

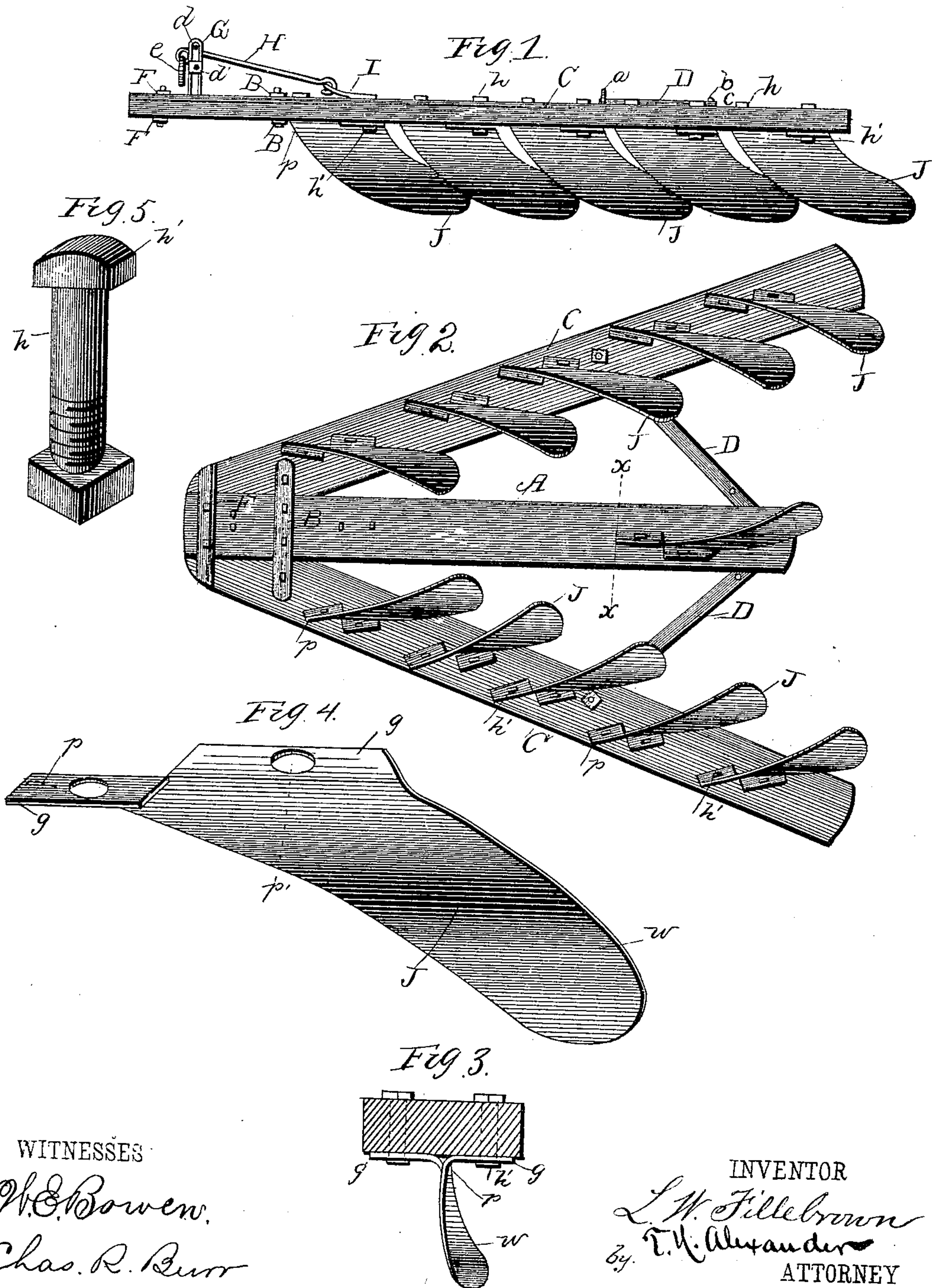
(No Model.)

L. W. FILLEBROWN.

COMBINED HARROW AND CULTIVATOR.

No. 273,697.

Patented Mar. 6, 1883.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

LUTHER W. FILLEBROWN, OF PIQUA, OHIO.

## COMBINED HARROW AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 273,697, dated March 6, 1883.

Application filed January 18, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER W. FILLEBROWN, of Piqua, in the county of Miami and State of Ohio, have invented certain new and  
5 useful Improvements in a Combined Harrow and Cultivator; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this  
10 specification, in which—

Figure 1 is a side elevation of a harrow-frame having my improved elastic harrow-teeth secured to it. Fig. 2 is a bottom view  
15 of Fig. 1. Fig. 3 is a cross-section at line  $x x$ , Fig. 2, showing a front view of my elastic tooth secured to a harrow-beam. Fig. 4 is a perspective view of the harrow-tooth. Fig. 5 is a perspective view of one of the T-headed  
20 bolts used to secure the harrow-teeth to their frame-beams.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to improvements on  
25 harrow blades or teeth which are adapted for pulverizing the surface-soil, leveling the ground, and breaking up clods of earth; and the nature of my invention consists mainly in the peculiar construction and formation of a  
30 flexible elastic harrow-tooth; and also in the combination of bolts having T-shaped heads with said teeth, for securing them to the beams of the harrow-frame, all of which will be fully understood from the following description,  
35 when taken in connection with the annexed drawings.

My improved elastic harrow-teeth are especially adapted to run in gangs, and for this reason I have represented one form of an angular frame or drag to which the teeth are applicable; but I neither claim as my invention  
40 nor confine my invention to the frame which I have shown.

A designates a central beam, and B B are  
45 transverse connecting bars or straps, which are rigidly secured to the said central beam by suitable bolts. The lateral extensions of these bars B B are pivoted to beams C C, which diverge from the center beam backwardly, and which are held in the position

shown in Fig. 2 by means of straps D D, which are diagonally arranged to sustain lateral strain in a direction with respect to their length, and which are linked at their outer ends to staples, and connected to a vertical screw that passes  
55 through the rear end of the central or draft beam, A. By means of a number of holes through the inner lapping ends of the straps D D (which are also braces) the degree of divergence of the beams C C can be adjusted,  
60 and the width of the harrow-frame changed according to the condition of the ground to be harrowed.

The front beveled ends of the side beams of the harrow-frame are guided and sustained  
65 against vertical displacement by transverse plates F F, which are rigidly secured to the top and bottom sides of the front end of the central draft-beam, A, and which extend over and beneath the side beams, C C, in front of  
70 the pivotal connections of these beams, to the transverse straps B B.

Immediately in rear of the transverse plates F F, and rigidly secured to the central draft-beam, A, is a vertical transversely-slotted  
75 standard, G, through the slot of which a vertically-adjustable hook or eyebolt,  $d$ , passes, which can be secured to the standard G at any desired height from the beam A by means of the binding-nut  $d'$ . Through the hook of the  
80 bolt  $d$  passes a draw-bar, H, which is linked at its rear end to a strap, I, rigidly secured to the beam A on top thereof. The front end of the draw-bar H is provided with a swivel hitching-ring,  $e$ , adapted for attaching a  
85 double-tree. By adjusting the bolt  $d$  up or down the pitch of the harrow-frame will be changed by the draft of the team.

All of the harrow-teeth which I employ are constructed alike, and they are arranged in  
90 gangs, one behind the other, on the bottoms of the side bars or beams, C C, one tooth being secured at or near the rear end of the central or draft beam, A, and secured to this beam in a more direct line than the teeth on the side  
95 beams. Each one of the teeth J is made of thin steel set in the form of the segment of a scroll, so that when it is secured to the harrow-frame it resembles very closely the mold-board of a turn-plow inverted.



For the purpose of a more exact description of the tooth I will refer to its several peculiarities. The top of the blade is flat and has two flanges, *g g*, directed to the right and left hand, and perforated to receive through them bolts *h h*, which rigidly secure the tooth to its beam, and which are constructed with T-shaped heads *h'*, the broad flattened sides of which impinge snugly against the sides of the tooth, at its junction with the flanges *g g*, and afford rigid abutments or stays for the blade, near the front and rear thereof. The front cutting-edge of each tooth extends from a point, *p*, backward to a central bearing or supporting point, *p'*; in rear of which is formed the curved wing *w*.

The wings *w* of the teeth which are secured to the diverging bars or beams *C C* are respectively directed inwardly, or toward the center of the harrow-frame, and the wing *w* of the tooth which is secured to the central beam of the harrow-frame is directed either to the right or left.

It has been stated above that the blades of the teeth *J* are made of thin steel, that they are flexible and elastic, and that they are constructed with wings, like the mold-board of a turn-plow turned upside down. It will thus be seen that the teeth will operate as cutters or colters for cutting through clods of earth and preventing the accumulation of trash in front of them; also, that they will yield when they meet with stumps, stones, and other obstructions, and pass the same without breaking or causing undue strain on the team.

It will also be seen that the teeth will operate as spreaders and levelers of the surface-soil, and also as clod-breakers, leaving the ground in good condition for receiving seed.

It will finally be seen that the T-shaped heads of the bolts *h* are beveled, so that they will not accumulate trash.

For some purposes I shall reverse the arrangement of the side-beam teeth and so apply them to the beams that they will direct the earth outwardly instead of inwardly, as shown and described.

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

1. A harrow-tooth consisting of a thin elastic blade having the form of the segment of a scroll, and constructed with a flexible wing and a backwardly-inclined cutting-edge terminating at its front end in a point, substantially in the manner and for the purposes described.

2. The combination of an elastic blade having the form of the mold-board of a turn-plow inverted, the elastic wing *w*, and the flanges *g*, all constructed and adapted to operate substantially in the manner and for the purposes described.

3. The combination, with the elastic-winged harrow-teeth having perforated flattened flanges *g g*, of the securing-bolts *h*, having beveled T-heads, all constructed and adapted to operate substantially as and for the purposes described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

L. W. FILLEBROWN.

Witnesses:

T. H. ALEXANDER,  
F. O. McCLEARY.