No. 776,155. PATENTED NOV. 29, 1904.

S. H. TINSMAN.

CULTIVATOR.

APPLICATION FILED FEB. 18, 1904.

NO MODEL. 4 SHEETS—SHEET 1.

Fig. 1.

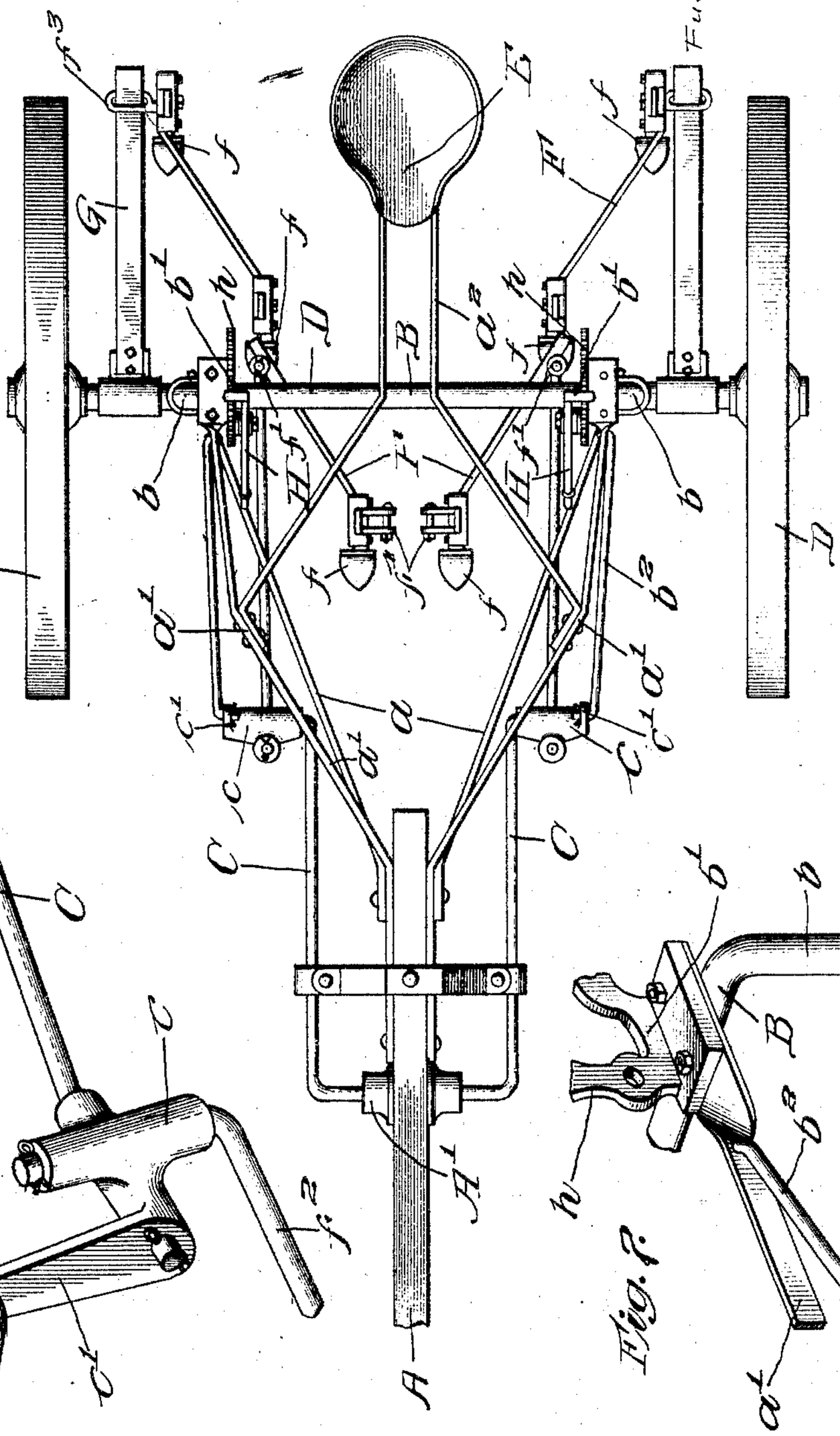

Fig. 2.

Fig. 3.

Witnesses:
Robert F. Allen
Wm. A. Hardens

Inventor
Samuel H. Tinsman
By Burleigh & Durand
Atty.

No. 776,155. PATENTED NOV. 29, 1904.

S. H. TINSMAN.

CULTIVATOR.

APPLICATION FILED FEB. 18, 1904.

NO MODEL. 4 SHEETS—SHEET 2.

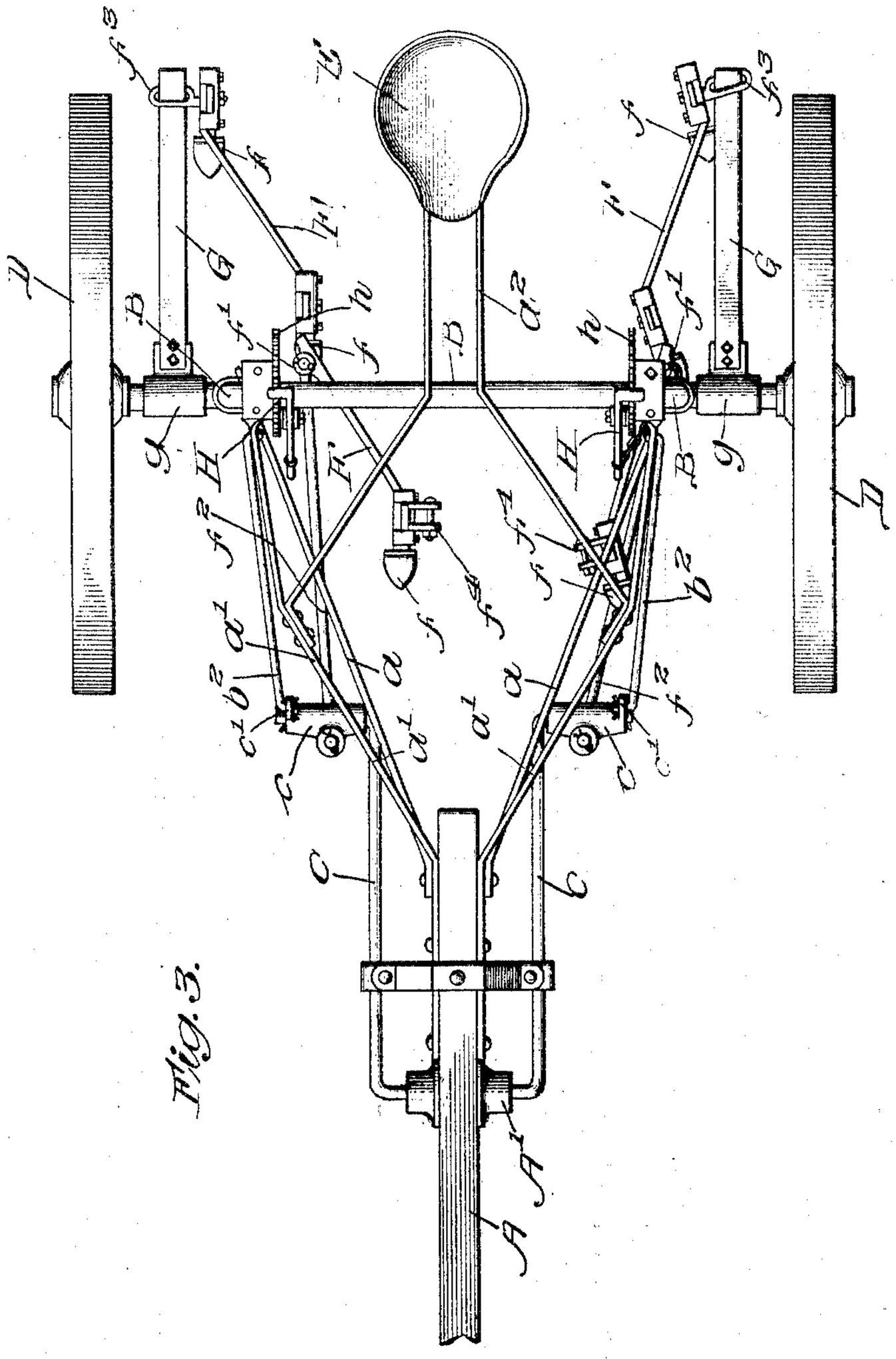

Fig. 3.

Witnesses:
Robert H. Weir
Wm. A. Sanders

Inventor:
Samuel H. Tinsman
By Buckley & Durand
Attys.

No. 776,155. PATENTED NOV. 29, 1904.

S. H. TINSMAN.

CULTIVATOR.

APPLICATION FILED FEB. 18, 1904.

NO MODEL. 4 SHEETS—SHEET 3.

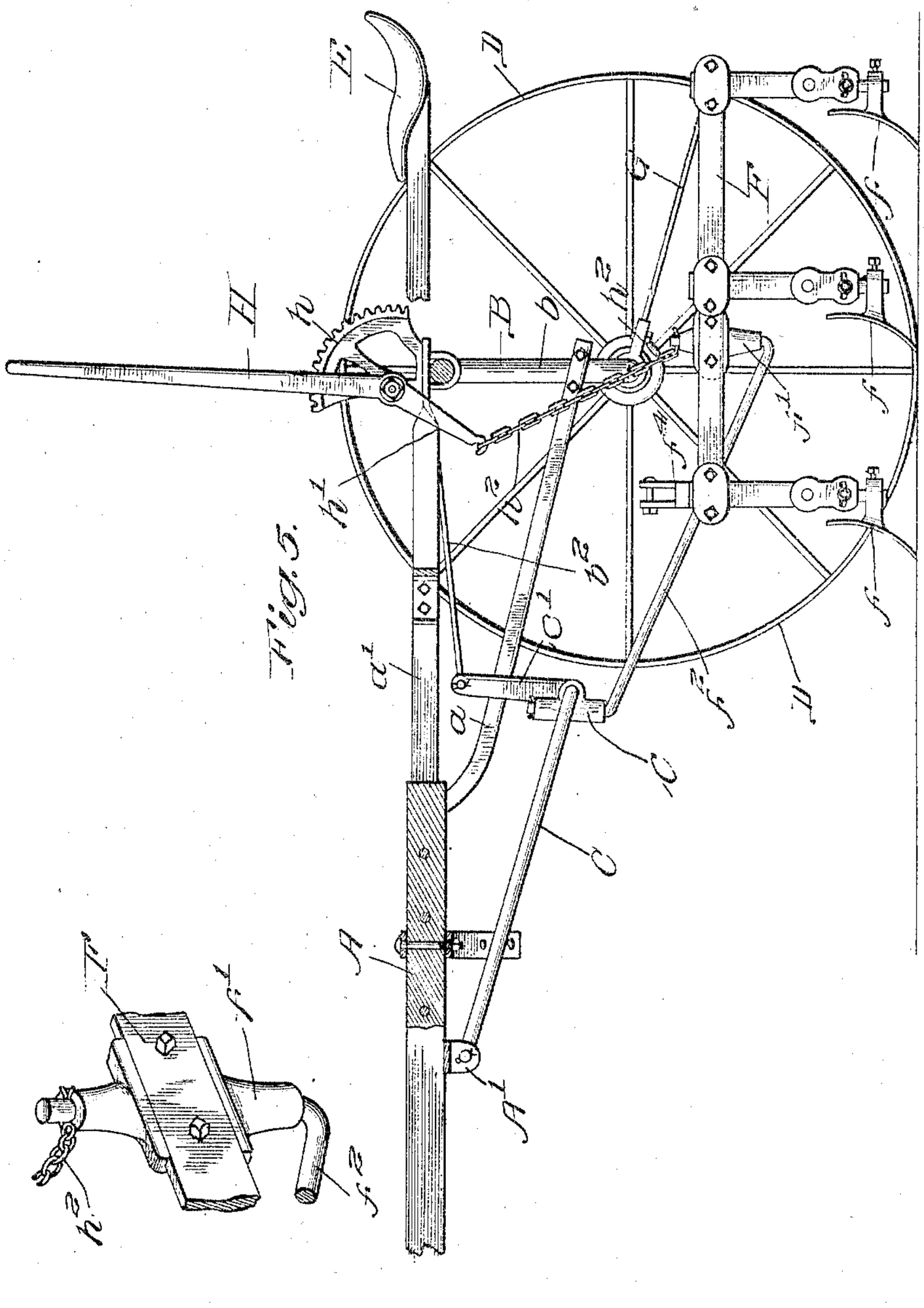

Fig. 3.

Fig. 4.

Witnesses:
Robert F. Weir
Wm. A. Sanders.

Inventor:
Samuel H. Tinsman
By Buckley & Durand
Attys.

No. 776,155. PATENTED NOV. 29, 1904.

S. H. TINSMAN.

CULTIVATOR.

APPLICATION FILED FEB. 18, 1904.

NO MODEL. 4 SHEETS—SHEET 4.

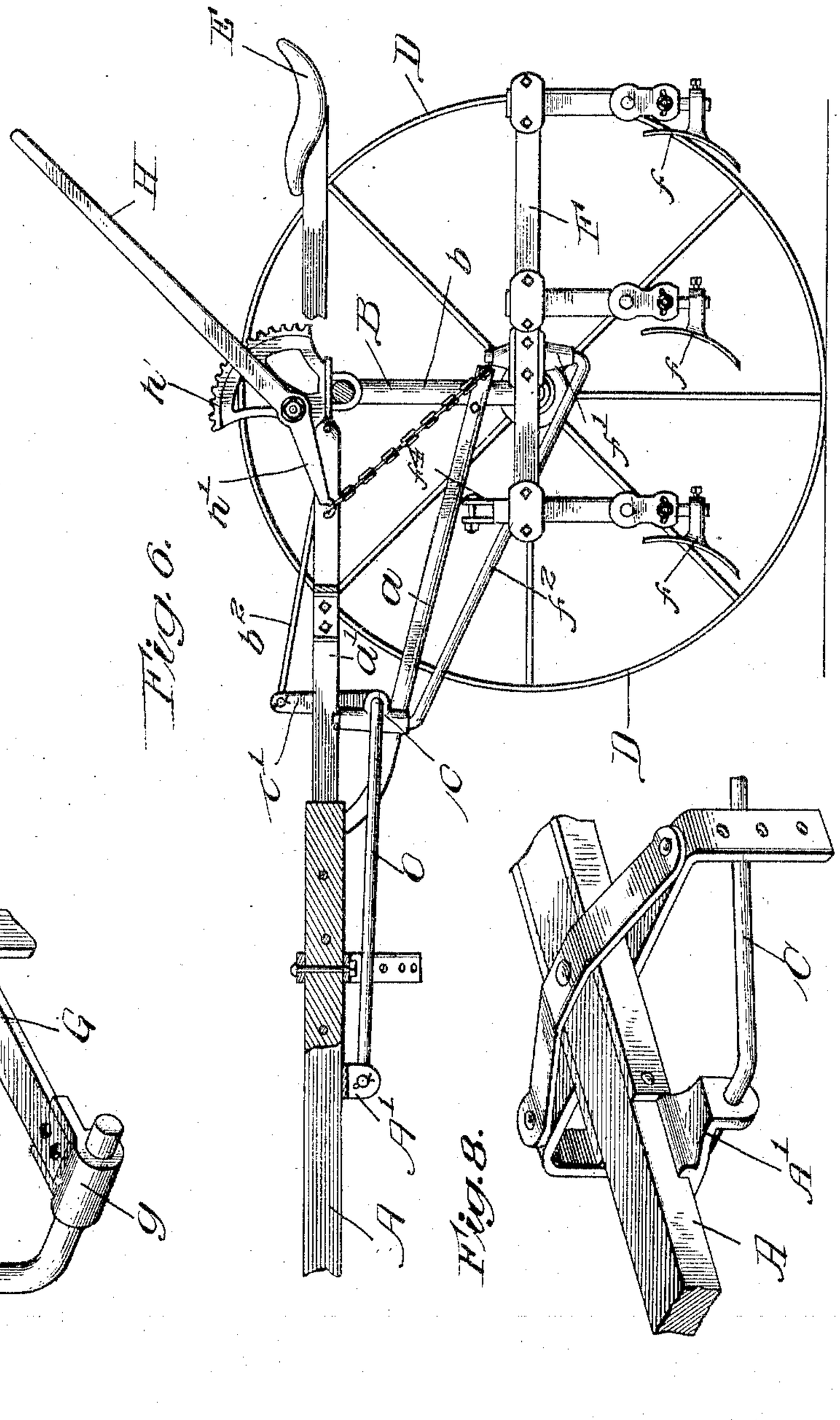

Fig. 6.

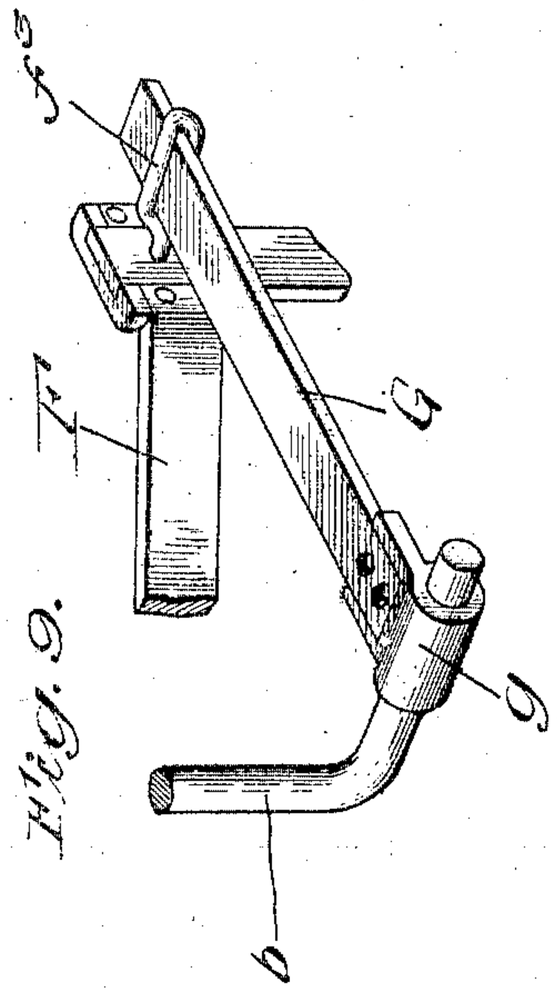

Fig. 9.

Fig. 8.

Witnesses:
Robert F. Weir
Wm. A. Hardesty.

Inventor:
Samuel H. Tinsman
By Burkley & Durand
Attys.

No. 776,155. Patented November 29, 1904.

UNITED STATES PATENT OFFICE.

SAMUEL H. TINSMAN, OF MORRIS, ILLINOIS.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 776,155, dated November 29, 1904.

Application filed February 18, 1904. Serial No. 194,233. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. TINSMAN, a citizen of the United States of America, and a resident of Morris, Grundy county, Illinois, have invented a certain new and useful Improvement in Cultivators, of which the following is a specification.

My invention relates to cultivators in general, but more particularly to wheeled cultivators, and especially to wheeled or riding cultivators of that type in which the shovels are mounted on a pair of forwardly-converging bars.

Prior to my invention it has been the universal practice, so far as I am now aware, to mount the bars or beams carrying the shovels in such manner that they were free to swing laterally about their forward points of connection with the body-frame. With this arrangement it was necessary in cultivating corn, for example, to swing the rear ends of the shovel-beams laterally to an undesirable extent in order to permit the shovel or shovels at the forward ends of the beam to dodge or go around the corn-hills. In other words, the old arrangement necessitated a useless and undesirable extent of lateral play on the part of the rear shovels in order to enable the forward shovels to pass around the corn-hills.

Generally stated, therefore, one object of my invention is the provision of an improved construction and arrangement of parts whereby the forward shovels of the cultivator may be given a lateral play or movement sufficient to carry them around the corn-hills and without causing but a very slight lateral movement on the part of the rear shovels.

A special object is to provide an improved construction and arrangement whereby the shovel-beams may be fulcrumed at their rear ends and connected with forward and laterally swinging draft-bars, so as to permit the forward shovels to be shifted readily to one side, as in dodging or passing around a corn-hill, without causing but a very slight lateral movement on the part of the rear shovels.

Prior to my invention it was also the practice in cultivators having laterally swinging or adjustable gangs—that is to say, gangs which are laterally shiftable or adjustable at will for the purpose of dodging a corn-hill or other obstruction—to raise and lower the shovel-beams by swinging them vertically about their forward ends, it being necessary with this arrangement to lift the rear ends of the beams considerably and to an undesirable extent in order to raise the forward shovels to the proper distance above the ground, and even then the forward shovels were not always raised sufficiently.

Generally stated, it is also an object of my invention, therefore, to provide an improved arrangement for lifting and lowering the shovel-beams bodily, the shovels all having the same degree of vertical adjustment.

Another special object is to advantageously combine the said feature of bodily-vertical adjustment of the shovel-beams with the said feature of swinging the shovel-beams laterally about their rear ends.

It is also an object to provide certain details and features of improvement tending to increase the general efficiency and serviceability of a cultivator of this particular character.

The nature and advantages of my invention will, however, hereinafter more fully appear.

In the accompanying drawings, Figure 1 is a plan of a wheeled or riding cultivator embodying the principles of my invention. Fig. 2 is an enlarged detail of one of the draft connections. Fig. 3 is a view similar to Fig. 1, but showing the forward end of one shovel-beam swung laterally to one side. Fig. 4 is an enlarged detail showing one of the draft-bar connections with the beam. Fig. 5 is a side elevation of the cultivator shown in Fig. 1. Fig. 6 is a view similar to Fig. 5, but showing the beams or shovel-gangs raised from the ground. Fig. 7 is a detail view of one of the connections between the frame-bars and the axle. Fig. 8 is an enlarged detail view of the casting for connecting the draft-rods with the tongue, showing adjacent parts. Fig. 9 is a detail view of one of the fulcrum-bars and adjacent parts.

As thus illustrated, my improved cultivator, which, as illustrated, may be employed either as a riding or a walking cultivator in the usual and well-understood manner, comprises, preferably, a tongue or pole A, rigidly connected

at its rear end portion with the arch or bail shaped axle B through the medium of the frame-bars a and a' and also at a point somewhat forward of the point of connection with the said axle with the draft-rods C. With this arrangement the said axle has its side portions b suitably connected with the tongue by means of the bars a and also by the castings b' on the axle, rods b^2, castings c, and the said rods C. The rods b^2 are connected with the castings c by means of arms c', the latter rigid with the castings c. The rods C, it will be observed, have their forward ends pivotally secured to the casting A′ on the tongue. Thus the pole and the axle, together with the frame-bars, constitute a very strong and simple body-frame.

The supporting-wheels D are mounted in the usual manner on the spindles or outturned lower end portions of the said axle. The usual rider's seat E is secured, preferably, to the rear portion of the frame-bars a^2, which latter rest on the axle and connect rigidly with the bars a'.

As illustrated, the cultivator comprises two independently operated or controlled gangs, each consisting of a beam F, provided with a plurality of shovels f of any suitable known or approved character. The beam of each gang is connected, preferably, at an intermediate point, as by castings f', with a laterally-swinging draft-bar f^2. Said draft-bars can be connected with the body-frame in any suitable manner—as, for example, by mounting their upturned forward ends for rotary or oscillatory movement in the castings c, which latter are of the form shown in Fig. 2. The rear upturned end portions are mounted to turn or oscillate in the castings f', the latter being rigidly secured to the beams F. Preferably and in order that the two gangs of shovels may be raised or lowered these castings c are mounted to turn or oscillate readily upon the outturned end portions of the bars C. Thus each gang is adapted to swing laterally relatively to its allotted draft connection, and each draft-bar C is adapted to swing vertically relatively to its point of connection with the body-frame. In order, however, that the said gangs may be swung laterally in such manner as to permit the forward shovels to dodge or pass around the corn-hills without the necessity of but very little movement on the part of the rear shovels, the beam of each gang is preferably fulcrumed at its rear end—as, for example, by giving it a loose connection with one of the rearwardly-extending fulcrum-bars G. These fulcrum-bars are, it will be seen, suitably connected with the axle—as, for example, by hinging their forward ends by means of the castings g on the lower outturned or spindle portions of the said axle, for it will be seen that it is desirable to have the said fulcrum-bars so mounted at their forward ends that they may be readily swung up and down, but not sidewise. If desired, the rear ends of the said fulcrum-bars can simply pass through rings f^3 or openings formed in the rear ends of the beams F, whereby a sufficiently loose connection is insured to permit the gangs to be readily raised and lowered. With this arrangement and from his position on the driver's seat E the operator can place his feet upon the portions f^4 secured to the forward end portions of the beams F. When it is desired to swing the forward shovels laterally, as is the case when it is desired to have the forward shovels pass around corn-hills, it is only necessary for the operator to shift the forward portions of the beams to one side. In this way the necessary or desired lateral shift on the part of the forward shovels is provided for without making it necessary to cause but a slight lateral shift on the part of the rear shovels. In other words, as is well known, it is the forward shovels which must be caused to dodge or pass around the corn-hills, and with my improved arrangement it is not necessary, as has heretofore been the practice, that this necessary lateral shift on the part of the forward shovels be accompanied by a much greater and of course undesirable lateral shift on the part of the rear shovels. Practically I confine or limit the lateral shift to the shovels which require such movement.

Any suitable arrangement can be employed for raising and lowering the gangs. For example, a pair of swinging hand-levers H can be suitably supported on the upper horizontal portion of the axle and provided with the usual locking devices adapted to engage the curved racks or segments h. These segments, as illustrated, are part of the castings b for securing the bars a' to the axle. The said hand-levers can have lower end portions h' connected through the medium of chains or other flexible connections h^2 with the beams F. Thus with this arrangement the said levers can be employed as the means for manually raising and lowering the gangs and for supporting the gangs in elevated positions. It will be seen, however, that the gangs have a bodily up-and-down movement. This is owing to the fact that the rods b^2 prevent the castings c from tilting when moved up and down and that consequently the castings b^2 and the bars f^2 and the beams F are held against tilting movement when the gangs are raised and lowered. During such vertical adjustment it is evident that the rear ends of the beams F will slide backward and forward on the fulcrum-bars G. Thus all of the shovels have the same extent of adjustment, and it is not necessary to raise the rear shovels higher than the others.

It will be readily understood that the cultivator thus constructed can be employed as a walking-cultivator, if such is desired, by simply attaching the usual and well-known handles (not shown) to the beams F. In such case the lateral movement or adjustment of the gangs

would be controlled by hand; but whether the cultivator is operated as a riding or walking cultivator it is obvious that the gangs are with my improved arrangement of a character to be manually adjusted or moved laterally in such manner as to give the forward shovels the maximum or necessary lateral movement, while the rear shovels have but very little or practically a minimum of lateral movement. In this way it is obvious that I provide a cultivator which can be employed and handled in a very satisfactory manner. Furthermore, as explained, I provide a system of rods and bars which permit the gangs to have a bodily up-and-down movement as distinguished from the old and unsatisfactory upward-swinging movement, and in my improved cultivator the feature of bodily-vertical adjustment and the feature of swinging the gangs laterally about their rear ends are very satisfactorily and harmoniously combined.

What I claim as my invention is—

1. A cultivator comprising a wheeled body-frame, forwardly-converging beams provided with shovels, laterally-swinging draft connections for said beams, and rear fulcrum connections for said beams, the forward ends of said beams being left free to be moved laterally at will, whereby the forward shovels may be swung laterally with but little or practically no movement on the part of the rear shovels.

2. A cultivator comprising a wheeled body-frame, forwardly-converging beams provided with shovels, laterally-swinging draft connections connecting the body-frame with intermediate points on the said beams, and fulcrum-bars held against lateral movement and suitably connected with the rear end portions of said beams, whereby the forward shovels may be swung laterally with but little or practically no movement on the part of the rear shovels.

3. A cultivator comprising a wheeled body-frame, a plurality of gangs or shovels, and connections between the body-frame and points on the gangs to the rear of the latter's forward ends, the forward ends of said gangs being left free to be moved laterally at will, whereby the forward shovels of said gangs are adapted to swing laterally about fulcrum-points in rear of such shovels.

4. An agricultural implement comprising a wheeled body-frame, a beam provided with a plurality of shovels, and connections between the body-frame and the rear portion of said beam, the forward end of said beam being left free to be moved laterally at will, whereby the forward end of the beam may be moved laterally with but little or practically no movement of its rear end.

5. In an agricultural implement, a beam provided with a plurality of shovels, said beam being held at a point in rear of its forward end, but adapted and connected for free lateral swing or movement at its forward end, whereby a forward shovel may be caused to move laterally at will with but little or practically no movement of a shovel farther to the rear.

6. A cultivator comprising a wheeled body-frame, a pair of forwardly-converging beams, a plurality of shovels on each beam, a pair of draft-bars having their forward ends swingingly connected with the body-frame, the rear ends of said draft-bars being swingingly connected at intermediate points on said beams, a pair of fulcrum-bars having their forward ends vertically swingingly connected with the body-frame and their rear ends loosely connected with the rear end portions of said beams, whereby the forward shovels may be moved laterally with but little or practically no movement on the part of the rear shovels, and manually-operated means for raising and lowering the said beams.

7. A cultivator comprising a pole, and an arch-shaped member secured to the rear portion of said pole, supporting-wheels mounted on the lower outturned end portions of the said arch-shaped member, draft-rods connected with the pole, two gangs of shovels, each gang being connected through the medium of a draft-bar with the rear outturned end portion of one of said rods, and hand-levers carried on the arch-shaped member and connected for raising and lowering said gangs.

8. A wheeled cultivator provided with a pair of forwardly-converging gangs of shovels having their rear ends held against lateral movement and their forward ends left free to be swung toward and away from each other at will.

9. A wheeled cultivator having vertically and bodily adjustable gangs of shovels, said gangs being adjustable laterally at will at their forward ends, and held against lateral movement at the rear ends, and a pair of levers, each lever constituting means for raising one of the gangs bodily.

10. A wheeled cultivator having vertically and bodily adjustable gangs of shovels supported for lateral movement and having also suitable means for producing both the vertical and lateral adjustment at will, said gangs being left free to swing laterally.

11. A wheeled cultivator having an axle provided with spindles, wheels mounted on said spindles, fulcrum-bars hinged to swing up and down on said spindles, said bars being held against lateral movement, laterally-swinging beams having their rear ends suitably mounted on said fulcrum-bars, shovels mounted on said beams, together with means for swinging the forward ends of said beams from one side to the other at will.

12. A wheeled cultivator comprising an axle, wheels mounted on said axle, fulcrum-bars hinged to swing up and down on said axle, said bars being held against lateral movement, laterally-swinging beams having their

rear ends both swingingly and slidingly connected with said bars, shovels arranged on said beams, and means for swinging the said beams from one side to the other at will.

13. In an agricultural implement, the combination of a pair of beams, each provided with a plurality of shovels, each beam being mounted at its rear end in such manner that it may be swung from one side to the other at its forward end, means for swinging the forward ends of said beams from one side to the other at will, and means for producing a bodily up-and-down motion on the part of said beams.

14. In an agricultural implement, a pair of vertically-movable fulcrum members, a pair of beams having their rear ends fulcrumed upon said members, shovels on said beams, means for swinging the forward ends of said beams from one side to the other at will, and means for raising the beams bodily.

15. A wheeled cultivator comprising a body-frame, a pair of vertically-swinging members mounted on the body-frame, a casting mounted on each member, adapted to turn about a horizontal axis, draft connections mounted on said castings and adapted to swing upon vertical or substantially vertical axes therein, connections for maintaining said castings in vertical or practically vertical positions when said members are swung up and down, beams connected with the rear end of said draft connections adapted to swing laterally about vertical axes, shovels mounted on said beams, means for producing lateral adjustment of the beams at will, and means for raising the beams bodily.

16. A wheeled cultivator comprising a body-frame, vertically-swinging members mounted thereon, horizontally-swinging members connected with said vertically-swinging members, means for maintaining the positions of said last-mentioned members when said first-mentioned members are swung up and down, beams pivoted upon said last-mentioned members, shovels mounted on said beams, and manually-operated means for raising and lowering said beams.

17. A wheeled cultivator comprising a body-frame, a pair of vertically-swinging members mounted on said body-frame, castings arranged to turn on the rear ends of said vertically-swinging members, means for preserving the positions of said castings when said members are swung up and down, and implements swingingly connected to said castings, together with means for raising and lowering said implements.

18. A cultivator comprising a wheeled body-frame, a pair of beams, each provided with a plurality of shovels and hinged for free lateral swinging adjustment, and means for raising the beams bodily.

19. A cultivator comprising a wheeled body-frame, a pair of beams connected therewith, each provided with a plurality of shovels, the rear ends of said beams being fulcrumed, whereby the free forward ends of the beams may be swung laterally at will, and means for raising the beams bodily.

20. The improved wheeled cultivator, with laterally and vertically adjustable beams hung for free lateral adjustment at their forward ends, substantially as described.

21. The improved wheeled cultivator, the same having laterally-adjustable and forwardly-converging shovel-gangs, whereby each gang is mounted to swing laterally at its forward end.

22. The improved wheeled cultivator provided with converging and laterally-swinging shovel-gangs, whereby said gangs have their converging end portions adapted to be swung toward and away from each other, substantially as shown and described, and for the purposes specified.

Signed by me at Morris, Grundy county, Illinois, this 13th day of January, 1904.

SAMUEL H. TINSMAN.

Witnesses:
E. L. CLOVER,
GEO. SIBBALD.