(No Model.) 2 Sheets—Sheet 1.

W. H. NEWTON.

CULTIVATOR.

No. 353,579. Patented Nov. 30, 1886.

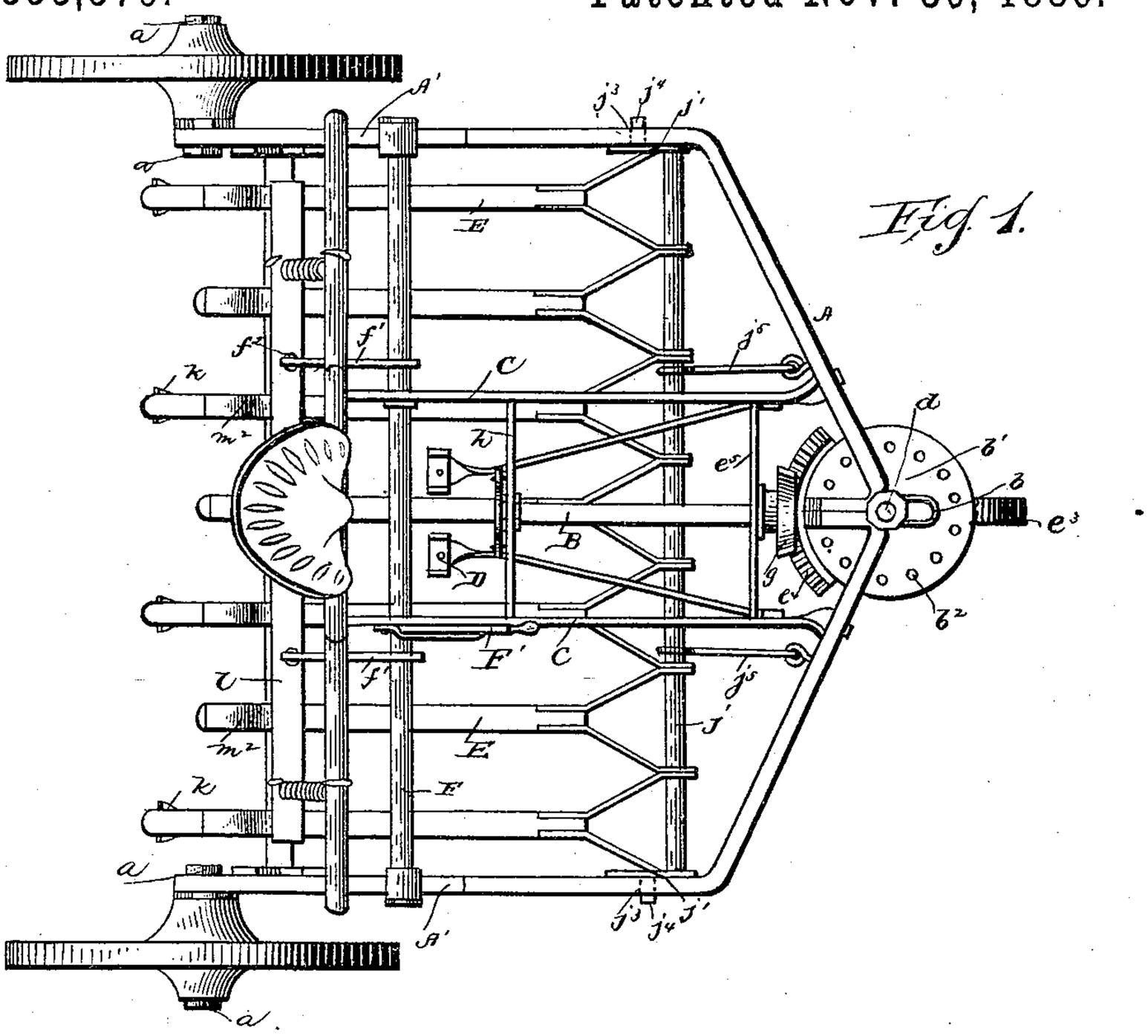

Fig. 1.

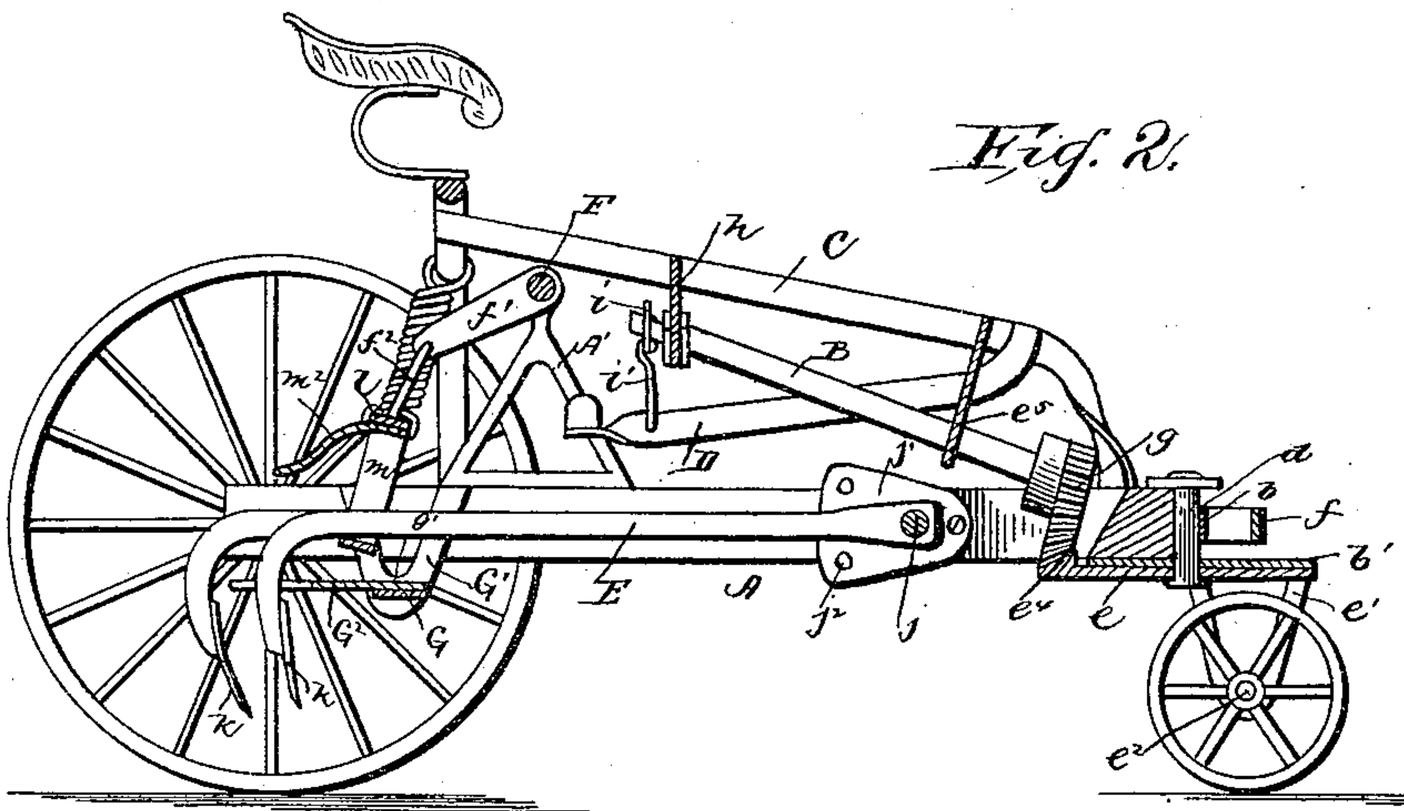

Fig. 2.

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(No Model.)

2 Sheets—Sheet 2.

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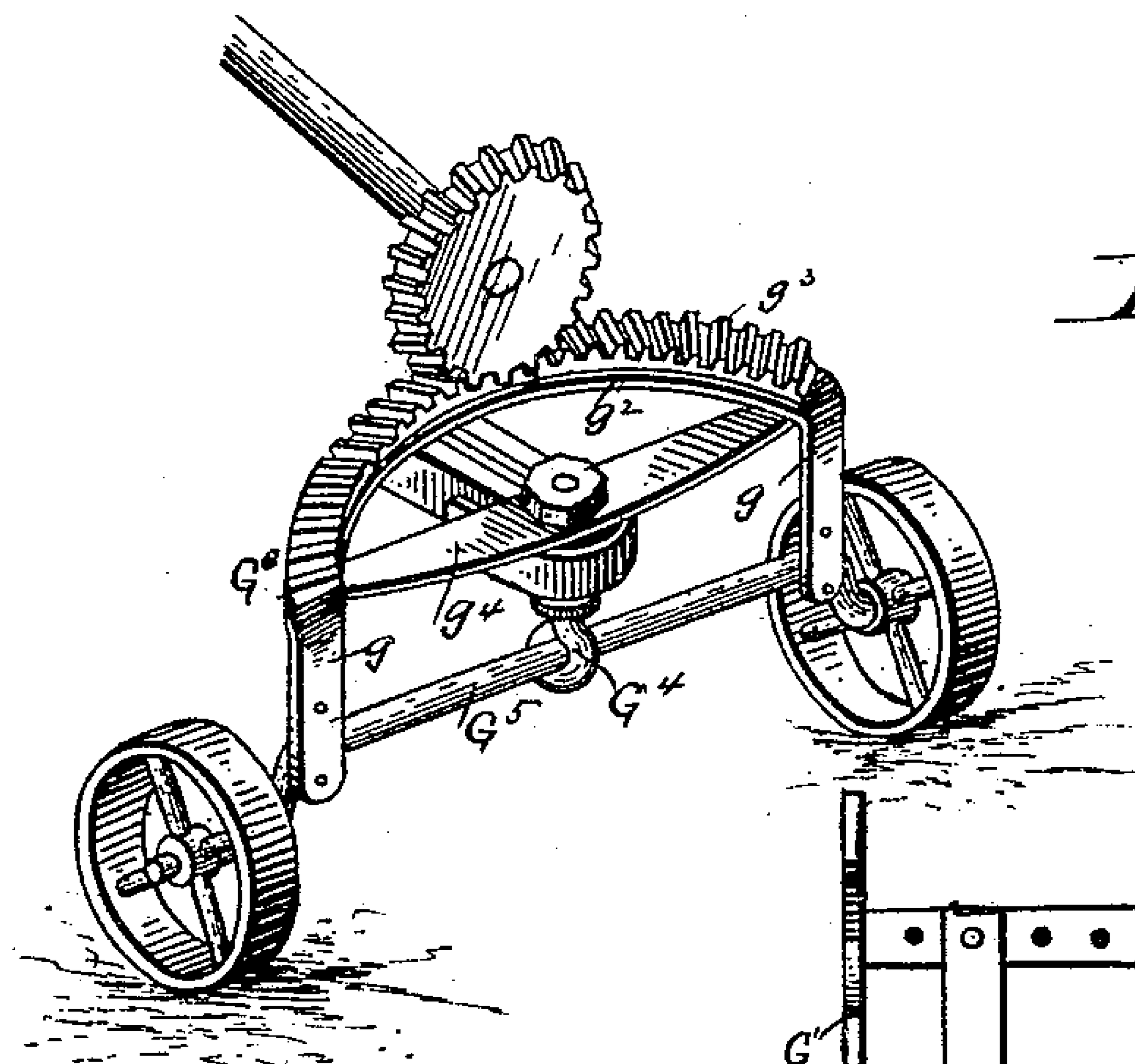


Fig. 3.

Fig. 5.

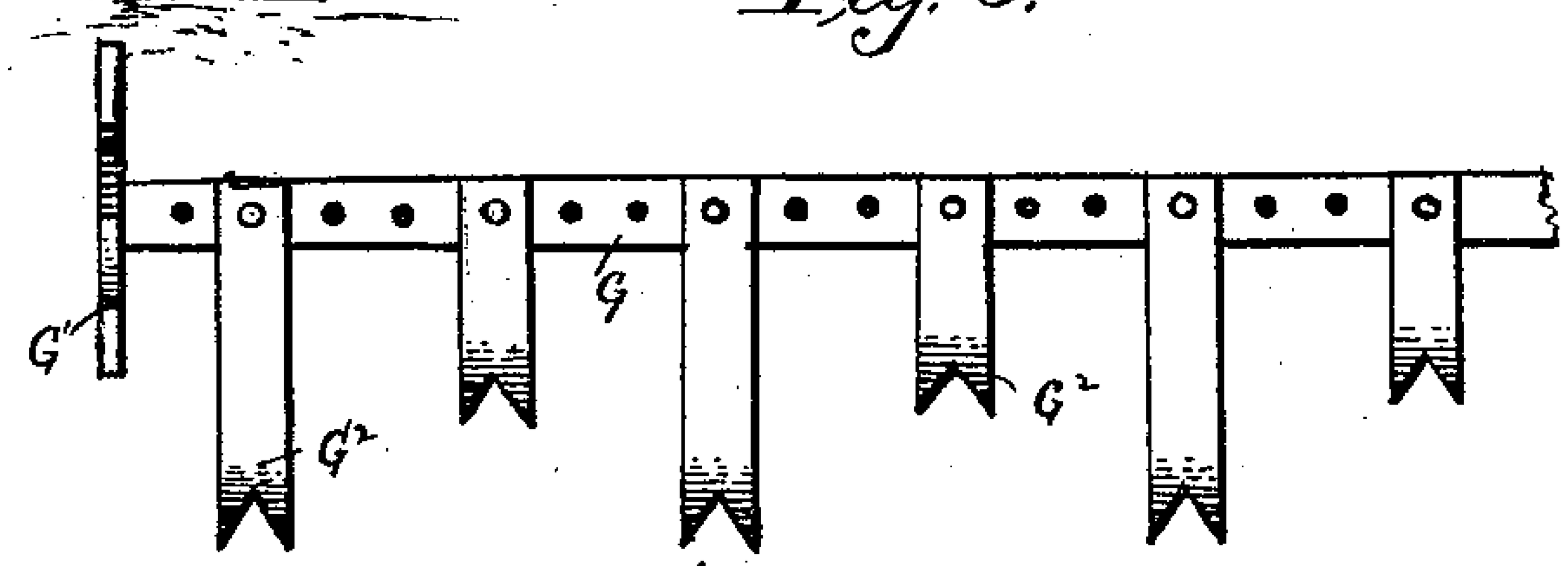
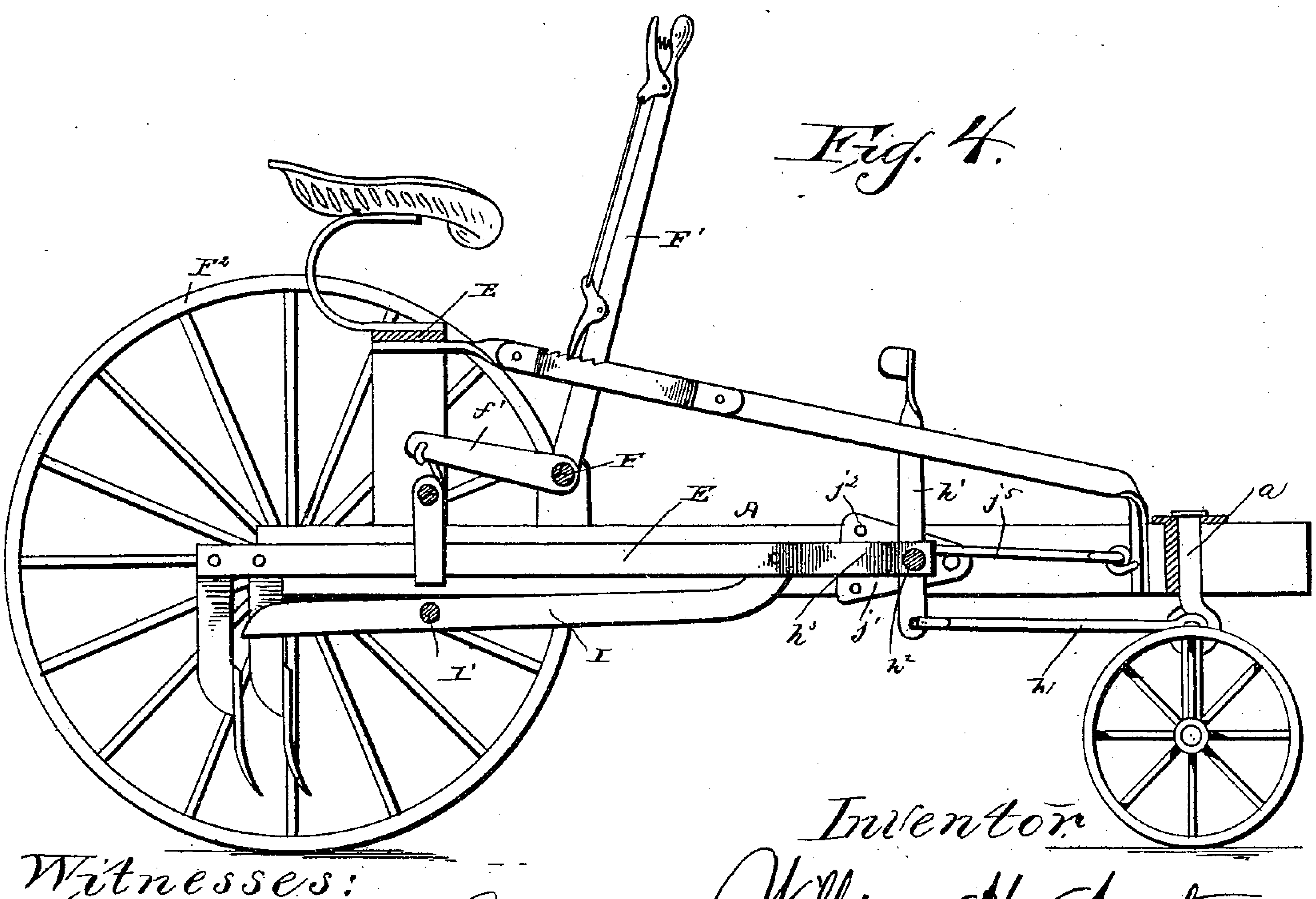


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM H. NEWTON, OF TOWER HILL, ILLINOIS.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 353,579, dated November 30, 1886.

Application filed August 19, 1886. Serial No. 211,285. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. NEWTON, a citizen of the United States of America, residing at Tower Hill, in the county of Shelby and State of Illinois, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention pertains to improvements in cultivators, having for its object to facilitate the cultivating operation; and the invention consists of the combination of parts, including their construction, substantially as hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved cultivator. Fig. 2 is a side view thereof. Fig. 3 is a view in perspective of a modification of my invention. Fig. 4 is a side elevation of another modification, and Fig. 5 is a detail plan view.

In the embodiment of my invention I employ a frame, A, with short axles *a a* for the transporting-wheels, secured at the rear ends of the side bars thereof, while at its front side, about midway, it is provided with an eye, *b*, and below this eye it is provided with a fixed circular plate or disk, *b'*, having a circular series of apertures, b^2. This eye *b* is formed by securing between the inner bent ends of the side bars of the frame the two ends of a bent plate, the curvature of which forms the eye *b*.

Through the eye *b* is passed and secured thereto an axis or spindle, *d*, adapted to permit the turning thereon of a fifth-wheel plate, *e*, having pendants *e'*, forming bearings for an axle or shaft, e^2, carrying a central steering or guide wheel, e^3. An outwardly-curved plate, *f*, is secured to the front side of the frame A, immediately in front of the eye *b*, and this plate serves as a means for the application of the draft to the machine.

Upon the inner or rear edge of the fifth-wheel plate *e* is formed an upwardly-projecting segmental rack, e^4, with which engages a segmental pinion, *g*, secured upon the lower or forward end of an inclined shaft, B. This shaft is supported near its forward end, immediately in rear of its segmental pinion, in a depending portion of a cross-bar, e^5, secured at its ends to the side pieces of an inclined supplementary frame, C, and near its rear end in a cross piece or bar, *h*, also secured at its ends to the side pieces of the said frame C.

To the rear or upper end of the shaft B is fixed at its center a cross bar or lever, *i*, to the ends of which are connected, by links *i' i'*, foot-levers or treadles D, the inner ends of which are pivoted to the inner sides of the side bars of the frame C, and the outer ends hang in a plane convenient to the driver's seat.

It is obvious that upon applying pressure to a greater extent upon one treadle or lever than upon the other treadle or lever the steering or guide wheel e^3 will be diverted from a direct line of travel, and the direction of the movement of the machine thus be changed as may be desired, while by an equal application of pressure upon said treadles or levers the same direction of movement will be maintained.

E E are the cultivator shovel or teeth beams, the inner ends of which are preferably bifurcated and slipped or arranged upon a common rod, *j*, said ends of the beams being separated by sleeves also slipped or arranged upon said rod. The outer horizontal ends of the beams E, as usual, are curved or extended downward, and provided at the free ends of their vertical portions or extensions with shovels or teeth *k*, while the beams themselves alternately vary in length, permitting of the more convenient disposition of the teeth or shovels, in that each shovel or tooth is allowed greater room for work than if all the teeth were in alignment.

The rod *j*, to which the inner ends of the cultivator-beams are connected, is supported at its ends in shoes or plates *j'*, which are pivoted at their forward ends to the inner sides of the frame A, near its forward end, while in their rear ends said plates or shoes are each provided with a number or series of holes, j^2. Through any one of each series of these holes and a hole, j^3, made in each side bar of the frame A, is inserted a bolt or pin, j^4, to permit of varying the depth of cultivation, and to retain the cultivator shovels or teeth properly to the soil; but I do not make any claim to this arrangement of parts, as the same forms part of an accompanying application of mine.

This rod *j* is also connected to the front bar

or side of the frame A by links or braces j^5, secured at their ends to the said rod and front bar or side of frame, respectively.

The cultivator shovel or teeth beams E are all connected together by a common connecting-rod, *l*, passed through clips or loops *m*, within which are suspended the said beams, and through eyebolts inclosed by springs m^2, bearing against the upper sides of said beams and the upper end of the eyebolts.

F is a rock-shaft hung or pivoted in the upright or vertical portions of triangular-shaped brackets A′, the latter being connected to the side bars of the frame A. This shaft is provided with arms *f*′, which are connected by chains or links f^2 to the beam-connecting rod *l*. It is also provided with a hand-lever, F′, which passes up through an opening formed by securing to one of the side pieces of the frame C, a short distance therefrom, a parallel bar or plate, which lever in practice is provided with a knife-edge or detent to engage with notches or a rack which is designed to be formed upon a parallel bar or side of frame, to effect the holding of the lever. The lever is, it is obvious, for retaining the cultivator-beams, with their shovels or teeth, in an elevated position when not at work.

Disposed immediately below the cultivator shovel or teeth beams E is a flat bar, G, being secured at its ends to curved perforated bars G′, one end of each of which is pivoted to the side bars of the frame A, while by passing a pin or bolt through any one of each of the perforations of each bar and a coincident perforation in each side bar of said frame the bar G may be raised or lowered and be held at the required point of adjustment. The bar G is provided with a series of transversely-arranged, preferably V-notched, plates or cleaners, G^2, with their notched portions or ends slightly curved downward and disposed coincidently with and contiguously to the vertical portions of the cultivator shovel or teeth beams, whereby upon lifting the beams their shovels or teeth will be caused to enter the notches of said plates or cleaners, and thus be deprived of adhering dirt in order to clean them. The adjustability of the bar G permits, of course, the corresponding adjustment of the cleaners G^2, as may be made necessary by the position or location of the beams with their shovels or teeth. These plates or cleaners G^2 are also laterally adjustable to accommodate them to the distance or intervals the beams may be placed apart, said bar G being apertured at suitable distance apart for the insertion therethrough and through an aperture formed in each cleaner G^2 of a pin or bolt, *g*′, thus securely retaining said cleaners in position.

In lieu of the form of caster-wheel above described, a "crazy-wheel" may be employed.

In the modification shown in Fig. 3 I dispense with the single caster-wheel, the fifth-wheel, and apertured plate of the formation shown and described, and in lieu thereof I pass through a lower eye portion of a pintle, G^4, a bail-shaped axle, G^5, upon the outer ends of which are secured caster-wheels, and to the upper horizontal portion of this axle are secured the lower ends of two oppositely-disposed vertical arms, *g*, of a bracket, G^6. The horizontal portion of these vertical arms forms a curved plate, g^2, upon the upper surface of which are formed teeth or bevels g^3 for engagement therewith of a pinion on the outer end of an inclined shaft similar to that hereinbefore described. The opposite forward ends of this plate are connected by a cross-bar, g^4, through the center of which passes the pintle G^4, upon which pintle said bracket is designed to turn or revolve.

In the modification embodied in Fig. 4 I employ a frame, A, having at its outer end the steering-axle spindle-eye *a*, the axle in practice having two small wheels sufficiently diminutive to pass under the frame in turning the machine. The spindle is connected by an eye on its lower end about centrally to the axle, and to the upper horizontal portion of this axle are connected on either side two links, *h*, the other ends of which are connected to the lower ends of two nearly-vertical foot-levers or treadles, *h*′ *h*′, the same being pivotally supported by a cross-bar, h^2, the ends of which are secured to the side pieces of the frame A. The upper longer arms of these foot-levers or treadles are passed through suitable slots or keepers formed by securing on the inner side of two inclined side bars, h^3 h^3, a supplemental bar, h^4, said side bars being secured to the front of the frame, and to the supporting-frame E of the driver's seat. By actuating the foot-levers in the required manner, as well understood, the steering of the machine can be readily controlled. To the rear ends of the frame A are secured short axles carrying wheels F^2.

The beams E, together with their clips, connecting-bar, and lever, are in all respects similar to those hereinbefore described. This modified form of my invention also embodies scrapers I, through which is passed a short distance from their outer ends a connecting-rod, I′, the ends of which are securely held in ordinary depending apertured plates secured to the side bars of the frame A, near the rear ends thereof. The forward ends of these scrapers are bent upwardly and secured by a bolt or rivet between the two bars constituting the beams E at a point about where the said bars project outwardly from each other.

The drills or plows are connected to the beams E by wooden pins at the angles between their bodies and shanks or arms, and metallic pins or pivots at the inner ends of the said arms or shanks, within slots in the outer or rear ends of said beams, among which drills and plows may be ordinary turning-plows, cultivating-shovels, sod-cutters, and colters, all of the shanks of which are made sharp to facilitate their passage through the soil.

Having thus fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the fifth-wheel plate carrying a guide or steering wheel, and having at its one edge a segmental rack or teeth, of the shaft carrying a pinion gearing with said rack, and provided with a cross bar or lever connected to foot-levers or treadles, substantially as and for the purpose set forth.

2. The combination, with the cultivator shovel or teeth beams and the pivoted curved or adjustable bars, of the bar connected at its ends to said adjustable bars, and the end-notched downwardly-bent plates connected to the aforesaid bar by nuts or bolts passed through apertures of said plates and the aforesaid bar, substantially as and for the purpose specified.

3. The combination, with the cultivator-frame, the shovel-beams, and the adjustable curved bars connected to said frame, of the bar having a series of laterally-adjustable notched plates, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. NEWTON.

Witnesses:

W. C. MAY,

W. S. HEADY.