

J. W. SPANGLER.  
Improvement in Cultivators.

No. 125,093.

Patented March 26, 1872.

Fig. 1.

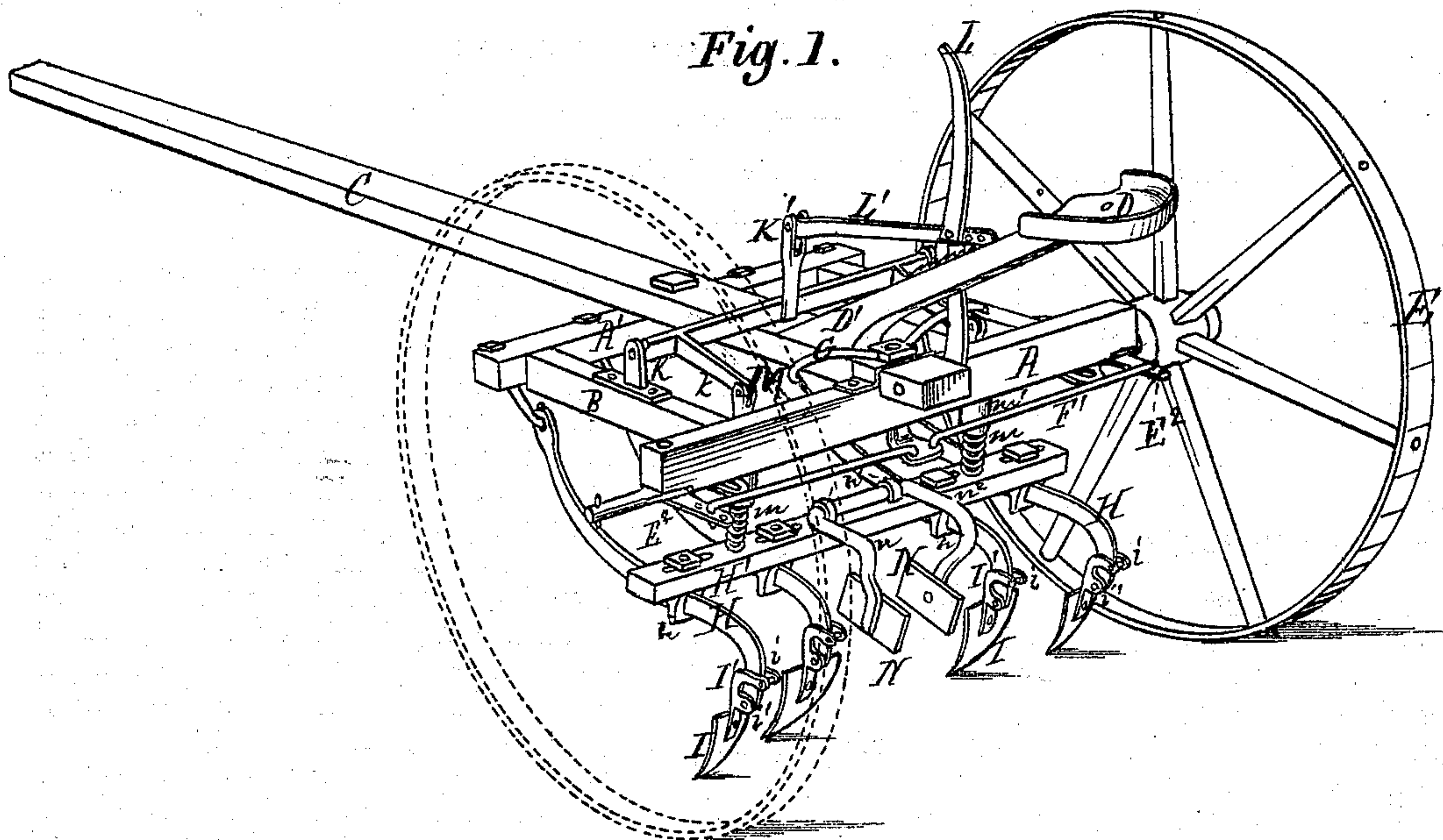


Fig. 2.

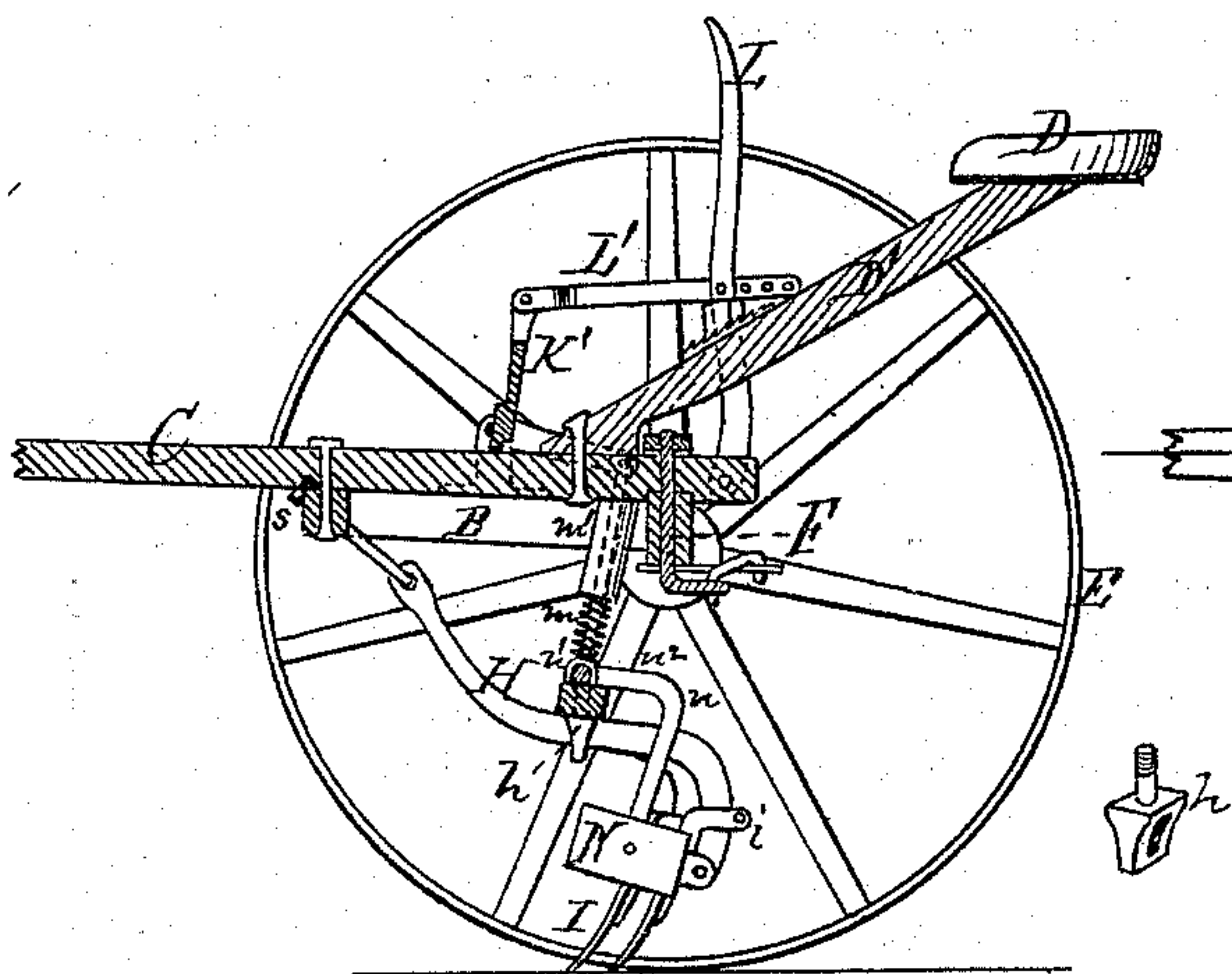
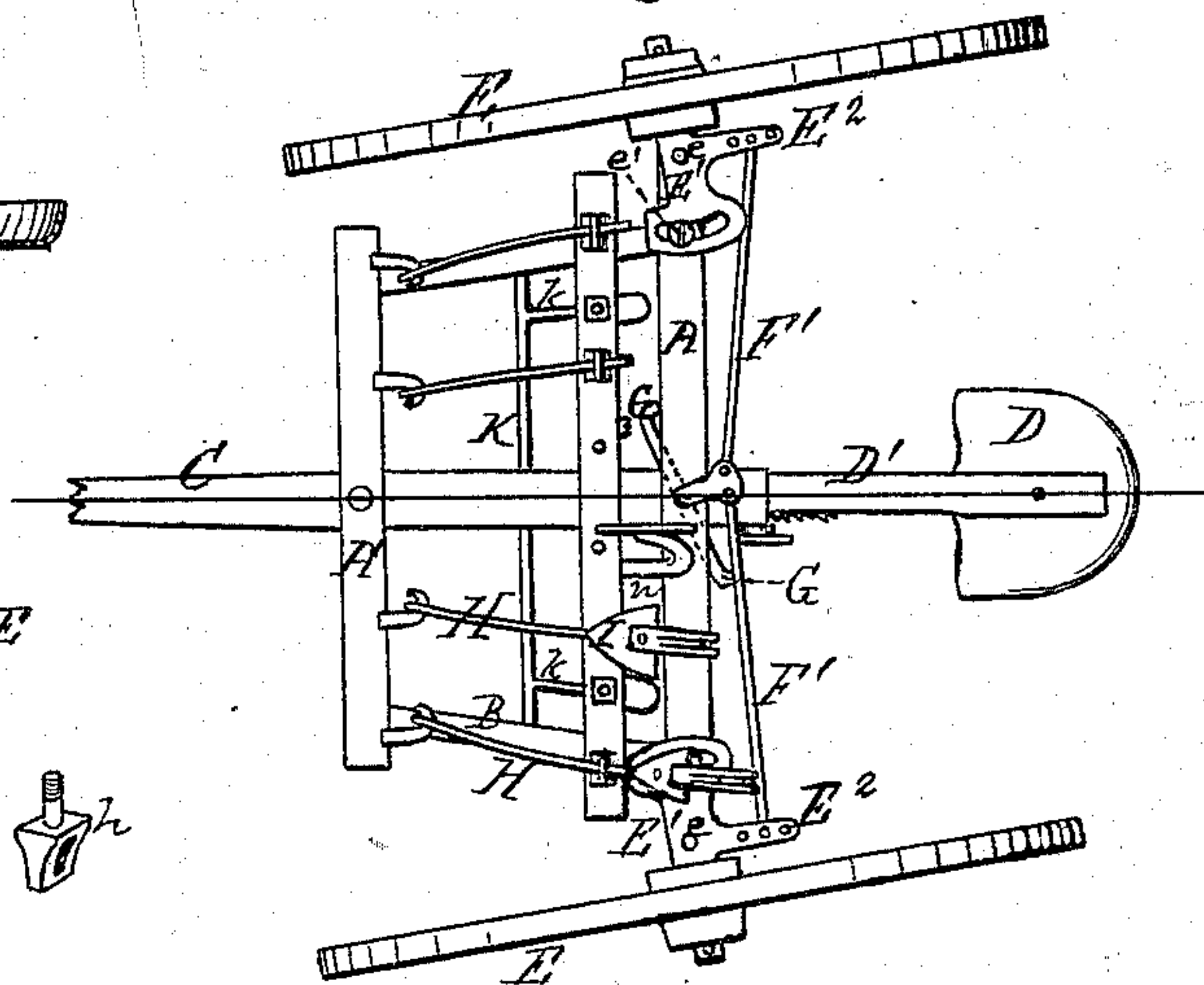


Fig. 3.



Witnesses.

Alex. Mahon  
H. H. Doubleday

Inventor.

Jacob W. Spangler  
by his Attorney  
S. M. Smith



# UNITED STATES PATENT OFFICE.

JACOB W. SPANGLER, OF YORK, PENNSYLVANIA.

## IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. 125,093, dated March 26, 1872.

*To all whom it may concern:*

Be it known that I, JACOB W. SPANGLER, of York, county of York, State of Pennsylvania, have invented a new and useful Improvement in Cultivators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing-drawing making part of this specification, in which—

Figure 1 is a perspective view of a cultivator embodying my improvements. Fig. 2 is a bottom view. Fig. 3 is a vertical section through line *xy*, Fig. 2.

Similar letters of reference denote corresponding parts in all figures.

The first part of the invention relates to the construction of the devices by which the wheels are mounted upon the axles, and are deflected from the line of draft for the purpose of enabling the driver to more effectually determine the path in which the cultivator is moving. The invention further consists in certain details of construction, which will be fully explained.

In the drawing, A is the axle, which, with the beam A' and girts B B, constitutes the main frame upon which the working parts of the cultivator are mounted. C is the tongue rigidly attached to the main frame. D is the seat, and D' the seat support mounted upon the frame or upon tongue C, in about the relation shown in the drawing. E E are the wheels. E<sup>1</sup> (see Fig. 3) are metal sector-plates provided at their outer ends with stub axles, upon which the wheels E are mounted. These plates are pivoted to the axles at *e*, and are expanded at their inner ends, where they are each provided with a slot formed in the arc of a circle of which the pivot *e* is the center. *e' e'* are bolts passing through the sector-slot for the purpose of securing the inner ends of the plates to the axles. Thus the plates are free to vibrate about pivots *e*, while at the same time they are firmly secured to the axle, but little strain being thrown upon the pivot *e*. In practice, I usually place a washer under the head of bolt *e'*. Plates E<sup>1</sup> are further provided with arms E<sup>2</sup>, extending rearward at right angles to the body of the plate. F (see Fig. 2) is a rock-shaft mounted vertically in suitable bearings formed in or attached to the axle A. F' are links connecting the arms E<sup>2</sup>

of the sector-plate with the crank-arm of the rock-shaft F. G is a foot-treadle keyed to the upper end of rock-shaft F. It is shown in full lines in Fig. 1, and partly in full and partly in dotted lines in Fig. 3, and is arranged in convenient position to be operated by the feet of the driver while he is riding in seat D, in a manner and for a purpose which will be fully explained. H are the drag-bars, to which the hoes or plows I are attached. Bars H may be either pivoted directly to the front beam A' of the frame or to hooks projecting therefrom, as shown in the drawing. The rear ends of drag-bar H are secured to a yielding adjustable rib H', by means of clips *h*, which are adjustable laterally in slots in the rib, as shown in Fig. 1. The clips are secured in the rib by means of nuts on the ends of the shanks or by riveting them, the lower part of the clips being enough thicker than the shanks to form shoulders, (see the detached view in Fig. 2,) which abut against the rib on each side of the slots, whereby the drag-bars are held more firmly in place and supported against warping or twisting strain. I I are the hoes, made of any desired material and in any desired shape. They are attached to shanks I', by means of which they are secured to drag-bars H, as follows: The shanks are each provided with two pairs of legs or ears, *i i'*, lugs *i* projecting from the upper end of the shanks, and those marked *i'* being located at about their center, each pair clasping and fitting closely the downwardly-projecting portion of the drag-bars. Ears *i'* are pivoted to the drag-bars by a metal pivot; but ears *i*, which are much longer, receive only a wooden pin, which is intended to be broken when any unusual strain is thrown upon the hoe I, thus saving the other parts from breaking. K is a rock-shaft supported in bearings upon the frame. L is a hand-lever connected with the vertical arm K' of the rock-shaft by a link, L'. This lever engages with a ratcheted standard on the seat support D'. The horizontal arms *k* are connected with rib H' by links M, the arrangement of the rock-shaft, lever, and their connecting links being plainly shown in Fig. 2. Links M pass through perforations in rib H', and have nuts at their lower ends, so that when the links are lifted they carry the rib with them, but at the same time the rib is free to move up and down on the links, being held



down by the spiral spring *m*, the upper end of which bears against the sleeves *m'*, which surround said links. By means of lever *L*, which is arranged within convenient reach of the driver while riding in his seat, the depth to which the hoes may penetrate the ground, and the amount of pressure to be applied to them, may be regulated at will, and the hoes may be lifted as high as the frame-work will permit, for passing obstructions. *NN* are guards or shields designed to run on the surface of the ground, one upon each side of the hills of corn to protect them from being covered up or injured by the earth which is displaced by the hoes or plows when they are used. These guards are attached to the vertical arms *n* of a yoke, the head *n'* of which is secured to the upper side of rib *H'* by loops or dead-eyes in such manner that the yoke and shield can vibrate about the loops. Thus the shields are free to rise and pass obstructions, but cannot fall below a certain level, as the horizontal arms *n''* of the yoke rest upon the rear edge of the rib, as is plainly shown in Fig. 2. When the driver wishes to cause the cultivator to diverge in either direction from the course which it naturally pursues, as it is drawn by the team, he can do so by means of the foot-treadle *G*. Thus, if he wishes it to run to the left he pushes upon the right-hand end of the treadle, thereby throwing the wheels into the position indicated in Fig. 3, by means of the rock-shaft and con-

necting links, as will be understood, by reference to the drawing, without further explanation, and by placing the outer ends of the links in different holes in arm *E''*, the amount of deflection of the wheels which will be produced by a given throw of the foot-lever may be regulated.

By this peculiar construction of sector-plate I am enabled to obtain a very firm support for the wheels, and also make a positive and unyielding connection between the rock-shaft *F* and the plates instead of a slotted one, which is a great improvement.

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

1. The slotted sector-plates *E'* provided with right angled arms *E''*, in combination with wheels *E*, axle *A*, pivots *e*, bolts *e'*, foot-treadle *G*, rock-shaft *F*, and links *F'*, substantially as described.

2. The clips *h*, provided with shoulders, as described, in combination with the slotted rib *H'* and drag-bars *H*, substantially as set forth.

In testimony whereof I have hereunto set my hand this 14th day of September, A. D. 1871.

JACOB W. SPANGLER.

Witnesses:

EDM. F. BROWN,  
ALEXR. MAHON.