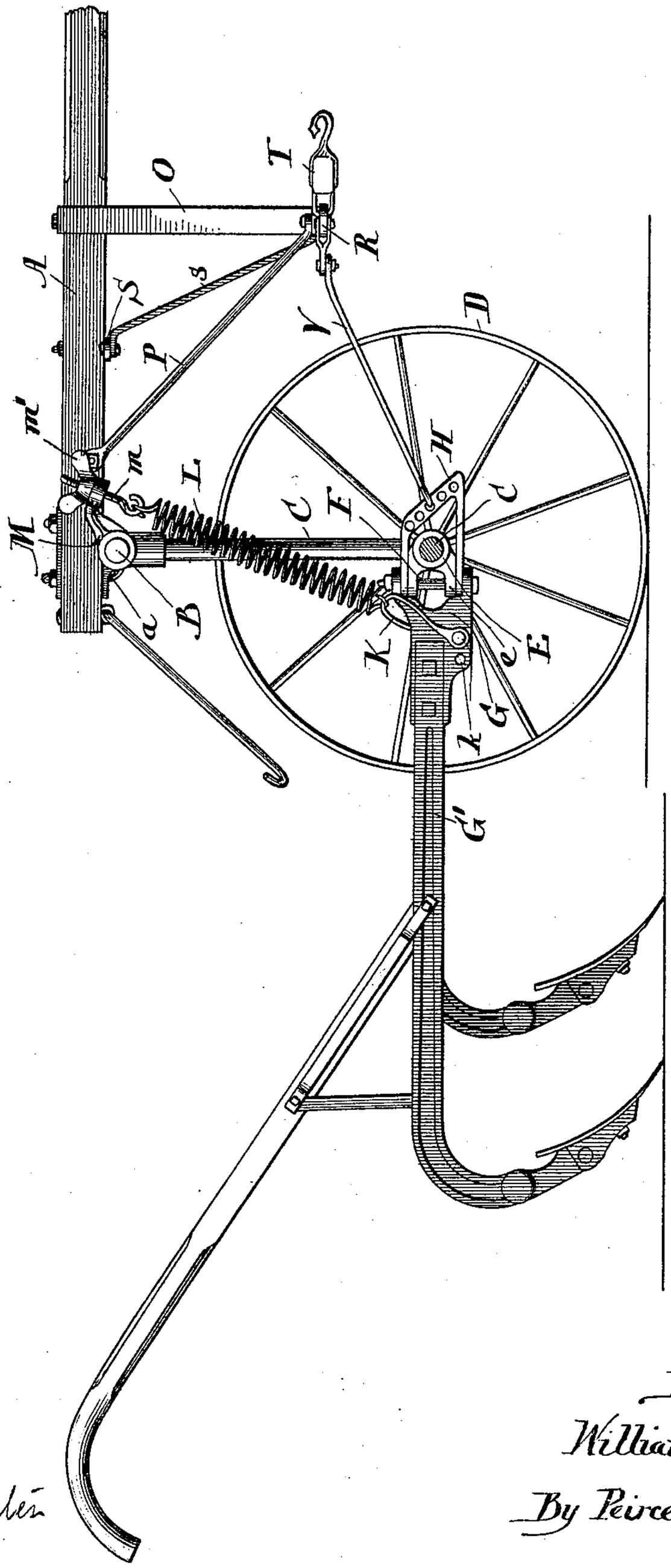
(No Model.) 3 Sheets—Sheet 1.

W. SOBEY.

CULTIVATOR.

No. 481,208. Patented Aug. 23, 1892.

Fig. 1.



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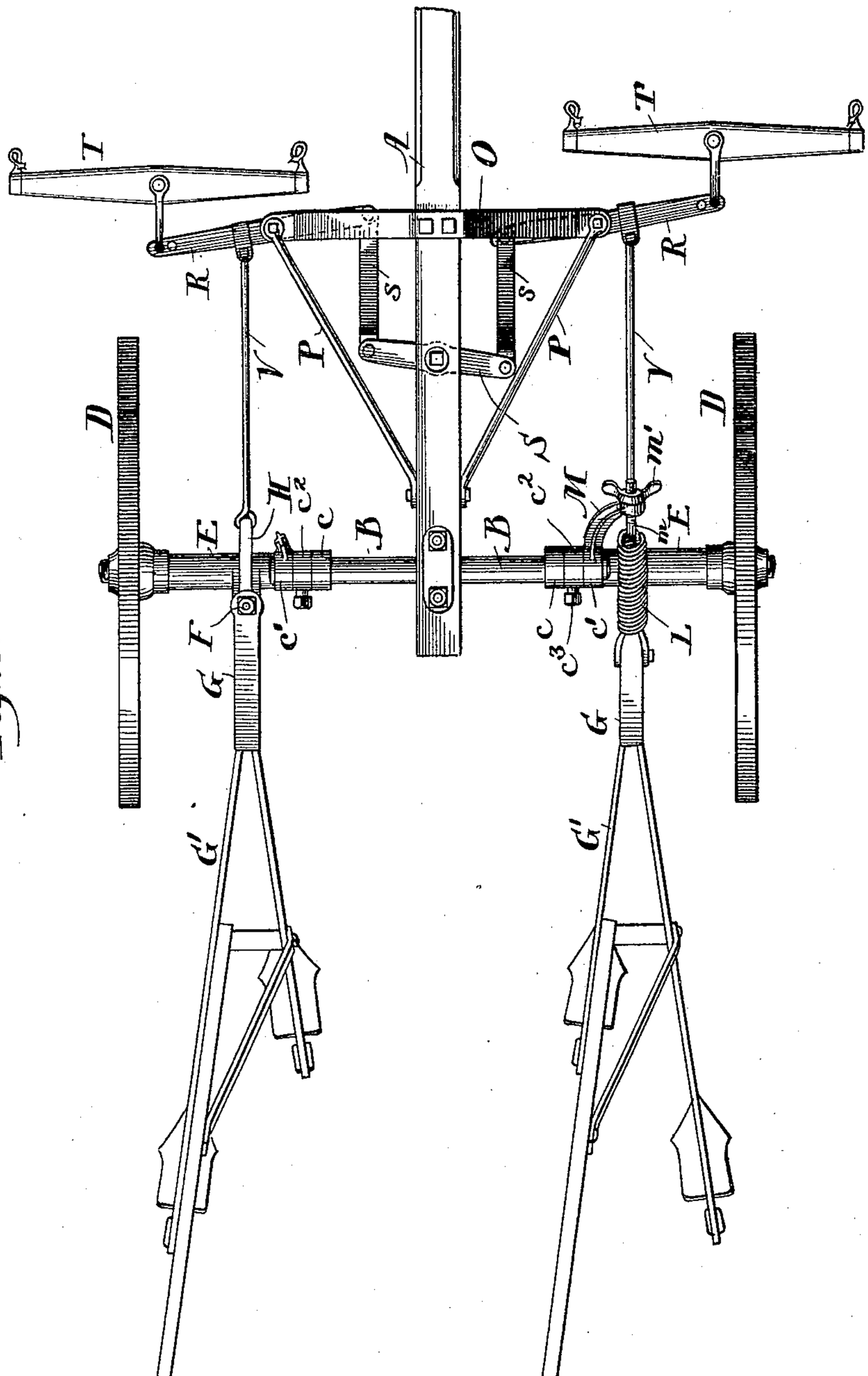

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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Fig. 5.

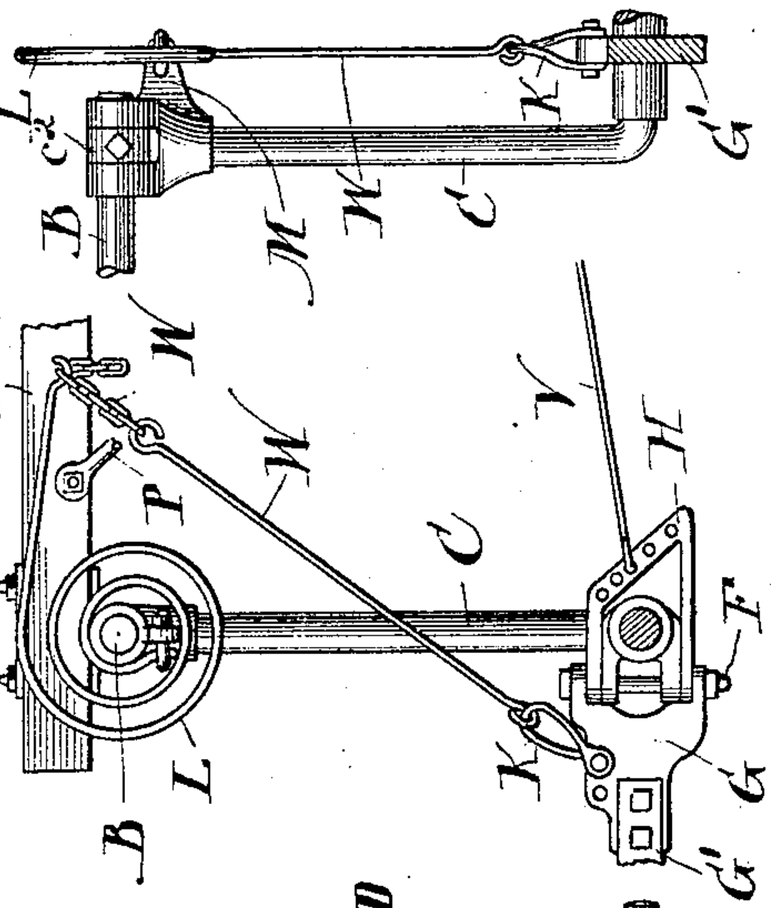

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM SOBEY, OF RACINE, WISCONSIN, ASSIGNOR TO THE J. I. CASE PLOW WORKS, OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 481,208, dated August 23, 1892.

Application filed June 8, 1891. Serial No. 395,511. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SOBEY, a resident of Racine, in the State of Wisconsin, have invented certain new and useful Improvements in Cultivators, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a view in side elevation of a cultivator embodying my invention, one of the carrying-wheels being removed and one only of the plow-beams and its connections being shown. Fig. 2 is a plan view of the cultivator complete. Fig. 3 is a rear end view, parts being shown as broken away. Fig. 4 is a detail view in side elevation of part of the mechanism, showing a modified structure. Fig. 5 is a rear view of the construction illustrated in Fig. 4.

My present invention relates more particularly to that class of cultivators in which two sets of independently-acting plows or shovels are employed to operate upon opposite sides of a row to be cultivated, the beams of these plows or shovels being connected by their individual arms to a common pole or tongue, to which the draft-horses are attached.

My invention consists in certain mechanism to aid the operator in lifting the plows and to secure their uniform easy running in the ground, in combination with an improved evener mechanism, whereby irregularities in the movements of the draft-horses can be taken up and the irregular or jerky operations of the plow-beams be avoided.

My invention consists in the novel features of construction hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of this specification.

Referring particularly to the form of invention shown in Figs. 1, 2, and 3, A designates the tongue or pole of the cultivator, to the rear end of which is affixed by a suitable clip or coupling *a* the transverse bar B, whereon are pivotally sustained the radius arms or bars C, these arms or bars being furnished at their upper ends with perforated coupling-heads, between the sections *c* and *c'* of which are set the rings c^2, through which pass the set-screws c^3, that guard the swinging arms against lateral movement upon the bar B. The lower ends of the radius bars or arms C are bent at right angles to their vertical portions and on their outer ends are journaled the carrying-wheels D. Upon the horizontal lower portions of the arms C are held the coupling-sleeves E, these sleeves being free to rotate upon the arms C to permit the vertical swivel movement of the plow-beams, and the rear portions of the coupling-sleeves E have formed in piece therewith the arms or extensions *e*, through which pass the through-bolts F. The through-bolts F pass also through the ends of the head G of the plow-beams G', and by this connection between the heads G of the plow-beams and the coupling-sleeve E a pivot-joint is secured which permits the lateral movement of the plow-beams and their plows. The through-bolts F also pass through the rear ends of the draft-plates or clevises H, these clevises being located, preferably, between the arms of the couplings E and of the beam-heads G. To each of the beam-heads G is connected the swivel-loop K, adjustable, as at *k k*, to which is attached the lower end of a spring L, the upper end of this spring being joined, preferably, by an adjustable hook *m* to an arm or bracket M, that projects from one of the sections of the coupling-head of the radius arm or bar C. The hook *m* passes through the end of the arm M and is threaded to receive the thumb-nut *m'*, whereby the adjustment of the rod is controlled in order to vary the force of the coiled spring L. By uniting the upper end of the coiled spring L with the arm M it is manifest that the tension of the spring L remains practically constant and uniform, notwithstanding the swinging of the arms C incident to the variations in the movements of the draft-horses, since as the arms C swing forward or backward under the movements of the draft-team a corresponding movement is given to the arms M, to which the springs L are connected. This feature of connecting the elevating or lifting springs to a part of the structure that moves in unison with the swinging arms C, I regard as of importance, and I do not wish my invention to be understood as restricted to the feature of providing the head of the arms

with a projecting arm or bracket M, since without departing from the spirit of my invention the attachment of the upper end of the spring so as to swing with the arms C might be effected in other convenient ways.

To the tongue or pole A of the cultivator is rigidly attached a bracket O, the outer portions of which are bent downwardly, and the outer ends of the bracket O are preferably braced by the rods P, that extend backwardly and upwardly therefrom and are bolted to the rear portion of the tongue A. To the outer ends of the bracket O are pivotally connected the singletree-levers R, the inner ends of these levers being connected by the upwardly and rearwardly extending links *s* to the ends of the lever S, that is pivoted to the under side of the tongue or pole A. The singletrees T are attached to the outer ends of the singletree-levers R, and these singletree-levers are connected with the clevises H of the plow-beams by means of draft-rods V, the forward ends of these rods being attached to the singletree-levers R very near their pivot-points and ordinarily in straight-line hitch from the clevises H.

From the foregoing description it will be seen that each of the set of plows is drawn by the horse at the corresponding side of the machine, the draft from the singletree-levers being in central line with the plow-beams. At the same time, inasmuch as the draft-rods V are connected to the singletree-levers very near their pivot-points, it is manifest that these rods partake but slightly of the irregular or unequal movements of the horses, while such irregular or unequal movements of either of the horses is through the medium of the singletree-levers R, the links *s*, and the pivot-lever S, communicated to the corresponding singletree-lever at the opposite side of the machine, so that the unequal movements of one horse may be counteracted or resisted by the draft of the other horse, and will not be transmitted to the radius-arms to such extent as to impart a seesaw or jerky motion to the operator in handling the plow-beams.

I do not wish my invention to be understood as restricted either to the particular form or arrangement of spring or to the precise means whereby the springs connected with the radius-arms are arranged to lift the plow-beams, since it is manifest that these details may be varied within wide limits. For example, each of the springs may have one of its ends connected either directly to the plow-beam or through the medium of an arm projecting from the pipe-coupling of the plow-beam, or, in fact, in any other convenient manner, so long as the spring shall exert its force in the lifting of the beam.

In the modified structure illustrated in Figs. 4 and 5 of the drawings the spring L is of convolute shape, one end of the spring being attached to a bracket M, projecting laterally from the coupling of its radius-arm, while the opposite end of this spring is projected in forward direction and is connected by a short chain W and a link W′ with the bail K, that is attached to the plow-beam. It is manifest that in this form, as in that hereinbefore described, the spring L serves to aid in the lifting of the plow-beam and exerts a uniform action irrespective of the movements of the beam, since the spring is connected to move in unison with the corresponding radius-arm C. The short chain W, hooking, as it does, over the projecting end of the spring L, enables the tension of this spring to be regulated as desired.

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

1. In cultivators, the combination, with the team-pole and with the beam-arms dependent therefrom, of the plow-beams in swivel connection with said arms, the bracket O, extending laterally from the team-pole, the singletree-levers pivoted to said bracket, the draft-rods joined to the singletree-levers R near their pivot-points and in suitable connection with the plow-beams, the links *s*, connected to the ends of the singletree-levers, and a lever S, pivoted to the pole and having its ends connected to the link *s*, substantially as described.

2. In cultivators of the class described, the combination, with the team-pole and the swinging radius arms or bars, and the plow-beams in swivel connection with said arms or bars, of the lateral bracket O, the singletree-levers pivoted to said bracket, the draft-rods connected with the singletree-levers R near their pivot-points and in suitable connection with the plow-beams, the links *s*, connected to the ends of the singletree-levers, and a lever S, pivoted to the tongue and having its ends connected to the link *s*, substantially as described.

WILLIAM SOBEY.

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C. C. GITTINGS.