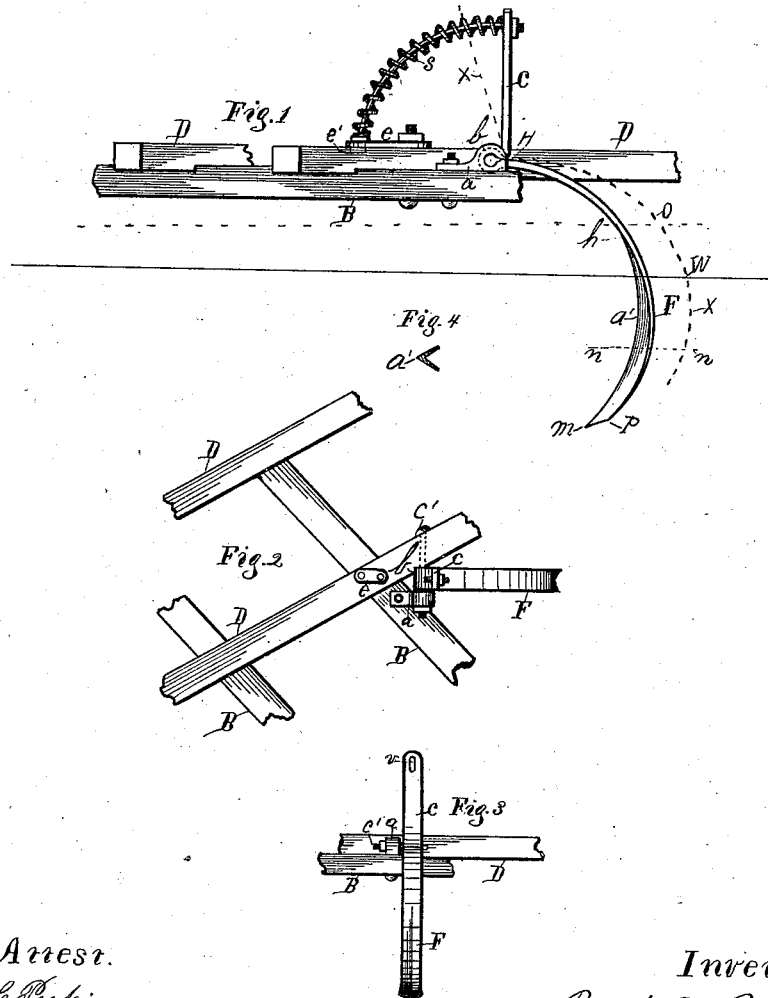


(No Model.)

B. F. RIX.  
HARROW AND CULTIVATOR.

No. 260,239.

Patented June 27, 1882.



Attest.  
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*Atty-*

# UNITED STATES PATENT OFFICE.

BENJAMIN F. RIX, OF KALAMAZOO, MICHIGAN.

## HARROW AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 260,239, dated June 27, 1882.

Application filed September 3, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. RIX, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Improvement in Harrows and Cultivators, of which the following is a specification.

This invention relates to hinged harrow and cultivator teeth operated by a spring.

The object of my invention consists in certain improvements on a harrow for which Letters Patent were granted to me August 30, 1881, No. 246,417, whereby the tooth better sustains the frame above the soil, is less liable to clog, and the frame is adapted for more practical use with my tooth. I accomplish these objects by the construction substantially as shown in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side view of my invention; Fig. 2, a top view; Fig. 3, a rear view, and Fig. 4 a cross-section on dotted line *nn* in Fig. 1.

In Figs. 1 and 3 *c* shows a perpendicular bar, which forms the upper portion or extension of the tooth and has an eye, *b*, from which eye the portion *F* curves abruptly rearwardly, downwardly, and then forwardly, instead of continuing below the eye in the same angle as the part *c*. By this means straw and like litter is prevented from becoming wedged in between the frame and the tooth near the eye, as it is allowed to float back and pass off each side of the tooth. The peculiar angle at which the portion *F* from *H* to *P* is curved, and at which it stands when at work, as indicated by dotted lines *xx*, causes the portion *ow* to be drawn, as it were, over the surface of the upper soil, sustaining the frame in a manner that a directly-vertical tooth end in this construction would not do.

Fig. 4, and the portion from *h* to *m* in Fig. 1, shows the peculiar configuration of the work-

ing end of the tooth when adapted for use in prairie-soil. The circular portion from *h* to *m* is formed as illustrated in Figs. 1 and 4, constituting the two sides of an equilateral triangle, the face of each side of which resembles a crescent. This peculiar form is given the teeth by either casting them after a pattern or by swaging from a flat piece of metal. The edge *a'* being presented first to the soil, and said edge constituting the right portion of a circle, the tooth easily draws through such soil, and is self-cleaning. Bar *e* is bolted over a little recess in beam *D*, in which head *e'* of rod *s* is located. By this construction a better action of the tooth is secured and no nuts are needed to hold the lower end of said rod, as the frame prevents it from being forced farther down and the head *e'* from being drawn out. My construction is shown in Fig. 2 used with a frame having the tooth-beams crossing each other obliquely, as in the usual construction of butterfly-frames.

To bar *B*, I secure a casting, *a*, provided with a hole through which hinging-bolt *e'* is passed, said bolt passing also through the eye of the tooth and through beam *D*. The object of this casting is to compensate for its beam being located on a lower plane than beam *D*, in order that the shares may be located in these angles of the beams of this style of frame and work in a practical manner.

What I claim, and desire to secure by Letters Patent of the United States, is—

In a harrow of the form described, the combination of the beam and casting *B a*, the perforated beam *D*, bolt *e'*, and hinged tooth, all constructed and adapted to operate as described.

BENJAMIN F. X.

Witnesses:

JOHN GALLIGAN,  
EUGENE S. WEST.