

No. 671,728.

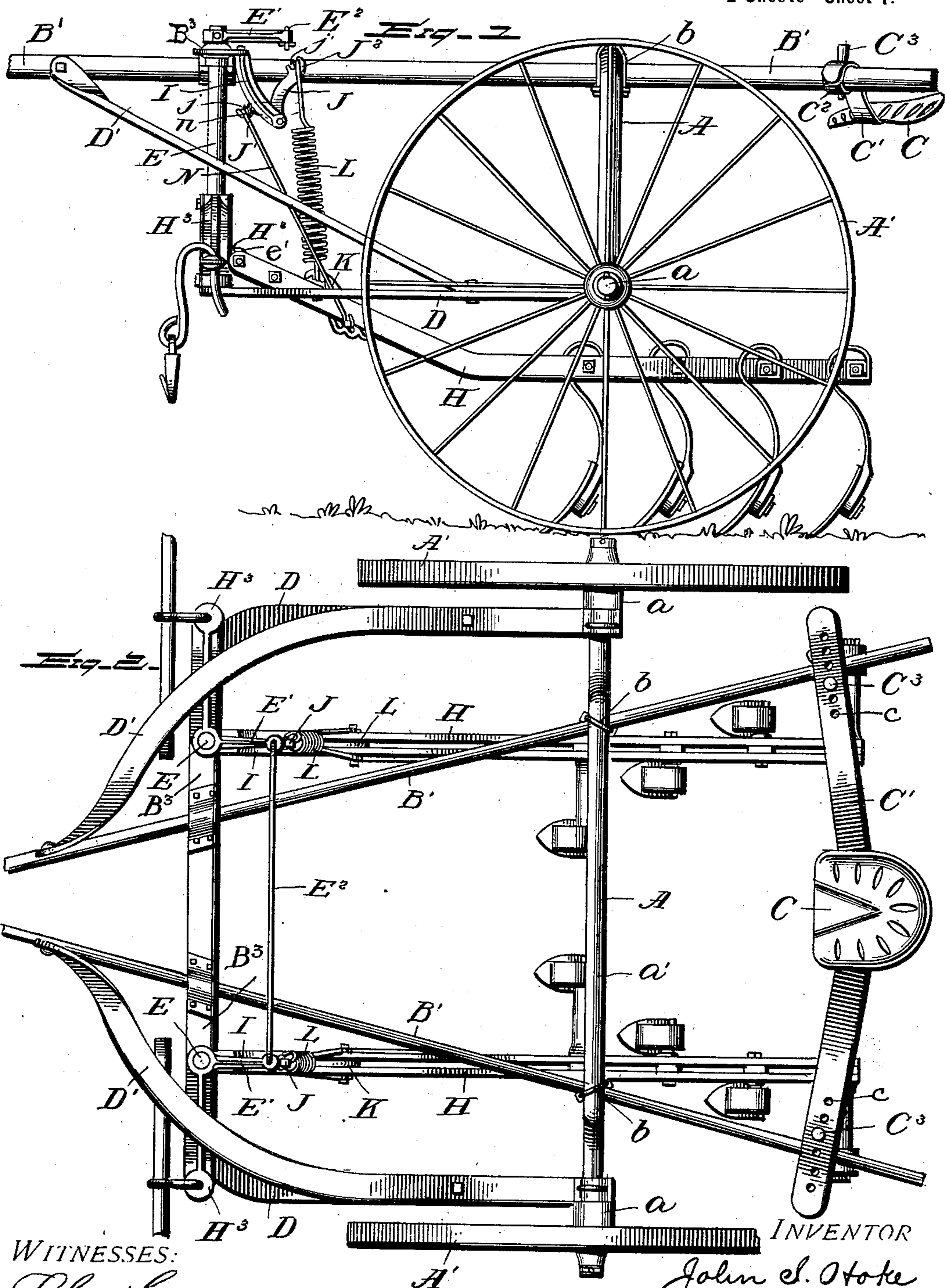
Patented Apr. 9, 1901.

J. I. HOKE.
CULTIVATOR.

(Application filed June 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

L. C. Kells.
James R. Mansfield.

INVENTOR

John C. Hoke

BY

Alexander & Fowell
Attorneys

No. 671,728.

Patented Apr. 9, 1901.

J. I. HOKE.
CULTIVATOR.

(Application filed June 11, 1900.)

(No Model.)

2 Sheets—Sheet 2.

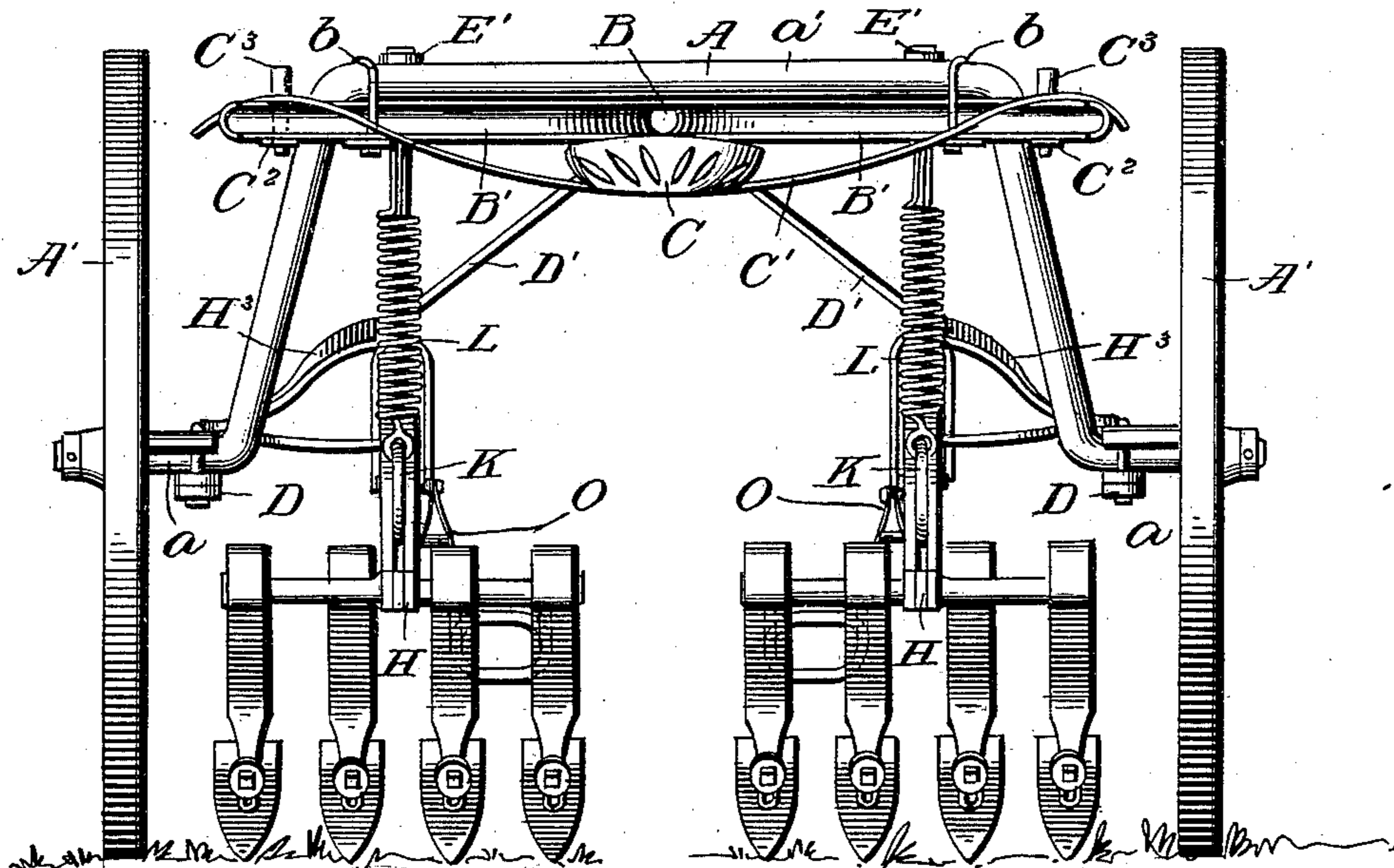


Fig. 4.

Fig. 5.

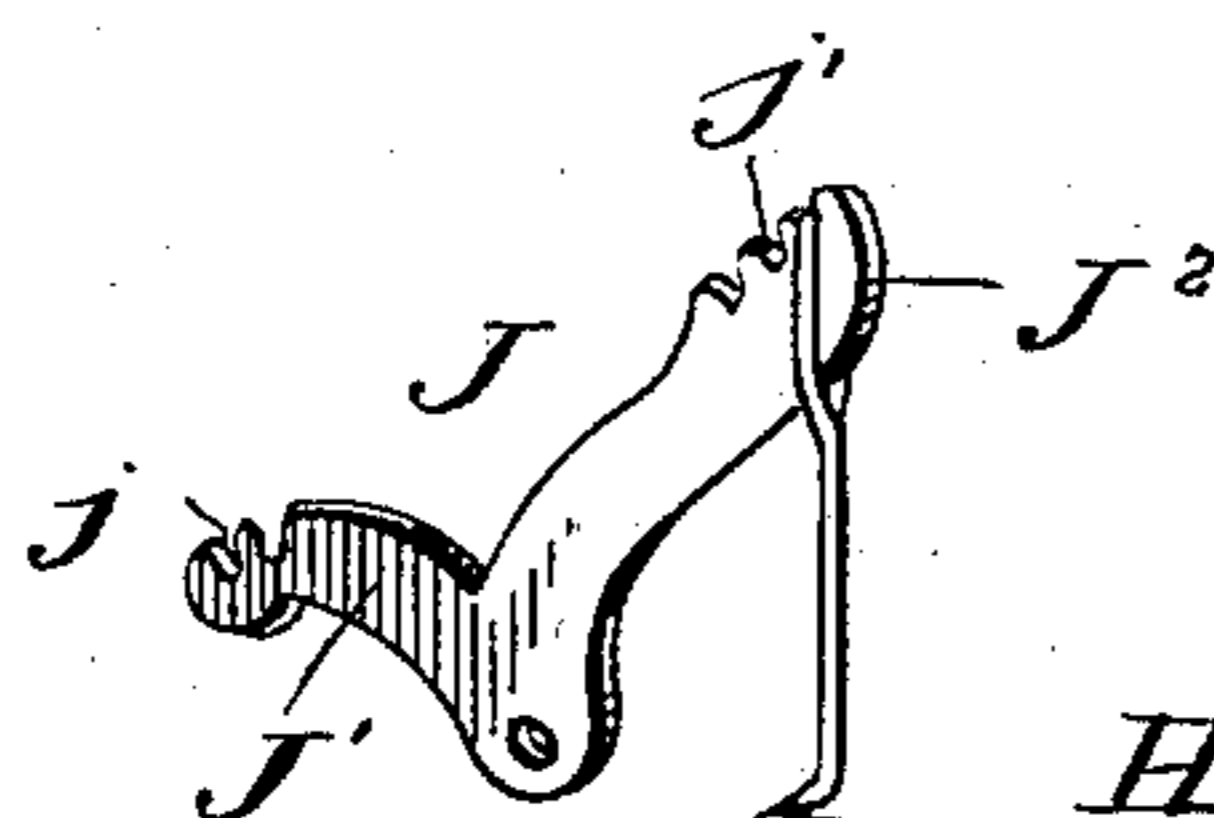


Fig. 2.

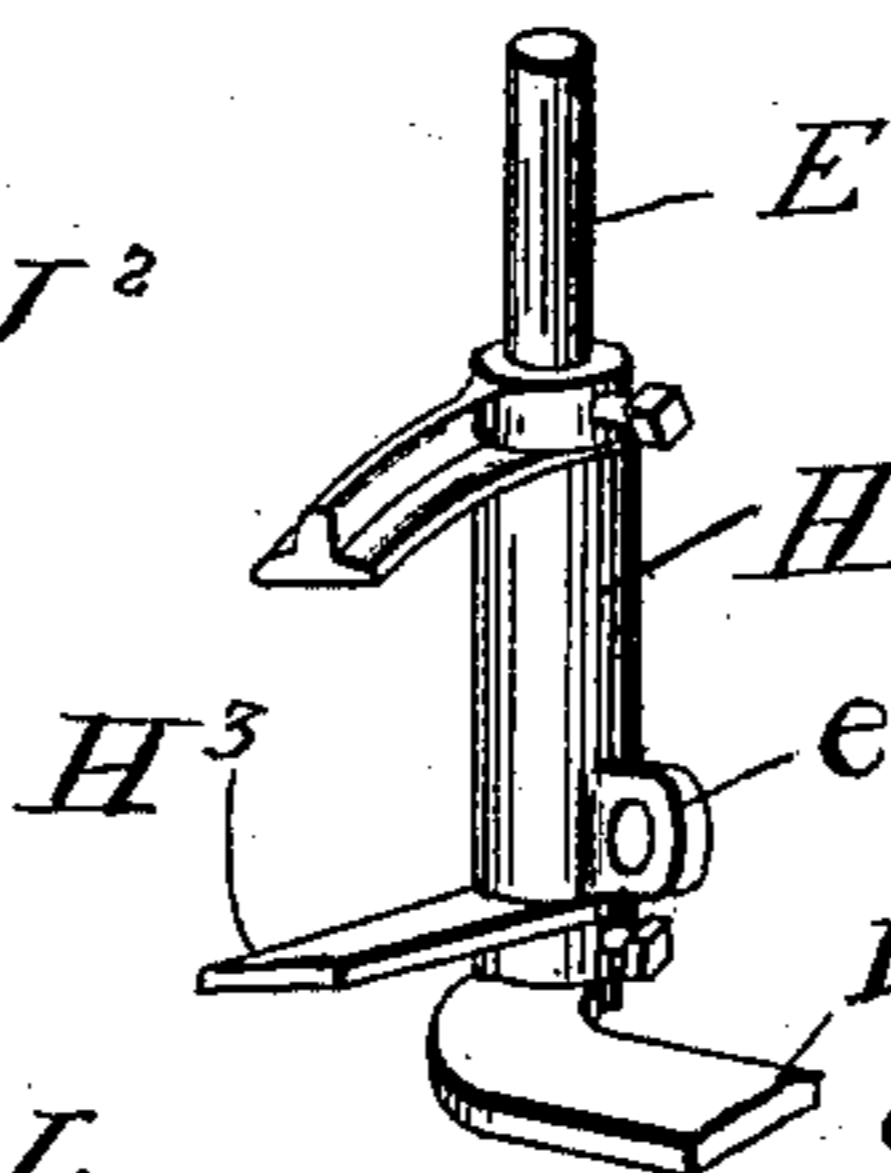


Fig. 3.

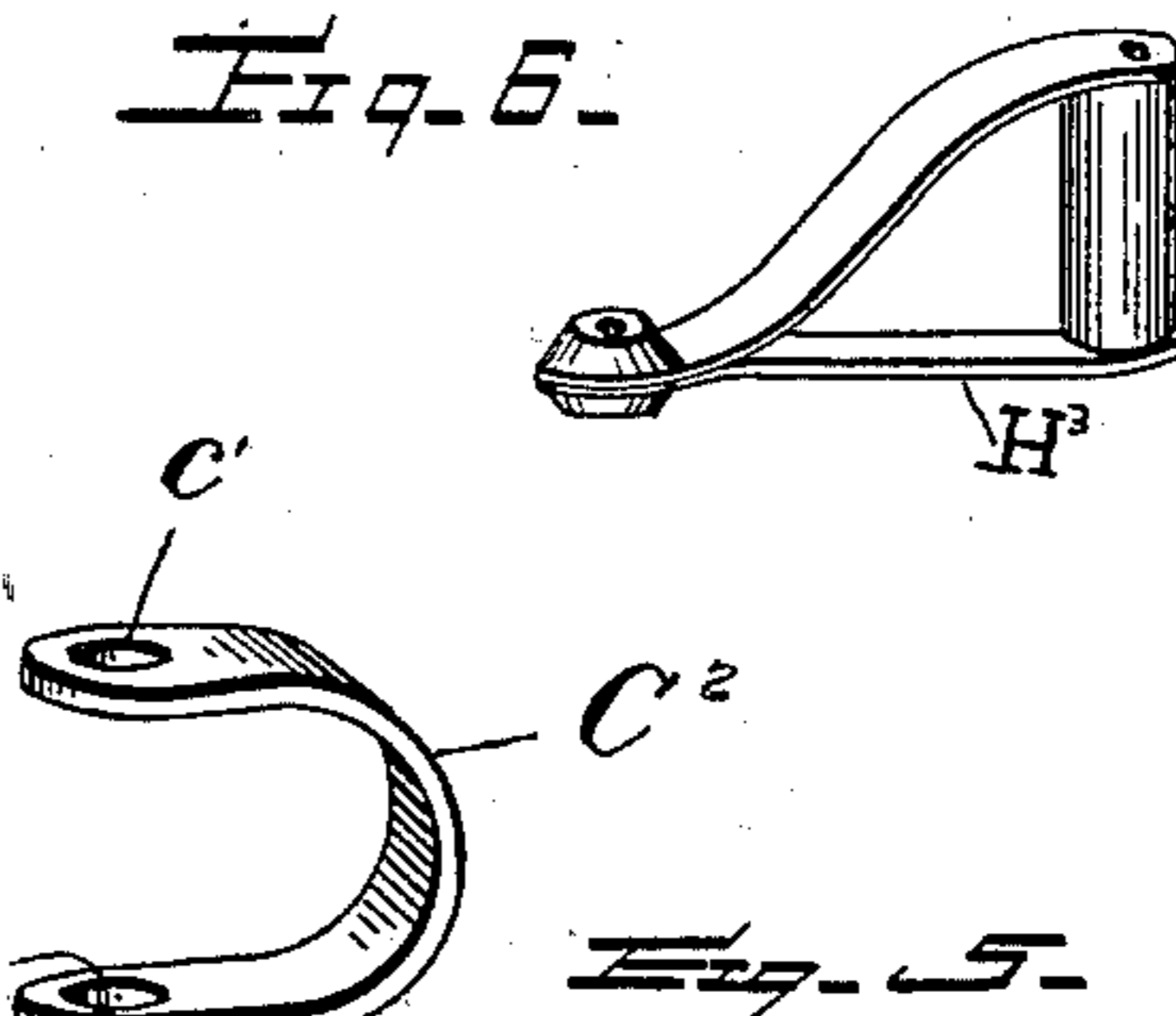
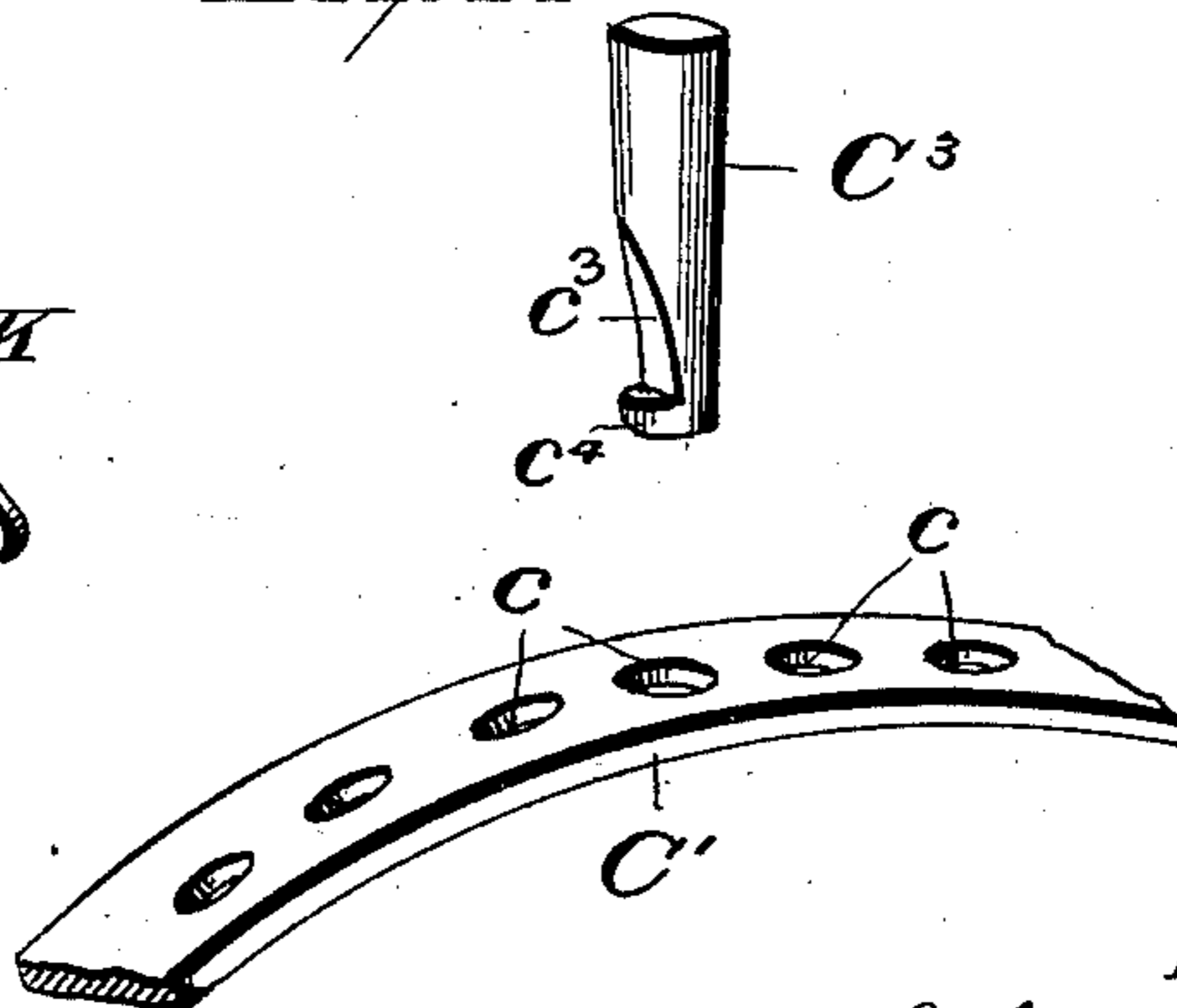
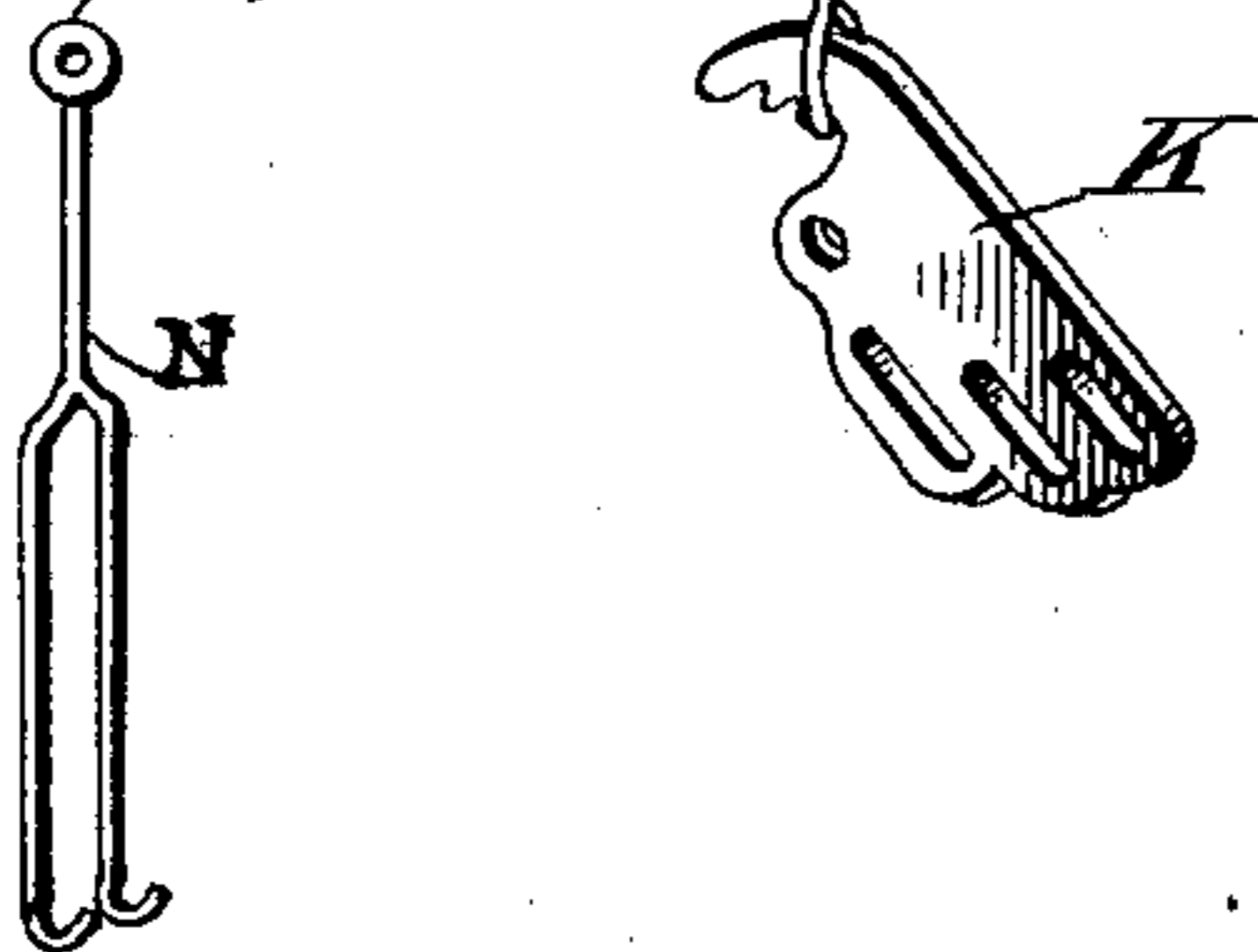


Fig. 5.

Fig. 7.



WITNESSES:
L. C. Hills
James A. Mansfield

INVENTOR
John I. Hoke
BY
Alexander & Sowell
Attorneys

UNITED STATES PATENT OFFICE.

JOHN I. HOKE, OF SOUTH BEND, INDIANA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 671,728, dated April 9, 1901.

Application filed June 11, 1900. Serial No. 19,947. (No model.)

To all whom it may concern:

Be it known that I, JOHN I. HOKE, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Cultivators; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in cultivators, and has especial reference to the manner of attaching the spring and rod to the beam for the purpose of raising the beam, to which the shovels or plows are attached, whereby a practically-rigid support for the beam is obtained.

The invention also relates to an improved adjustment for the seat on the draft-tongue.

The invention further relates to certain other novel improvements in cultivators, all of which will be fully described in the following specification and definitely summarized in the claims.

The invention consists in the novel arrangement of the bell-crank lever, spring, and rod and in a novel means of attaching these several parts to the beam of the cultivator.

In the accompanying drawings, Figure 1 is a side view of my improved cultivator. Fig. 2 is a top plan view thereof. Fig. 3 is a rear end view. Fig. 4 is an enlarged detail perspective of the bell-crank lever and spring detached, but showing their relation to the several parts of the cultivator to which they are attached. Fig. 5 is a detail perspective of the fastening for holding the seat-spring. Fig. 6 is a detail view of the bifurcated casting, and Fig. 7 is a detail view of the bifurcated rod N. Fig. 8 is a detail perspective view of the lower end of rod E, whereby the same is pivotally connected to the brace-bar D.

In the drawings, A represents an arched axle having spindles *a a*, on which wheels A' are mounted. Secured to the upper horizontal part *a'* of said axle is a tubular tongue or draft-pole B, split at its rear end and forming opposite halves B', U-shaped in cross-section, parts B' being gradually spread apart toward the rear end of the machine, as shown, and are fastened to the horizontal part *a'* of the axle by means of clips *b* or in any other desired manner. The rear parts B' of the tongue

furnish a means of supporting the seat C for the driver. The seat is attached to a single leaf of spring-steel C', the ends of which are perforated, as at *c*, for attachment to the parts B' by means of U-shaped clips C², as shown. By thus forming the clip C² it will embrace the part B', its ends being perforated, as at *c'*, for the reception of a tapered pin C³, which serves to retain the clip in position on the tongue. This pin is cut away, as at *c*³, thereby making it wedge or key shape, with a lip *c*⁴ at its smaller end. After the clip C² is placed on the part B' the pin C³ is inserted through perforations *c'* and driven down to lock the clip in position. It is evident, therefore, that a support for the seat is supplied which is adjustable along the tongue. It is further evident that so long as the pin is held up the cut-away portion will give clearance to allow the entire device to be shifted along the tongue.

As shown, the lip *c*⁴ engages the lower edge of the U-shaped tongue, so that it will not come out, and when the clip is shifted to the desired location all that is necessary to be done is to drive the pin downward, causing the wedge-shaped side of the pin to engage the edges of the tongue and draw the clip firmly against its side, thus locking the pin in the desired position. By passing the perforated ends of the leaf-spring C' down over these pins a support for the seat is furnished. This adjustable seat-support, as above described, I consider an important feature.

Connected to the spindles *a* of the axle is a supporting-bar D, which has a support D' bolted thereto and extending upwardly therefrom and connected to the part B' of the tongue.

As usual, the cultivator is made of two similar parts, each being a duplicate of the other, and the description of one will explain both.

The cultivator-beams are composed of two bars pivotally connected at their front ends to an eye on a short vertical sleeve H², through which passes a vertical rod E. To the rod above and below the sleeve H² are connected the opposite arms of the bifurcated casting H³, projecting at right angles to the beams, and to which the singletree is connected. The lower end of rod E is pivotally

connected to the front end of a brace-bar D, the rear end of which is attached to the spindles. The upper end of rod E is guided through a bracket B³, attached to one of the 5 bifurcations B' of the tongue. On the upper ends of rods E are arms E', which are connected by means of a rod E². The described connections of the rods E operate as an evener and produce the same effect as though the 10 horses were attached directly to the two sides of a doubletree.

The beams H, as shown, are each made of two parts, their front ends being bent to embrace an eye e' of rod E, to which they are 15 bolted. At intervals along each beam H are attached the cultivator shovels or plows.

To the brackets B³, near the upper end of rod E, is attached a casting I, which, as shown, is curved downwardly, and at the 20 lower end thereof is pivotally secured a bell-crank lever J, having its arms J' J² provided at their outer ends with a series of adjusting-notches j j', respectively.

At a point near the front ends of beams H 25 is bolted a hook-casting K. Attached to and between said casting K and to the arm J² of bell-crank lever J is a spring L.

N represents a rod, which is bifurcated to partially embrace the spring L. This rod N is 30 provided with an eye n, which is hooked over in one of the notches j of arm J' of bell-crank lever J, and the bifurcations of rod N extend beyond the spring L toward the rear end of the beam and are attached to the rear end of 35 casting K, as shown. As heretofore constructed, the rod N and spring L are usually attached to the same point on the beam; but in practice this arrangement has not proved successful. By having the spring L attached 40 near the head of the beam and the rod N at a point beyond the spring toward the rear of the beam, however, a practical and successful result is produced that is not otherwise attainable.

45 Conveniently attached to each cultivator is a stirrup O within reach of the operator's foot, which is used for giving the initial motion when it is desired to raise or lower the beam. As the beam H is raised from the 50 ground and is swung upward the rod N will throw the arm J' of the bell-crank lever upward until the end of the rod, the fulcrum of the lever, and the point of connection of the rod to the beam are practically in line, thereby insuring a rigid support for the beam. It 55 will be obvious that while the beam is in this raised position the tension of the spring is entirely relieved and there is no tendency on the part of the spring to throw the rod out of 60 position. The beam will be so firmly supported that the jar incident to transit of the machine along the road or over the fields will not disturb the position of the beam, and the shovels will be held sufficiently high above 65 the ground to prevent engagement therewith. When it is desired to lower the beam, the rod is pulled downward by the stirrup O and

the spring is extended, while at the same time the arm J' of the bell-crank lever will be elevated, thereby throwing more tension on the 70 spring until the arm J² comes practically in line with its fulcrum and the point of attachment to the beam, and in this instance the beam will be supported principally by the spring. By this means a flexible action of 75 the plow or shovel will be had as it enters the ground, the shovels being so flexibly controlled that they may be inserted at varying depths in the soil to be cultivated.

As shown, the rod N is attached to the beam 80 H at a greater distance from the head or front of the beam than the spring L. By this arrangement there is an advantage of leverage over the spring when the shovels are lowered to operative position. This construction, 85 furthermore, makes it easier for the operator to manipulate the beams, as his efforts are assisted by this leverage, and when the shovels are lowered into the ground, owing to the increased tension upon the spring, the spring 90 will aid him in manipulating the shovels, because it will give a flexible support to the weight of the apparatus.

Having therefore described my invention, what I claim as new, and desire to secure by 95 Letters Patent thereon, is—

1. The combination with the beam of a cultivator, of a bell-crank lever having differential adjustments near its outer ends, and 100 fulcrumed on a support fixed relatively to the beam, a coil-spring and a rod connecting the beam with the bell-crank lever, the attachments of the spring and rod to the beam being at different points, all arranged to operate substantially as and for the purpose de- 105 scribed.

2. In a cultivator, the combination of the swinging cultivator-beam, a bell-crank lever pivoted to the frame above the beam, a spring 110 attached to one arm of said lever and to a point on the beam, and a rod attached to the other arm of said lever and to a point on the beam in rear of the point of attachment of the spring thereto.

3. In a cultivator, the combination of the 115 frame, the cultivator or plow beam pivotally connected thereto, a lever pivoted to the frame, a spring attached to one arm of the lever and to the beam, and a rod attached to the other arm of the lever and to the beam in 120 rear of the point of attachment of the spring thereto, substantially as described.

4. The combination of the draft-tongue, the 125 U-shaped clips attached to opposite members thereof, and the wedge-pins whereby said clips may be adjusted and locked in position, with the seat-supporting leaf-spring having perforations in its ends whereby it may be caught over said pins, substantially as de- 130 scribed.

5. The combination of the opposite members of the split tongue, the U-clips fitted on said opposite members and perforated at their ends, and the wedge-shaped pins engaging

the perforated ends of said clips for adjusting and locking them upon said bars; with the seat-supporting leaf-spring having its ends perforated and caught over the upper 5 ends of said pins, for the purpose and substantially as described.

6. In a cultivator, the combination of the beam, the sleeve pivoted to the front end thereof, the rod passing through said sleeve 10 and pivotally connected to fixed members on the frame at its upper and lower ends, and the bifurcated casting attached to said rod above and below said sleeve, for the purpose and substantially as described.

15 7. The combination of the opposite cultivator-beams, the sleeves pivotally connected to the front ends thereof, the rods rotatably passed through said sleeves and pivotally connected at their upper and lower ends to 20 members on the frame, and the castings attached to said rods for the attachment of the draft-animals; with crank-arms on the upper ends of said rods, and the transverse rod connected to said crank-arms, and forming 25 therewith a substantial draft-elever connection between the beams, substantially as described.

8. In a cultivator, the combination of the frame, the cultivator-beam, the sleeve pivoted 30 to the front end thereof, the rod passing through said sleeve and pivotally connected to fixed members on the frame at its upper and lower ends, and the draft-casting attached to

said rod; with a bell-crank lever pivoted on the frame above the beam, a spring connected to 35 one arm of said lever and to the beam, and the rod connected to the other arm of said lever and to the beam, the connection of the spring and rod to the beam being at different points, substantially as described. 40

9. The combination of the frame, the opposite cultivator-beams, the sleeves pivotally connected to the front ends thereof, the rods rotatably passed through said sleeves and pivotally connected at their upper and lower 45 ends to fixed members attached to the frame; the castings attached to said rods for the attachment of the draft-animals, the crank-arms on the upper ends of said rods, and the transverse rod connected to said crank-arms; 50 with the bell-crank levers attached to the frame above the beams, springs connected to the rear arms of the bell-crank levers and to the beams, and rods attached to the front arms of the bell-crank levers and to the beams 55 in rear of the connections of the springs thereto, all substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of 60 two witnesses.

JOHN I. HOKE.

In presence of—

JAMES DUSHANE,
EDWARD F. DUBAIL.