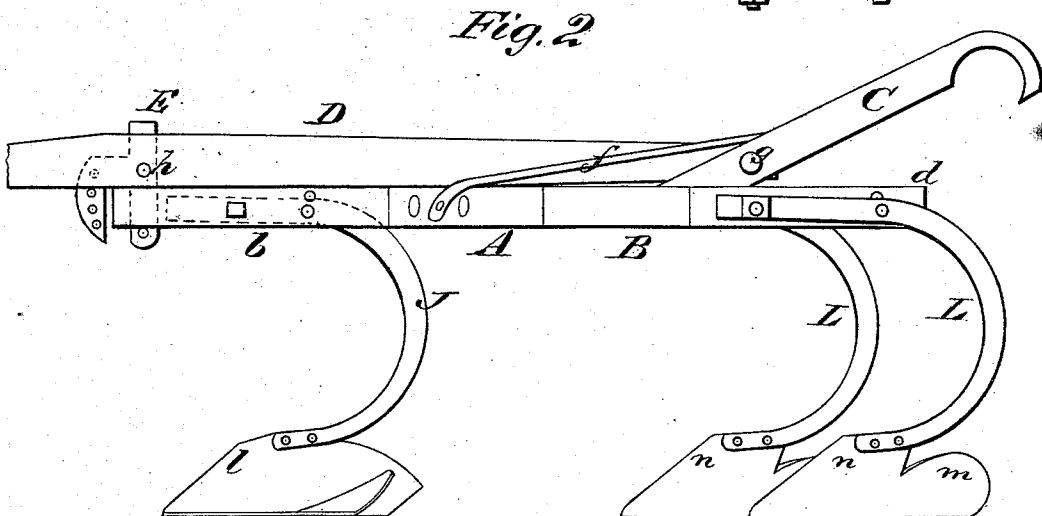
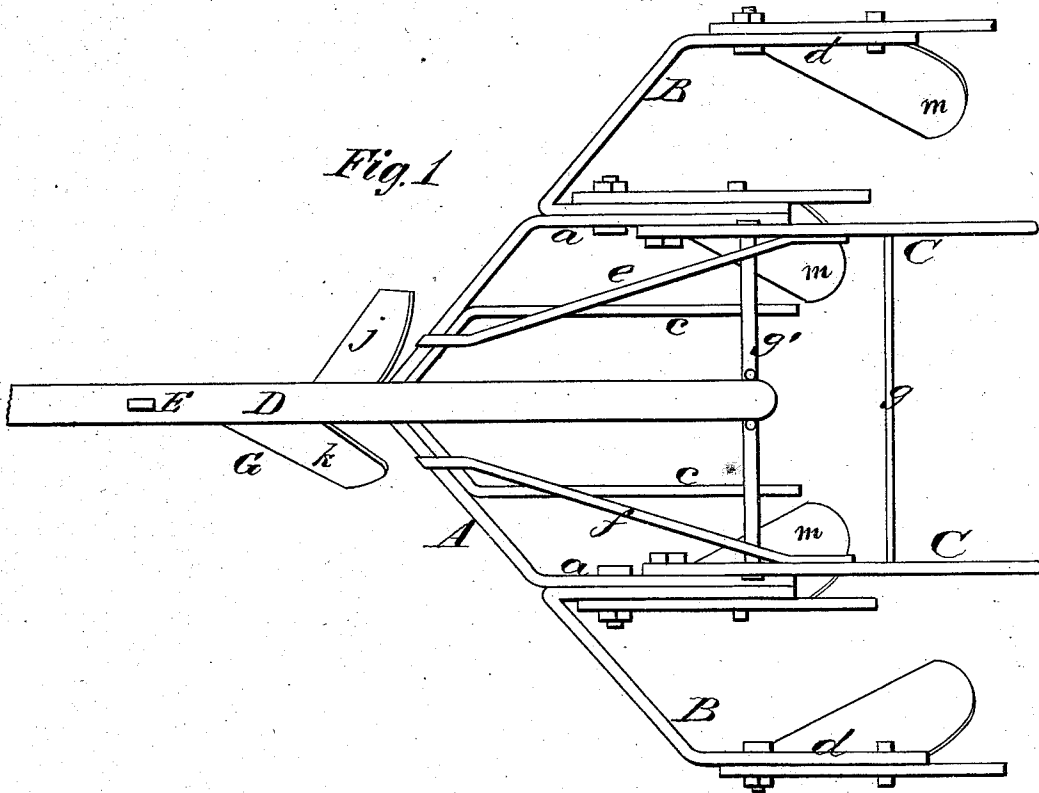


M. JOHNSON.
Cultivator.

No. 159,331.

Patented Feb. 2, 1875.



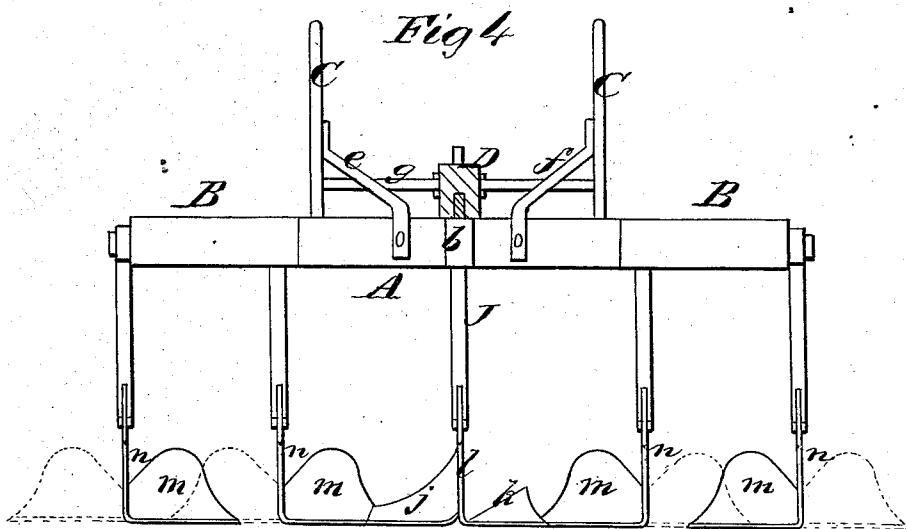
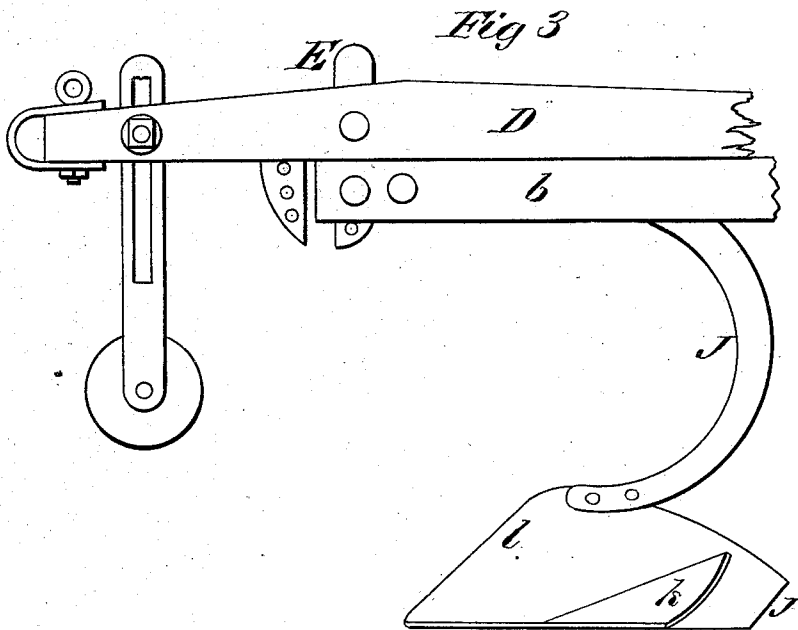
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Fig. 5

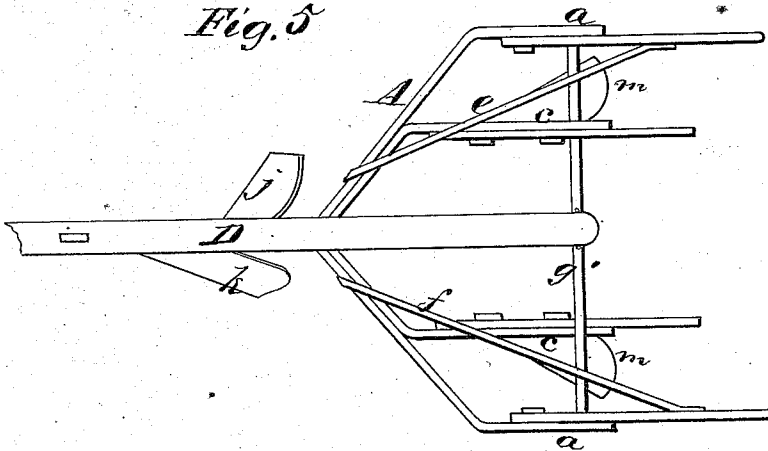
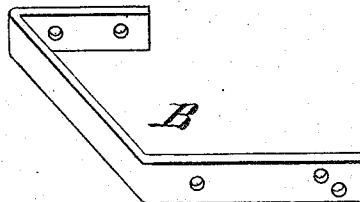


Fig. 6



WITNESSES

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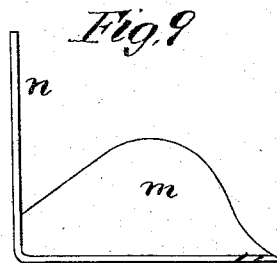
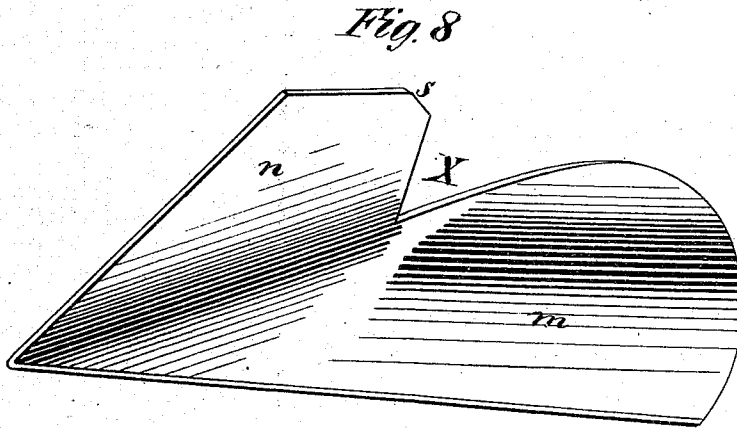
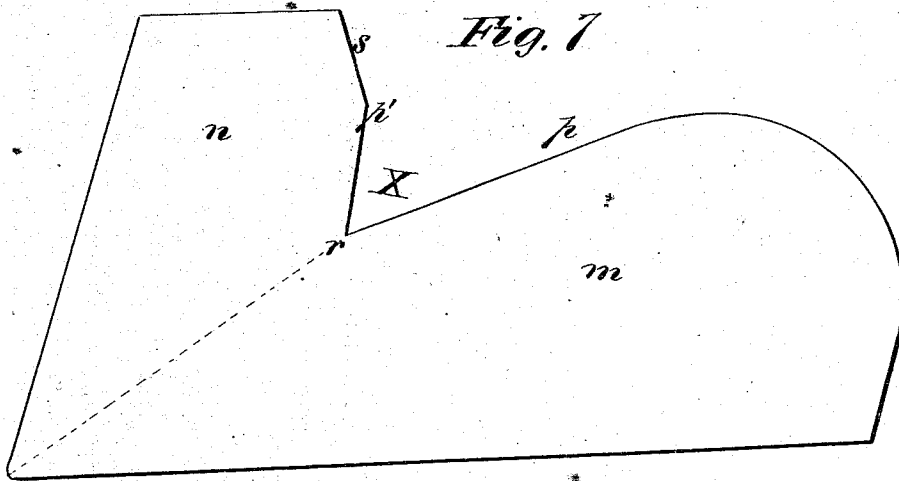
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UNITED STATES PATENT OFFICE.

MOSES JOHNSON, OF THREE RIVERS, MICHIGAN.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **159,331**, dated February 2, 1875; application filed January 8, 1875.

To all whom it may concern:

Be it known that I, MOSES JOHNSON, of Three Rivers, in the county of St. Joseph and State of Michigan, have invented a new and valuable Improvement in Cultivator-Teeth; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation 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 drawing is a representation of a plan view of my cultivator-teeth. Figs. 2 and 3 are side views of the same, and Fig. 4 is an end view. Fig. 5 is a plan view, and Figs. 6, 7, 8, and 9, are detail views.

This invention has relation to machines for cultivating corn, cotton, and other plants, and which may also be used for eradicating weeds and for deep plowing. The main feature of my invention consists in a cultivator-tooth, which is made of one piece of steel, so constructed and shaped as to form an upright cutting-blade, having an inclined knife-edge, and a mold-board, having an oblique shearing-edge and a broad concave palm, which will loosen up and stir the soil, as will be understood from the following description. The invention further consists in a novel construction of a draft-frame with detachable wings for the purpose of carrying two or more cultivator-teeth, as will be hereinafter explained.

In the annexed drawings, Figs. 1, 2, and 3, I have represented the machine arranged for preparing the ground for wheat and other heavy work, and on Sheet 3, Fig. 5, the machine is adjusted for lighter work. A designates the main portion of the draft-frame, which is made of a single piece of metal, bent so as to form two parallel bars, *a a*, and a central draft-beam, *b*, which latter is formed by doubling the metal. To this frame two bars, *c c*, are rigidly secured in lines parallel to the bars *a a*, to which bars *c c* the stocks of two cultivator-teeth are secured for working plants which are very close together, and also for plowing up beans. B B designate two wings, which are removably secured to the sides of frame A, and when they are used they afford bars *d d* for the attachment of the shanks of two cultivator-teeth, as shown in Figs. 1, 2,

and 4. C C designate the handles, which are bolted to the bars *c c* and further secured by means of braces *e f*. The handles are secured together by means of two bars, *g g'*, the lower one of which receives the forked end of an auxiliary draft-beam, D, which extends over the metal beam *b* of the draft-frame A, and is adjustably secured to the upper portion of a draft-standard, E, by means of a bolt, *h*. This attachment of the beam D to the beam *b* and bar *g'* allows beam D to be adjusted for giving any desired pitch to the cultivator-teeth, according to the depth it is desired to run them. G designates a center tooth, which is constructed with two wings, *j k*, and a central colter, *l*, like the mold-board hoe, for which Letters Patent were granted to me on the 11th day of March, 1873, with this difference, that the front edge of the wing *j* has a more oblique angle, and the rear portion of the wing *k* is turned upward, as shown in Fig. 3. This center tooth turns the soil in opposite directions, and is rigidly secured to a curved standard, J, which is adjustably but rigidly attached to the beam *b*.

My improved cultivator-teeth are arranged in rear of the center tooth G, and are secured to their respective bars by means of curved stocks or standards L, which can be adjusted for varying the pitch of the teeth for running them deeper or shallower. Each one of these teeth is made of a single piece of steel, struck out in the form shown in Fig. 7, which is the blank for forming the tooth. This blank consists of a wing, *m*, and a blade, *n*, the straight edges of which wing and blade form an acute angle. The edge *p* of the wing *m* is sloped toward the angle *r*, so as to form with the edge *p'* of the blade *n* another acute angle, which I designate by the letter X. The rear corner of the blade *n* is cut off, so as to leave a shoulder, *s*, which abuts against the rear end of a kerf made in the tooth-stock and stays the tooth. The tooth is formed by sharpening the straight edges of the blade and wing, bending the blade in the line indicated by dots in Fig. 7, so as to form with the wing a right angle, and then bending the wing so that it is concave transversely from its point to its heel.

By cutting out the metal, which leaves the angle or notch X, I am able to turn up the

blade *n* to the proper angle and to give the proper concavity to the wing *m* without cracking the metal and weakening the tooth. In a tooth thus formed the blade *n* is the colter, and the wing *m* performs the office of a mold-board.

What I claim as new, and desire to secure by Letters Patent, is—

1. A cultivator-tooth, having the inclined colter *n*, the concave mold-board *m*, with its oblique cutting-edge, and the sloping rear edges *p p'*, forming the acute angle or notch *X*, substantially as described.

2. The draft-frame *A*, made of one piece of metal, consisting of the parallel bars *a a*, meeting in front and doubled to form the draft-beam *b*, in combination with the detachable wings *B* and inner bars *c c*, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

MOSES JOHNSON.

Witnesses:

JOHN B. CARLISS,

GEORGE E. UPHAM.