

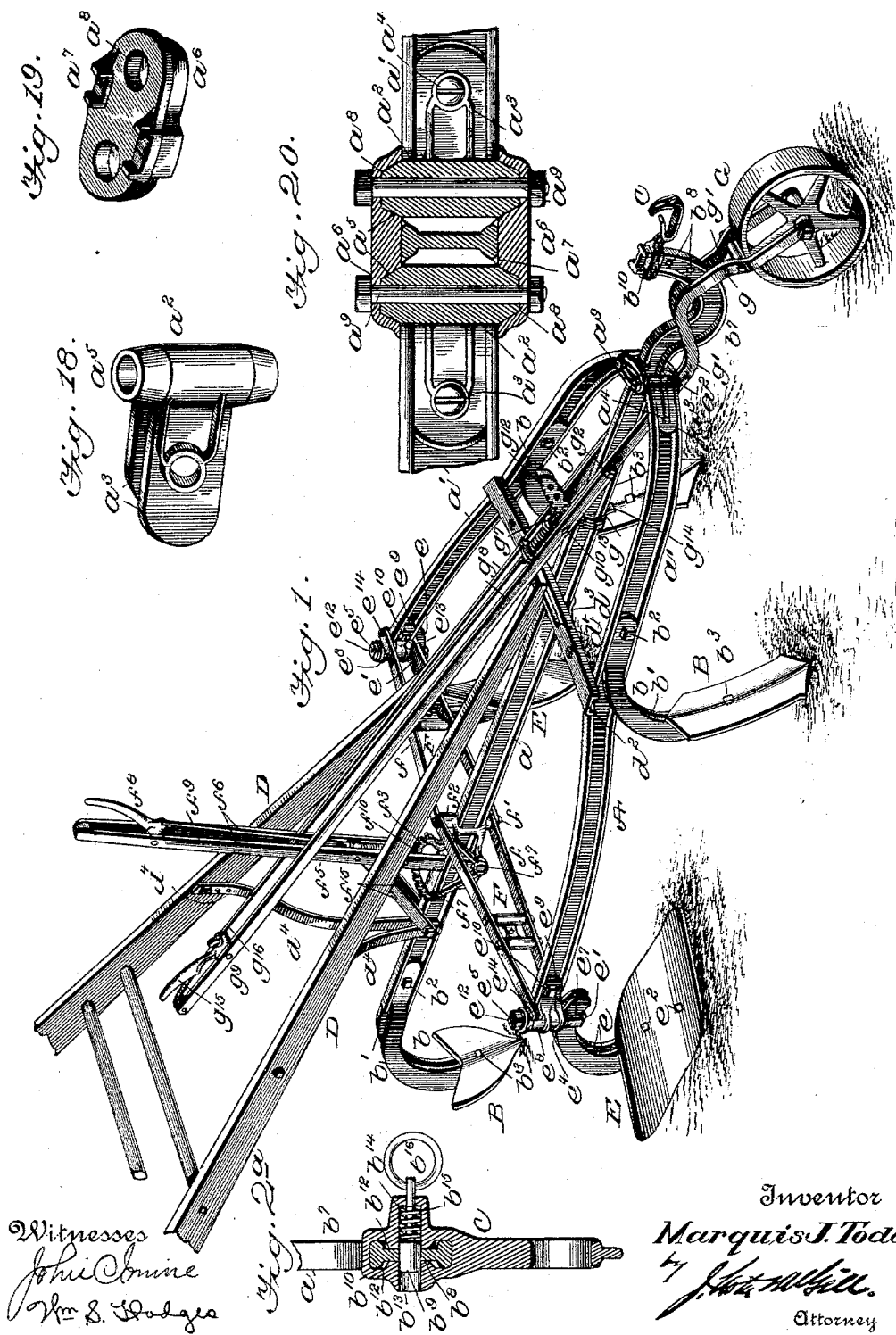
(No Model.)

4 Sheets—Sheet 1.

M. J. TODD.
CULTIVATOR.

No. 584,022.

Patented June 8, 1897.



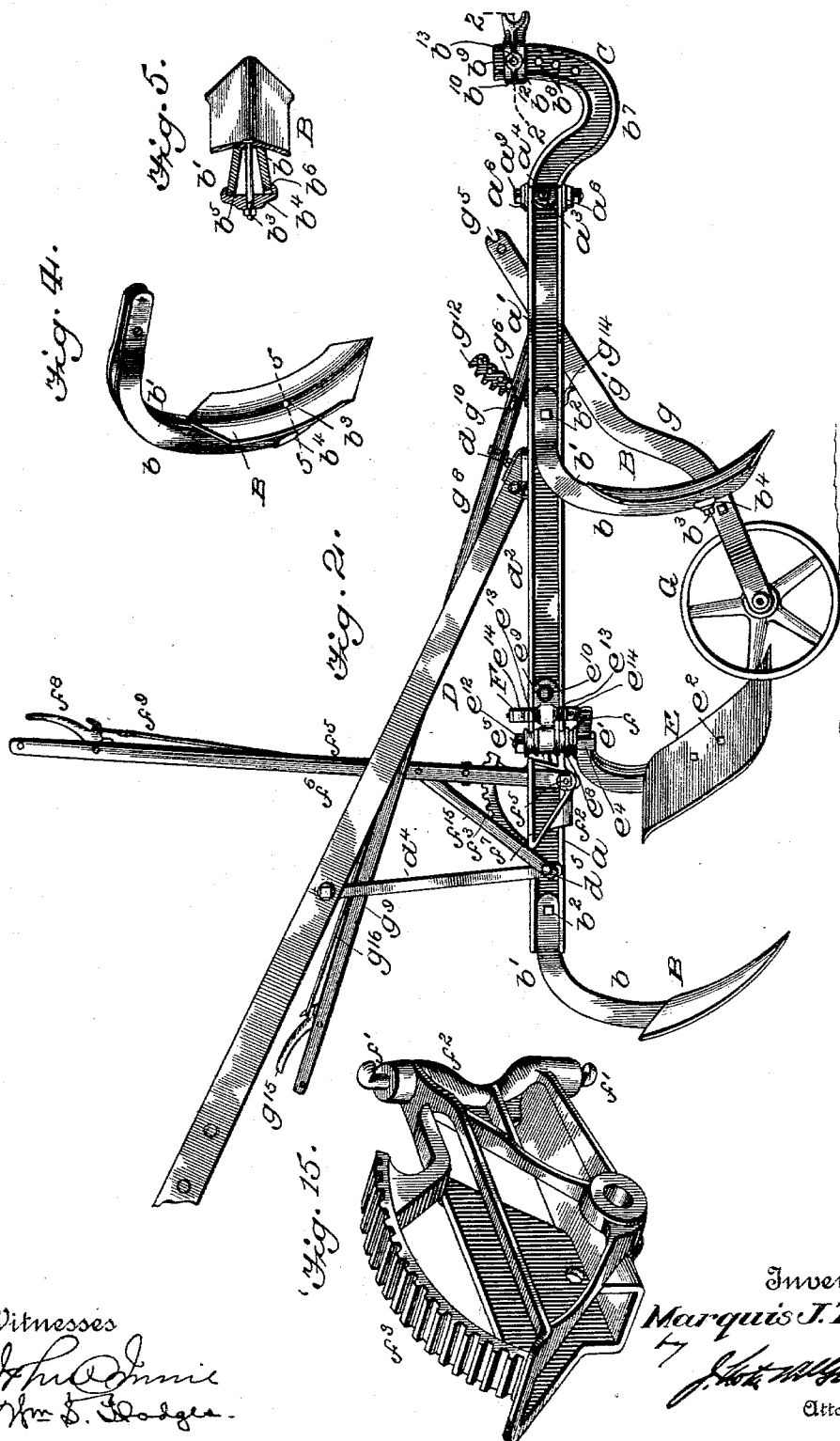
(No Model.)

4 Sheets—Sheet 2.

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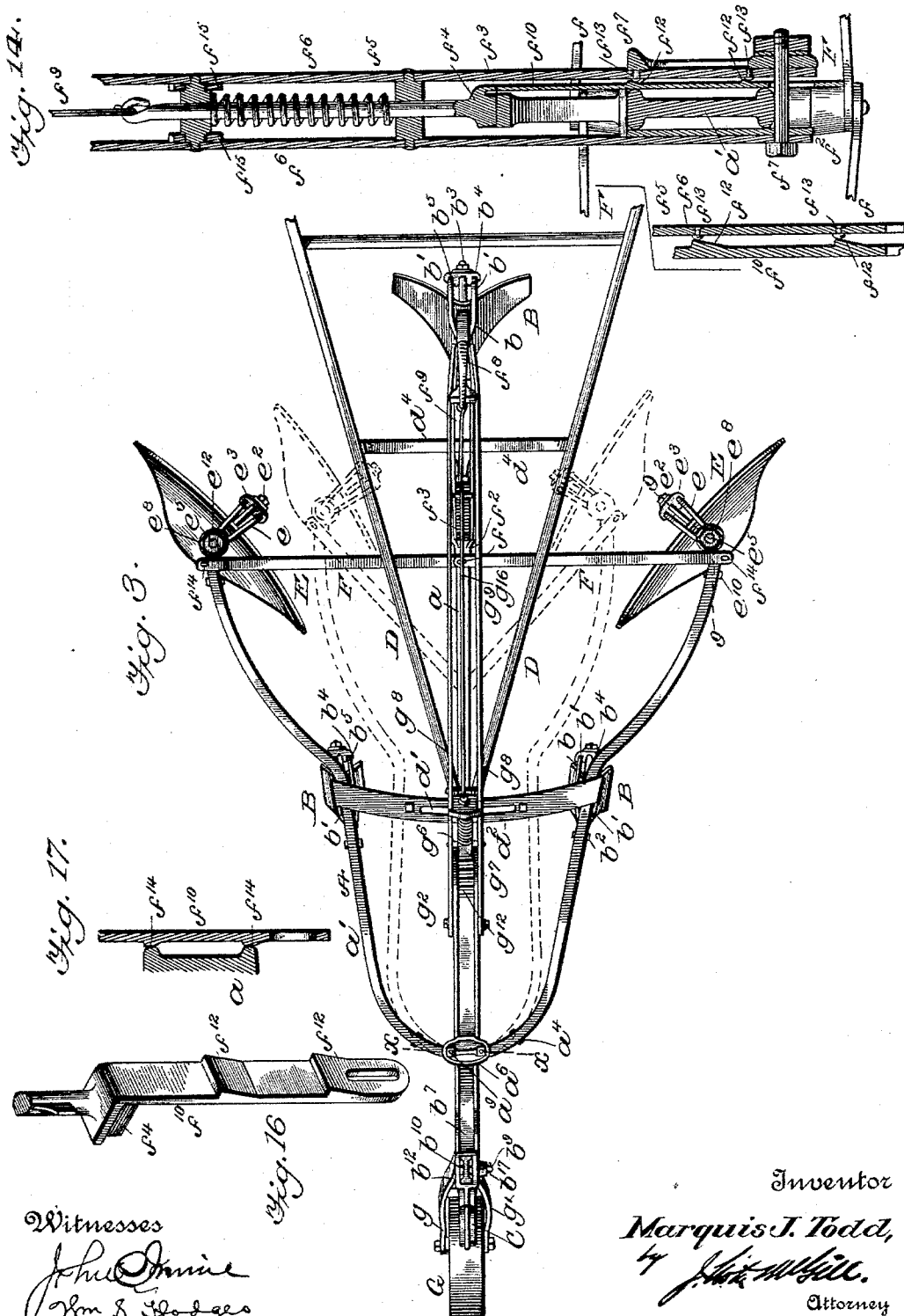
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4 Sheets—Sheet 3.

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(No Model.)

4 Sheets—Sheet 4.

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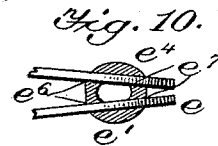
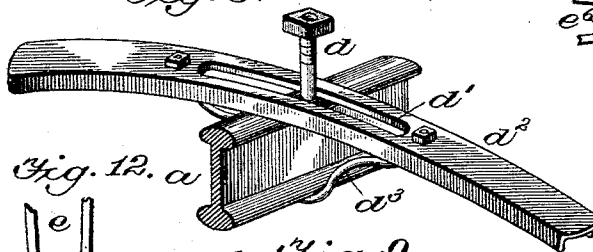
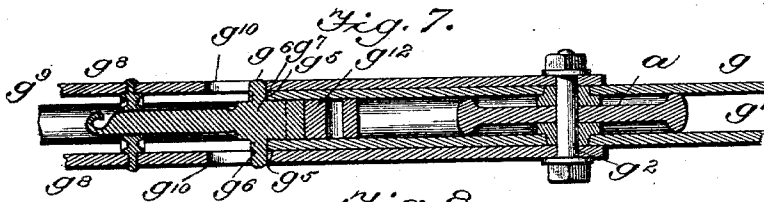
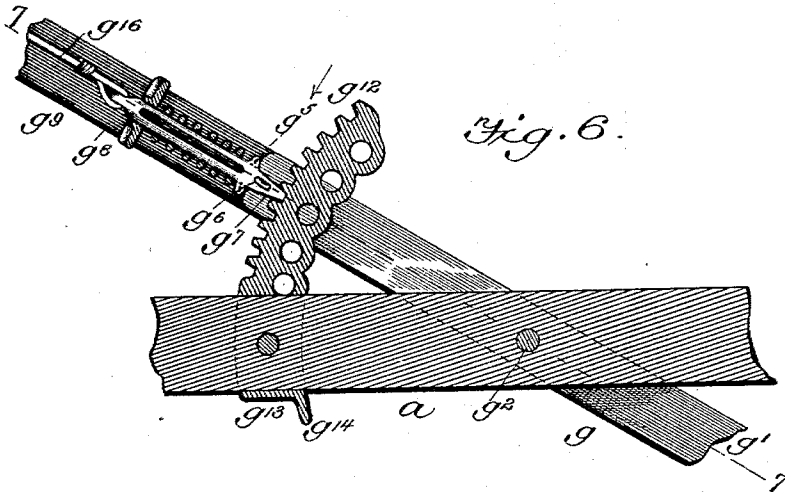


Fig. 11.

Fig. 12. a

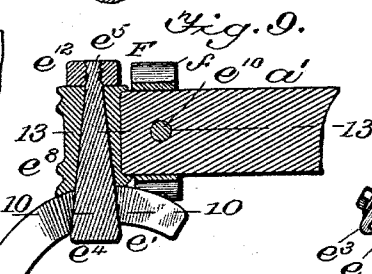
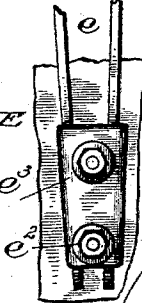
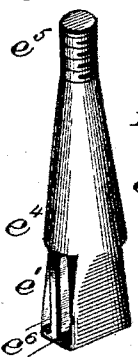
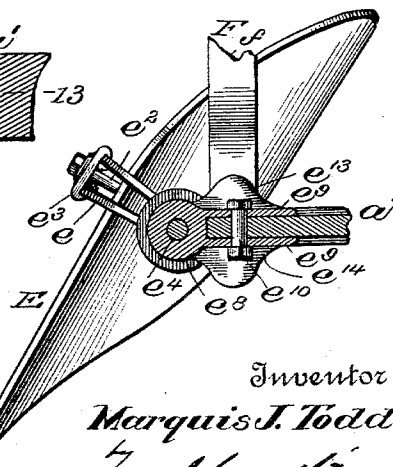


Fig. 13.



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UNITED STATES PATENT OFFICE.

MARQUIS J. TODD, OF BUFFALO, NEW YORK, ASSIGNOR TO THE PITTS
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CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 584,022, dated June 8, 1897.

Application filed October 29, 1896. Serial No. 610,495. (No model.)

To all whom it may concern:

Be it known that I, MARQUIS J. TODD, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Cultivators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention contemplates certain new and useful improvements in cultivators, having reference particularly to that class employing laterally-adjustable side-bars to which the shovel-standard are secured.

The principal object of the invention is to provide a cultivator of this class which shall be firm and rigid at all points, avoiding all wobbling or rocking of any of its parts.

A further object is to so connect the gage-wheel standard that the wheel can be swung back under the frame for ease in transportation, all of the shovels being raised above the ground.

A further object is to prevent any wobbling of the central frame-bar at the points of connection of the adjusters to cause the bars of said adjusters to move in unison and to avoid the use of nutted bolts in connecting said bars to the frame.

A further object is to enable the shovels to be readily adjustable on their standards and to allow some of the latter to be adjusted to control the pitch of their shovels, and also to provide improved forms of standards and connections therefor to the frame.

A further object is to provide improved means for permitting lateral adjustment of the handles.

A further object is to provide a simple and highly-efficient clevis.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective. Fig. 2 is a side elevation showing the wheel thrown back under the frame. Fig. 2^a is a sectional detail view on line 2 2, Fig. 2. Fig. 3 is a plan view. Fig. 4 is a view of one of the shovels and its standard. Fig. 5 is a section thereof on line 5 5. Fig. 6 is an enlarged view with parts

broken away, showing part of the wheel-lever and the adjusting-lever therefor. Fig. 7 is a section thereof on line 7 7, Fig. 6. Fig. 8 is a detail showing the brace-bar. Fig. 9 is a vertical sectional view on the line 9 9, Fig. 3. Fig. 10 is a section on line 10 10, Fig. 9. Fig. 11 is a view of one of the standard-clips. Fig. 12 is a rear view of one of the shovels with parts broken away. Fig. 13 is a horizontal sectional view on line 13 13, Fig. 9. Fig. 14 is a longitudinal sectional view of the adjuster-lever. Fig. 15 is a view in perspective of the adjuster-head. Fig. 16 is a view of the wedging-plate. Fig. 17 is a slight modification thereof in section. Figs. 18 and 19 are details. Fig. 20 is an enlarged sectional view on line *x x*, Fig. 3.

Referring to the drawings, A designates the frame as an entirety, *a* the central bar, and *a'* *a'* the curved or bowed adjustable side-bars, all of which are preferably formed from I-bars. To the forward end of each bar *a'* is secured a hinging-hub *a*², having lateral plates *a*³, between which fits the end of the bar. Screws *a*⁴ hold said end sandwiched between said plates. These hubs have vertical bolt-holes and at their ends *a*⁵ are tapered. Upper and lower cap-plates *a*⁶ are provided on their inner faces with lugs *a*⁷ to engage the side edges of bar *a*, and also with the tapered recesses *a*⁸, wherein fit the tapered ends of the hub. Through these hubs and coincident holes in the cap-plates are upwardly passed nutted bolts *a*⁹. By tightening the nuts of these bolts the ends of the hubs are firmly held in the recesses of the cap-plates, and the latter are secured to the frame-bar.

To the rear end of the frame-bar *a* and also to the side-bars *a'*, at opposite points, are secured the standards *b* of the ordinary cultivator-shovels B. Each of these standards is composed of two separable bars *b'*, held at their upper ends by bolts *b*² to the opposite sides of the webs of the frame-bars. The shovels B are held fast to their standards by nutted bolts *b*³ and clips *b*⁴, having inner grooved faces *b*⁵, in the grooves of which are serrations *b*⁶, engaging corresponding serrations of the bars *b'*. By means of these clips the bars *b'* are drawn toward each other

near their lower ends, thus giving a slight outward curvature to the central portions of said bars, adding to the strength thereof. The shovels can be readily adjusted on their standards. The forward end of the frame-bar *a* is bent or curved downwardly, as at *b*⁷, and in it is formed a series of holes *b*⁸, through any one of which is designed to project a spring-pressed pin *b*⁹ of a clevis *C*. This clevis has a looped end *b*¹⁰, in the parallel sides *b*¹² of which are formed coincident openings *b*¹³ *b*¹⁴. In the latter is a coil-spring *b*¹⁵, surrounding the shank *b*¹⁶ of the pin, the end of the latter being extended and provided with an eye *b*¹⁷, by which the pin can be retracted for the purpose of adjusting or removing the clevis.

D designates the handles, the lower forward convergent ends of which are adjustably held by a nutted bolt *d*, passed upward through a slot *d'* in a slightly-curved channel-bar *d*². This bar is rigidly secured to bar *a*, preferably by a yoke *d*³, and it is extended outwardly so as to project over and bear upon the bars *a'*. By this means the three frame-bars are held fixed relatively to each other, and wobbling of the bars is prevented. Near their upper ends the handles are supported by links *d*⁴, held at their lower ends to the bar *a* by a bolt *d*⁵. The handles being thus secured can be readily adjusted by moving the bolt *d* in the slot *d'* of bar *d*², the head of said bolt fitting against the under side of the latter. This adjustment enables the handles to be thrown toward one side while the shovels are working close up to growing vines.

E E are the shovels at the rear ends of bars *a'*. They are the "hillers" and can be adjusted to any desired position by moving them on their standards *e* or by adjusting the latter in their clips *e'* or by adjusting said clips. The shovels are held to these standards *e* by two nutted bolts *e*² and clips *e*³, similar to those before described. The adjustable standard-clips *e'* consist each of a tapered body *e*⁴, having an upper threaded end *e*⁵, and its lower end is provided with opposite slots *e*⁶ *e*⁷ to accommodate the divergent ends of the standard-bars, the slots *e*⁷ being set closer together than the slot *e*⁶. These tapered bodies fit in hollow hubs *e*⁸, from which extend lateral arms *e*⁹, which are bound to opposite sides of the bars *a'* by nutted bolts *e*¹⁰. The lower ends of these hubs are slightly curved to accommodate the curvature of the standard, the edges of which are caused to bear thereagainst by nuts *e*¹² on the threaded ends *e*⁵. By loosening these clips they can be turned in the hubs and held at any point, and when so loosened the standards can in turn be adjusted in said clips to throw the points of the shovels at any desired pitch. From upper and lower horizontal flanges *e*¹³ of these hubs project short hooks *e*¹⁴.

F F are the adjusters, by which the rear free ends of the side-bars *a'* can be moved away from or drawn toward the central bar.

Upper and lower bars *f* of these adjusters engage at their outer ends the hooks *e*¹⁴, and at their inner ends the bars of the two adjusters overlap and engage upper and lower hooks *f* of a head *f*², adjustable longitudinally on bar *a*, said hooks fitting in holes in said bars. In this way the use of nutted bolts for securing the adjuster-bars is avoided. The head consists of a skeleton-like frame having a central longitudinal opening to accommodate bar *a*, and with it is formed a curved rack-bar *f*³, with which engages a spring-pressed sliding pawl *f*⁴, mounted within a lever *f*⁵, composed of two parallel bars *f*⁶. At its lower end this lever is pivoted by a nutted bolt *f*⁷, passed through a transverse hole of the head, the bars *f*⁶ fitting against the sides of said head, one of them being passed inside of an upper slightly-bulged bar *f*⁷. A hand-lever *f*⁸, mounted on the lever *f*⁵, is connected to the pawl *f*⁴ by a rod or wire *f*⁹. From one side of this pawl extends a plate *f*¹⁰, formed with tapered or wedge-like surfaces *f*¹², which serve to wedge or bind the adjusting-head against the central frame-bar. This may be accomplished by having said surface engage raised surfaces *f*¹³ on line with the flanged edges of the bar *a*, (see Fig. 14,) or said wedged surfaces may be formed on the inner faces of the plate extensions *f*¹⁰, as at *f*¹⁴, Fig. 17, so as to directly bear against the side edges of said bar. In this way when the pawl is in engagement with the rack-bar the head is firmly held, and when said pawl is disengaged the head can be freely moved on the bar. The fulcrum of the lever *f*⁵ consists of two links *f*¹⁵ which at their lower rear ends are pivotally mounted on bolt *d*⁵.

G is the depth-gage wheel, which is so mounted that it also serves as a transporting-wheel for holding the cultivator-shovels elevated. It is mounted in the lower end of a lever *g*, which is shown as composed of two parallel bars *g'*, fulcrumed on a nutted bolt *g*², passed through bar *a* at a point in rear of the front ends of the side-bars. The bars *g'*, at their upper ends, are recessed at *g*³ to receive lateral arms *g*⁶ of a spring-pressed sliding pawl *g*⁷, mounted between the bars *g*⁸, composing a lever *g*⁹, which is also fulcrumed at its lower end on the bolt *g*². The arms *g*⁶ are movable in opposite longitudinal slots *g*¹⁰ in the bars *g*⁸. This pawl is designed to engage a curved rack-bar *g*¹², having a box *g*¹³ rigidly secured on bar *a*. From the under side of this box projects a lip *g*¹⁴. An ordinary hand-lever *g*¹⁵, mounted on lever *g*⁹, is connected by a rod or wire *g*¹⁶ to pawl *g*⁷. By operating this hand-lever the pawl can be drawn out of engagement with the rack-bar to permit of the adjustment of the wheel-lever, but in order to free the lateral arms *g*⁶ from said wheel-lever the operator grasps the rod or wire *g*¹⁶ and further retracts the pawls. The desired adjustment of the wheel and its lever is effected by the operating-lever *g*⁹. When the cultivator is to be transported, the pawl is further moved

to free the end of said wheel-lever, and the frame being slightly raised at its forward end the wheel will move thereunder. The lever, turning on its fulcrum and engaging the lip 5 g^{14} , will hold the shovels elevated above the ground, as shown in Fig. 2. To return the wheel to its normal position, it is only necessary to again raise the end of the frame, permitting the wheel to move forward, and the 10 slotted end of the lever is reengaged by the lateral arms of the pawl.

I claim as my invention—

1. A cultivator having a central frame-bar and two laterally-adjustable side-bars, hubs 15 secured to the forward ends of the latter, upper and lower cap-plates having lugs engaging said central bar and also having holes and recesses, and the nutted bolts passed through said hubs and the holes of said cap-plates, 20 substantially as set forth.

2. A cultivator having a central frame-bar and two laterally-adjustable side-bars, hollow hubs secured to the forward ends of said side-bars having reduced ends, upper and lower 25 cap-plates extending transversely over said central bar and having holes and inner recesses to accommodate said reduced ends, and also having lugs engaging the edges of said central bar, and nutted bolts for binding said 30 parts, substantially as set forth.

3. In a cultivator having its frame composed of a central draft-bar, and laterally-adjustable side-bars, means mounted on said draft-bar for adjusting said side-bars, a brace- 35 bar extending transversely across all of said frame-bars and a yoke for binding said brace-bar to said central bar, said brace-bar bearing at its ends upon said side-bars but not connected thereto, substantially as set forth.

4. In a cultivator having a central draft-bar and laterally-adjustable side-bars, a transverse bar secured to said central bar and having a longitudinal slot, the handles, supporting-straps for said handles pivoted at their 45 lower ends to said central draft-bar, and a bolt working in said slot for holding the forward ends of said handles to said transverse bar, as set forth.

5. In a cultivator having a central draft-bar and laterally-adjustable side-bars, a transverse bar secured to said central bar and having a curved slot therein and grooved or 50 channeled on its under side, handles having forward meeting ends, supporting-straps for said handles secured to said central bar, and a bolt passed through said slot and holding said meeting ends of said handles, the head 55 of said bolt fitting the groove or channel of said bar, substantially as set forth.

6. A cultivator having shovel-standards composed each of two independent spaced-apart bars rigidly held at their upper ends, clips engaging the rear edges of said bars, shovels thereon, and nutted bolts passed 65 through said shovels and clips, said bars being drawn toward each other at their upper ends, as set forth.

7. A cultivator having hollow hubs, rotatable clips fitted in said hubs having vertical slots at their lower ends, and shovels having 70 their standards extended through said slots and designed to be held against said hubs, as set forth.

8. A cultivator having side-bars provided with vertical hollow hubs, rotatable clips having tapering bodies fitted in said hubs and 75 provided with slots in their lower ends, standards extended through said slots whereby they are capable of being longitudinally adjusted, and shovels adjustably mounted on 80 said standards, substantially as set forth.

9. A cultivator having its side-bars provided with vertical hollow hubs, rotatable clips having tapered bodies fitted in said hubs and also having threaded ends with nuts thereon, the 85 lower ends of said clips being provided with vertical slots, standards extended through said slots, and shovels adjustable on said standards, substantially as set forth.

10. A cultivator having hollow hubs, clips 90 adjustably fitted in said hubs having their lower ends provided with two sets of opposite slots, standards composed each of two bars extended through said opposite slots, shovels on said standards, clips holding the lower 95 ends of said bars, and nutted bolts engaging said shovels and standards, substantially as set forth.

11. In a cultivator, the combination with the central bar, of the two side-bars pivoted 100 at their forward ends, and having hooks at their rear ends, adjusters having bars engaging said hooks, an adjusting-head on said central bar also having hooks with which said bars engage, and a lever for moving said ad- 105 justing-head, substantially as set forth.

12. In a cultivator, the combination with the central bar, of the side-bars pivoted at their forward ends, and having hooks at their rear ends, adjusters having upper and lower 110 parallel bars, those of each adjuster being connected together, said bars at their outer ends engaging said hooks, an adjusting-head on said central bar also having upper and lower hooks with which the inner ends of said 115 upper and lower bars engage, and a lever for moving said adjusting-head, substantially as set forth.

13. A cultivator having a central bar and laterally-adjustable side-bars, an adjusting-head on said central bar connected to said 120 side-bars, an operating-lever, and a wedging-plate connected to said lever for binding said adjusting-head against said central bar, substantially as set forth. 125

14. A cultivator having a central bar and laterally-adjustable side-bars, an adjusting-head on said central bar connected to said side-bars, an operating-lever engaging said head, and a wedging-plate carried by said lever and located between the latter and said 130 central bar, substantially as set forth.

15. The combination with the central and side bars, of the adjusting-head on said cen-

tral bar having a rack-bar, the operating-lever, the spring-pressed pawl carried by said lever, and the wedge-plate connected to said pawl, as and for the purpose stated.

5 16. The combination with the central and side bars, of the adjusting-head on said central bar having a rack-bar and a lower opening, the lever composed of two bars, the pivot-bolt therefor passed through said opening, the
10 spring-pressed pawl between said bars of said lever, the hand-lever connected thereto, and the plate extended from said pawl having wedging-surfaces designed to bind said head and said central bar when said pawl is in en-
15 gagement with said rack-bar, substantially as set forth.

17. A cultivator having a wheel, a lever on the free end of the long arm of which said wheel is mounted, and detachable means for
20 engaging the free end of the short arm of said lever, as and for the purpose set forth.

18. A cultivator having a wheel, a lever having long and short arms, said wheel being mounted on the outer end of said long arm,
25 and a lever engaging the free end of said short arm for adjusting the position of said lever, and means for disengaging said levers, whereby said wheel-lever is free to move on its fulcrum independent of said other lever,
30 substantially as set forth.

19. A cultivator having a wheel, a lever fulcrumed on the cultivator-frame, said wheel being mounted on the free end of the long arm of said lever, and an adjusting-lever en-
35 gaging the free end of the short arm of said wheel-lever, as and for the purpose set forth.

20. A cultivator having a wheel, a lever fulcrumed on the cultivator-frame, said wheel being mounted on the free end of the long

arm of said lever, a rack-bar, an adjusting- 40 lever, and a spring-pressed pawl mounted therein for engaging said rack-bar and the free end of the short arm of said wheel-lever, as set forth.

21. The combination with the frame having 45 a central bar, and a rack-bar secured thereto, of a wheel, a lever fulcrumed on said bar and composed of two bars between which, at one end, said wheel is mounted, said bars at the other ends being slotted, a lever also ful- 50 crumed on line with said wheel-lever and composed of two bars having opposite slots, a spring-pressed pawl movable between said bars having lateral arms movable in said slots and designed to engage said slotted ends 55 of said wheel-lever, and means for operating said pawl, substantially as set forth.

22. The combination with the bar having holes therein, of the clevis fitted on said bar having a hole and housing on opposite sides, 60 and a spring-pressed bolt movable in said housing and hole, as set forth.

23. The combination with the bar having grooved sides, of the clevis having an inner portion surrounding said bar and provided 65 with a hole and an opposite housing, a bolt having a reduced end extended through the outer end of said housing, and a spring in said housing encircling said reduced end, sub-
70 stantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MARQUIS J. TODD.

Witnesses:

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J. NOTA MCGILL.