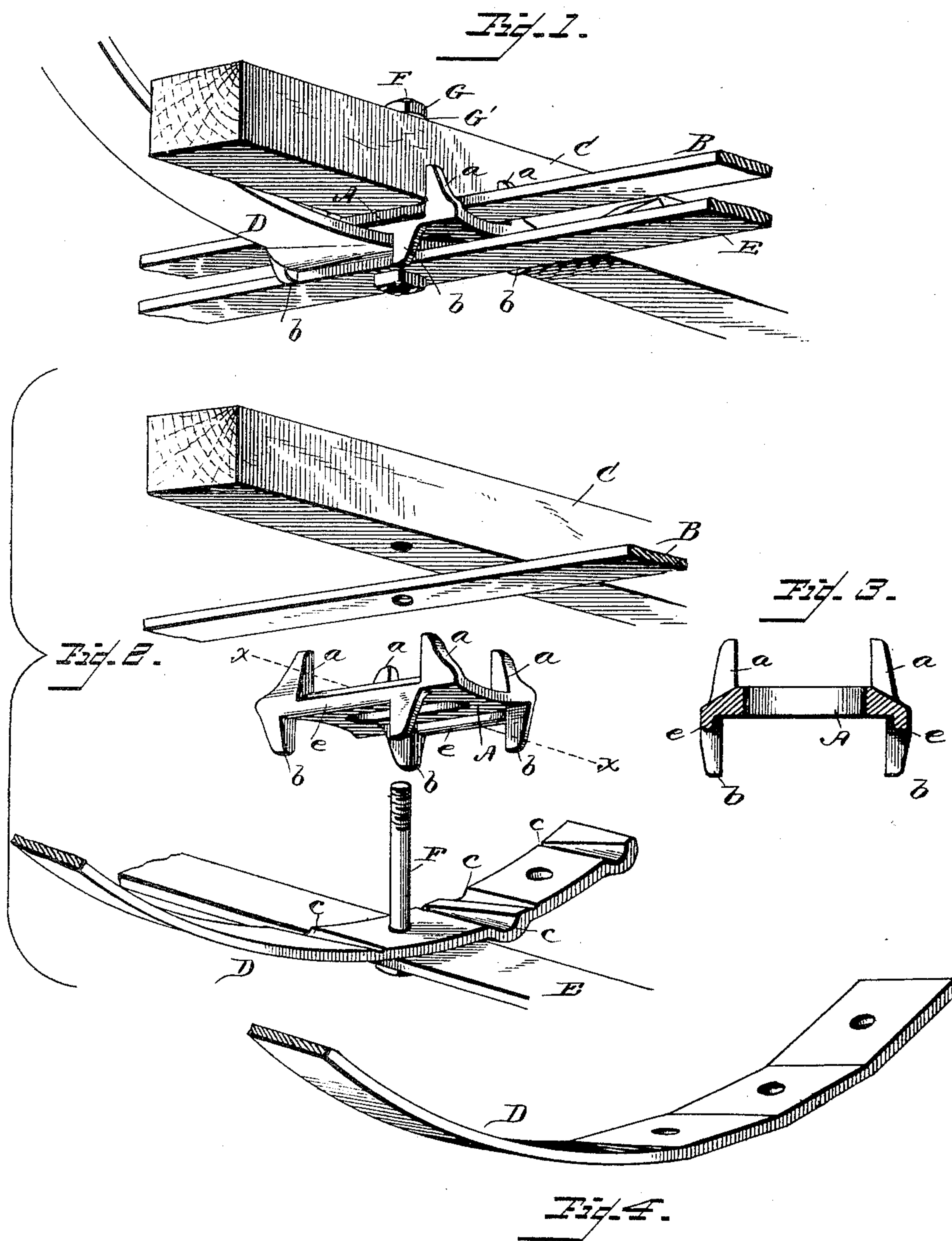


(No Model.)

A. R. GEBBIE.
HARROW.

No. 432,997.

Patented July 29, 1890.



Witnesses
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HARROW.

SPECIFICATION forming part of Letters Patent No. 432,997, dated July 29, 1890.

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To all whom it may concern:

Be it known that I, ALEXANDER ROBERTSON GEBBIE, a citizen of the United States, residing at Lowville, in the county of Lewis and State of New York, have invented certain new and useful Improvements in the Construction of Land-Harrows; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to accompanying drawings, which constitute part of the specification.

My invention more directly pertains to the construction of that class of implements known as "spring-toothed" harrows. First, in the way in which the draft-bar, or that portion of the frame proper to which the curbed spring-tooth is attached, is constructed; second, the peculiar form of said tooth at the point of attachment to the frame, and, third, the special device by which the said tooth is held in place and the strain thereon sustained while the individual and component parts of the frame to which the said tooth is thereby attached are securely bound in place and held in their respective relations to each other.

The general plan of the harrow-frame differs little, if any, from those in general use, where the draft-bars to which the teeth are attached are held in parallel (or other) relations by cross-bars properly secured at their points of intersection, the entire frame being of one rigid form, or it may be made in sections, which may be hinged upon each other so as to allow either section with its attached teeth to adjust itself in service to the irregularities of the ground, or to permit one portion to be folded back upon its companion section for transportation or repair.

Figure 1 is a perspective view of a portion of the harrow-frame at the point of intersection of the metal draft-bars and the wooden cross-pieces with a segment of the curved tooth as it is held in place at its point of support by the peculiarly-shaped saddle. Fig. 2 is a dissected view of the various parts of the same section. Fig. 3 is a sectional view of the saddle through the points *x x*. Fig. 4 shows a modification of the tooth D at its supporting-end.

In Fig. 2, A is a peculiarly-formed metallic saddle, from the flat top surface of which arise the four horns *a a*, having their opposing faces at right angles to the top surface, and so adjusted and arranged as to receive and hold snugly the bar B as it lies upon the top surface of the saddle lengthwise of its form, and also to receive the wooden bar C at right angles to the said draft-bar B when in place on top of the same. From the lower surface of the body of A depend four other projections *b b*, their inner faces longitudinally of the saddle being arranged similarly to those of *a a*, and adapted in their space to the width of the bar E. The transverse opposing faces of these projections, instead of being at right angles to the center-line of the saddle, are made oblique, and the space between the same adapted to the width of the tooth D. Running lengthwise of the lower side of the saddle and between the projections are a couple of low ridges with semicircular outline. (Shown in section by Fig. 3.) These ridges are parallel with each other, and their lower surfaces on the same plane.

D is a segment of the curved spring-tooth at its inner or supporting end, where it passes between the faces of the projections *b b*. For a distance from the end the material of the tooth is corrugated or indented with a series of semicircular grooves *c c*, obliquely arranged in pairs, so that fitting upon and over the ridges *e e* they allow of a firm and secure adjustment for the tooth thereupon when the latter is brought to place beneath the body of the saddle. To allow a proper alignment and bearing on the horizontal faces of the ridges *e e*, these grooves have to be deep on one edge of the tooth and shallow upon the other in alternation.

E is a secondary bar as a companion to B, the two conjointly constituting the draft-bar of the frame.

The individual parts E, D, B, and C have each corresponding holes for the passage of a binding-bolt F, which, as it is passed from beneath upward through each individual element and with the washer G' and nut G drawn snug to place, hold firmly and securely each and all the parts in their relative positions.

When it is desired to raise or lower the tip

or working end of the tooth to allow for adjustment or compensation for natural wear, the nut G is removed, the bolt F withdrawn, and the bar E and tooth dropped sufficient to
 5 allow the corrugations to pass the ridges *e e*. The tooth may then be moved to the next pair of grooves, it and the bar F raised to place, the bolt replaced, and nut set snugly to place.

10 The arrangement of the tooth D and the bar E may be changed, and the latter placed in contact with the saddle and the tooth underneath, the head of the bolt drawing directly against the substance of the tooth; but
 15 this would necessitate the dropping of the bearing-surfaces of the ridges *e e* sufficiently to allow for the thickness of the bar E. The first arrangement is preferred, as serving to hold the tooth firmer and as making a stronger
 20 frame.

A modification of the tooth D is shown in Fig. 4, yet essentially the same, in which the end of the tooth is fashioned into a series of facets, ranging obliquely across the substance
 25 of the same, each in area being equal to the space between a pair of the grooves *c c*, and when the tooth is brought to place allows that particular facet to rest flat and firm against the bearing-ridges *e e* on the under side of the
 30 saddle A. The form, as shown in D, however, is the better, as giving greater rigidity and strength to resist lateral strain upon the tooth.

Instead of the several parts being held together by the bolt F and nut G, a stirrup-clip may be substituted, the body of the
 35 clip resting on the top of the bar C, the legs of the same passing down on either side and through suitable openings in the draft-bars B and E, with suitable nuts at the lower ends to draw snugly against the lower side of the lat-
 40 ter; or if the tooth is beneath, then a nut-bar is placed over the ends of the clip and the nuts drawn against this bar.

Having thus described my invention, what I claim, and desire to secure by Letters Pat-
 45 ent, is—

1. A curved-tooth land-harrow consisting of the cross-bar C, the compound draft-bar composed of the parts B and E, the interven-
 50 ing saddle A, with the lower horizontal projecting ridges *e e*, the curved tooth D, with its corrugations *c c*, each and all held in their respective positions and bound together by the bolt F and nut G, or their equivalents, the
 55 several parts arranged as shown and described.

2. A curved harrow-tooth, the supporting end of which is provided with a series of companion grooves or corrugations, allowing the tooth to engage and rest firmly upon the horizontal ridges *e e* of the saddle A.

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Witnesses:

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