

No. 629,499.

Patented July 25, 1899.

S. H. & D. GARST.  
CULTIVATOR.

(Application filed Feb. 17, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

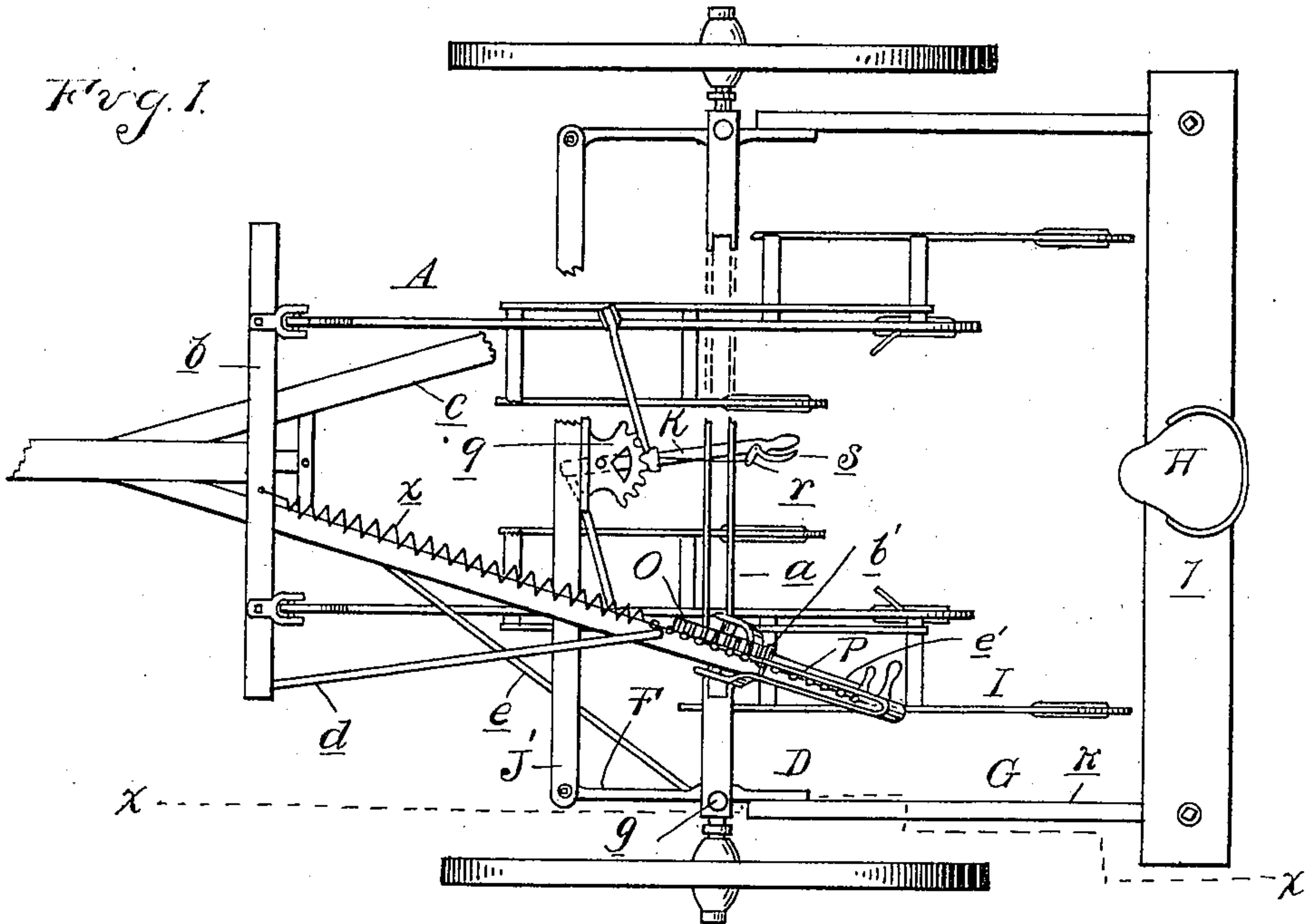
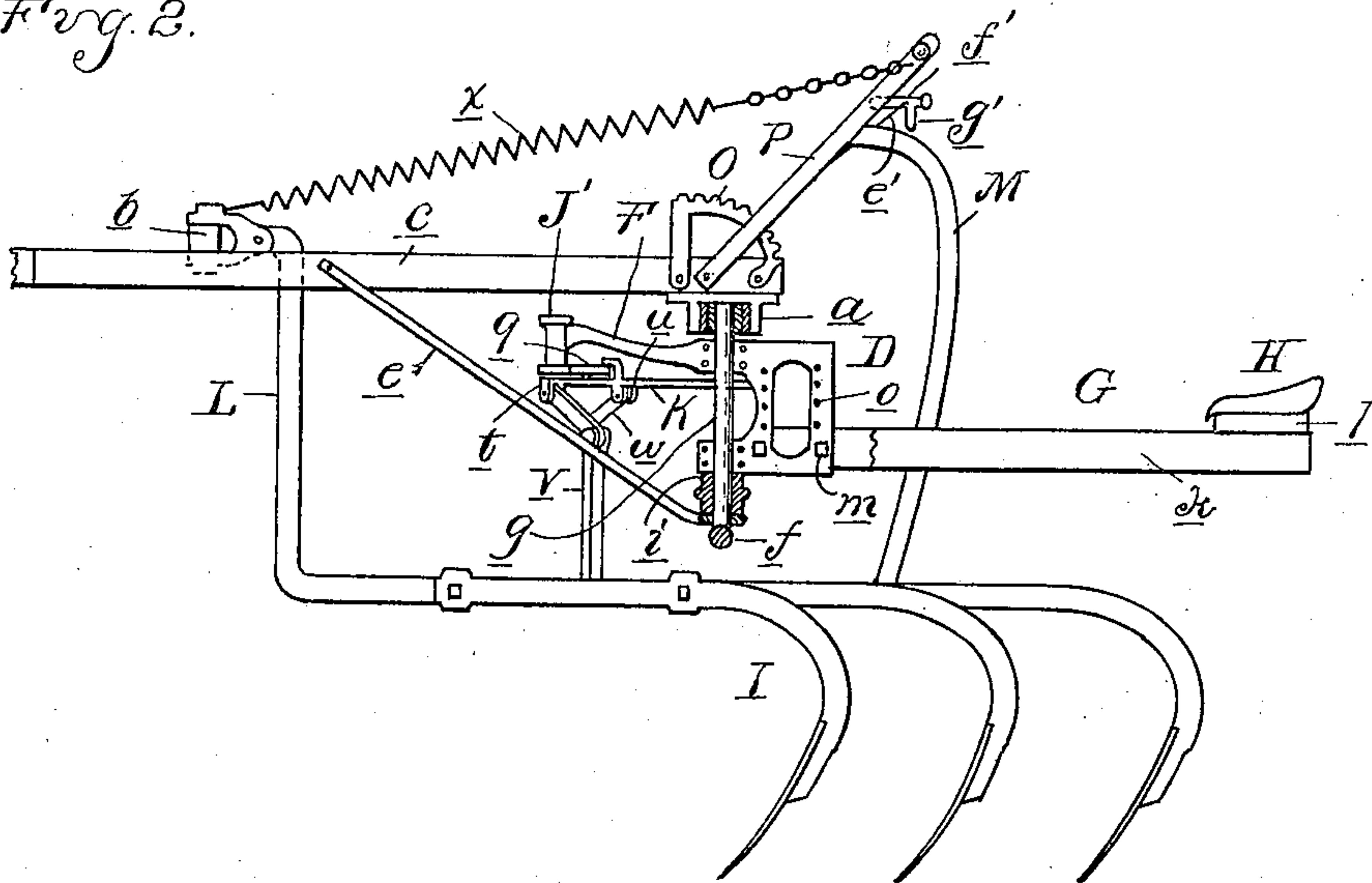


Fig. 2.



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2 Sheets—Sheet 2.

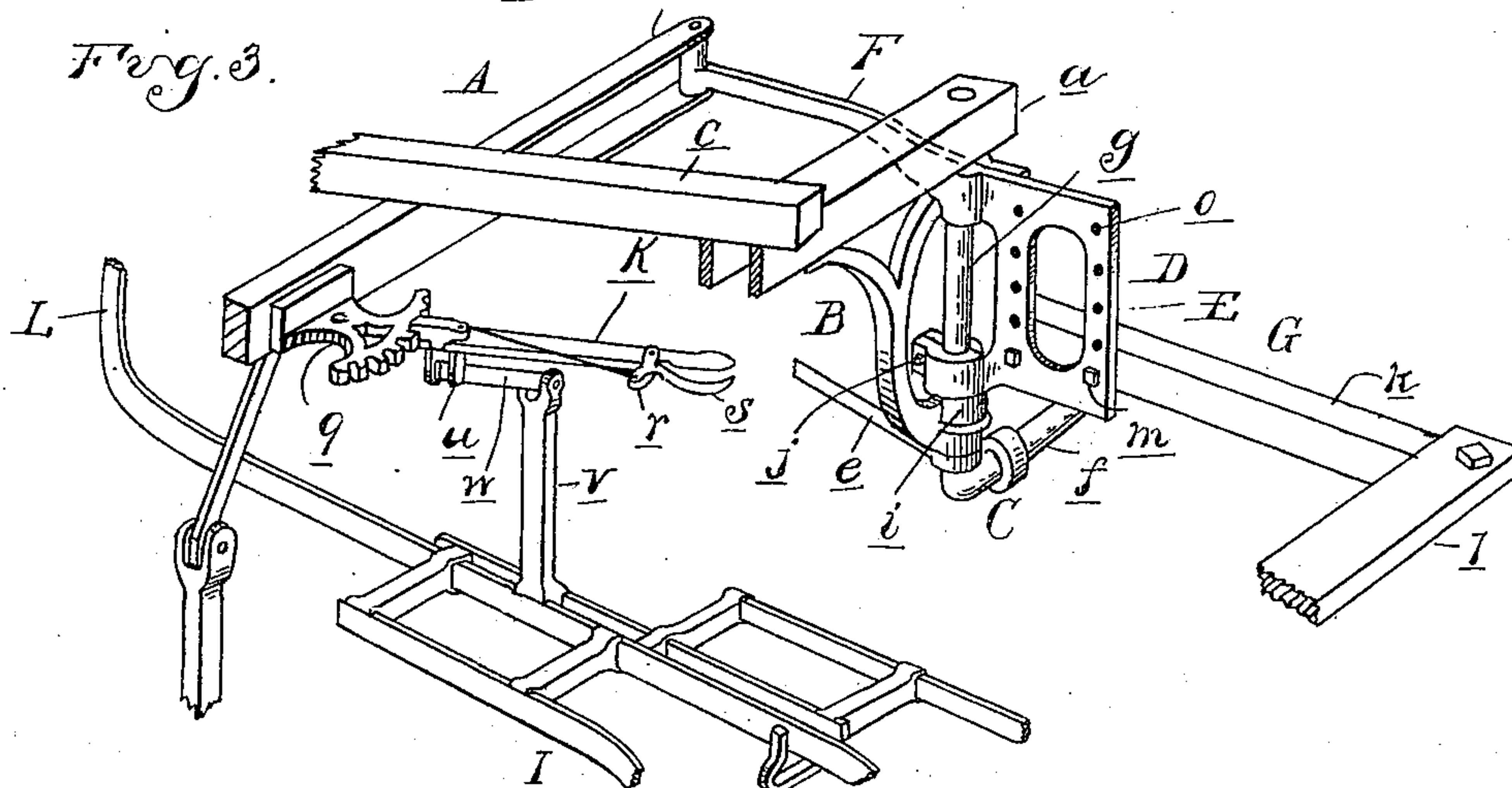
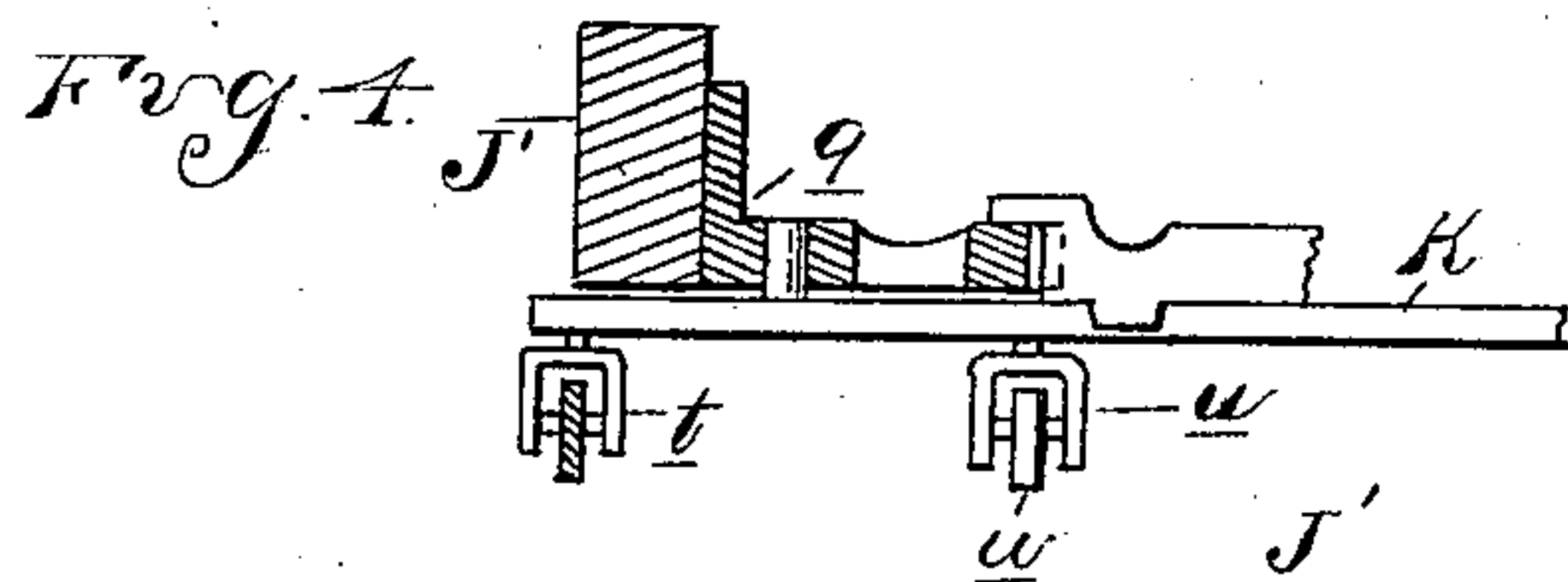


Fig. 5.

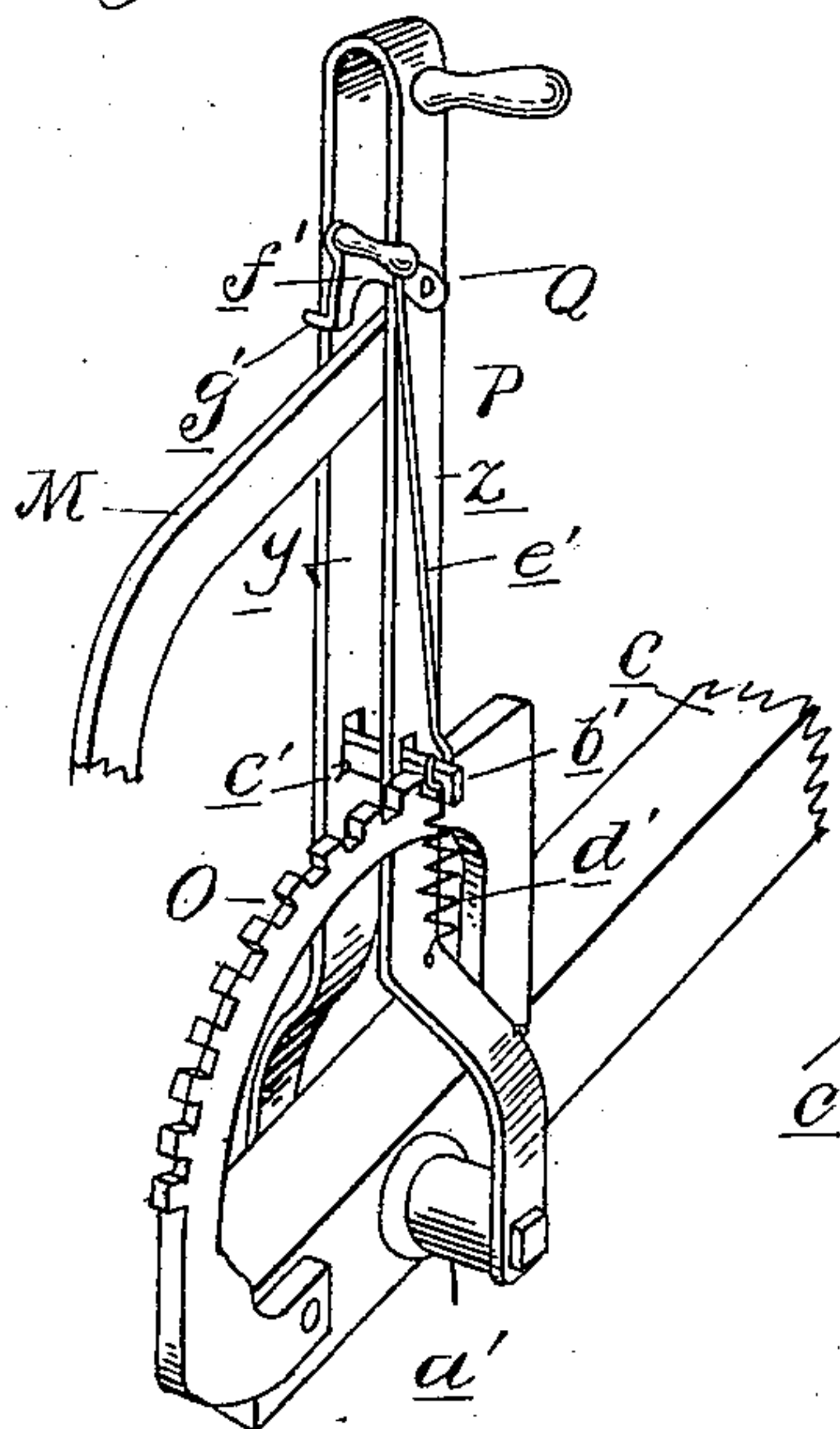


Fig. 6.

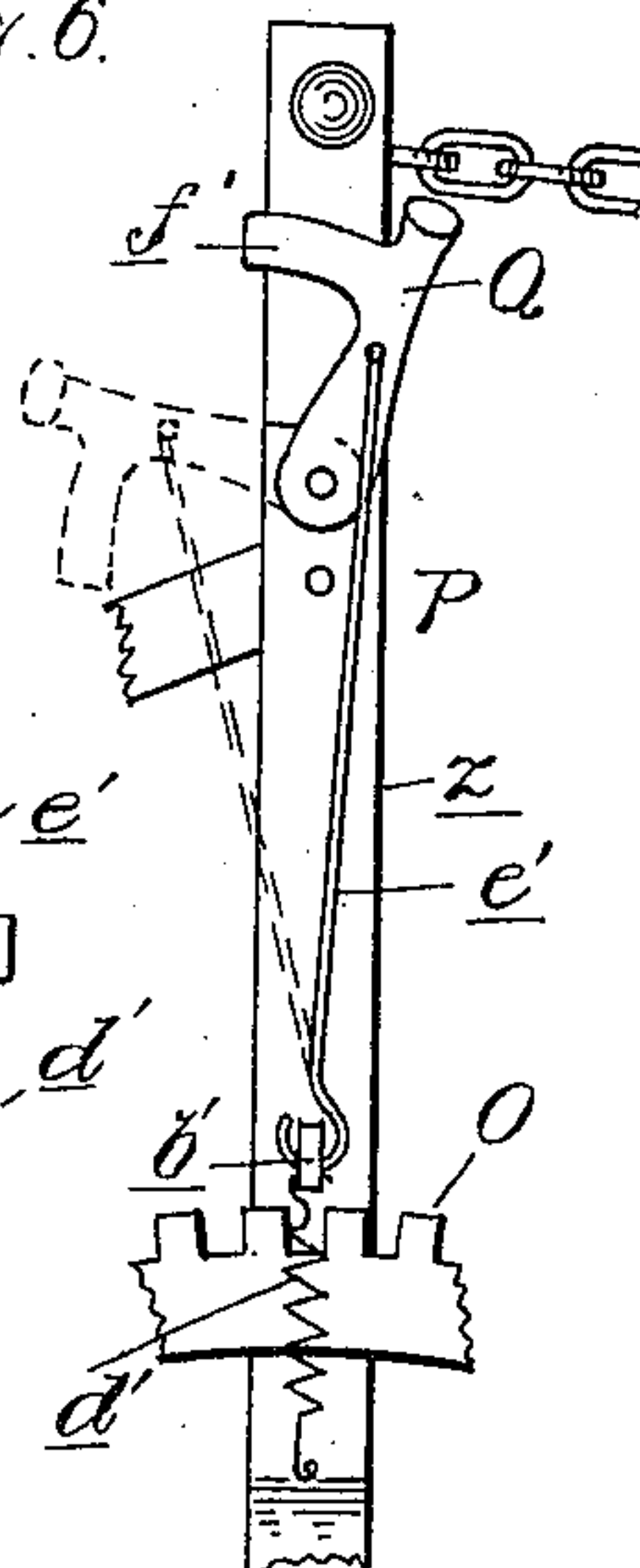
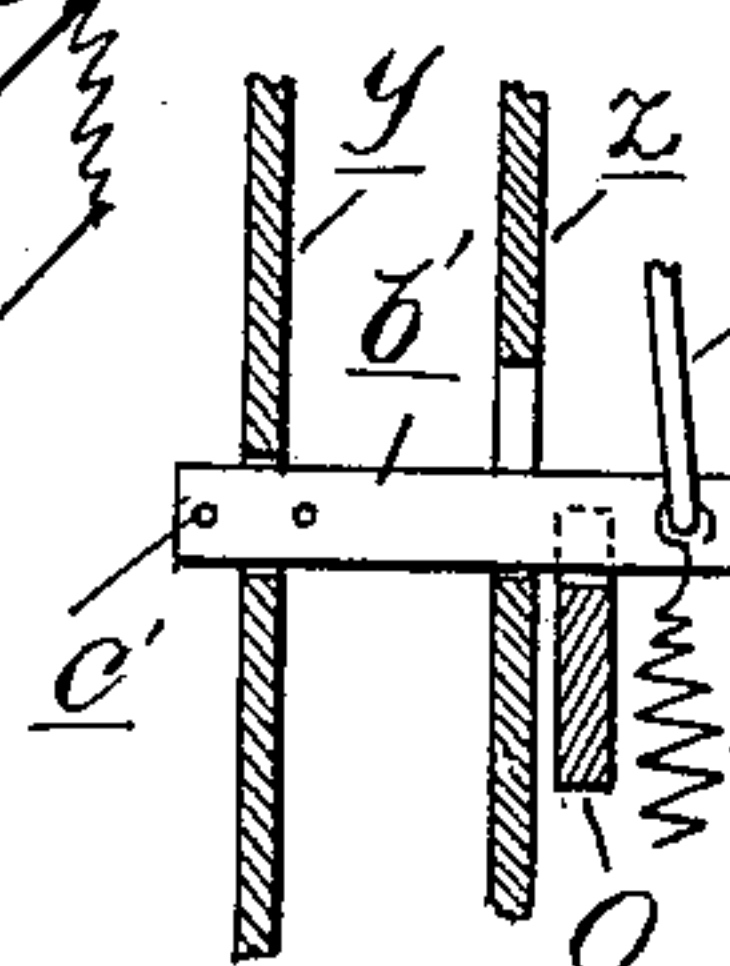


Fig. 7.



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# UNITED STATES PATENT OFFICE.

STEPHEN H. GARST AND DUDLEY GARST, OF DETROIT, MICHIGAN, ASSIGN-  
ORS TO THE AMERICAN HARROW COMPANY, OF SAME PLACE.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 629,499, dated July 25, 1899.

Application filed February 17, 1899. Serial No. 705,840. (No model.)

*To all whom it may concern:*

Be it known that we, STEPHEN H. GARST and DUDLEY GARST, citizens of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention has reference to riding-cultivators, and relates particularly to that class wherein the axles for the carrying-wheels are adapted to be shifted so that the said wheels may be inclined at will to the right or left, causing the machine to move at an angle to the line of draft for the purpose of more thoroughly cultivating the growing crop and to avoid any irregularities or obstructions in the ground.

20 One of the objects of our invention is to provide an improved shifting mechanism for the axles adapted to carry the driver and to be operated by the latter from his seat, the construction of the mechanism being such that the latter will always be in parallelism to the wheels, whereby the driver will be constantly facing in the direction in which the machine is traveling, and thus better enabled to control the movements of the cultivator.

30 Another object of our invention is to provide means whereby the driver may from his seat and by the use of a proper shifting device move the plow-sections simultaneously either to or away from each other and to so form the shifting device that the latter and the plow-sections will operate in substantially parallel planes, whereby the sections may be more readily operated, and also that they may be operated simultaneously and through simple and economical connections.

40 With these objects in view our invention consists in an improved cultivator and in the novel arrangement and combination of the various parts thereof, as will be more fully hereinafter described, and shown in the drawings, in which—

50 Figure 1 is a plan view of a cultivator, partially broken away to illustrate some of the essential parts. Fig. 2 is a longitudinal section taken on line *x x*, Fig. 1. Fig. 3 is a view

of a portion of the cultivator, showing in perspective the mechanism for actuating the pivoted axles and the shifting mechanism for the plow-sections. Fig. 4 is a sectional view of the shifting mechanism for said sections. 55 Fig. 5 is a perspective view illustrating my improved locking device for holding the plow-sections in their raised position. Fig. 6 is a front elevation of said locking mechanism; and Fig. 7 is a sectional view of the same, 60 showing the peculiar construction and arrangement of the latch.

In the drawings, like reference-letters designating like parts of the machine, the letter A represents the usual stationary frame of 65 the cultivator, consisting of a central cross-bar *a*, front cross-bar *b*, the bars *c* set at an angle to each other, and braces *d*, the parts being arranged as shown in Fig. 1 and secured to each other in any approved manner. 70 The central bar *a* carries depending therefrom at each end a bracket B, in which are journaled the pivoted axles C, more fully hereinafter described. A brace-rod *e* connects the lower end of each bracket to one of the bars *c*, whereby a rigid structure is obtained which carries the movable parts of the cultivator. 75

The axles C, just referred to, are preferably L-shaped in configuration, comprising in their 80 construction the axle proper, *f*, and the pivot pin or bar *g*, the latter device being adapted to engage the bracket, as shown, and to extend up and through the central cross-bar of the rigid frame. The axles are retained with- 85 in the brackets by means of smaller brackets D, which engage the pins between the cross-bar *a* and bearing *i*, formed on the brackets B, and are fixedly secured to the pins by suitable clamping-bolts *j*. 90

The brackets D, just described, comprise a rearwardly-extending body portion E and forwardly-extending arms F, and to the body portion of the brackets is secured a movable frame G, which constitutes our improved 95 shifting device for the pivoted axles. In construction the frame consists of side bars *k* and a cross-bar *l*, on which is mounted, at the middle thereof, a seat H for the driver. The side bars are secured to the brackets by bolts *m*, 100



Fig. 2, which engage pairs of vertically-arranged apertures *o* within the bracket-body. This permits the frame to be adjusted vertically in the brackets. By this construction of mechanism the operator is enabled, by pushing upon the plow-sections *I*, to shift the movable frame from one side to another to incline the wheels for the purpose before set forth, leaving his hands free for driving and for operating the plow-sections. Likewise the driver being carried by the movable frame which is constantly in parallelism with the wheels of the machine is always facing in the direction in which the wheels are moving, which enables him to more effectively operate the cultivator.

The mechanism for spreading the plow-sections or for moving the latter closer together is located upon the cross-bar *J'*, which connects the free ends of the forwardly-extending arms *F*. In construction this mechanism comprises a gear-segment *q*, fixedly secured to the cross-bar referred to, and a shifting device in the form of a lever *K*, having a pivotal connection therewith. This lever is provided with the usual spring-actuated latch *r*, the handpiece *s* for operating the same, and two clips *tu*, Fig. 4, which are swiveled thereto, as shown.

*L* designates the usual plow-beams, which have a pivotal connection with the forward portion of the stationary frame *A*, and these carry the plow-sections *I*, before referred to, said sections each comprising a group of plows or a gang. Upon each section is located an upright *v*, and a link *w* connects the upright with one of the clips upon the lever *K*. The shifting lever extends rearwardly a sufficient distance, so that the driver is readily enabled to reach the same from his seat on the movable frame, and by moving the lever the driver actuates simultaneously the two plow-sections, bringing them nearer together or spreading the same, according to the direction in which the shifting device is moved. It will be observed from this construction that the uprights form the necessary arch for the cultivator, and by extending upwardly in the manner described and shown permit the plow-sections to be more readily operated, as the line of pull upon the plow-sections is brought substantially in the same plane in which the horizontal shifting lever operates.

It is frequently desired to raise the plows partially out of the ground to lessen the depth of the cut or entirely from the ground during the operation of the cultivator; and to attain this object we employ the usual gear-segment and operating-lever for raising the plow-sections, the segment being attached, as usual, to the stationary frame. The means we employ for locking the segment and lever, however, we believe to be entirely new with us, and the particular construction of said locking mechanism will now be described.

The reference-letter *O* designates the usual gear-segments, which are fixedly secured to

the inclined bars *c* of the stationary frame. Pivoted to the same bars in proximity to the segments are the operating-levers *P* for the sections, each of which levers is connected by a spring *x* to the forward cross-bar *b* or any other suitable part of the frame and by a link *M* to the plow-section. In construction each lever is preferably bifurcated, as shown in Fig. 5, comprising an outer member *y* and an inner member *z*, which embrace at their lower ends the bar to which the lever is attached and are pivotally secured thereto by a pivot-pin *a'*.

In the lever members just referred to, above the segment, are formed slots through which extends a latch *b'*, said latch being pivotally connected to the member *y* by means of split pins *c'*, engaging the latch upon opposite sides of the outer member. The latch just described is held normally in engagement with the teeth of the segment by means of a spring *d'* and is withdrawn from and locked out of said engagement by means of our improved locking mechanism, consisting, essentially, of a connecting-rod *e'* and a locking-lever *Q*.

More particularly the construction of the locking device is as follows: The lever *Q* is pivoted, as shown in Figs. 5 and 6, to the inner member *z* of the operating-lever *P* and is provided with a laterally-extending finger *f'* and a stop *g'* thereon at right angles thereto. The connecting-rod *e'* is secured to the lever *Q*, as shown, above its pivotal point of connection.

When it is desired to raise the plow-section above the ground, the latch being disengaged from the teeth of the segment, the driver moves the operating-lever *P* forward the required distance and holds the plow-sections in their raised positions by allowing the latch to again engage with the segment.

When it is desired to allow the plow-sections to rest upon the ground and to swing freely, the driver moves forwardly the locking-lever *Q* until it passes over the dead-center, when further forward movement of the lever is checked by the stop *g'* striking against the member *y* of the lever *P*. The latch is then locked in the desired position out of engagement with the segment.

What we claim as our invention is—

1. In a cultivator, the combination with the stationary frame, the pivoted axles, arms projecting forwardly from the axles and a cross-bar connecting the arms, a movable frame extending rearward from said axles and controlling the movement of the latter, a seat upon said movable frame, the plow-sections pivoted to the stationary frame, and connections between each plow-section and the cross-bar connecting the forwardly-projecting arms.

2. In a cultivator, the combination with a stationary frame, the pivoted axles, a rearwardly-extending movable frame controlling the movement of the axles, said movable



frame being capable of vertical adjustment, and a seat for the driver upon said movable frame, substantially as described.

3. In a cultivator, the combination with the frame, the pivoted axles, brackets fixedly secured to the said axles, a movable seat-carrying frame secured to said brackets, and means for vertically adjusting the seat-frame on the brackets.

10 4. In a cultivator, the combination with the stationary frame, the plow-sections or gangs arranged beneath said frame for free lateral adjustment, in a horizontal plane, relative to the frame, a plow-beam for each gang extending upwardly from the latter and having a pivotal connection with the stationary frame, a shifting mechanism for adjusting the gangs arranged and adapted to operate in a plane substantially parallel with said gangs, and  
15 20 connections between each gang and the said shifting or adjusting mechanism, permitting the simultaneous movement of the gangs to or away from each other.

5. In a cultivator, the combination with a stationary frame, the gang-plows arranged beneath said frame for free lateral adjustment, in a horizontal plane, relative to the frame, a plow-beam for each gang extending upwardly from the latter and having a pivotal  
30 connection with the frame, a horizontally-operating shifting or adjusting device for the gangs mounted above the latter, an upright fixedly secured upon each gang extending in proximity to the plane in which the shifting  
35 device operates, and connections between said shifting device and the uprights, permitting the simultaneous adjustment of the gangs to or away from each other.

6. In a cultivator, the combination with the frame, of a plow-section pivoted thereto, an operating-lever for raising said section, a spring-actuated latch carried by the lever, a gear-segment with which the latch normally engages, and means for locking the latch out  
45 of engagement with the said segment, comprising a locking-lever pivoted to the operating-lever, a connecting device secured to the locking-lever, above the pivotal point of connection of the latter with said operating-lever, and to the latch, and a stop limiting  
50 further forward movement of the locking-le-

ver after its passage over the center, substantially as described.

7. In a cultivator, the combination with a frame, of a plow-section pivoted thereto, an operating-lever for raising said section, a spring-actuated latch carried by the lever, a gear-segment with which the latch normally engages, and means for locking the latch out of engagement with the segment, comprising  
60 the locking-lever Q, pivoted to the operating-lever, the stop  $g'$  upon said locking-lever, and the rod  $e'$  connecting the locking-lever; at a point above its pivotal point of connection with the operating-lever, to the latch,  
65 the parts being arranged and adapted to operate in the manner set forth.

8. In a cultivator, the combination of the pivoted axles, an arm projecting forward from each axle a connecting-bar between the forward ends of the arms, means for turning the axles upon the pivots, the plow-sections, a device for actuating the plow-sections to and from each other attached to the connecting-bar, and connections between said actuating  
75 device and the plow-sections.

9. In a cultivator, the combination of the pivoted axles, an arm projecting forwardly from each axle a connecting-bar between the forward ends of the arms, means for turning  
80 the axles upon the pivots, the plow-sections, a lever for actuating the sections to and from each other pivoted to the said connecting-bar, connections between opposite sides of the fulcrum of the lever and the plow-sections, and means for holding the parts in their  
85 adjusted positions.

10. In a cultivator, the combination of the pivoted axles, forwardly-projecting arms attached thereto, a connecting-bar between the arms, the plow-sections, and an adjustable connection between the sections attached to the bar which connects the arms on the pivoted axles.

In testimony whereof we affix our signatures in presence of two witnesses.

STEPHEN H. GARST.  
DUDLEY GARST.

Witnesses:

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