

No. 806,056.

PATENTED NOV. 28, 1905.

B. A. BRIGGS, JR.
CULTIVATING IMPLEMENT.
APPLICATION FILED JUNE 17, 1905.

2 SHEETS SHEET 1.

Fig. 4.

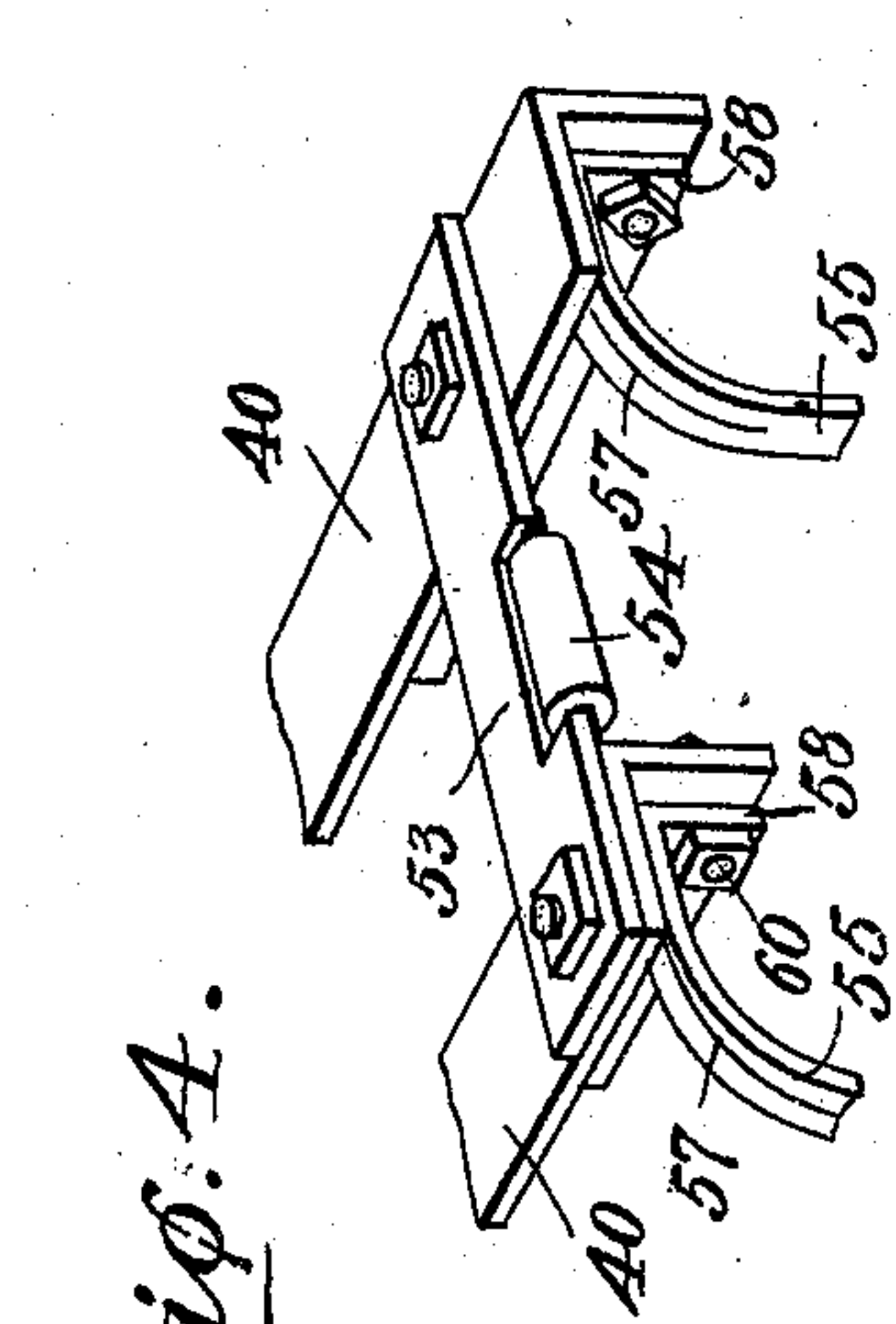


Fig. 1.

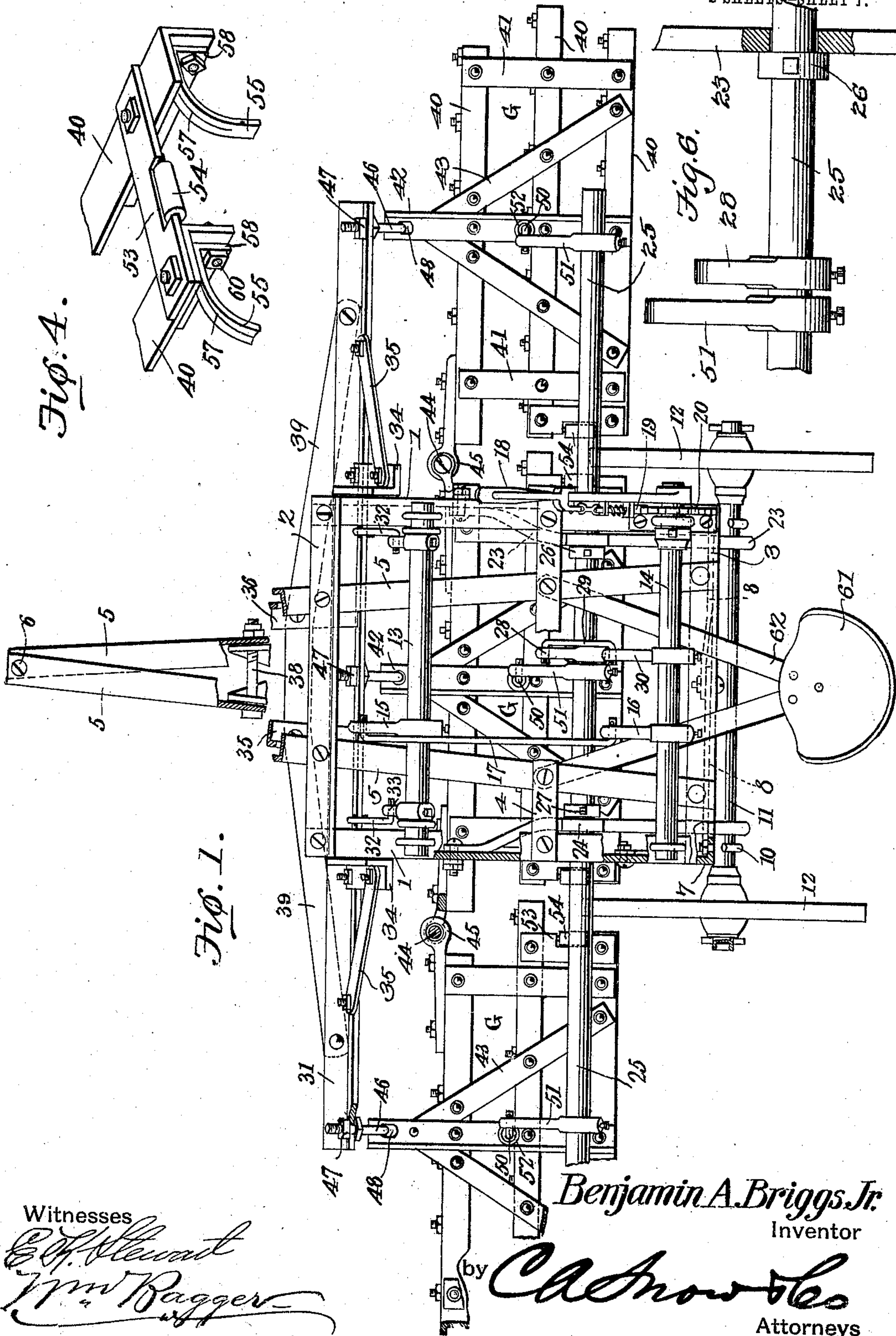
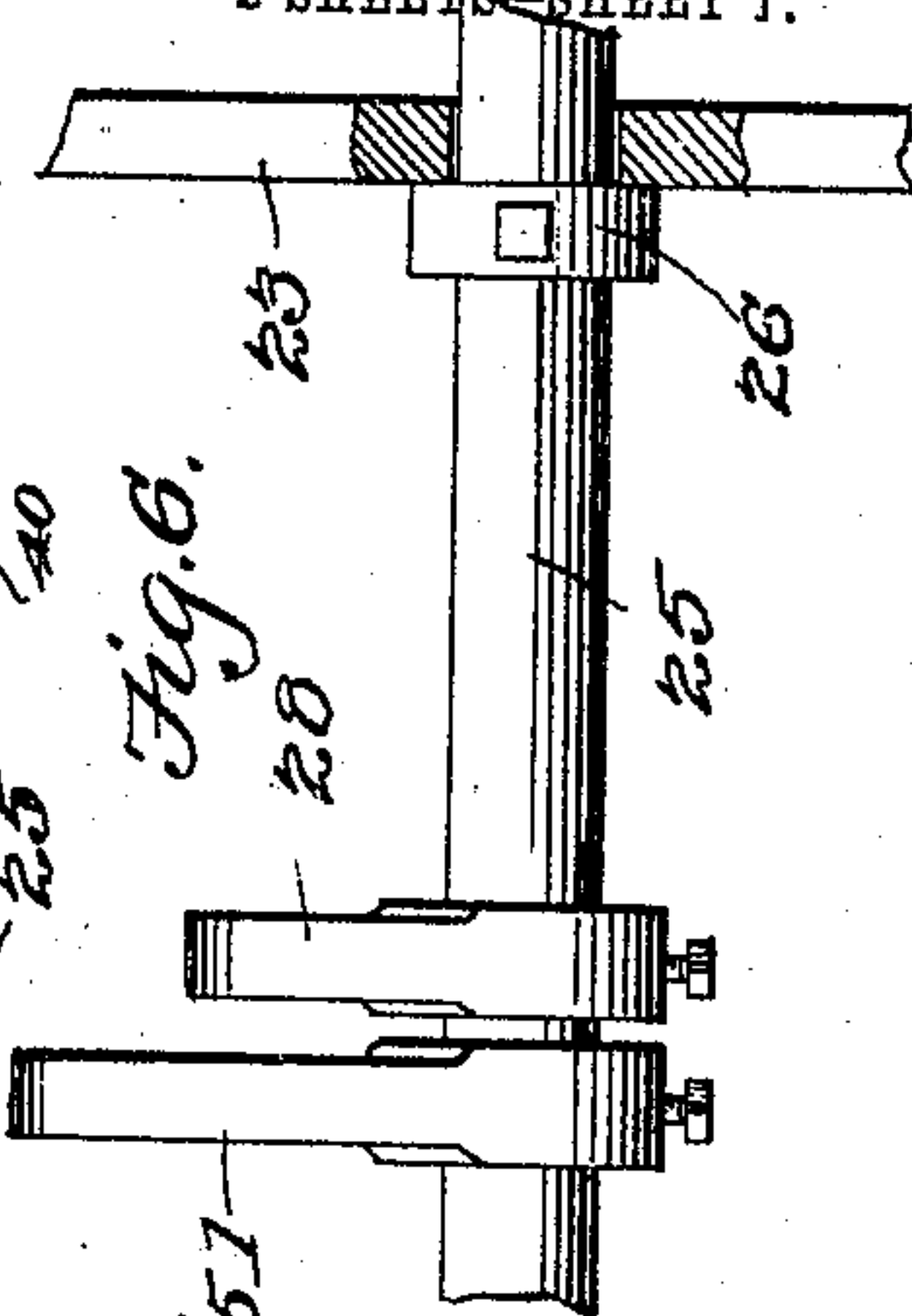


Fig. 6.



Witnesses

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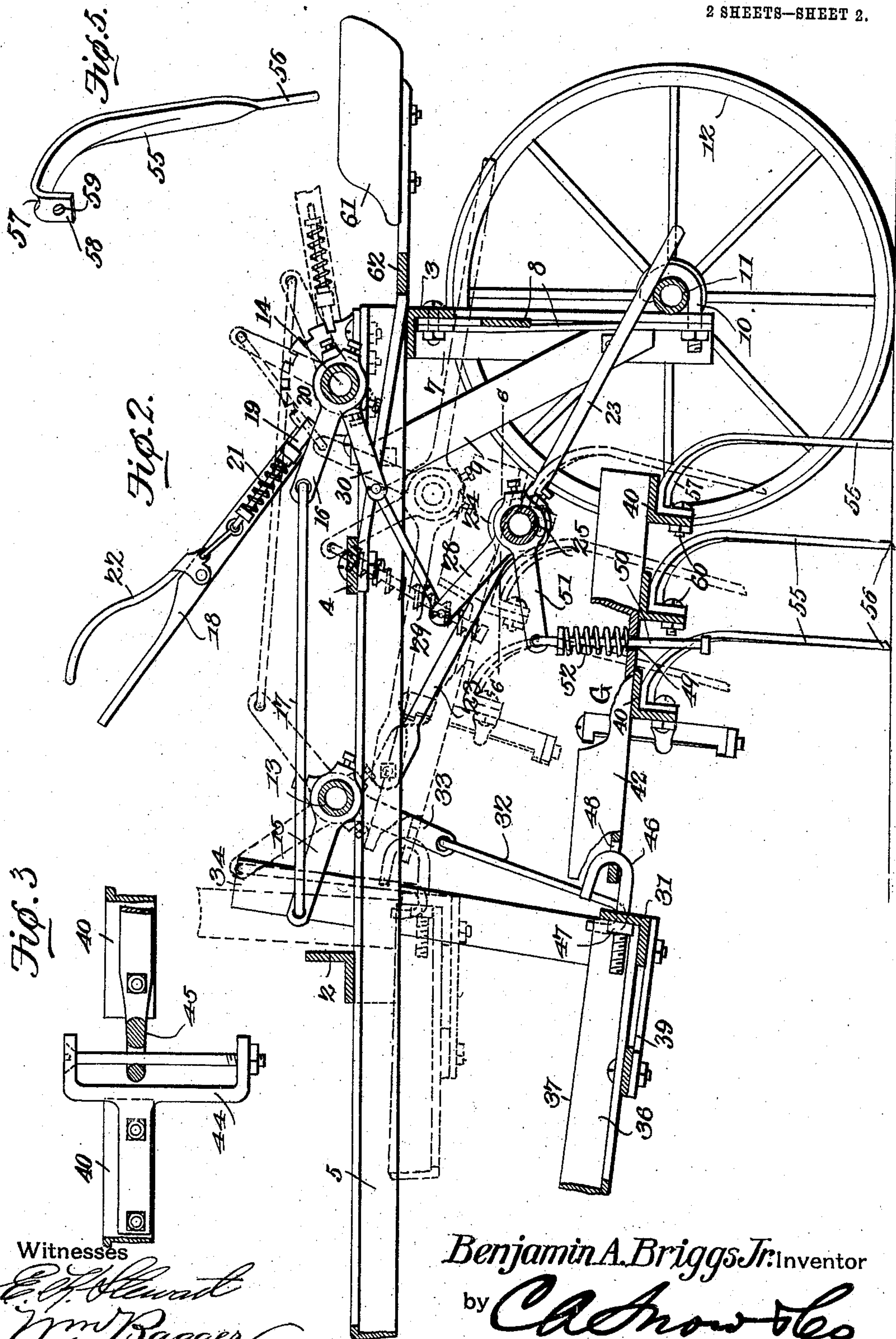
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

BENJAMIN ABIATHAR BRIGGS, JR., OF ST. PETER, MINNESOTA.

CULTIVATING IMPLEMENT.

No. 806,056.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed June 17, 1905. Serial No. 265,782.

To all whom it may concern:

Be it known that I, BENJAMIN ABIATHAR BRIGGS, Jr., a citizen of the United States, residing at St. Peter, in the county of Nicollet and State of Minnesota, have invented a new and useful Cultivating Implement, of which the following is a specification.

This invention relates to cultivating implements; and it has for its object to simplify and improve the construction and operation of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists, primarily, in an improved frame adapted to be used in connection with harrows, weeders, and other cultivating implements, said frame being provided with improved means for supporting such cultivating implements either in a ground-engaging position or in an elevated position for transportation.

The invention further consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications may be made when they fall within the scope of the invention and when they may be resorted to without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is a top plan view of a device constructed in accordance with the principles of the invention, parts having been broken away for the purpose of more clearly illustrating other parts. Fig. 2 is a longitudinal sectional elevation on an enlarged scale. Fig. 3 is a detail view illustrating the connection between the middle section and an adjacent or outer section of the implement. Fig. 4 is a perspective detail view of a portion of the inner end of one of the outer sections of the device. Fig. 5 is a perspective detail view of a cultivator-tooth used in connection with the device. Fig. 6 is a sectional detail view taken on the plane indicated by the line 6 6 in Fig. 2.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

In the accompanying drawings the im-

proved machine has been illustrated in its application to a riding-cultivator, it being understood that by making modifications to be hereinafter described the machine may be transformed into a walking-cultivator or into a riding or walking harrow, as may be desired.

The frame of the machine is preferably constructed throughout of such material as angle-iron or steel, which combines lightness with strength and durability; but it is obvious that other material may be used when desired.

The main frame is composed of two longitudinal side members 1 1, connected at their front and rear ends by cross-bars 2 and 3. An intermediate cross-bar 4 has also been shown, and the several cross-bars 2, 3, and 4 are connected upon their under sides by obliquely-disposed bars 5 5, which extend forwardly of the cross-bar 2 and converge at their front ends, where they are connected together, as by means of a bolt 6, so as to form the main draft-tongue. At the rear corners of the frame are secured depending corner-pieces, as 7, said corner-pieces being reinforced by diagonal braces 8 and by inclined braces, as 9, connecting the lower ends of the corner-pieces with the side members of the frame. The corner-pieces 7 are provided near their lower ends with supporting means 10 for a shaft or axle 11, preferably of tubular construction and upon which the carrying-wheels 12 are mounted for rotation.

Supported for oscillation upon the top of the frame are a pair of rock-shafts 13 14, each provided with an arm or crank, as 15 16, which are connected by means of a link-rod 17. The shafts 13 14 are preferably of tubular material, and connected with one end of the shaft 14, which is disposed near the rear end of the frame, is a hand-lever 18, provided with a stop member 19, adapted to engage a segment-rack 20, which is secured upon the frame concentric with the shaft 14. The stop member 19 is actuated by a spring 21 and is operable by means of a pivoted handle member 22 of ordinary construction. It will be seen that by manipulating the lever 18 the rock-shafts 13 and 14 will be simultaneously oscillated in their bearings.

Pivotally mounted upon the inner sides of the side members 1 1, near the front ends of the latter, are rearward-extending arms 23, the rear ends of which are normally supported freely upon the axle 11. Said arms are pro-

vided intermediate their ends with sleeves 24 for the passage of a tubular rod 25, which is retained in position by means of collars 26, disposed adjacent to the inner sides of the sleeves 24 and having set-screws 27, whereby they may be retained securely in position, thus securing the tubular shaft or rod 25 against lateral displacement without interfering with the rotation of said shaft in the sleeves which constitute its bearings. The rod or shaft 25 is provided with a radial arm 28, which is connected, by means of a link 29, with a radial arm 30, extending from the rock-shaft 14.

In Fig. 2 of the drawings the operating-lever 18 has been shown in full lines at the forward limit of its movement. When said lever is moved in a rearward direction to the position indicated in dotted lines in said figure, the pivotal connecting-points of the link 29 with the arms 28 and 30 will be brought into alignment with the axis of the rock-shaft 25 and the latter will be elevated to the position shown in dotted lines, the motion of said rock-shaft being steadied by the arms 23, the free ends of which are at the same time raised out of contact with the axle 11, upon which they were previously supported.

A draw-bar 31 is suspended by means of links 32, the upper ends of which are connected pivotally with arms 33, extending radially from the rock-shaft 13, so that by manipulating the latter the said draw-bar may be raised or lowered. Securely connected with the draw-bar are uprights 34, engaging the outer sides of the side members 11 of the frame, said uprights or guides being reinforced by means of obliquely-disposed braces 35. Securely connected with the draw-bar and converging forwardly from the same are the side members 36 of a sub-tongue 37, the forward ends of the side members 36 being connected by means of a bolt 38, which latter extends transversely through the side members 5 of the superior or main tongue, so as to form a pivotal connection between the two tongues. The side members 36 of the sub-tongue are braced and connected with each other and with the draw-bar by means of a brace member 39.

It will be observed that under the construction just described when the hand-lever 18 is manipulated to elevate the rock-shaft 25 and its related parts the rock-shaft 13 will be simultaneously manipulated to elevate the draw-bar and the rear end of the sub-tongue and their related parts, said draw-bar and sub-tongue being securely held against lateral movement by means of the upright guide members 34.

The working gangs G, of which in the accompanying drawings three have been shown, are each composed of a plurality of cross-bars 40, which are connected by means of longitudinal end straps 41, a longitudinal center strap 42, and obliquely-disposed braces 43, which

converge from the rear cross-bar in the direction of the center bar 42, which latter is extended forwardly of the front cross-bar, so as to be conveniently connected with the draw-bar. The front cross-bar of the center gang is provided at the ends thereof with vertically-disposed clips 44, constituting coupling members adapted to loosely engage eyes 45, connected with the inner ends of the front cross-bars of the end gangs, thus forming connections which while the several gangs are held together and prevented from spreading will permit said gangs to move independently of each other and to adapt themselves to inequalities in the soil. The several gangs are connected with the draw-bar 31 by means of hooks 46, connected with the draw-bar by means of nuts 47 and engaging apertures 48 near the front ends of the center bar 42 of the several gangs. Said center bars of the several gangs are also provided with apertures 49 for the passage of hooked link-rods 50, whereby they are connected with arms 51, extending radially from the rock-shaft 25, springs 52 being coiled upon said link-rods 50 between the arms 51 and the bars 42.

The cross-bars 40 of the several gangs, which in practice are adjacent to the carrying-wheels 12, are connected by means of short braces 53, having roller-bearings 54, which are adapted to engage the edges of the wheel-rims, thereby preventing unnecessary friction and wear.

It is obvious that any desired number of cross-bars 40 may be used in each gang, that said cross-bars may be spaced any desired distance apart, and that they may be arranged in any suitable position with relation to each other which will enable the earth-engaging members to be conveniently and effectively connected therewith. In the drawings the invention has been shown applied to that class of cultivators which are generally known as "weeder" and which are equipped with spring-teeth of the construction best illustrated in Fig. 5, where it will be seen that the spring-tooth is composed of a curved blade 55, having an earth-engaging point 56 and formed with a corrugation 57, extending through the greater length thereof, and with a downturned leaf 58, having a perforation 59 for the reception of the bolt 60, whereby it is connected with one of the cross-bars of the gangs. It is to be distinctly understood, however, that other forms of earth-engaging cultivating members may be substituted—such, for instance, as shanks or standards having cultivating blades or hoes of ordinary construction—also that the gangs may be altered by the addition of any desired number of bars. Thus, for instance, ordinary four or five barred harrow-sections may be substituted for the gangs herein shown. When ordinary harrows are used, it may be necessary to lengthen the supporting-rods 32 of the draw-bar 31 and the link-rods 50, which support

the gangs; but this may of course be easily effected either by substituting longer rods and links or by providing for adjustment in any well-known manner.

5 From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The hand-
 10 lever 18, which is the only lever used in the operation of the device, is readily accessible to the operator, whose seat 61 is supported upon bars 62, suitably connected with the frame of the machine. It will be seen that
 15 by throwing said lever in one direction, to the position shown in full lines in Fig. 2, the rock-shafts 13 and 14 will be oscillated, the arms 23 will be lowered until their free ends rest upon the axle 11, the draw-bar 31 will be
 20 permitted to descend, and the gangs G will likewise descend into contact with the ground, the teeth of the gangs being held in contact with the ground by the downward pressure of the springs 52, which is capable of being
 25 regulated by the adjustment of the lever 18. This movement is made possible by the pivotal connection of the subtongue 37 with the main tongue of the machine, and it will be
 30 observed that the draft will be applied directly to the gangs through the draw-bar. By throwing the lever 18 to a position approximating that shown in dotted lines in
 35 Fig. 2 the rock-shaft 25, supported in the arms 23 and related parts, as well as the draw-bar 31, will be elevated, thus lifting the gangs from the ground and suspending them in position for transportation.

When the device is used as a walking implement, the seat and seat-bars may be omitted, and the upper tongue may likewise be left out, thus considerably reducing the weight of the implement, which, however, in other respects remains unchanged.

45 A neck-yoke will in practice be connected with the main tongue and doubletrees or equalizers with the subtongue or with the brace 39; but it has not been deemed necessary to illustrate these draft attachments.

This improved machine or implement, as
 50 will be seen, is simple in construction and is capable of being readily converted, so as to be serviceable for a variety of purposes.

Having thus described the invention, what is claimed is—

55 1. In a cultivating implement, a wheel-supported frame, arms connected pivotally with the side members of the frame, a rock-shaft journaled in said arms, and gang-supporting arms extending from said rock-shaft.

60 2. In a cultivating implement, a wheel-supported frame, arms connected pivotally with the side members of the frame, a rock-shaft journaled in said arms, gang-supporting arms extending from said rock-shaft, and means

for effecting vertical adjustment of said rock- 65 shaft and its supporting-arms.

3. In a cultivating implement, a wheel-supported frame, arms connected pivotally with the side members of the frame, a gang-supporting rock-shaft journaled in said arms, a 70 rock-shaft supported upon the frame, arms extending radially from the latter rock-shaft and from the gang-supporting rock-shaft, and a link connecting said arms.

4. In a cultivating implement, a wheel-supported frame, arms connected pivotally with the side members of the frame, a gang-supporting rock-shaft journaled in said arms, a draw-bar, means for effecting simultaneous vertical adjustment of the draw-bar and the 80 gang-carrying rock-shaft, and means for connecting the draw-bar with the gangs carried by said rock-shaft.

5. A frame having an axle and wheels mounted for rotation thereon, arms connect- 85 ed pivotally with said frame and having their free ends normally supported upon said axle, and a gang-supporting rock-shaft journaled in said arms.

6. A wheel-supported frame, arms pivotally 90 connected with said frame and adapted to rest upon the wheel-carrying axle, a rock-shaft journaled in said arms, means for effecting vertical adjustment of said rock-shaft, arms extending radially from the latter, a verti- 95 cally-adjustable draw-bar, cultivating-gangs connected with said draw-bar, link-rods extending through said gangs and connected with the arms extending from the rock-shaft, and springs coiled upon said links above the 100 gangs.

7. In a cultivating implement, a frame, arms pivotally connected with said frame, a rock-shaft supported by said arms, cultivating-gangs connected with said rock-shaft, means 105 for effecting vertical adjustment of the latter, a flexibly-supported vertically-adjustable draw-bar, means for connecting said draw-bar with the cultivating-gangs, and guide-bars rising from the draw-bar and engaging 110 the sides of the frame to prevent lateral displacement of the draw-bar and related parts.

8. A wheel-supported frame, bars connect- 115 ed therewith and converging forwardly to form a main tongue, a flexibly-supported vertically-adjustable draw-bar, side members connected with said draw-bar and converging forwardly to constitute a subtongue, and pivotal connecting means between the subtongue and the main tongue. 120

9. A wheel-supported frame, bars connect- 115 ed therewith and converging forwardly to form a main tongue, a flexibly-supported vertically-adjustable draw-bar, cultivating-gangs connected with said draw-bar, and a subtongue 125 connected with said draw-bar extending forwardly and connected pivotally with the main tongue.

10. A wheel-supported frame, a main tongue connected with said frame, a draw-bar, cultivating-gangs connected therewith, a subtongue connected with the draw-bar and having pivotal connection with the main tongue, and means for effecting vertical adjustment of the draw-bar and the cultivating-gangs.

11. A wheel-supported frame, a main tongue connected with said frame, a flexibly-supported vertically-adjustable rock-shaft, cultivating-gangs connected with and supported by said rock-shaft, a flexibly-supported vertically-adjustable draw-bar, means for flexibly connecting said draw-bar and cultivating-gangs, and a tongue extending from the draw-bar and connected pivotally with the main tongue.

12. A wheel-supported frame, rock-shafts supported upon said frame, means connecting said rock-shafts for simultaneous movement, an operating-lever connected with one of said rock-shafts, arms connected pivotally with the

frame, a gang-carrying rock-shaft supported upon said arms, a draw-bar, means connecting said draw-bar and said gang-carrying rock-shaft with the frame-supported rock-shafts for simultaneous vertical adjustment, cultivating-gangs supported by the gang-carrying rock-shaft and connected with the draw-bar, a tongue extending forwardly from the frame, a subtongue connected with the draw-bar, and means for pivotally connecting the subtongue with the main tongue.

13. A wheel-supported frame, cultivating-gangs connected with said frame for vertical adjustment, and rub-irons connected with said gangs and having wheel-engaging rollers.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BENJAMIN ABLATHAR BRIGGS, JR.

Witnesses:

GEO. T. OLSEN,

W. G. LAUMANN.