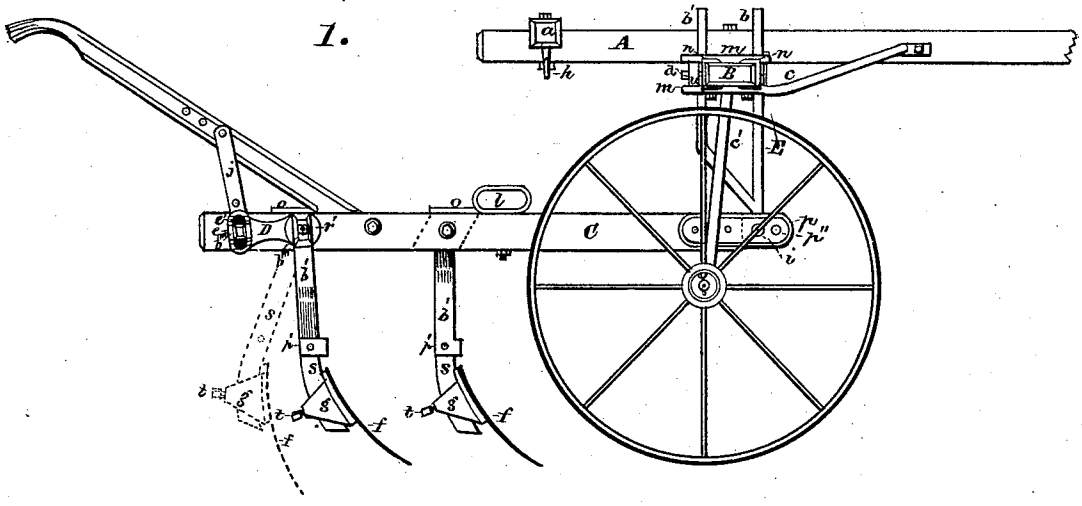
2 Sheets--Sheet 1.

E. M. & M. L. KISSELL.

Wheel Cultivators.

No. 155,159. Patented Sept. 22, 1874.

1.



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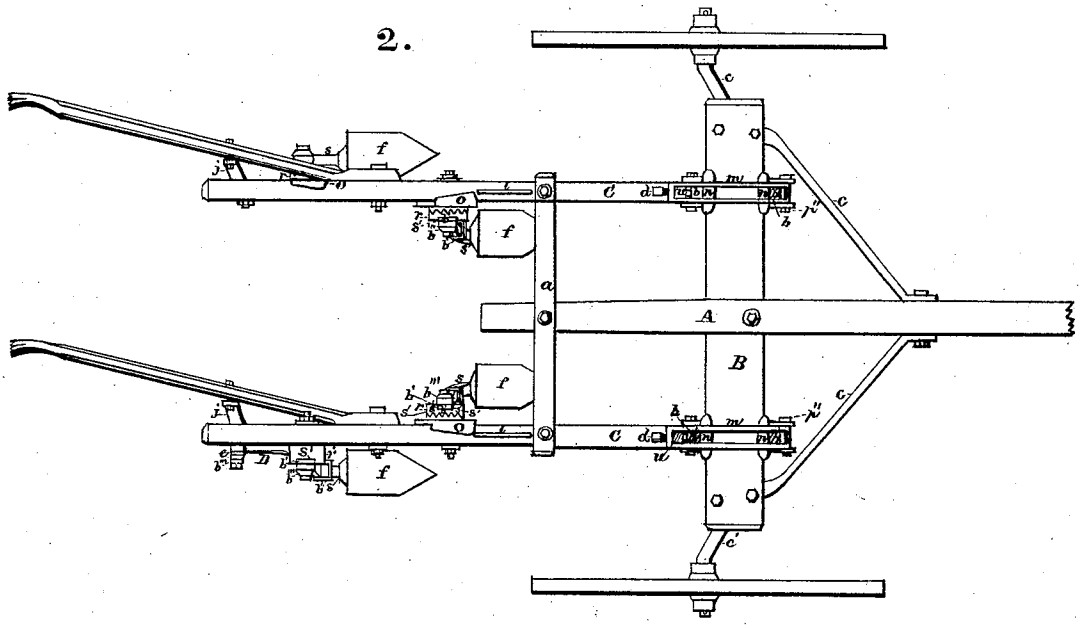

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2 Sheets--Sheet 2.

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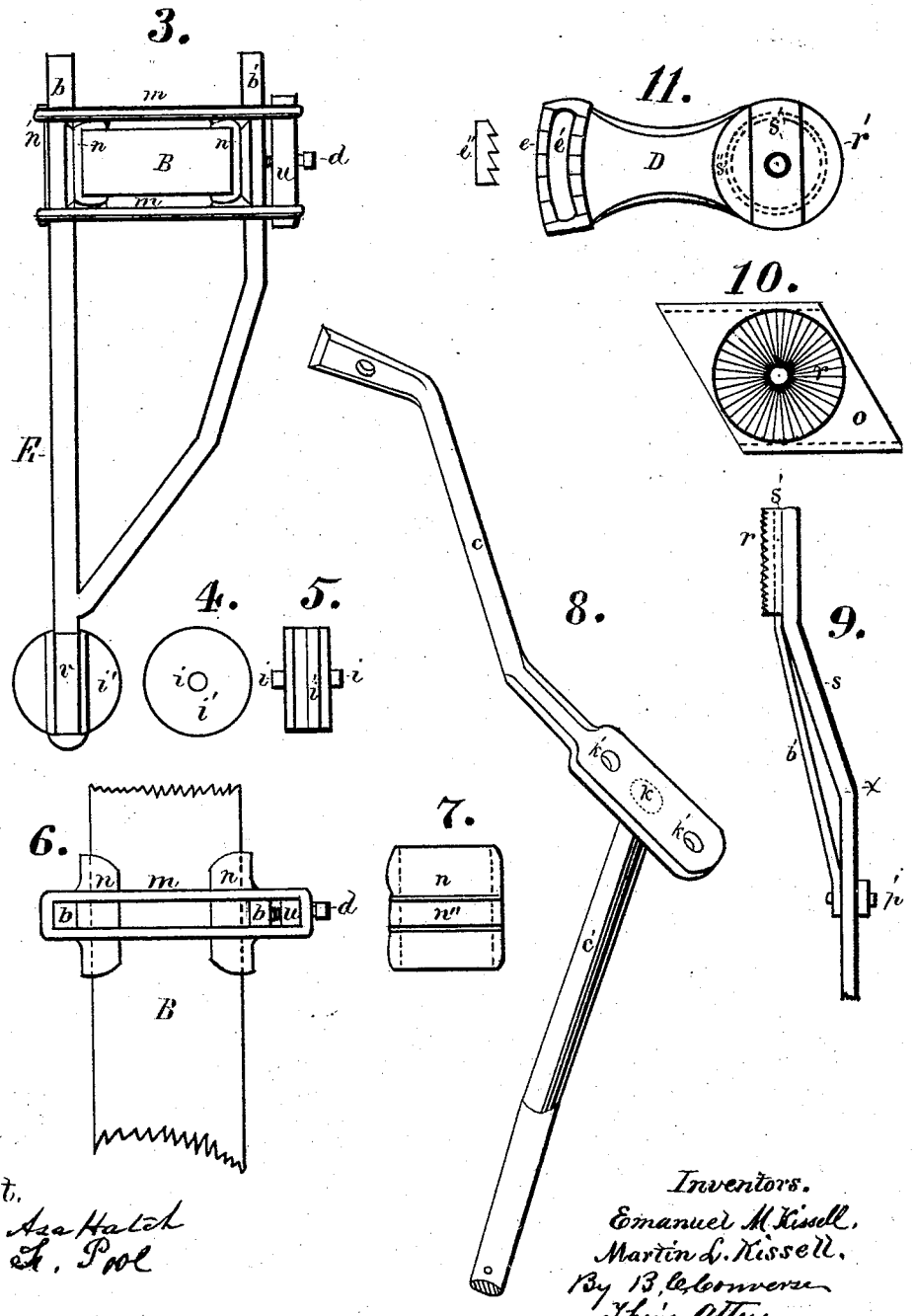

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UNITED STATES PATENT OFFICE.

EMANUEL M. KISSELL AND MARTIN L. KISSELL, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN WHEEL-CULTIVATORS.

Specification forming part of Letters Patent No. **155,159**, dated September 22, 1874; application filed January 12, 1874.

To all whom it may concern:

Be it known that we, EMANUEL M. KISSELL and MARTIN L. KISSELL, both of the city of Springfield, county of Clarke and State of Ohio, have jointly invented certain Improvements in Cultivators, of which the following is a specification:

Our invention relates to wheeled cultivators, and consists in an improved mode of attaching the plow-beams, the object being to secure strength, lightness, and a more perfect adjustment of the draft; also, in a better manner of attaching the standards to the beams, and of securing a ready and complete adjustment of the angle given to the plows through the same; also, of an improved brace to the standard and its mode of attachment, whereby the accumulation of weeds or trash in front or rear of standards is prevented.

The draft-post of our cultivator is constructed of two square bars of iron, (one on each edge of the cross-bar and depending from the same perpendicularly,) united in one piece just above the point of the beam, continuing through the disk-clevis, (pivoted to it,) and ending in a head at the lower end. The hole in the clevis is bored out true, and the draft-post is turned to fit it, so as to form a complete pivot for the end of the beam. The upper halves of the posts are parallel, and are fitted into guide-plates on the front and back edge of cross-bar, and secured in place by links. A set-screw and clamping-gib are used to fasten them at the proper height in adjustment. The rear limb of the draft-post is united with the front (or main body of the post) by being bent at an angle of about forty degrees, more or less, (one or more angles may be made in it,) forward, so as to not only form a brace in the post, but to bring the point of attachment for the beam of plow as far forward as possible, it being in line with the front edge of the cross-bar. The journals of the disk-clevis are pivoted in the clevis-plates, so that the beam of the plow has a free up-and-down movement.

Two sheets of drawings accompany this specification as a part of the same, viz: Sheet 1, with Figures 1 and 2; Sheet 2, with Figs. 3, 4, 5, 6, 7, 8, 9, 10, 11.

Fig. 1 is a side elevation of our improved cultivator. Fig. 2 is a plan view of the same. Fig. 3 is an elevation of one of the draft-posts, section of cross-bar and attachment. Fig. 4 is a side elevation of the disk-plates of clevis. Fig. 5 is a front view of clevis. Fig. 6 is a plan view of cross-bar, its edge plates, links, and draft-post. Fig. 7 is a plan view (outside) of one of the edge plates of cross-bar. Fig. 8 is a view of the left axle-bar and tongue-brace in one piece. Fig. 9 is a rear view of one of the plow-standards, its brace, and notched disk-plate. Fig. 10 is a side elevation of one of the beam-plates, the dotted lines showing the flanges which clasp the upper and under surfaces of the plow-beam, and the circular notched portion *r* fitting the notches *r* on the fellow plate, Fig. 9. Fig. 11 is another form of beam plate, by which the rear standard and its brace are attached to the plow-beam.

A, Fig. 1, is the tongue, which is mounted on the top of cross-bar B. It has a hang-bar, *a*, at its rear end, with hooks *h* for catching loops *l* on the top of the plow-beam C, when the plows are swung up for transportation or when not in use. *b* and *b'* are the front and rear limbs of draft-post E; *c*, tongue-brace, (Figs. 1, 2, and 8, with its lower portion *c'*, which forms the side of the arch, in connection with cross-bar B,) and axle attached. It will be seen that the upright portion *c'* of the axle is "jumped" on the flat portion of the tongue-brace at *k*, (shown in dotted lines, Fig. 8,) on the under side, halfway between the bolt-holes *k' k'*, so as to come directly under the middle of cross-bar B, Figs. 1 and 8. The upright portion *c'* stands at a slight inclination inward from the rear of the axle proper. It also inclines slightly forward when the tongue is horizontal. The brace part *c* is attached to the sides of the tongue A, in the usual manner. The draft-posts E are capable of adjustment laterally on cross-bar B, as well as up and down, so that the plow-beams can be brought nearer together or thrown wider apart. The manner in which they are attached to the cross-bar by plates *n*, links *m*, gibs *n'*, block *u*, and set-screw *d* dispenses entirely with the use of bolts for that

purpose, and they are more easily and readily adjusted. Block *u* on rear of draft-post is grooved out on the outer side at the ends, to receive the ends of links *m m* and prevent them from slipping apart. It also serves as a nut for set-screw *d*. The links *m m* are held together at their front ends by gib *n'*, its ends being turned outward over the ends of the links, so as to form hooks for that purpose. D, at rear of plow-beam C, Fig. 1 and in Figs. 2 and 11, is an adjustable plate for regulating the angle of the plow-brace and standard attached to it. The circular portion *r'* is gained out for the reception of the top of brace *b'* at *s'*, Figs. 2, 9, and 11. It also has a circular flange, *s''*, (shown in dotted lines, Fig. 11,) so as to give as wide a bearing as possible to this end of the plate and keep the strain off the bolt which holds it to the beam. This flange is on the back side of the plate, and a circular groove is cut in the side of beam C for its reception. The plate turns on this flange in adjusting it, instead of the bolt. Gains are also cut in the beam-plates O for the reception of braces *b'*, similar to those in plate D. The plow-standards *s* are bolted to all in the same manner, a square or rectangular washer, *b'''*, being used under the head of the bolt. The plate D is extended back from the standard along the side of the beam C, and is provided with an oblong slot, *e'*, Figs. 1 and 11, in its rear end. On each side of this slot are angular teeth or notches *e*, and a toothed block, *e''*, fits into the same for adjusting the angle of the standard, brace, and plow attached to them, to accommodate the latter to any required kind of cultivation. A bolt and nut secures this block *e''* to the notches *e*. It also fastens the brace *j* of the plow-handle to the beam. The slot *e'* is of sufficient length to give any desired angle to the plow-standard and its plow. By loosening the bolt which secures block *e''* to the notches *e*, the standard and brace attached to plate D at *r'* can be thrown forward or backward, block *e''* being raised or lowered one or more notches. Beam-plates O are of angular external form, (rhomboidal,) with a raised circular part, *r*, Figs. 1, 2, and 10, with radial notches which fit into the part *r*, Fig. 9, also notched and similar. These ratchet-plates O allow the brace *b'*, which is fitted into gain *s'* in *r*, and standard *s* to be adjusted, as described, in plate D and its attachments. A bolt and nut secures them through the center to the beam C. Brace *b'* is provided with clasp *p'* at its lower end, which is bent around the standard *s*, on the sides and front of the same, leaving the rear part open. A wooden safety-pin is inserted through this part and the standard, so that when the plow meets an obstruction this pin will break in the usual manner, and the standard *s* (and its block *g* and plow *f*) will be thrown back from out of the clasp *p'*, as shown in dotted lines, Fig. 1. The standard, being pivoted at the top end, swings free, leaving the brace in its fixed position, Figs. 1 and 2. The beam plates O are of rhomboidal shape, with flanges on the upper and under edges, which slip over the beam C. The long angle of the plate and flange on the top is forward and on the under side, back of the brace and standard, so as to give a greater bearing to the plate and prevent its being broken in case of any sudden stoppage of the plow from a stump or stone. The disks *i' i'* represent the two sides of the clevis, pivoted upon the end *v* of the draft-post E, Fig. 3, *i i* being the journals, also pivoted to plates *p*, Fig. 1. *n*, Fig. 7, is one of the edge plates intermediate between draft-post and cross-bar; *n''*, a square groove in the same for the limbs *b b'* of draft-post to slide up and down in when adjusting it. *p''* are tightening-bolts to plates *p* and clevis *i'*, Figs. 1 and 2. They are inserted through the ends of plates *p*, forward of the clevis, so as to take up any wear in the parts. By reference to Fig. 9 it will be seen that the standard *s* is constructed with two angles—one at the lower edge of the beam, where it is bent outward from a perpendicular, and another about half-way down, *x*, where it is again bent downward, its lower part being vertical, (from rear and front views.) It is made of flat bar-iron, and the brace *b'* of the same. The latter is also bent from the same point, (opposite lower edge of plow-beam,) though at a less angle, and extends across the lower angle of standard *s*, hooking over it at a point below the angle *x* of the standard. This prevents any lateral movement of the standard, and gives it greater strength at a point where it is most required.

We are aware that wooden safety-pins are common in cultivators and other agricultural implements, and we do not claim them.

We claim—

1. A square draft-post, forked to receive the cross-beam in a cultivator, and secured to the latter in such manner as to allow of a vertical as well as lateral adjustment of the same by the clamping devices described, consisting of links *m m* above and below the cross-beam B, edge plates *n n*, provided with square grooves or guides *n''* for the reception and securing of the post in a perpendicular position, and as guides for the vertical adjustment of the same, block *u*, and set-screw *d* for fastening it at any point, all arranged in the manner described, as and for the purpose set forth.

2. A plow-standard having a lateral brace extending across the inner angle of the same, and secured to the beam-plate by the same bolt which pivots the standard to the beam-plate and beam, in the manner described.

3. The flanged rhomboidal beam-plates O, provided with ratchet parts *r* and gains *s'*, in combination with beam C, brace *b'*, and standard *s*, as shown and described, as and for the purpose set forth.

4. Plate D and parts *s' s'' e' e e''*, in combi-

nation with beam C, brace b', and standard s, arranged in the manner shown and described, for the purpose set forth.

5. The journal v and plates i' i' and p, in combination with the forked draft-post E and the clamping device, as described, by which the same is attached to the cross-beam B, in the manner shown and described, as and for the purpose set forth.

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MARTIN L. KISSELL.

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B. C. CONVERSE.