

No. 627,637.

Patented June 27, 1899.

J. A. BILZ.  
CULTIVATOR.

(Application filed Mar. 6, 1899.)

(No Model.)

Fig. 1.

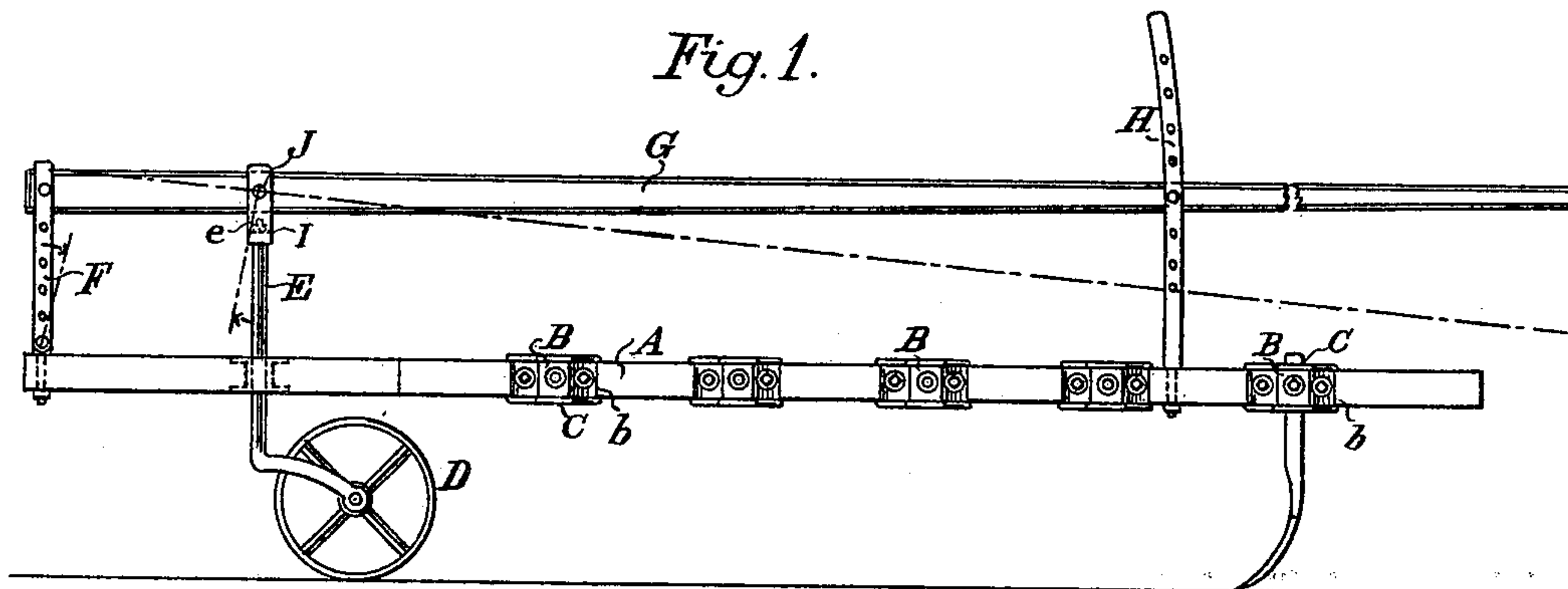


Fig. 2.

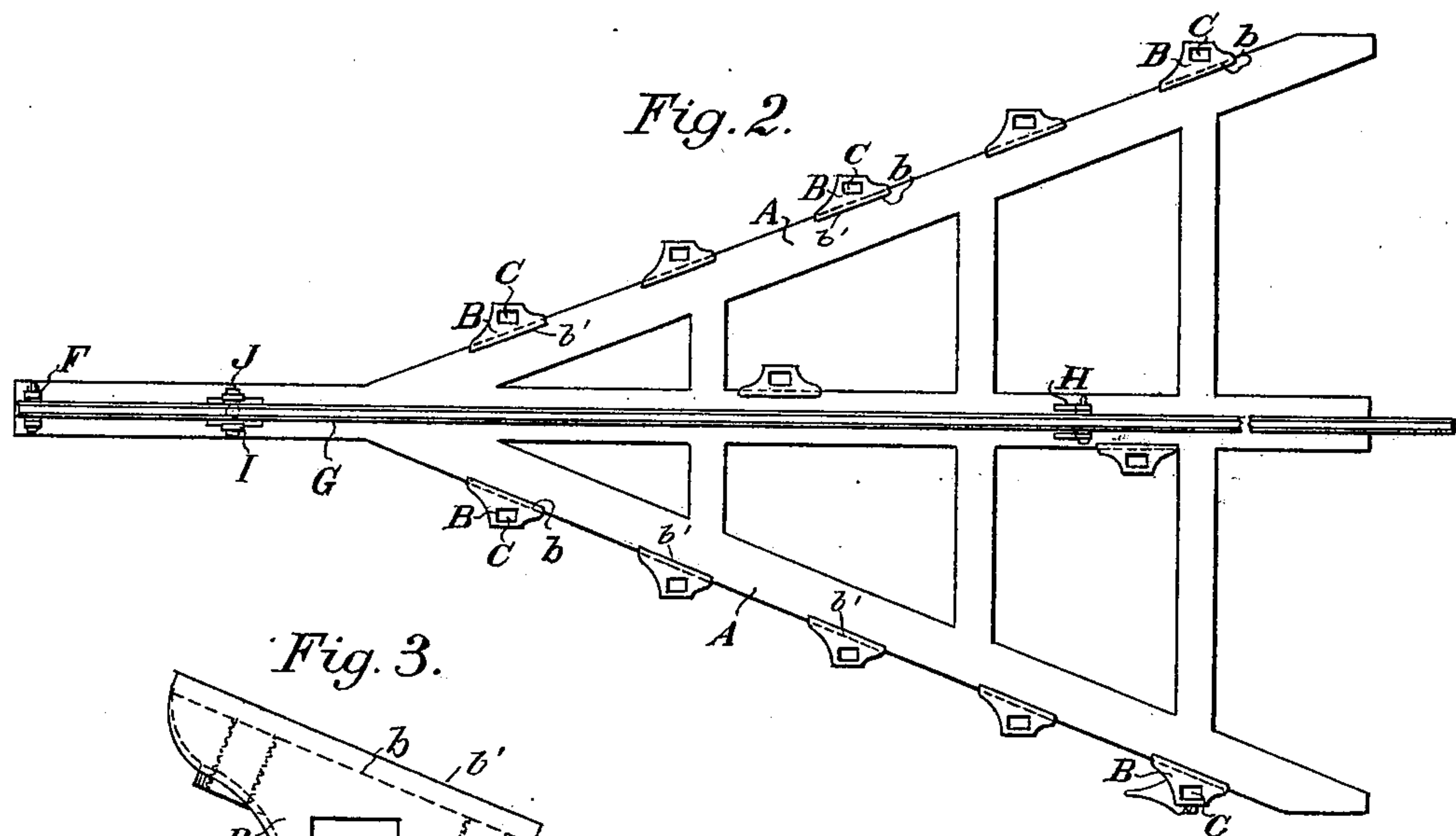


Fig. 3.

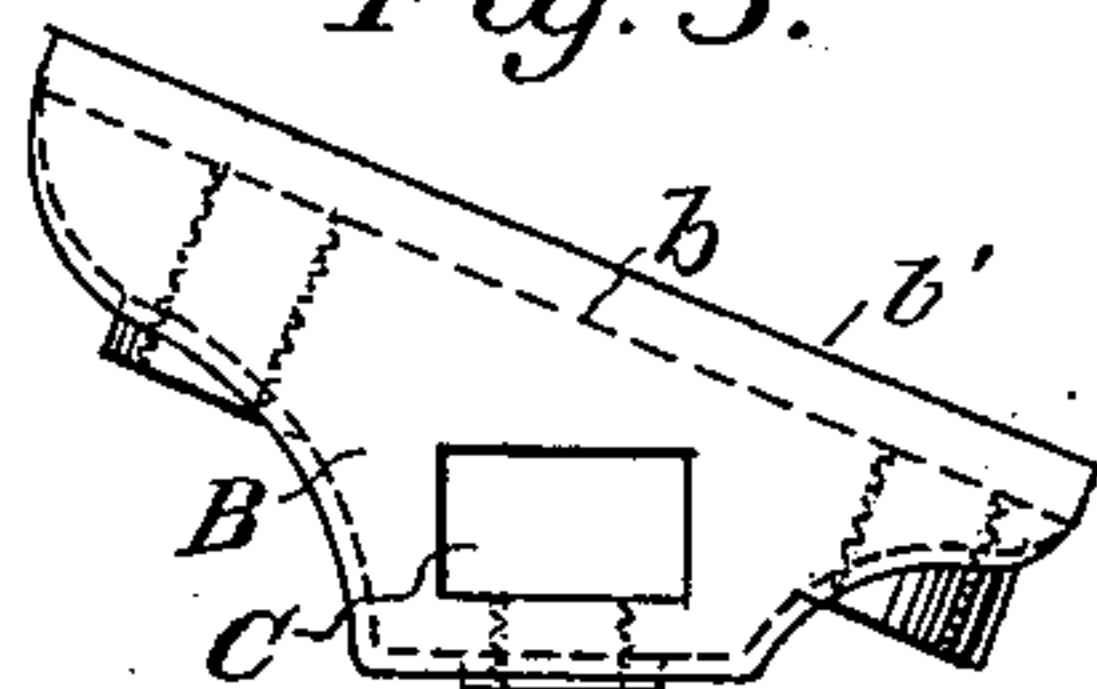


Fig. 4.

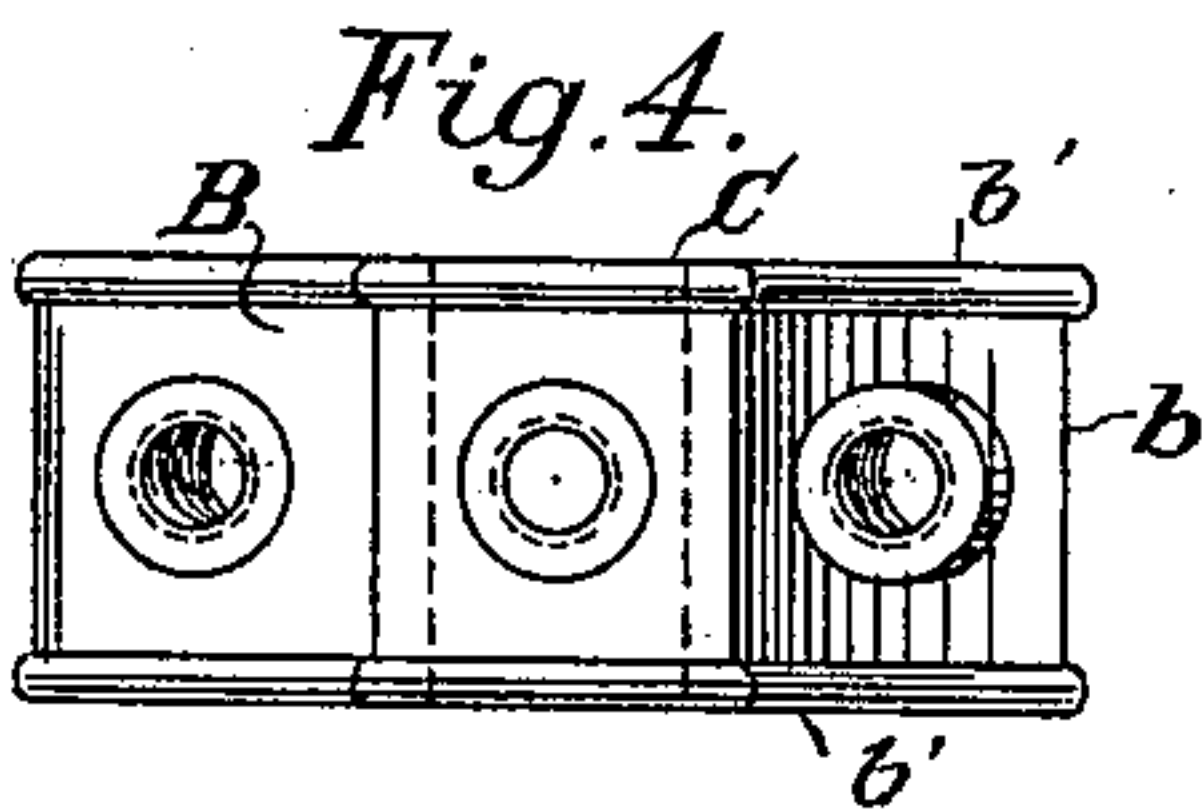
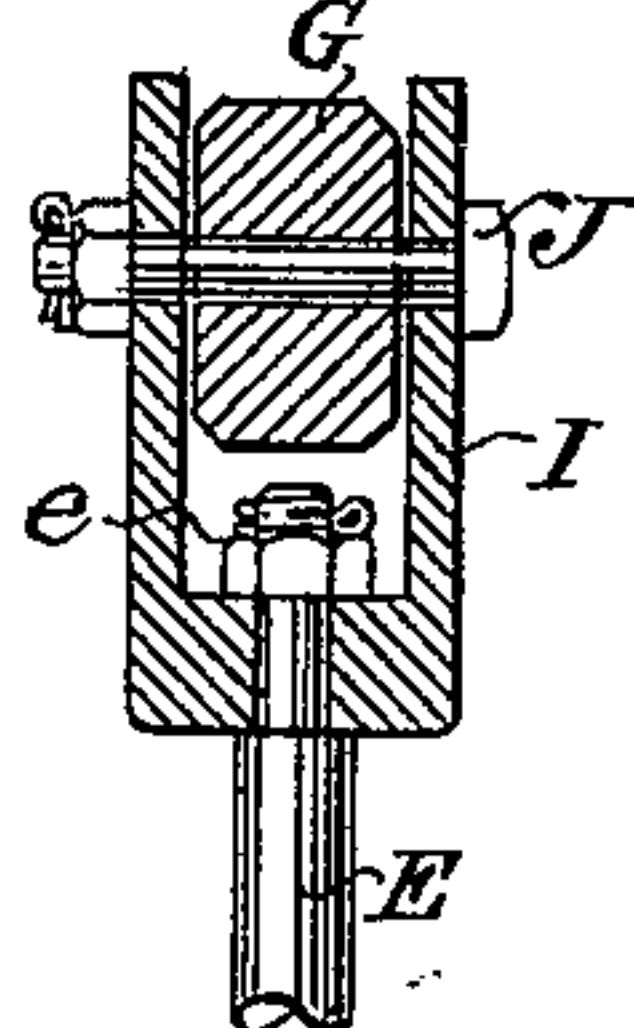


Fig. 5.



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# UNITED STATES PATENT OFFICE.

JOHN A. BILZ, OF PLEASANTON, CALIFORNIA.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 627,637, dated June 27, 1899.

Application filed March 6, 1899. Serial No. 707,947. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. BILZ, a citizen of the United States, residing at Pleasanton, county of Alameda, State of California, have  
5 invented an Improvement in Cultivators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in cultivators of that class in which the cultivating-teeth are attached to a frame having  
10 V-shaped or convergent sides.

It consists, essentially, in the employment of independent detachable boxes having sockets through which the standards of the cultivator-teeth are vertically slidable and adjustable without being capable of turning from  
15 side to side. The faces of the boxes are inclined with reference to the sockets in which the standards move, so that when they are fixed to the inclined beams of the frame the standards and cultivator-teeth will always remain in line parallel with the line of travel of the cultivator.

It also consists in an improved mechanism  
25 for raising and lowering the front of the frame with reference to the caster-wheel upon which it is supported.

Referring to the accompanying drawings, Figure 1 is a longitudinal elevation of my cultivator. Fig. 2 is a plan of the same. Fig.  
30 3 is an elevation of one of the boxes. Fig. 4 is a plan. Fig. 5 is a transverse section of the yoke.

In the class of cultivators to which my invention is applicable the frame is made of a  
35 V shape, the side timbers diverging from a point outwardly, as shown. In order to attach the cultivator-teeth to these inclined frame-timbers, it is necessary to provide some means by which the teeth can all be accurately held with their points parallel with the line of travel of the machine, and this in the usual construction of the machine is difficult to effect.

In my invention the divergent frame-timbers A present a certain angle to the direct  
45 line of travel of the cultivator. Upon the sides of these timbers, at points where it is desired to affix cultivator-teeth, are secured boxes B, having vertical openings C made  
50 through them. These openings are in the

present case made rectangular, and the standards of the cultivator-teeth are of similar shape and are slidable up and down in these openings, so that they can be adjusted to raise  
55 the frame as high above the teeth as may be desired. When adjusted to suit, the standards are secured in place by means of set-screws turnable in the outer faces of the boxes, so as to lock the standards at the proper point.

In order to hold the standards and the cultivator-teeth in the exact line of travel and prevent any of them from being turned out of the line, the boxes B are each formed with a  
60 beveled or inclined face, which fits against the outer sides of the timbers A, and through the flanges of these boxes bolts pass to secure them in place. At the upper and lower edge of the inclined faces flanges b are formed and adapted to engage the upper and lower portions of the side timbers to assist in holding  
70 the boxes in place and to permit of the ready sliding adjustment. The bevel of the inner faces of the boxes has the same inclination with relation to the line of travel as the sides of the frame-timbers. Consequently when the  
75 boxes are secured to the frame-timbers the openings C, in which the standards of the cultivator-teeth are secured, all have the same relative position to the sides of the frame—that is, they stand exactly in the line of travel  
80 and cannot be twisted to one side or the other.

The front end of this class of cultivators is usually carried upon a swivel-wheel, as shown  
85 at D, having a shank E, which is slidable in a vertically-disposed journal-box and which has connected with it a fulcrumed lever, the long arm of which extends to the rear of the machine, so that the operator can raise or lower the front of the cultivator-frame by  
90 moving the lever up or down. In the usual construction the wheel-shank is located at the extreme front of the cultivator and the fulcrum of the lever between the wheel and the rear end. This makes it necessary for  
95 the operator to lift upon the lever whenever it is desired to raise the cultivator out of the ground. In my invention I reverse the position of these parts, placing the fulcrum-bar F of the lever G at the extreme front of the  
100 cultivator, and the guide or box in which the shank E of the wheel D moves is situated at



a suitable distance in the rear of the fulcrum-bar. The lever G extends back to a point within reach of the driver at the rear of the machine and is held at any desired point of  
 5 adjustment by means of a curved rack H and suitable latching device. The head of the wheel-shaft E is swiveled in the lower part of a yoke I, having a nut *e* upon the upper end to keep it in place, but turning loosely in the  
 10 lower horizontal portion of the yoke, so that the shaft may turn freely around its vertical axis to conform to the movements of the wheel D. The lever G passes between the sides of the yoke I and is connected there-  
 15 with by a bolt J, which passes through the sides of the yoke and through the lever, as shown, thus allowing a free movement of the lever vertically about its fulcrum-bar F and maintaining the shank E of the wheel D in  
 20 its vertical position slidable through the guiding-socket in the frame of the cultivator. By this construction it is only necessary to apply the weight of the operator to the rear end of the lever to raise the front of the cultivator-  
 25 frame instead of being obliged to lift the front of the frame, as when the position of the wheel and fulcrum are reversed, as previously described.

The fulcrum-bar F has holes made at intervals in its length, so that the end of the lever G can be raised or depressed to suit the  
 30 desired position of the cultivator-frame.

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

1. The combination in a cultivator of the divergent frame-timbers, teeth having vertical shanks or standards, boxes having one  
 40 side beveled or inclined to correspond with and directly fit the inclination of the frame-timbers to which this side is secured and guide-openings for the standards, said guides standing at an angle with the inclined faces

of the boxes and in line with the direction of travel of the machine. 45

2. In a cultivator, a frame having divergent side timbers, boxes fixed to the sides of said timbers having vertical rectangular openings made through them to receive the correspondingly-shaped shanks or standards of the  
 50 cultivator-teeth, said boxes having one side inclined to an angle with the standard-openings, said angle corresponding with the inclination of the sides of the frame whereby the standards of the teeth are maintained  
 55 alike in the line of travel of the cultivator, flanges bounding the upper and lower edges of the inclined faces of the boxes and set-screws whereby the standards are adjustably  
 60 secured in the boxes.

3. In a cultivator of the character described, a swivel-wheel having a vertical standard, a vertically - perforated guide - box through which the standard is slidable at a point behind the front of the frame, a fulcrum-bar  
 65 pivoted to the frame in front of the swivel-wheel having holes made through it for the adjustment of the lever, a lever pivoted to the fulcrum-bar extending rearwardly above the shank of the swivel-wheel, a yoke between the sides of which the fulcrum-bar  
 70 passes with a horizontal bolt passing through the yoke and the lever-arm, a head formed upon the top of the swivel-wheel shank and turnable in the transverse lower part of the  
 75 yoke whereby the front of the frame may be raised by a corresponding depression of the rear end of the lever and a holding-rack for the lever, substantially as described.

In witness whereof I have hereunto set my  
 hand. 80

JOHN A. BILZ.

Witnesses:

S. H. NOURSE,  
 GEO. H. STRONG.