower edges, inner inclined harrow wings G, are hinged at g, and are designed to conform to the sides of the ridges on each side of the row straddled by said slide runners, and said inner harrow wings may be provided with a series of outwardly projecting harrow teeth or knives H, which are disposed rearwardly, so as to more effectually break the clods, and harrow or pulverize the earth as the machine is carried through the furrow. The said inner hinged harrow wings G, are designed to be adjusted so as to be accommodated to the height of the ridge by means of the adjusting links I. The adjusting links I, are pivotally attached at their lower ends, as at i, to the top sides of the wings G, near their ends, and are provided with slots J, which receive the combined adjusting and clamping bolts j, passing there-through and the opposite frame end bars B. By means of the slotted adjustment links or braces, the proper inclination or angle of the inner harrow wings may be readily secured.

Outer, approximately horizontal, harrow wings K, are hinged at k, to the upper outer edges of the wings G, and are also studded with a series of harrow teeth or knives L, which are disposed toward the rear end of the machine, in order to co-operate with the teeth or knives of the inner wings to secure the effectual breaking of the clods and the harrowing or pulverizing of the soil, said outer, approximately horizontal, wings being designed to travel over the top of the ridges inclosing the furrow through which the machine is moved. In the first operation as the machine travels through the furrow, the outer wings



K, are designed to travel in an approximately horizontal position resting under the extreme outer ends of the frame end bars B, but as the harrowing and cultivating is continued, it is necessary to readjust the wings to the diminished size of the ridges, and in order to effect this the inner wings are lowered by the links I, and the outer wings correspondingly lowered by means of corresponding adjusting links M, pivotally attached to the top of the outer wings and having slots *m*, which work over the bolts N, passing there-through and the extreme ends of the frame end bars B. This adjustment of the two wings provides simple and efficient means for quickly adjusting the machine to the ridges inclosing the furrow through which the machine is being dragged.

The bearing boxes D, at the extreme rear ends of the parallel side bars C, accommodate the transverse rock shaft O. The transverse rock shaft O, is designed to receive the cultivator beams P. The cultivator beams P, are provided at their inner ends with the attaching eyes *p*, which embrace the rock shaft O, and which accommodate the set screws *p'*, which provide means for clamping the cultivator beams onto the rock shaft at any angle desired, as well as to provide for the ready attachment and detachment thereof. The cultivator beams P, terminate at their opposite ends in the beveled shovels Q, all of which are disposed inwardly toward the row straddled by the runners in order to direct the soil inward or toward such row. By this disposition of the shovels, the dirt is thrown from the side of the ridges to the young corn, and as clearly illustrated in the drawings, it will be seen that the several cultivator beams are disposed in different planes in order to be adjusted to the sides or slope of the ridges, and the inner beams have their shovel ends terminate in advance of the outer beams, in order to insure the protection of the young corn. The number of cultivator shovels may be varied to suit the size of the machine, or the character of the work.

The young corn is protected from the dirt, which is cast toward the same by the cultivator shovels, by means of the parallel fender bars or slides R. The parallel fender slides R, are designed to be arranged in a line in rear of the parallel slide runners and are attached near their inner ends to the arms *r*, which arms are attached to the rock shaft in order to provide means for lifting the fender bars or slides from the ground at the same time the cultivator shovels are thrown out of operation. The rock shaft O, is controlled by the means to be described so as to lower the cultivator shovels and the fenders onto the ground as well as to lift such parts out of operative position, and the same

has attached thereto at a suitable point intermediate of its ends a rock arm S, to which is pivotally attached one end of a connecting rod *s*, the other end of which is pivotally connected to the operating lever T. The operating lever T, carries an ordinary spring actuated dog *t*, which is designed to travel over and engage the notched segment U, attached to the driver's platform, A, near the front end thereof.

A seat V, is attached to the top of a platform A, in convenient proximity to the lever T, so that the driver can readily control the rock shaft which carries the cultivator shovels and the fenders.

In operation when the machine is traveling through the furrow as herein before described, it may be necessary to clean the shovels of some trash which may have collected thereon, and in order to effect this without lifting the cultivators out of the ground, the operator may stand on the side bars C, and bear his weight back and forth on each side, thus alternately lifting the opposite sets of shovels out of the ground, momentarily, without any appreciable break in the cultivating.

From the foregoing it is thought that the construction, operation and advantages of the improvements herein set forth will be readily apparent, and I will have it understood, that changes in the form, proportion and the minor details of construction as embraced within the scope of the appended claims, may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a combined harrow and cultivator, the combination with the opposite frame end bars; of the parallel slide runners secured to and depending from the opposite frame end bars, inner toothed harrow wings disposed at an angle and hinged at their inner lower edges to the parallel slide runners, outer approximately horizontal toothed harrow wings hinged at their inner edges to the upper outer edges of the inner wings, and arranged to bear under the outer extremities of the frame end bars, adjusting links pivotally attached at one end to the top of the inner and outer harrow wings and provided with slots, combined adjusting and clamping bolts adapted to pass through the slots of said links and said frame end bars, and cultivating devices arranged in rear of said wings, substantially as set forth.

2. In a combined harrow and cultivator, the combination of the frame side bars terminating at their rear ends in bearings, parallel slide bars, adjustable harrowing wings arranged on the outer side of both of the slide



runners, a rock shaft journaled in said bearings, a series of cultivator shovels adjustably attached to said rock shaft and having their shovel ends disposed inward toward  
5 said slide runners, said cultivator shovels being out of line with each other to correspond with the disposition of said wings, parallel fender slides arranged in a line with the slide runners and connected to said rock

shaft, and means for turning said rock shaft, so substantially as set forth.

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

ROBERT LYONS.

Witnesses:

ALBERT HOSKIN,  
J. A. GARDNER.