

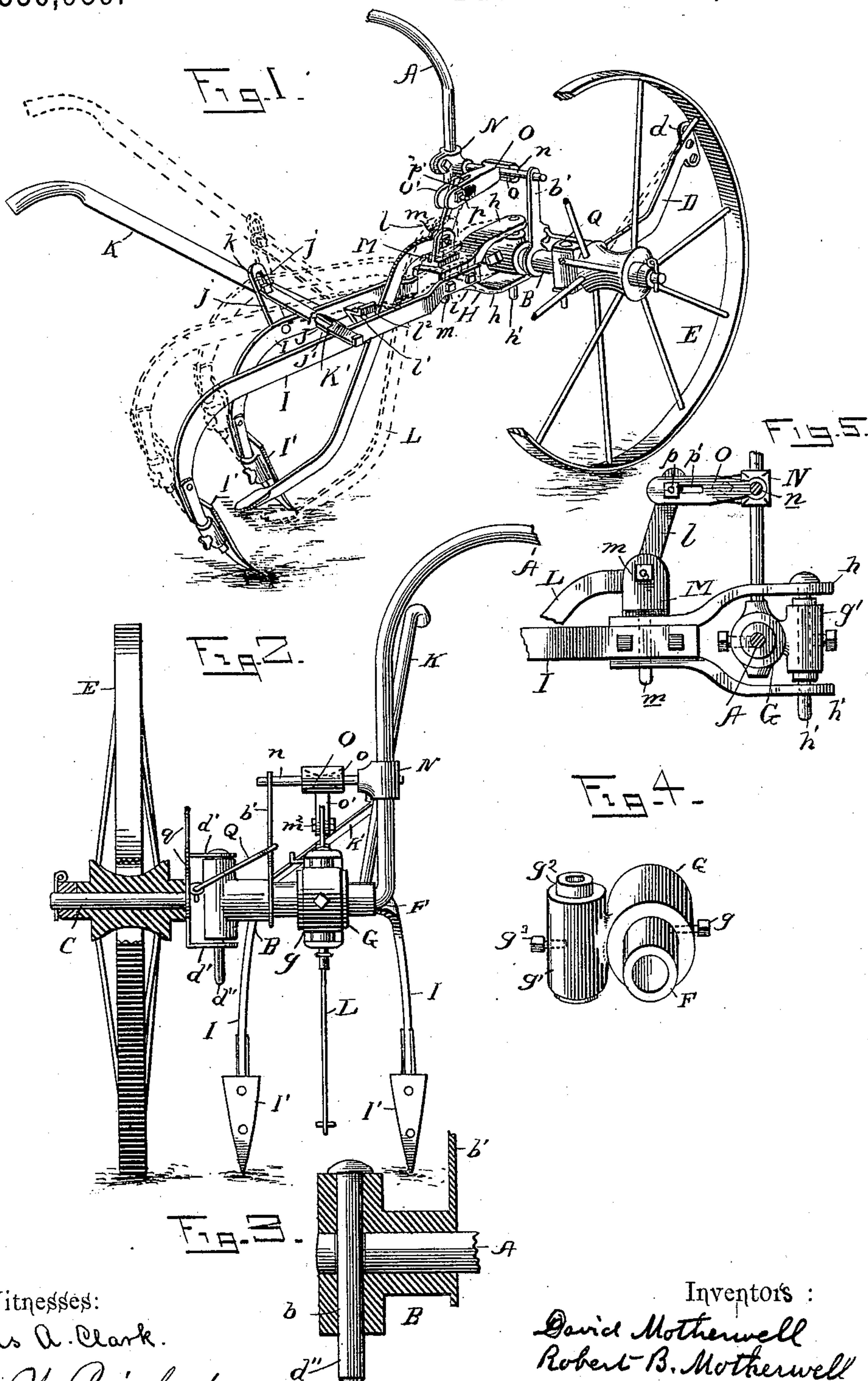
(No Model.)

D. & R. B. MOTHERWELL.

CULTIVATOR.

No. 336,939.

Patented Mar. 2, 1886.



Witnesses:
Morris A. Clark.
R. W. Bishop.

Inventors :
David Motherwell
Robert B. Motherwell
By their Attorneys:
R. B. & A. P. Lacey

UNITED STATES PATENT OFFICE.

DAVID MOTHERWELL AND ROBERT BURNS MOTHERWELL, OF LOGAN, OHIO.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 336,939, dated March 2, 1886.

Application filed November 14, 1885. Serial No. 182,842. (No model.)

To all whom it may concern:

Be it known that we, DAVID MOTHERWELL and ROBERT B. MOTHERWELL, citizens of the United States, residing at Logan, in the county of Hocking and State of Ohio, have invented certain new and useful Improvements in Cultivators; and we do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to gang-cultivators; and it consists in the novel construction of a combined axle-arm and draft-bar, and the particular means of attaching the same to the axle.

It also consists in the peculiar means and connections for attaching the drag-bars or gangs to the axle, and in the special construction of the runner and the devices for uniting the same to the axle and the drag-bars.

It further consists in the details of construction and arrangement of parts, as fully illustrated in the accompanying drawings and hereinafter described and claimed.

The objects in view are to attain a better construction and arrangement of parts, whereby the gangs are better adapted to follow the sinuosities of the rows of plants and adjust themselves to the unevenness of the ground, and the runner act as a counterbalance for the draft-bar or tongue and be free to follow the movements of the gang.

In the drawings, Figure 1 is a perspective view of one side of the machine, a portion of the wheel being broken away to better show the details of construction. The dotted lines represent the position of the gang when supported by the runner. Fig. 2 is a front view, partly in section. Fig. 3 is an enlarged detail section of a portion of the casting on the end of the axle. Fig. 4 is a perspective view of the sleeve-casting which connects the gang to the axle. Fig. 5 is a detail side elevation of the forward portion of one side of the machine, partly in section.

The axle A is of ordinary construction, and is centrally arched. On either side of the

arch is located a gang and its connections; but as the one is a duplicate of the other it is only necessary that a description of one be given. The end of the axle terminates in a vertically-apertured casting, B, which is preferably T-shaped, the aperture *b* being formed longitudinally through the cross-head. This casting is secured to the end of the axle in any well-known manner, and is provided with an arm or extension, *b'*, which projects vertically above the axle, for a purpose presently referred to. The arm may be made separate from and attached to the casting; but for economy it is found best to make it an integral part thereof. An axle-arm, C, projects laterally from a draft-bar, D, the forward end of which terminates in an elongated clevis-head, *d*, having the usual perforations. The rear end portion is expanded and has flanges *d'* extending laterally in an opposite direction to the axle-arm. Between these flanges, which are perforated vertically, the head of the casting B is inserted, and a bolt, *d''*, passed through the coinciding apertures, pivotally connects the parts together.

The axle-arm may be made separate from and united to the draft-bar; but the construction shown is preferred, as by making the draft-bar, the flanges, and the axle-arm integral there are no joints to work loose, and they may be made at one and the same casting and at a minimum cost.

Mounted on the axle-arms and secured thereto in any suitable manner, are the wheels E.

Between the inner end of the casting and the upward turn of the arch a sleeve, F, is mounted on the axle. On this sleeve is adjustably secured by a set-screw, *g*, a sleeve-casting, G, which has a vertical tubular projection, *g'*, within which is located a bushing, *g''*, held in place by a set-screw, *g'''*. The bifurcated gang-clevis H embraces the axle and sleeve-casting between its arms *h*, and is pivotally connected to the sleeve-casting by a bolt, *h'*, passing vertically through the arms *h* and the bushing *g''*. The rear portion of the gang-clevis has its sides reduced to receive the forward ends of the drag-bars I, which are lapped one on either side of the clevis and secured by bolts *i*. The drag-bars are provided

with suitable shovels, I'. A cross-bar, J, braces the drag-bars midway of their ends. This bar is made tubular or semi-tubular, to form a shield or covering for a bolt, J', which unites the drag-bars and forms a pivot for the handle K. A brace-bar, j, pivoted at its lower end to the drag-bar adjacent to the handle, is slotted or provided with a series of openings, j', at its other end. A second brace, K', pivotally mounted on the opposite end of a bolt, extends across and is connected to the handle by a bolt, k, which passes through the ends of the braces j and k and the handle. By slackening this bolt the inclination or elevation of the handle may be adjusted, as is manifest, the handle being held in its adjusted position by a retightening of the bolt.

The runner L consists of a straight or slightly curved central portion terminating in oppositely-curved ends, the upper one of which has an extension, l. An arm, l', branching from the central portion, has a flanged lug, l'', for the purpose hereinafter set forth. A support, M, for the runner has an upper bifurcated end, m, and a shank, m', by which it is swiveled in the rear end of the gang-clevis. The runner is pivoted within the bifurcated end of the support at or near the point of divergence of the extension l by a bolt, m². A two-part clip or split clamp, N, is adjustably connected to one side of the arch of the axle, and from its side, parallel with the horizontal portion of the axle, projects an arm, n. The opposite end of this arm is supported in the upper end of the extension b' of the casting B. The rod or arm n may be screwed into the side of the clamp, its opposite end being irregular-shaped for the reception of a wrench for the purpose. A coupling, O, having a tubular head, o, and a rear extension, o', serves to connect the upper end, l, of the runner with the rod n. The bore of the head o increases from its central or middle portion toward each end; or the head may be cut away on its rear side on opposite sides of the extension o', to permit the oscillation of the coupling on the bar n in unison with the drag-bars. The rear extension of the coupling is vertically slotted to receive the end of the runner, and a bolt, p, passing transversely through the end of the runner and through slots p' in the extension o' of the coupling, pivotally connects the two. The slots p' in the coupling permit a free vertical movement of the gangs. When it is desired to lock the axle-arm to the axle, the hook Q, attached to arm b' of the casting B, engages with an eye, g, on the draft-bar.

While we have described the sleeve F, the sleeve-casting G, and the bushing g' as being separate and distinct parts, it is manifest that they may all be made integral and at a single casting, and in some instances, as when the cultivator will not be subjected to hard usage, this will be a desideratum, as it will greatly diminish the cost of the machine; but where the machine is designed for constant use, the

wear on the sleeve F and bushing g' will be very great, and as they will become quickly worn these parts may be replaced at a small cost without replacing the whole casting, which would be the case if the parts were integral.

In practice, when the gangs are down and in position for work, the runner and the connections are so proportioned and arranged that the lower end of the runner is elevated at a distance from the ground and forms a counterpoise for the draft-bar; but when it is designed to throw one of the gangs out of the ground a downward pressure on the free end of the runner and an upward thrust on the gang will elevate the latter sufficiently to permit the lug l'' of the arm l' of the runner to be passed underneath one of the drag-bars, when the gang will be thus supported, as clearly indicated in dotted lines.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the axle, a gang flexibly connected therewith, a runner pivotally supported on the gang, a rod supported above the horizontal portion of the axle, a coupling sleeved on said rod, its rear end being vertically slotted to receive the upper end of the runner, and having slots formed transversely therethrough, and a bolt passed through the end of the runner and the transverse slots of the coupling, whereby the gang has a vertical movement independent of the runner.

2. In a cultivator, the combination of a gang flexibly connected to the axle to have a free vertical and horizontal movement, a runner swivelly supported on the gang, the forward end of the runner being extended upward from its support, a rod supported above the horizontal portion of the axle, and a coupling having one end sleeved on the rod and its other end pivotally connected with the extended end of the runner, the bore through the sleeve portion of the coupling being enlarged on either side of the central point.

3. In a cultivator, the combination of the axle, a gang flexibly connected therewith to have a free horizontal and vertical movement, a runner pivotally connected with a support swiveled in the gang, the forward end of the runner being extended, a rod projected from the arch of the axle and extending over its horizontal portion, the rod being braced on the outer end by an arm projecting from the axle, a coupling sleeved at one end on said bar, its other end being vertically and transversely slotted, the extended end of the runner being seated in the vertical slot of the coupling, and a bolt passed through the transverse slots thereof and the end of the runner to hold the parts together, the bore through the sleeved end of the coupling being increased in size in opposite directions from a central point, as and for the purpose specified.

4. The combination of the axle, a gang

flexibly connected therewith, a casting on the
outer end of the axle-arm, an arm integral
with and projected upward from the casting
parallel with the axle-arch, a clamp adjust-
5 ably secured to an arm of the arch, a rod sup-
ported transversely by the clamp and the arm
of the casting, a coupling having one end
sleeved on said rod, and a runner pivotally sup-
ported on the gang and having its upper end

pivotally connected with the free end of the
coupling, as and for the purposes set forth.

In testimony whereof we affix our signatures
in presence of two witnesses.

DAVID MOTHERWELL.

ROBERT BURNS MOTHERWELL.

Witnesses:

S. H. BRIGHT,

W. H. TOOLE.