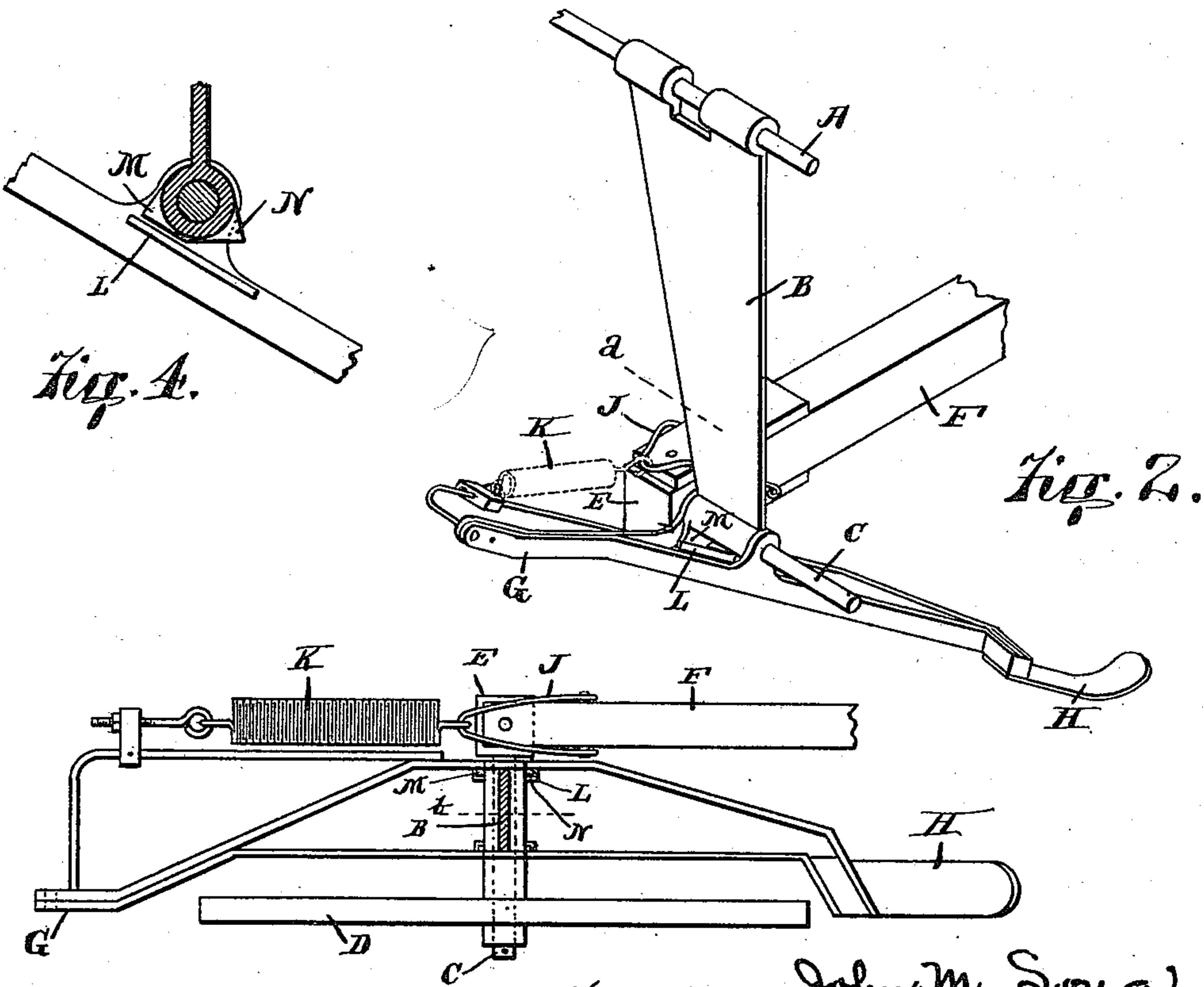
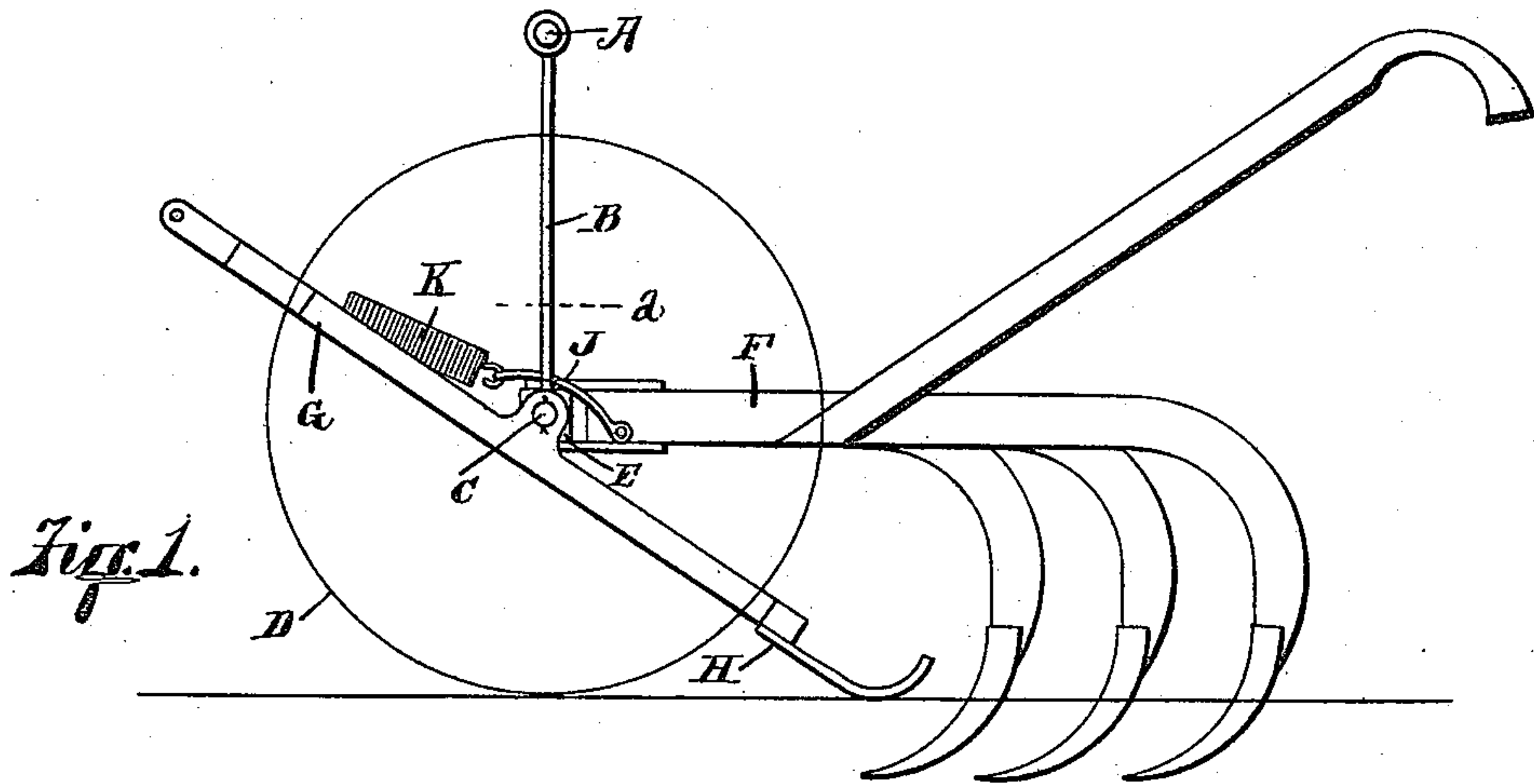


(No Model.)

J. M. LONG.
TONGUELESS CULTIVATOR.

No. 441,179.

Patented Nov. 25, 1890.



Witnesses :

P. P. Sheehan
M. S. Bolden

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN M. LONG, OF HAMILTON, OHIO.

TONGUELESS CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 441,179, dated November 25, 1890.

Application filed September 24, 1890. Serial No. 366,028. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. LONG, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Tongueless Cultivators, of which the following is a specification.

Attention is directed to the patent of John M. W. Long, (not the undersigned,) No. 329,919, of November 10, 1885, for cultivators. That patent goes somewhat fully into the general construction of tongueless cultivators.

My present invention relates to improvements in tongueless cultivators of the general class set forth in said earlier Long patent, and the present improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a tongueless cultivator embodying my present improvements; Fig. 2, a perspective view of one of the standards with its immediate attachments; Fig. 3, a plan of the matter of Fig. 2, the standard, however, appearing in horizontal section in the plane of line *b*; and Fig. 4, a vertical section of the axle and foot of the standard in the plane of line *b*.

In the drawings, A indicates the arch-bar; B, one of the standards pivoted at its top to the arch-bar and carrying at its base the stub-axle for one of the implement-wheels; C, the stub-axle mounted in the base of the standard; D, the appropriate one of the implement-wheels mounted on this stub-axle; E, the coupling-block mounted on the stub-axle, and F the appropriate one of the cultivator-beams coupled at its forward end to the coupling-block.

All the parts thus far referred to are substantially the same as in the earlier Long patent. The arch and beams are supported by the implement-wheels. The beams may be swung to the right or left, swinging on the vertical pivots which unite them to their coupling-blocks. The beams may be raised and lowered, oscillating on the stub-axes as horizontal pivots, and the base of either standard may swing back or forth relative to the base of the opposite standard, the arch-bar forming the pivot of oscillation as such movement takes place, this fore-and-aft independent movement being the result of one of

the horses of the team pulling somewhat ahead of the other horse.

Proceeding with reference to the drawings, G indicates a clevis pivoted to the stub-axle, so as to be capable of oscillation with reference to the beam and standard, the clevis projecting to the front of the implement and having its forward extremity arranged as a draft hitch-point for the appropriate horse of the team; H, a prolongation of the clevis to the rear of the stub-axle, this prolongation terminating in a drag-shoe; J, a bail pivoted to the plow-beam near the coupling; K, a spring connected with this bail and extending forwardly and having its forward end attached to the clevis forward of the stub-axle; L, a stop-rib upon the clevis at the base of the standard; M, a stop-lug upon the base of the standard, adapted to come into contact with the stop-rib when the forward end of the clevis assumes a certain position of elevation with reference to the angular position of the standard upon the stub-axle, and N a similar stop-lug upon the standard, adapted to make contact with the stop-rib when the forward end of the clevis is in a certain position of depression with reference to the standard.

When the parts are in the position indicated in Fig. 1, it is assumed that there is no forward draft upon the clevis. Under such circumstances it will be obvious that the spring K, straining between the plow-beam and the forward portion of the clevis, serves to hold the forward end of the clevis in a maximum elevated position, this maximum being limited by contact of the clevis-shoe with the ground. With the clevis thus elastically but firmly held in such position, it will be understood, especially by reference to Fig. 4, that the top of the standard can swing no farther forward than the stop-lug M will permit and that it can swing no farther backward than the stop-lug N will permit. The top of the arch is thus at liberty to swing back and forth a limited distance only. The clevises thus support the arch, while permitting it to have a limited motion. It will be obvious that the base of one of the standards may swing to the rear and the base of the other standards swing to the front as far as the limitations of the stops will permit, thus providing for the independent fore-and-

aft movement of the two cultivators. The hitch-point at the forward end of the clevis, when the clevis is in the position indicated in Fig. 1, is to be above the line of draft, the line of draft being a line cutting the trace-hitch at the horse's collar and the center of the stub-axle. The result of this is that when the draft-strain comes upon the forward end of the clevis the forward end of the clevis will be depressed, and the shoe will be carried entirely clear of the ground, the spring K yielding to permit the clevis to take its new position. Such new position would be the normal working position of the clevis, which under the new condition still continues to support the arch and permit of its proper flexation, as called for by variations in the relative fore and aft positions of the

two stub-axles. It will be observed that the bail J is a mere expedient for connecting the spring with the cultivator-beam.

I claim as my invention—

The combination, substantially as set forth, in an arch-bar tongueless cultivator, of a clevis pivoted to the wheel-axle and provided at its forward end with a hitch-point and projecting to the rear of the axle, a spring engaging the clevis and the cultivator-beam and arranged to elevate the forward end of the clevis and press its rear end to the ground, and stops to limit the oscillations of the clevis with reference to the arch-standard.

JOHN M. LONG.

Witnesses:

JAS. FITTON,
J. W. SEE.