

(No Model.)

4 Sheets—Sheet 1.

J. S. HICKMAN.
COMBINED CULTIVATOR AND SEEDER.

No. 435,831.

Patented Sept. 2, 1890.

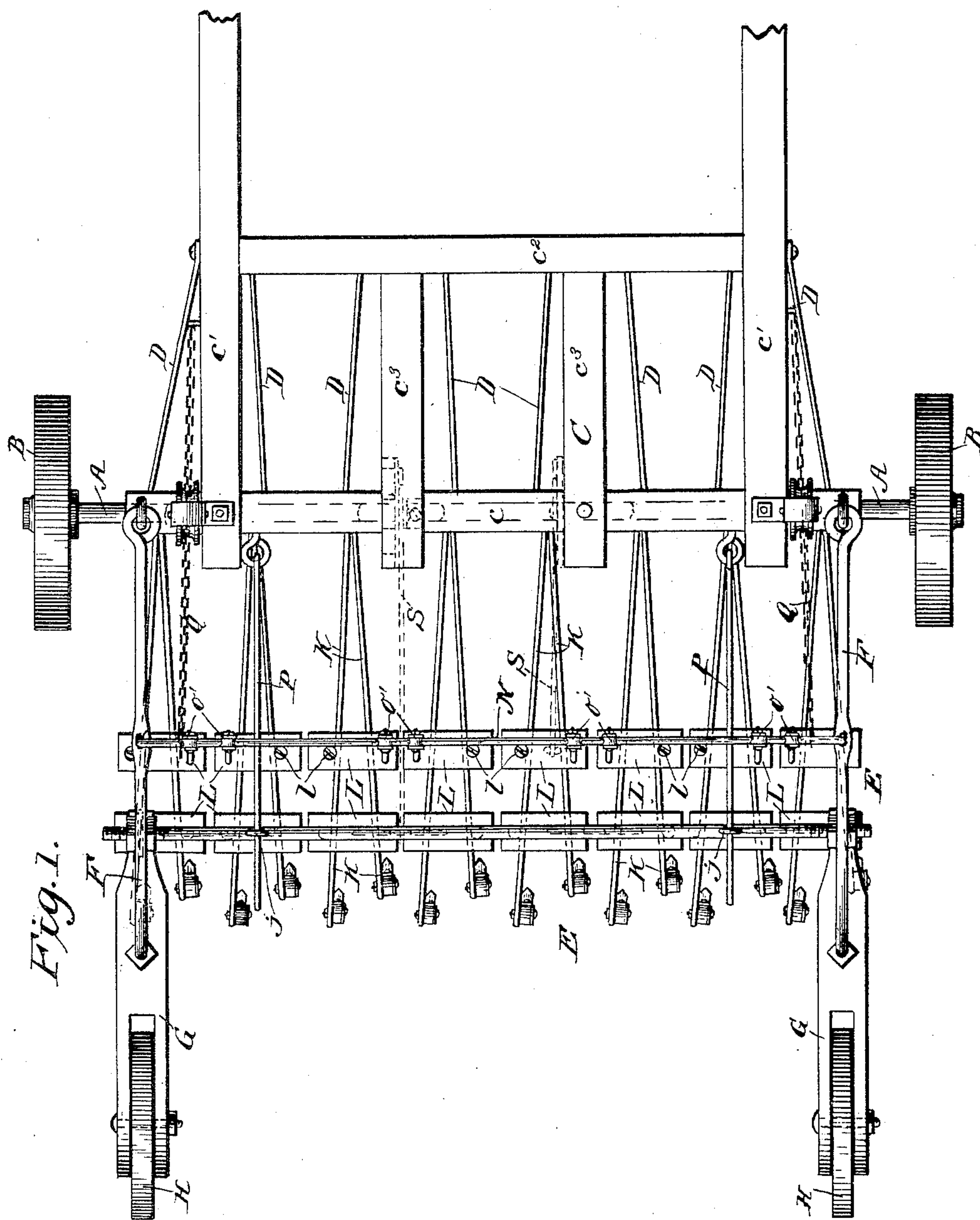


Fig. 1.

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BY

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ATTORNEYS

(No Model.)

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Fig. 2.

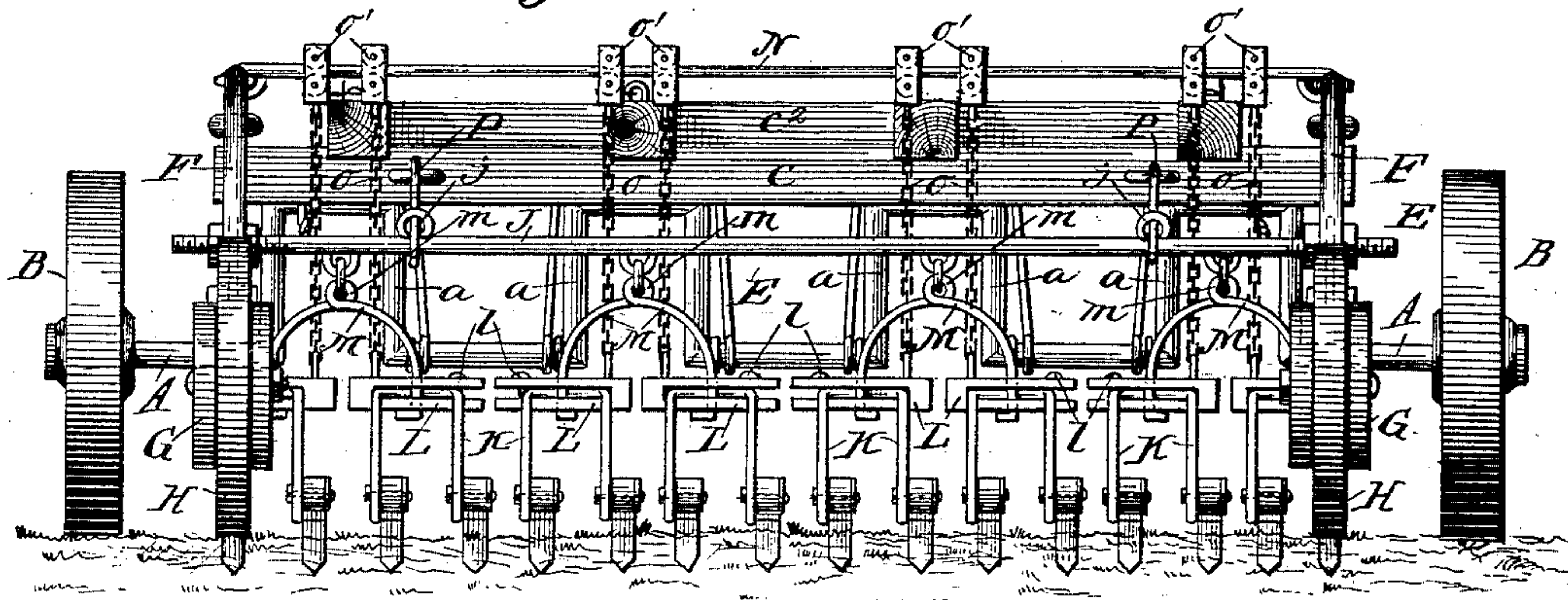


Fig. 5.

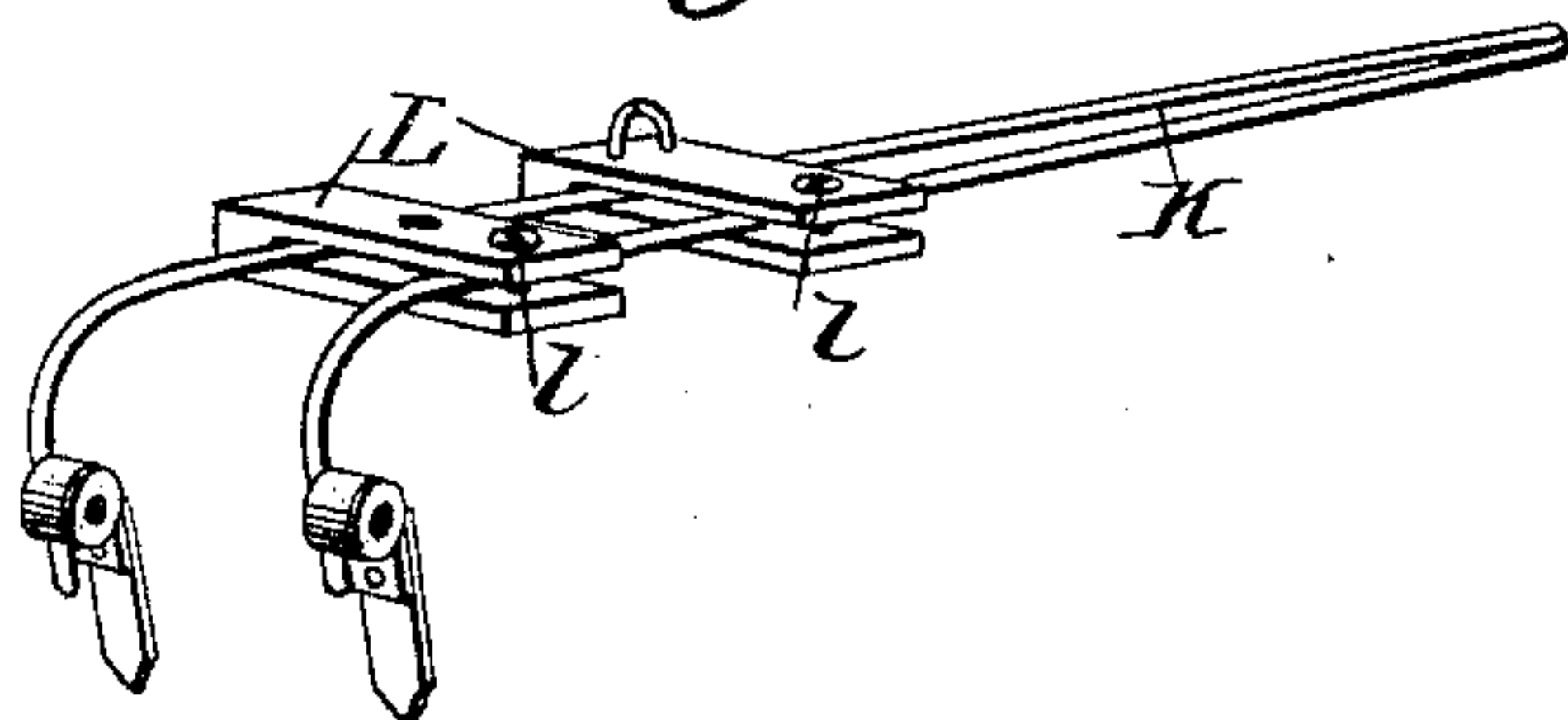
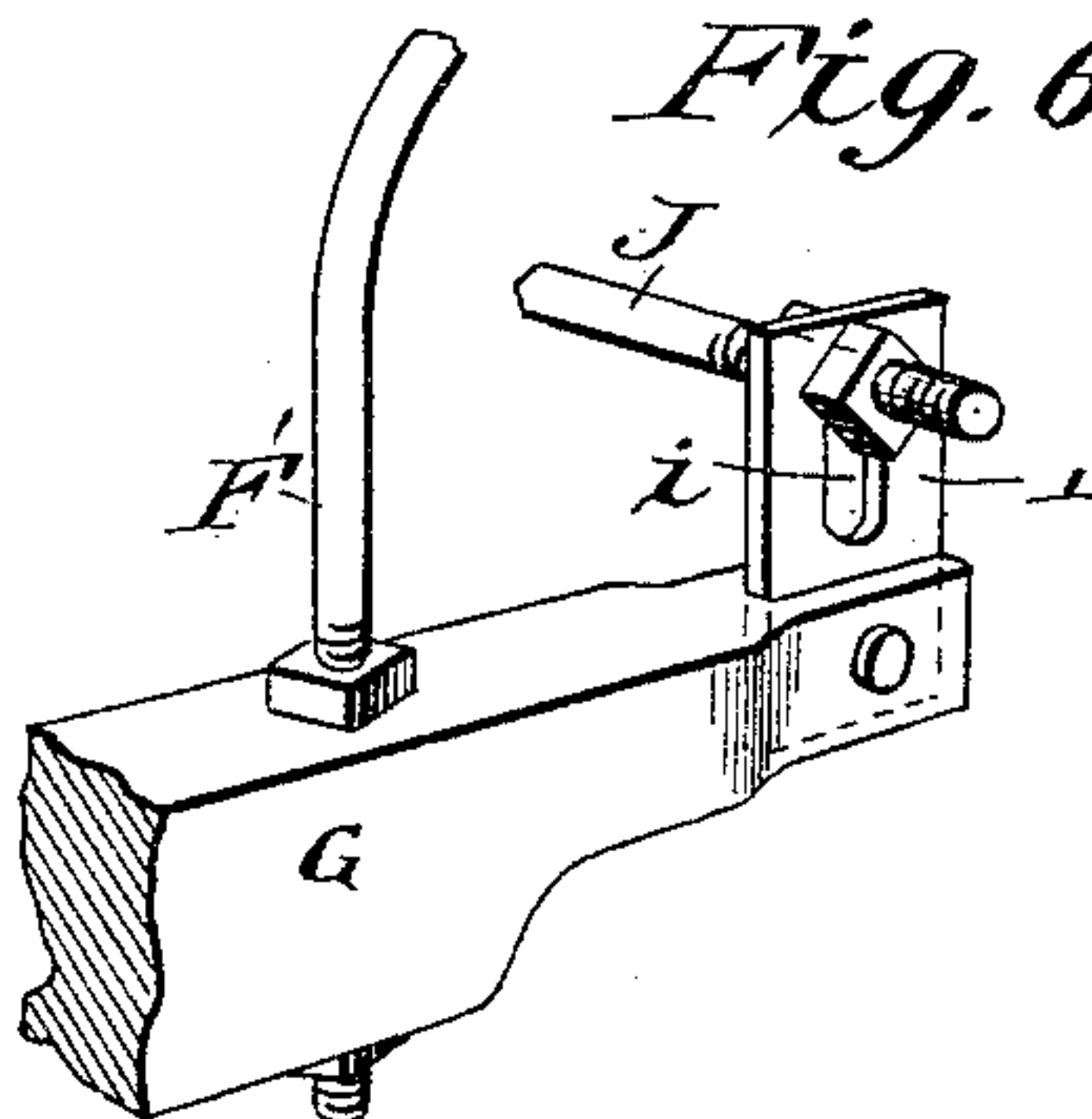


Fig. 6.



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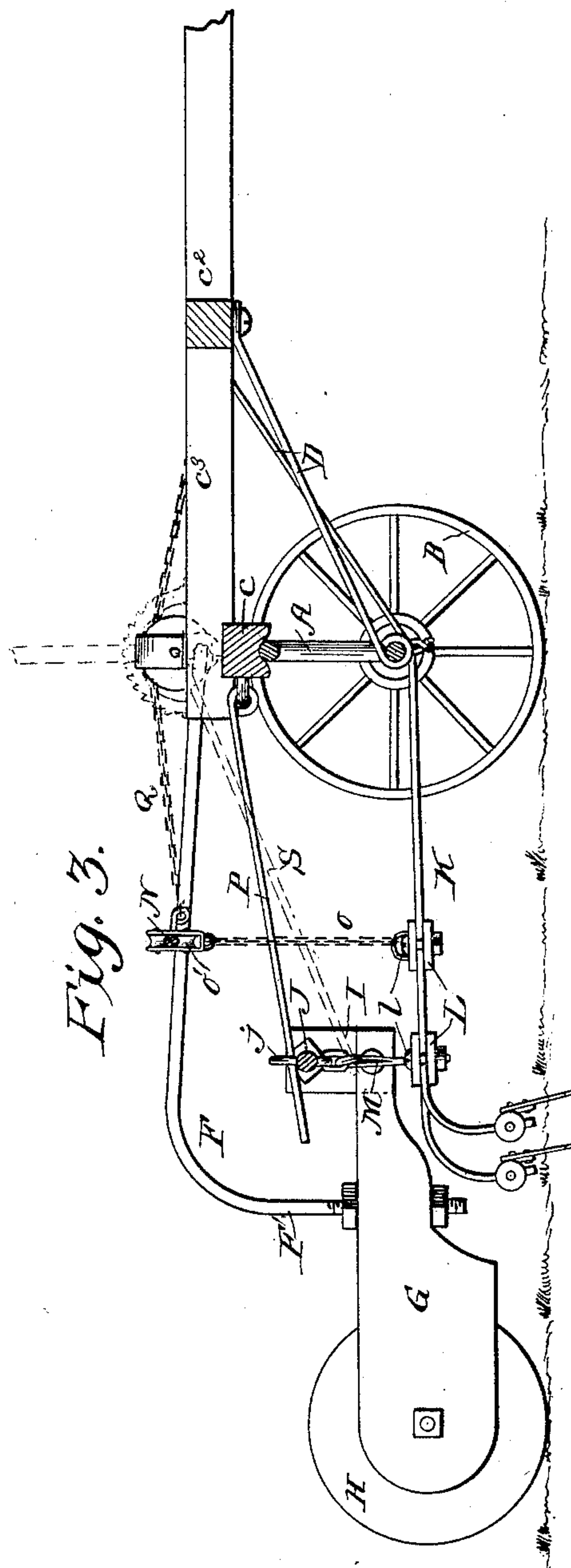
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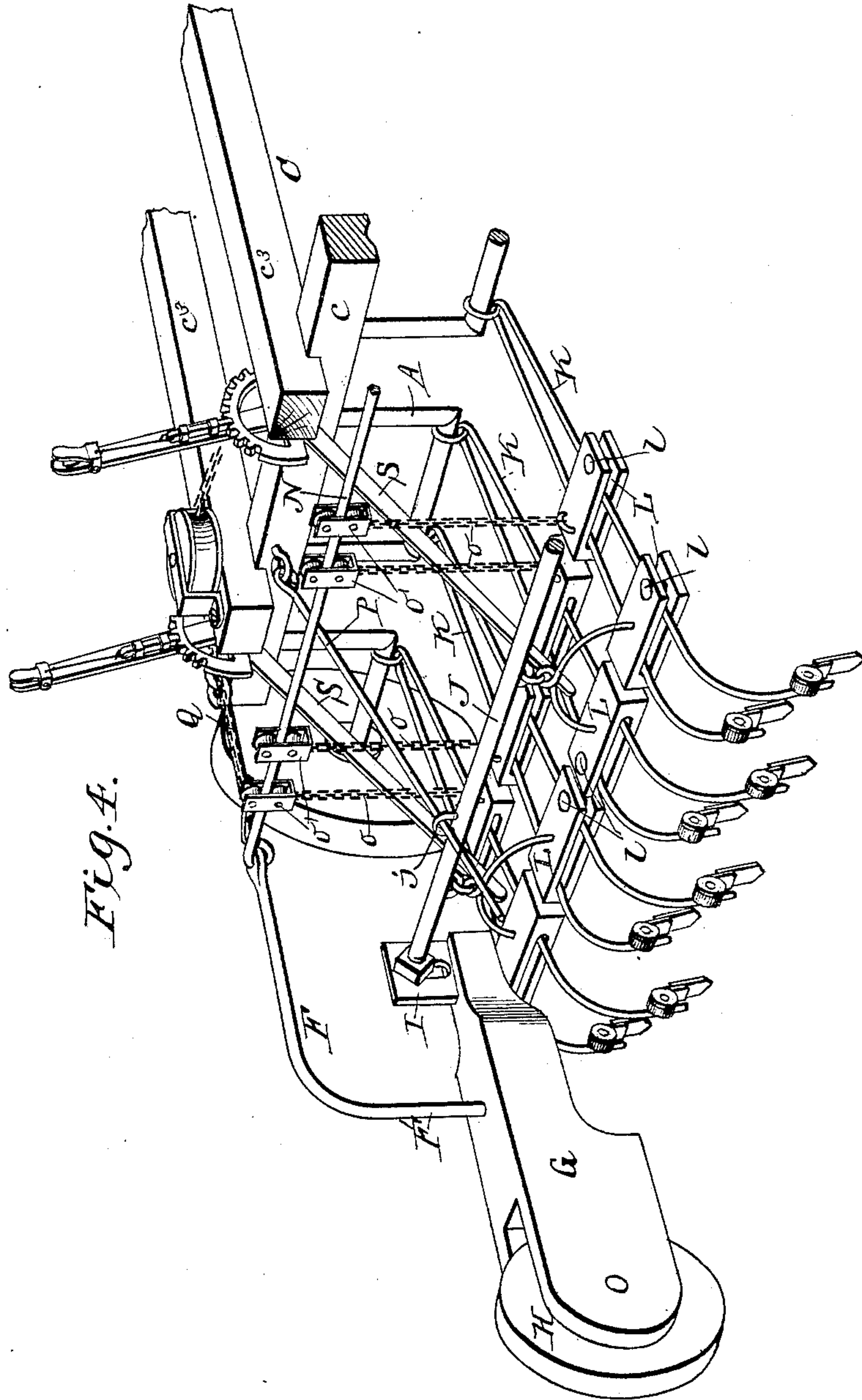


Fig. 4.

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UNITED STATES PATENT OFFICE.

JAMES S. HICKMAN, OF HICKMAN, ILLINOIS.

COMBINED CULTIVATOR AND SEEDER.

SPECIFICATION forming part of Letters Patent No. 435,831, dated September 2, 1890.

Application filed March 1, 1890. Serial No. 342,307. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. HICKMAN, of Hickman, in the county of Iroquois and State of Illinois, have invented certain new and useful Improvements in Combined Seeders and Cultivators, of which the following is a specification.

My invention relates to cultivators in which a series of cultivators arranged in gangs are employed; and it consists in certain novel features of construction and peculiar combination of parts, all of which will hereinafter be fully described in the annexed specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of my improved cultivator and seeder. Fig. 2 is a rear view thereof. Fig. 3 is a longitudinal vertical section of the same on the line 3 3, Fig. 1. Fig. 4 is a perspective view of the overhung frame. Figs. 5 and 6 are detail views, hereinafter referred to.

In the accompanying drawings, A indicates the main axle, which is formed with a desired number of arched yokes *a a*, usually four in number, being arranged for eight gangs of cultivators, on the outer ends of which are mounted the supporting-wheels B B.

To hold the axle A from sagging, I secure it to a frame-work C, which consists of a rear cross-bar *c*, the forwardly-projecting tongues *c' c'*, the cross-piece *c²*, and the intermediate brace-bars *c³ c³*, the axle being secured to the rear cross-bar *c*, as shown. To more securely hold said axle and the frame C in rigid connection, I provide a series of truss-rods D D, connected at one end to the forward part of the frame C and at the rear end to the arched axle A.

The overhung cultivator-frame E consists of the rearwardly-extending arched bars F, the rear ends F' of said bars extending vertically downward and connected to the supporting-frames G G, which carry the trailing or supporting wheels H H in their bifurcated rear ends.

J denotes a rod, which forms a support for the cultivator-frame, held to slide in elongated slots *i i*, formed in vertical guides I I, secured upon the forward ends of the frames G G, said

cultivator-frames being secured thereto in a manner most clearly shown in Fig. 2 of the drawings, by reference to which it will be seen that I arrange the cultivators in gangs, two in each gang and one gang for each row to be cultivated.

K denotes the cultivator-beams, which are preferably formed of spring-arms, pivotally connected at their front ends to the arched axle, their rear ends being bent down to form the standards for the cultivator-shovels, which may be of any desired construction and attached thereto in any well-known manner.

Upon the beams K are held to slide adjustable blocks L. By the longitudinal movement thereof on said beams the cultivator-shovels may be adjusted to or from each other, said blocks being held in position by the set-screws *l l*.

The gangs of cultivators are connected with each other by means of arched yoke-bars M, the ends of which are connected to the outer blocks L, their upper portion being formed with loops *m*, which engage loops or eyes *n*, formed on the cross-bar J, as shown.

Each set of cultivator-beams is further supported by means of a flexible connection *o* to a cross-bar N, connected to the arms F and extending nearly over the shaft J, such bar forming a tramway for the double pulleys *o'* on the ends of the connection *o*, whereby a free lateral movement of the cultivators is permitted when moved sidewise, with the balance of the overhung frame, and also admitting of a limited lateral movement of the bar J and the cultivators irrespective of such movement of the arms F F.

To permit of the last movement referred to, it will be seen that I arrange the bar J not only for free vertical movement, but also for limited lateral movement in the said bearings I, and I provide said bar with loops *j j*, through which pass the rods P P, pivoted at their forward ends to the cross-bar *c*. By this construction increased leverage is obtained for guiding the gangs laterally, said rods P being held in suitable eyes or loops *j*, whereby to lift the gangs out of the ground when turning the machine.

At each end of the bar *c* is arranged a pulley-support, over which pass chains Q Q, con-

nected at one end to the frame C, and at their outer ends to the overhanging frame E in such a manner that the weight of said frames may be nearly balanced, leaving only enough pressure on the rear end to press the crazy wheels or runners on the ground to assist in guiding the machine. By thus connecting the frames E and C it will be seen that a rocking motion for the cultivator-frames is obtained.

One set of operating-levers is employed for each gang of plows or row to be cultivated, said levers being attached to the axle-bar c, as shown, one of said levers S connected to the arches, the others direct to the cultivator-frames, by means of which the operator may guide the cultivators, and, if desired, elevate any one of the gangs, or one of the cultivator-frames of each gang, as he may desire.

By my arrangement of cultivators it will be seen that the operator can cultivate four, three, two, or one row, if he desires, by simply elevating or detaching such cultivators as he may see fit.

It will be observed that by arranging the overhung frame as described the entire eight cultivator-gangs for four-rowed work, being one gang of cultivators on each side of each row to be cultivated, are swung up by chains attached to rollers on a tramway, so that the operator can easily control the entire eight cultivators. It will also be seen that these gangs are all arch-yoked, so that they are practically one gang so far as being moved to right or left, thus enabling the operator by holding on one row to hold on all. While these gangs are rigid so far as moving to right or left, they are flexible to raise or lower.

While my improved cultivator may be employed for the general uses to which cultivators of this class are put, it is more especially intended to follow two, three, or four or more rowed seed-droppers, the rows being of a uniform distance apart, the knots on the check wire or rope being just the same distance apart that the rows are wide, thus enabling the operator with this cultivator to cultivate across as well as the way the seed was planted or dropped.

It is obvious that suitably-arranged seed-boxes may be secured upon the axle, which may be divided into a series of compartments to receive different kinds of seed, and such compartments may be provided with any of the well-known stirring-paddles driven from the main axle, and that the cultivator-shovels may be constructed with spring-shanks of any well-known construction, so as to admit of said shovels passing over obstructions, &c.

Shovels, flukes, concave or convex disks, teeth, or horizontal shovel-blades may be employed in connection with the seed-dropping devices for stirring the ground.

If desired, the seed-dropping devices and their adjuncts may be so arranged as to be readily detachable, so that the machine may be used either with or without them.

The crazy or supporting wheel arrangement is so connected to the guide-rods that when these guide-rods are moved to right or left, as may be desired in cultivating, it throws the crazy-wheels awry, (or sidewise,) and then by the forward motion of the team the entire gangs of cultivators are thrown to right or left at will of operator. The front parts of the crazy-wheel frames have perpendicular elongated slots for cross-rods to assist in throwing crazy-wheels awry.

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

1. An improved cultivator, seeder, and dropper, consisting of the main axle, a supporting-frame C, fixedly held thereon, and an overhung rearwardly-extending frame E, held to said frame C, adapted for vertical and lateral movement, said frame E provided with the crazy-wheels H H and adapted to support the cultivator-gangs, substantially as and for the purpose described.

2. An improved cultivator, seeder, and dropper, consisting of the main axle, the supporting-wheels, said axle formed with a series of arches, a frame C, mounted on and braced to said axle, a rearwardly-extending frame E, hung to said frame C, and the cultivator-gangs supported at the rear portions on said frame E and having a pivotal connection with the arched axle at their forward ends, substantially as shown and described.

3. The combination, with the frame C, fixedly held at its rear end upon the axle and provided at said end with the double guide-pulleys, of the overhung frame E, provided with the supporting or crazy wheels H H at its lower rear ends, said frame pivotally held at its front end on the frame C, and the balancing-chains connected at one end to the frame C in advance of its bearing on the axle and at the opposite end to the frame E, all arranged substantially as and for the purpose described.

4. The combination, with the main axle provided with a series of arches, the frame C held thereon, and the truss-rods D, connected thereto and to the frame C, of the overhung frame E, consisting of the side bars F F, pivoted at their forward ends to the frame C, their rear ends extended downward, the frames G G, secured to the said lower ends, the supporting or crazy wheels H H, mounted thereon, said frames provided with vertical slots at the forward end, the cross-bar J held for vertical and lateral adjustment therein, and the cultivator-gangs supported at their rear ends on the rod J, their forward ends pivotally held on the main axle, substantially as and for the purpose described.

5. The combination, with the main axle and the frame C held thereon, of the frame E, consisting of the arms F, pivoted to the frame C and carrying the frames G, provided with the supporting or crazy wheels H, the cross-bar J, held on said frames G, the cross-rod N,

connected to the bars F F, forming a tramway, the cultivator-frames connected to the bars J, and the flexible connection between said cultivator and tramway, said cultivators
5 having a pivotal connection at their front ends to the main axle, all arranged substantially as and for the purpose described.

6. The combination, with the main axle provided with a series of arches, the frame C, fixedly held thereon, the bars F F, pivotally secured at their front ends to the frame C, the frames G, and the wheels H, held to the bars F, said frames G provided with slotted standards I I, and the cross-bar J, mounted in said
15 slotted standard, of the cultivator-frames arranged in a series of gangs, each gang having a yoked connection M with each other, said yokes connected to said cross-bar J, said cultivator-frames hung at their forward ends to
20 the arched axle, substantially as and for the purpose described.

7. The combination, with the axle A, of the frame C held thereon, the overhung frame E, pivoted to the frame C for vertical and lateral movement, the frames G, carrying the

crazy-wheels H, held to the arms F F' of said frame E, the cross-bar J, held in the frames G, provided with loops j, the rods P, hung at their front ends to the frame C, their rear ends passed through said loops j, the cultivator-frames supported on said bar J and connected to the axle A, and the operating-levers S, all arranged substantially as and for the purpose described.

8. The combination, with the axle A, the frame C, the overhung frame E, the frames G, and the cross-bar J, of the cultivator-frames, consisting of the spring-arms K, hung at their forward ends to the axle A, their rear ends forming the shovel-standards, the sliding blocks L, held for longitudinal adjustment on said arms, the yokes M, secured to said blocks, and the bars J, and the set-screws l all arranged substantially as and for the purpose described.

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