(No Model.) 2 Sheets—Sheet 1.

D. S. BLUE & L. HALTER.

CULTIVATOR.

No. 382,945. Patented May 15, 1888.

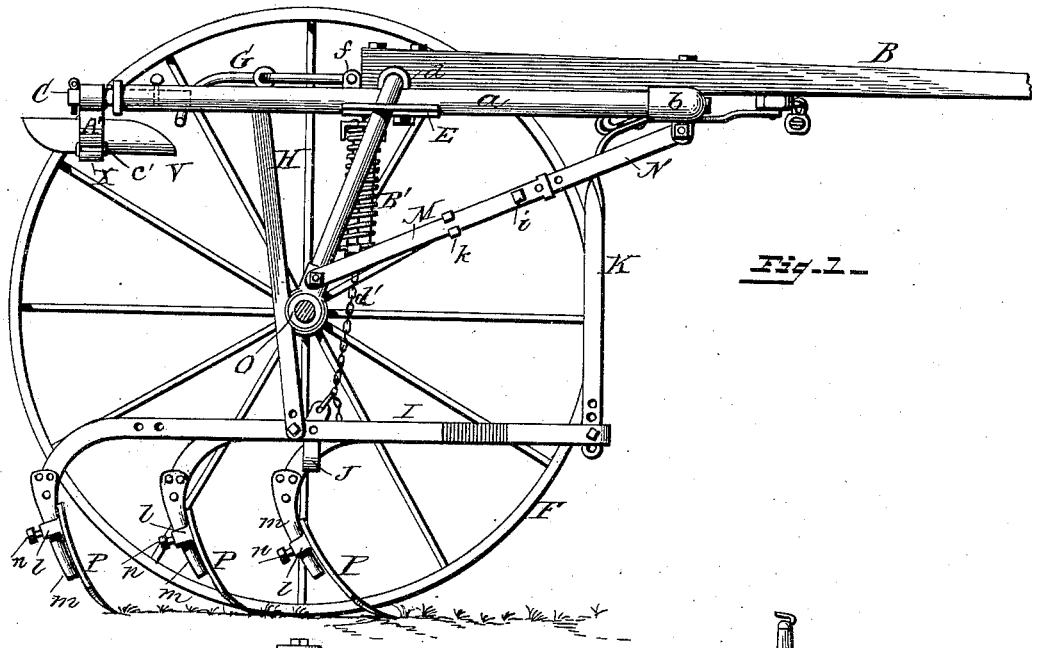

Fig. 1.

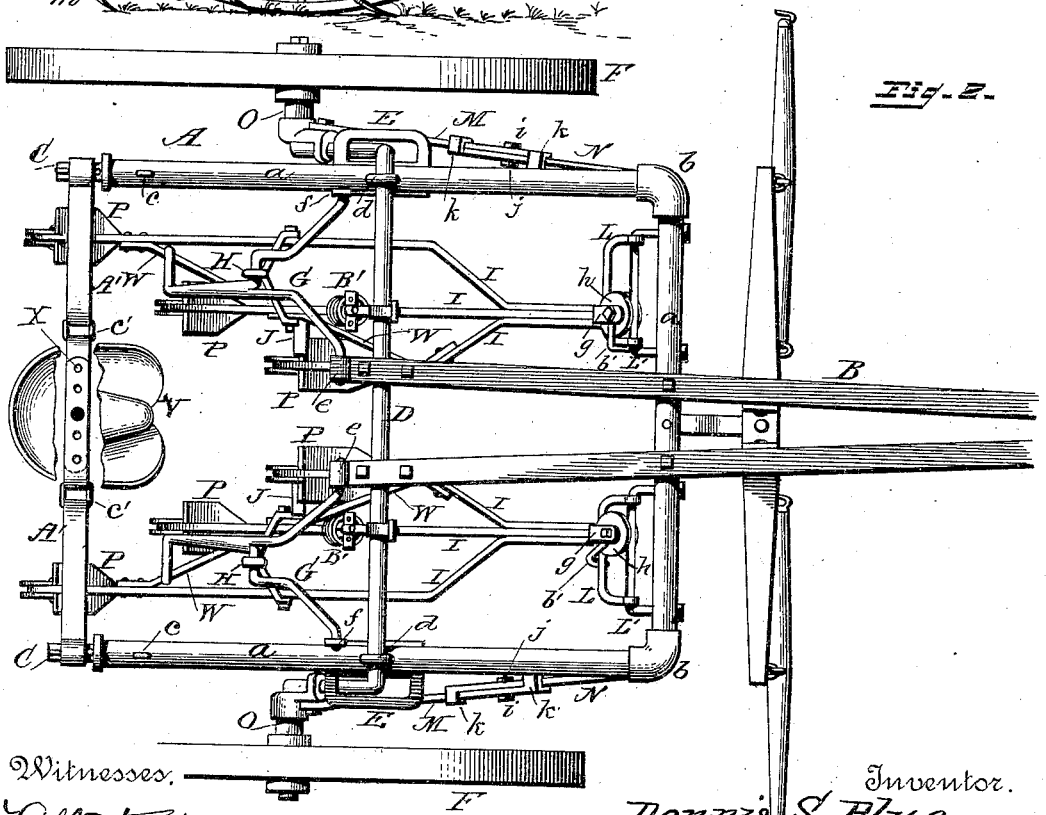

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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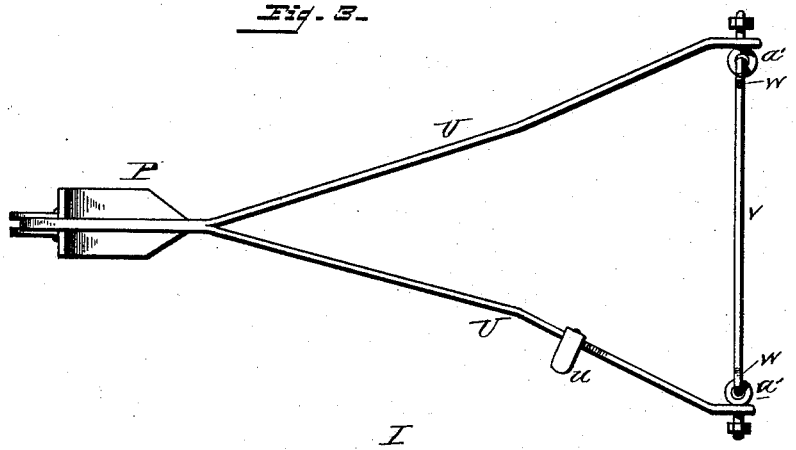
Fig. 3.



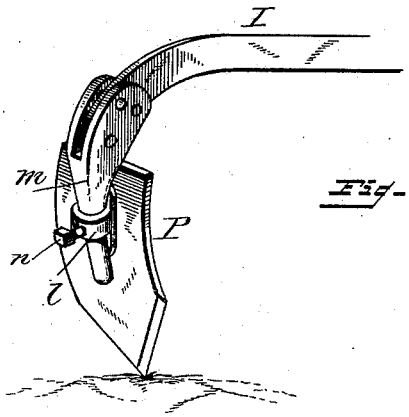


Fig. 4.

Fig. 5.

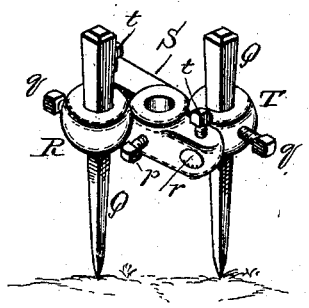
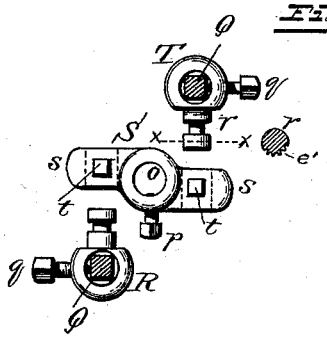


Fig. 6.



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UNITED STATES PATENT OFFICE.

DENNIS S. BLUE AND LEANDER HALTER, OF FREMONT, OHIO.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 382,945, dated May 15, 1888.

Application filed January 21, 1888. Serial No. 261,518. (No model.)

To all whom it may concern:

Be it known that we, DENNIS S. BLUE and LEANDER HALTER, citizens of the United States, residing at Fremont, in the county of Sandusky and State of Ohio, have invented certain new and useful Improvements in Cultivators; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a side elevation of our improved cultivator with one of the wheels removed; Fig. 2, a top plan view thereof; Fig. 3, a top plan view, in detail, of the cultivator-beam to which the shovel is connected; Fig. 4, a detail view, in perspective, showing the manner of connecting the shovel to the end of the beam; Fig. 5, a detail view, in perspective, showing the means employed for attaching harrow-teeth when used in connection with the cultivator; and Fig. 6, a detail plan view showing the several sections of such means separated from each other.

The present invention has for its object to improve the construction of that class of cultivators for which a patent was granted to us January 18, 1887, No. 356,094; and the invention is designed as an improvement thereon, which improvements will be hereinafter described, and subsequently pointed out in the claims.

In the accompanying drawings, A represents the frame, composed of tubing *a*, coupled together at their front ends by screw-threaded elbows *b*, and has bolted thereto the tongue of the cultivator, as shown at B, to the under side of which is attached the usual whiffletree, as more clearly shown in Fig. 2.

The frame A is lengthened, as in our former patent, by means of the extensible rods C, which are held in their extended position by set-screws *c*, and the crank-axle, instead of being made in sections connected to screw-couplings on the side tubing of the frame, consists of a continuous rod, D, which extends through eyes *d* on the sides of the frame, and the crank ends passing down through yokes E, extending outwardly from the sides of the frame A, and are suitably connected thereto.

To the crank ends of the axle D are loosely mounted the wheels F, and to the horizontal portion of the axle are connected the bifurcated ends of the tongue B, the rear ends of which are provided with eyes *e*, and the yokes E have eyes *f* to form bearings for the ends of bifurcated levers G. These levers have loosely connected to them the bifurcated standards H, which are in turn connected to the cultivator-beams I, of similar construction to those shown in our former patent, and therefore need no further description. The central ones of the cultivator-beams have the usual stirrups, J, to receive the foot of the driver when it is desired to move the cultivator to either the right or left. The forward ends of the cultivator-beams have adjustably connected to them the draw-bars K, which are bifurcated at their upper ends, as shown at *g*, and between these bifurcations are journaled the grooved rollers *h*, which work on guides L. These guides, unlike those in our former patent, are loosely hung on brackets L′, secured to the front of the frame A and extend inwardly and horizontally, as shown in Fig. 2.

So far as described, the construction does not differ materially from that shown in the patent to which this is an improvement, except that it be the axle and manner of connecting the guides upon which the rollers work to the frame of the cultivator.

We will now proceed to describe the several features of difference existing in the present construction over the former patent hereinbefore referred to.

The braces connecting the crank ends of the axle with the frame are constructed in two sections, M N, which are capable of adjustment to shorten and lengthen them, the two sections of the brace being connected together by means of a screw-bolt, *i*, and nut *j*, the bolt passing through one of a series of holes in the section M, and the lapping ends of the sections having guides *k*, which overlap and embrace its fellow section. The sections N are suitably connected to the front of the frame A, and the sections M are connected to hollow bearings O, upon which the hubs of the wheels are loosely mounted, and through which the crank ends of the axle pass.

By adjusting the brace-sections M N to

shorten it the leverage in rear of axle is lengthened, and when the sections are extended or the brace lengthened the axle at its crank ends are brought or forced in a direction toward the rear of the frame A, thereby shortening the leverage from axle back to seat of the cultivator. By this means the rider can be balanced, no matter what weight is upon the seat; also, it can be used with equal advantage with a walking-cultivator.

The shovels P are provided at their rear sides with sleeves *l* to slip on shanks *m*, adjustably connected to the beams I, and are held thereon by set-screws *n*, as shown more clearly in Fig. 4. We have provided means for connecting to the beams suitable harrow-teeth, as shown at Q, in which is provided a bracket formed in three sections, R S T, the central section, S, having a hub, *o*, for connecting it to the shank *m* of the beam L, and which is held thereon by means of a set-screw, *p*. The outer bracket-sections, R T, are designed to receive the harrow-teeth, which are held thereto by set-screws *q*, said sections being the same in construction and having laterally-extending grooved shanks *r*, which enter holes in the arms *s* of the bracket-section S, and are held at any angle by means of the set-screws *t*.

It will be noticed that the teeth can be set in different positions, either to slope backward, so as not to turn up sod, or may be set perpendicular or adjusted to pitch forward, as circumstances require. This bracket is more especially intended to take the place of the two front shovels while the corn or plant is small, one of these brackets with the teeth being placed on each side of the row of corn or plant.

In Fig. 3 is shown a cultivator-beam for a single shovel, which is adapted to certain kinds of work, and has laterally-extending arms U sufficiently wide apart to be attached to the draw-bars K and hold said draw-bars and beams at the proper distance apart. On one side of one of the arms U is a claw, *u*, which engages with one of the beams, so that by lifting the lever G on the right-hand side four shovels will be raised, while the right-hand lever elevates three shovels. This beam (shown in Fig. 3) is attached between the beams L by a rod, *v*, with eyes *w* at its ends, which have connected to them eyebolts *a'*, the same passing through holes in the extremities of the arms U, whereby they are connected to the bars K and beams I with a universal joint. By this means the shovels of each gang may be operated independent of each other. It is preferred to have the front beam of each gang of shovels provided with a shorter curve than the rear one, and the center or middle beam with a curve not as pronounced as the front and more than the rear beam, so that the shovels will have the proper pitch. The beams are also provided with braces W, which are arranged diagonally between the center and outer beams and firmly secured thereto. The employment of the brackets L' and the guides L enables the gangs and shovels to adjust themselves to their work, which cannot be done with stationary rod or hitch.

The bifurcated ends of the draw-bars K are provided with hooks *b'*, which can be changed to either side of the rollers *h*, or may hang in the rear or outside of clevis. These hooks, when the rows of corn are straight, will hold the gangs so as to run close to the corn or a little way from it, and if the rows of corn are crooked or irregular the hooks can hang on the outside, so that the rollers can move full length of clevis.

The seat V is connected to the transverse spring X in the same manner as in former patent, also is detachable therefrom, and the spring being formed in two perforated sections, it is capable of being lengthened or shortened.

So far the construction is the same as in our former patent herein referred to; but instead of extending the ends of the spring to the rods and there connecting them, straps are employed, as shown at A', which are attached to the ends of the spring X by means of links *c'*. Thus when the seat is raised or lowered the joint formed by the links and straps prevents the spring from bending when changed in different positions.

The loops or yokes E, previously described, answer two purposes—viz., when drawn up tight to the frame A by suitable bolts and nuts, they serve as a support to hold the frame out to the axle, so as not to draw in by the weight of the driver, and to support the tubular iron of the frame, as well as providing stops to limit the throw of the axle and guide it in its movement. Each gang of shovels and beams thereof are connected to the axle by means of a spiral spring, B', and chain *d'*, whereby they will yield if the shovels come in contact with an obstruction, and, further, as an additional means of suspending the beams. The ends of the grooved shanks *r* upon their under side are serrated, as shown at *e'*, so as to provide additional security against their slipping.

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

1. The combination, with the draw-bars K, provided with rollers *h* and hooks *b'*, of the guides L, connected to independent brackets L', substantially as and for the purpose set forth.

2. In a cultivator, the draw-bars K, provided with rollers *h* and hooks *b'*, in combination with the beams I, carrying shovels P, and the guides L, connected to independent brackets L', substantially as and for the purpose specified.

3. In a cultivator, the axle D, extending through eyes *d* on the frame, and the yokes E, having eyes *f*, in combination with the levers G, for raising the shovels, and the springs B' and chains *d'*, substantially as and for the purpose described.

4. In a cultivator, the combination, with

the frame and axle thereof and the hollow bearings O, through which the axle passes, of the extensible braces formed of the sections M N, having overlapping guides and adjustably connected together, substantially as and for the purpose set forth.

5. In a cultivator, the combination, with the extensible rods C and straps A′, connected thereto, of the seat V and springs X, formed of adjustable sections and connected to the straps by links *c′*, substantially as and for the purpose set forth.

6. The combination, with the beam I, having shank or boot *m*, of the bracket for attaching thereto the harrow-teeth, consisting of the sections R S T, the two outer sections having grooved shanks *r*, and the middle section having perforated arms therefor, and a hub, *o*, for connecting it to the shank or shoe of the beam, and set-screws for connecting the several parts together, substantially as and for the purpose specified.

7. The beams and draw-bars of a cultivator and the brackets consisting of the sections R S T, detachably connected together and adapted to carry harrow-teeth, in combination with the beam-arms U, claw *u*, rod *v*, and screw-bolt *a′*, formed with eyes to receive the eyes of the rod, substantially as and for the purpose described.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

DENNIS S. BLUE.
LEANDER HALTER.

Witnesses:
GEORGE BAKER,
JAMES H. FOWLER.