(No Model.) 2 Sheets—Sheet 1.

B. A. KNIGHT.

CULTIVATOR.

No. 265,830. Patented Oct. 10, 1882.

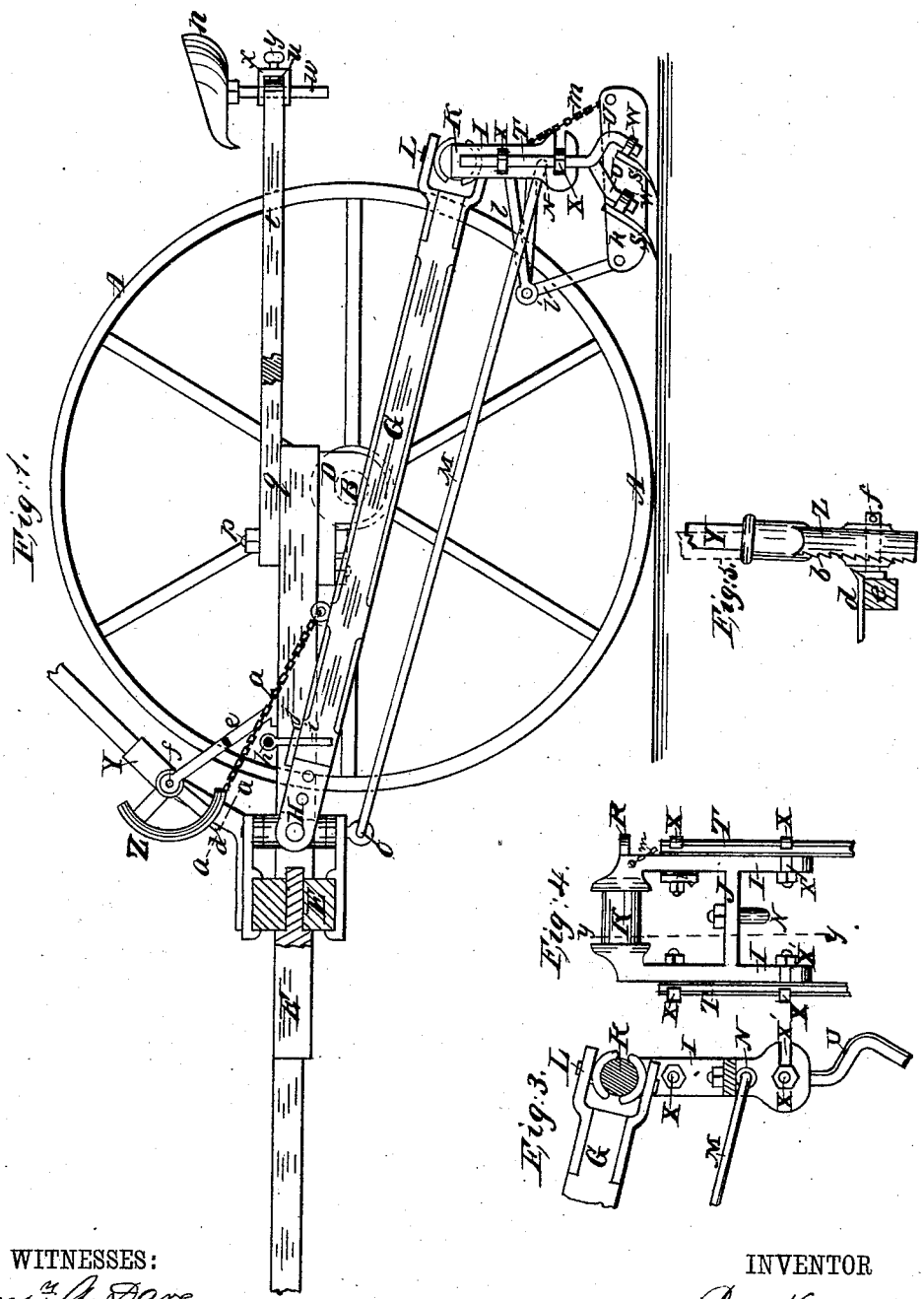

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 3.

WITNESSES:

Benj. A. Dare

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BY Munn & Co

ATTORNEY

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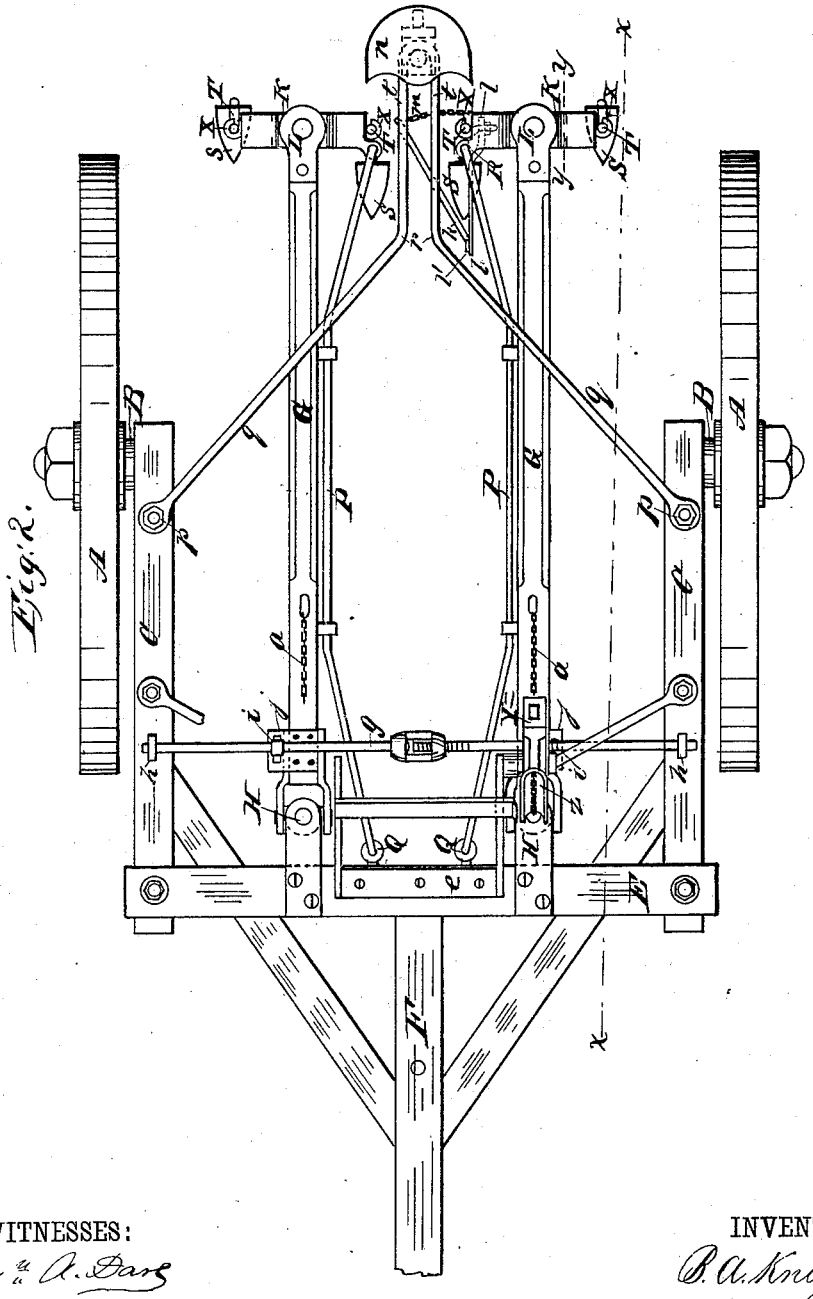
Fig. 2.



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UNITED STATES PATENT OFFICE.

BRADFORD A. KNIGHT, OF BEATRICE, NEBRASKA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 265,830, dated October 10, 1882.

Application filed April 26, 1882. (No model.)

To all whom it may concern:

Be it known that I, BRADFORD A. KNIGHT, of Beatrice, in the county of Gage and State of Nebraska, have invented new and useful Improvements in Cultivators, of which the following is a full, clear, and exact description.

This invention consists in a peculiar construction and arrangement of some of the parts of the machine, as will be hereinafter more fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved cultivator, taken on the line *x x* of Fig. 2. Fig. 2 is a plan view, one of the levers for lifting the plows being detached. Fig. 3 is a vertical section through one of the plow-stocks on line *y y* of Figs. 2 and 4. Fig. 4 is a rear elevation of one of the plow-stocks. Fig. 5 is a detail section on line *a a* of Fig. 1, showing the ratchet arrangement of the levers for lifting the plows out of the ground.

The wheels A are mounted on short axles B, secured to the longitudinal beams C of the truck-frame by the stud-brackets D. The beams C extend forward close alongside of the wheels, a little beyond them at the front, where they are rigidly attached to the cross-beam E, to which the tongue F is attached, and forming what is practically the axle of the truck, said axle being projected ahead of the wheels. The plow-beams G are coupled to this beam by the universal joints H. The plow-stocks, which consist of the vertical parallel bars I and cross-bars J and K, are coupled to the rear ends of the plow-beam G by the universal joints L. Under each plow-beam is a parallel rod, M, connecting each plow-stock at N in the vertical axis of joint L, and with the beam E at O in the vertical axis of joint H. This connection maintains the plow-stock in vertical position when rising and falling by the vertical swing of the beam G. It also draws the plows along in the ground. Along the inside of each beam G is a parallel rod, P, connected to the beam E at Q in the horizontal axis of the joint H, and also connected to the plow-stock at R in the horizontal axis of joint L. This connection maintains the plow-stock parallel with the beam E, and thus keeps the plows S in their proper positions relatively to each other when the beam G swings laterally, whether by the effect of the earth upon them or by shifting them to alter the distance between the plows of the two beams. Thus it will be seen that by these two parallel motions the two plows of each stock will work alike as to depth, although set one ahead of another, no matter how much the beam may swing up and down on the joint H, and they will continue alike as to the advance of one beyond the other, although set on opposite sides of the vertical axis of the plow-stock, no matter how much the beam G may swing horizontally on the joint H.

For shifting the plows relatively to their distances apart and to the advance of one beyond the other on the plow stocks, they are mounted on said plow-stocks by the vertical rods T, having an offset bend or crank, U, between the lower end, where the plow is attached by a socket, W, and the upright part, where they are detachably and adjustably attached to side bars, I, of the plow-stocks by the hook-bolts X, allowing them to be turned readily as required to swing the plows by the cranks U. The wrist of this crank is out of parallel with the body of the rods T, preferably forming an angle of about forty-five degrees with it, for the purpose of canting the plows either way by revolving them on said cranks, and of still further changing their direction and pitch by revolving the rod in its bearing. The plows are also fitted by their sockets W, so that they can be turned readily on the rods, and be secured as desired by set-screws, nuts, or other devices.

The plow-rods T may be shifted forward and backward on the upper bolts, X, to alter their pitch by shifting the lower bolts, X, in the slots X′ in the bars I of the plow-stocks.

To raise and lower the plows by the hand-levers Y, the levers have a grooved sector-pulley, Z, to which the beam is connected by a chain, *a*, the said pulley being relatively arranged to the joint H, so that the chain draws or winds thereon in the vertical axis of said joint, in order that the beams will not be affected as to their lateral swing by being thus raised or lowered. The levers have the usual ratchet,

b, for fastening them, for which I have provided fixed catches *d* on the standards *e*, that support the pivots *f* of the levers, with which the ratchet is engaged and disengaged by lateral movements of the levers on their pivots *f*, the pivots being made a little slack for that purpose.

To hold the plow-beams more or less apart, an extensible swivel-jointed rod, *g*, is arranged across the beams from frame-bars C and attached to them by eye-studs *h*, which rod has a strong pin, *i*, extending down through a slotted plate, *j*, on each beam G, the rod being located near the front ends of the beams, where, by shifting the swivel a little, the plows will be shifted to a greater extent.

For running the plows of both stocks between the rows of corn to throw the earth from the middle each way up to the rows, the beams will be adjusted closely together and the plows will be adjusted as shown in Fig. 2, the inner ones being advanced. If it be desired to first scrape the weeds away from the corn, the positions will be reversed, the outer plows being advanced and the inner ones set back.

When it is desired to straddle the corn by the plows of the two beams the beams will be shifted apart, and for throwing the earth up to the corn the outer plows will be advanced and the inner ones set back. In this case I propose to have a shield, *k*, suspended a little inside of the inner plow and obliquely thereto, as shown in Fig. 2, by the arm *l*, link *l'*, and chain *m*, to press back the leaning corn and protect it from injury by the plows, the arm and the chain being detachably connected to the plow-stock for applying and removing the shield when desired.

The driver's seat *n* is mounted on a support consisting of a bar having its ends bolted to the frame-timbers C at *p*, extending obliquely therefrom along the parts *q* to *r*, from where it extends along parts *t*, parallel to each other, to the return-bend *u*, the said bar being projected rearwardly a suitable distance to balance the truck by the rider. The seat is attached for adjustment along either member of this bar, also for vertical adjustment, by the standard *w*, clip *x*, and set-screw *y*, the clip being arranged to slide on the supporting-bar and the standard *w* arranged to slide in the clip, so that the set-screw *y* tightens both the clip and the seat-standard at the same time.

I am aware that plows have before been hung on universal joints and kept upright by means of parallel bars, and I do not claim this, broadly, as my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the beam G and bar M, hung to the beam E by the universal joint H O, of the plow consisting of the parallel bars I for supporting the plows, the cross-bar J, pivoted to the drag-bar M, and the cross-bar K, horizontally journaled in boxes which are vertically journaled at L in ears projecting from the beam G, as shown and described.

2. The plows S, connected to bent or crank rods T U, in combination with plow-stocks I J K by hook-bolts X, as shown and described.

3. The combination of the plows S, connected to and fitted adjustably on bent rods or cranks T U, with the stocks I and means for adjusting them on said stocks, as shown and described.

4. The combination, with plow-beams G, of plow-stocks consisting of vertical bars I and cross-bars J K, pivoted to said beams, and having plow-rods T and plows S connected to said stocks, substantially as specified.

5. The combination of the shields K, the bars *l* and *l'*, and chain *m* with the plows S and plow-stocks, as shown and described.

6. The combination of the swivel-jointed rod *g*, eyes *h*, and pins *i* with the laterally-adjustable plow-beams G and slotted plates *j*, attached to said beam, as shown and described.

7. The combination of fixed catches *d* with the ratchets *b* of the lever-pulleys Y Z, said lever-pulleys being arranged for lateral motion on their pivots *f*, substantially as specified.

8. The plow-rods T, connected to the plow-standards by upper and lower hook-bolts, X, and the lower hook-bolts fitted adjustably in slots X' of the plow-standards to alter the pitch of the plows, substantially as specified.

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Witnesses:
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