(No Model.)

J. E. WELLER.

SELF GOVERNING CULTIVATOR.

No. 245,423. Patented Aug. 9, 1881.

Fig. 1

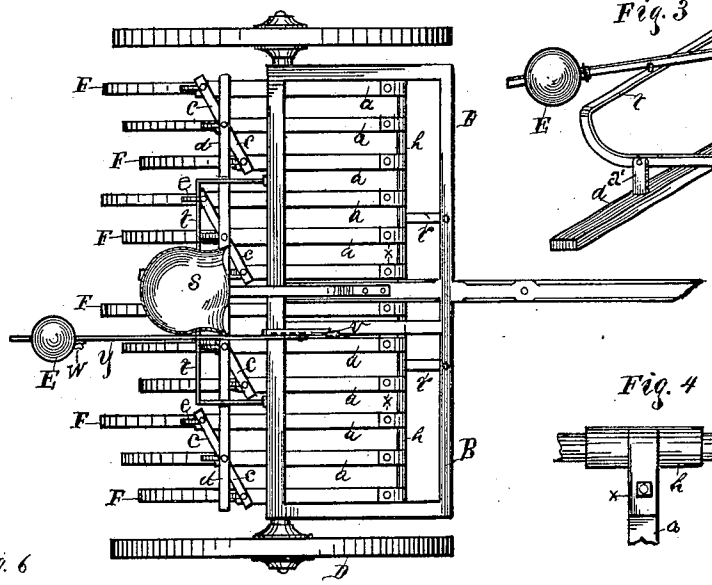


Fig. 3

Fig. 4

Fig. 6

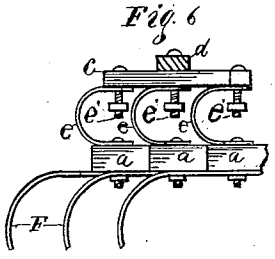


Fig. 5

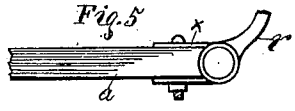
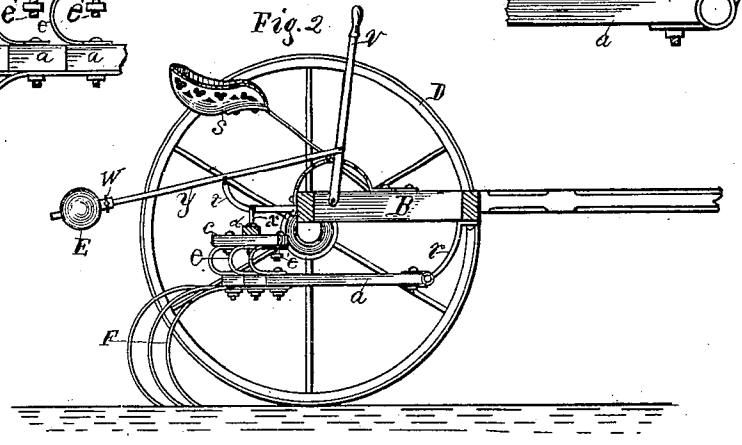


Fig. 2



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES E. WELLER, OF KALAMAZOO, MICHIGAN, ASSIGNOR OF ONE-HALF TO WM. R. BEEBE AND S. E. WALBRIDGE, BOTH OF SAME PLACE.

SELF-GOVERNING CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 245,423, dated August 9, 1881.

Application filed March 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. WELLER, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Self-Governing Cultivator, of which the following is a specification.

My invention relates to devices for cultivating the soil which are constructed with hinged independent beams, to which the teeth or shares are secured; and it has for its object certain improvements in the same, hereinafter fully set forth, whereby shares connected with such beams do more effectual work, are more conveniently and accurately controlled, and the device is to a certain extent self-governing.

The construction effecting my improvements consists in dividing the beams bearing the teeth off into lots of three beams in each, or other suitable number, and connecting said beams of each lot with a short bar, said connection being effected by a spring securely fastened to said beams and loosely connected to said connecting-bar by loose bolts. These several short connecting-bars of each lot are all connected with a long bar running obliquely across them and parallel with the axle of the machine, said connection being either rigid or otherwise by means of the loose bolts. To said long bar is connected a bar by pivot, which supports a weight-arm that is jointedly connected with it, said weight arm bearing an adjustable weight, and is pivoted to an upright hand-lever engaging a ratchet-plate.

In the drawings forming a part of this specification, in which similar letters of reference indicate like parts, Figure 1 is a top view of my improved cultivator complete; Fig. 2, a cross-section on the line of the weight-arm in Fig. 1; Fig. 3, a detached perspective of weight-arm and supporting-connections; Fig. 4, a detached portion, showing the method of hinging the share-beams; Fig. 5, the same in side view; and Fig. 6, a detached portion of three beams, with springs and short connecting-bar.

In Figs. 1 and 2 is illustrated a cultivator-frame, B, supported by wheels D, having a rod supported by braces *r r*, to which rod are hinged the share-beams *a a*, bearing teeth F F. The hinging of said beams *a a* is effected by confining-clips *x*, which are kept apart by thimbles *h*, threaded on the rod between said clips. The eyes in the braces *r*, through which the hinge-rod passes, take the place of thimbles *h* at the points where they are located. The beams *a a* are graduated in regard to length in lots of three, as seen in the drawings. This effects a more practical arrangement of teeth and allows obstructions to pass out between the short and long contiguous teeth of the lots or divisions. On the top rear end of these graduated associated share-beams are rigidly secured springs *e*, of any suitable construction, preferably as shown, and to said springs the connecting-bar *c* is pivoted by means of the loose bolts *e'*. These bolts, called "loose bolts" for convenience, are inserted in holes somewhat larger than themselves, and have a space between the device they pass through and the nut. This allows the tooth-beams to drop down or the connecting bars or beams *c* to be raised up a given distance without affecting the spring, thus imparting greater freedom of action to the teeth and all parts thus connected.

The purpose of the short bars *c* is to locate the bearing of bar *d* at the same point on each share-beam. Were said share-beams all of the same length, beams *c*, if desired, might be dispensed with. Each rank of share-beams connected by bar *c* is pivoted to bar *d* by a loose bolt, *e'*, passing through both bars *c* and *d*; or this connection may be rigid, as in Fig. 2.

The purpose of the long bar *d* is to bring control upon all the tooth-beams in unison, when desired, by means of weight E on arm *y*, and also when desiring to release all the teeth from the soil at once by lever *v*. The weight-arm *y* is jointedly connected with bar *t*, said bar being hinged to the rear of frame B and pivoted to bar *d* by support or standard *d'*.

By removing some of the center share-beams or by embodying my construction in a device especially adapted for the purpose a successful corn-cultivator may be formed.

My device as illustrated is adapted for preparing the soil for seeding; but by connecting a seed-box in the usual manner it can be successfully used as a seeder.

In operation the device is adjusted in accordance with the state of the soil and the ef-

fect desired by means of lever *v* and weight E. Moving the weight toward the rear increases the stiffness of springs *e*, and hence bears them down harder on the share-beams. Still, by this peculiar construction the action of the teeth and other parts is just the same as when the weight is at other locations or when the teeth run shallow, and each share-beam is independent of the others in its capacity to clear obstructions. If the weight E is located at the farthest point to the rear on arm *y* and still greater bearing down on the teeth is desired, it may be effected by the driver bringing lever-arm *v* toward him, which inclines the arm *y* rearwardly and increases the pressure.

One prominent point in favor of my device is the cheapness of its construction, by which I am enabled to do the same work as devices costing double the price. Another is that the shares or teeth do not extend beyond the rear of the transporting-wheels, and hence my device has a very light draft.

I do not claim to be the originator of independently-hinged share-beams; but

What I do claim and desire to secure is—

1. The independent light share-beams bearing springs loosely connected to the loose bolts, in combination with the diagonal short bars, connecting long cross-bar, and the weight-arm, whereby the share-beams are given a free vertical play on said bolts and are controlled and operated substantially as set forth.

2. In a harrow or cultivator, the share-beams *a*, independently pivoted to the cross-bar *d*, in combination with the standard *d'*, bar *t*, hinged to the rear side of the frame, lever *v*, and weight-arm *y*, substantially as shown and described.

3. In a harrow or cultivator, the clusters of independently-hinged share-beams of graduated lengths, each beam having a spring secured on its rear end which is loosely connected with a short bar connecting the beams of each cluster, in combination with the coupling-bar secured to the short bars and bearing the weight-arm and its supporting-bar, all substantially as shown and described.

JAMES E. WELLER.

Witnesses:
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