

(No Model.)

H. H. TIGNER.  
HARROW.

No. 516,412.

Patented Mar. 13, 1894.

Fig. 1.

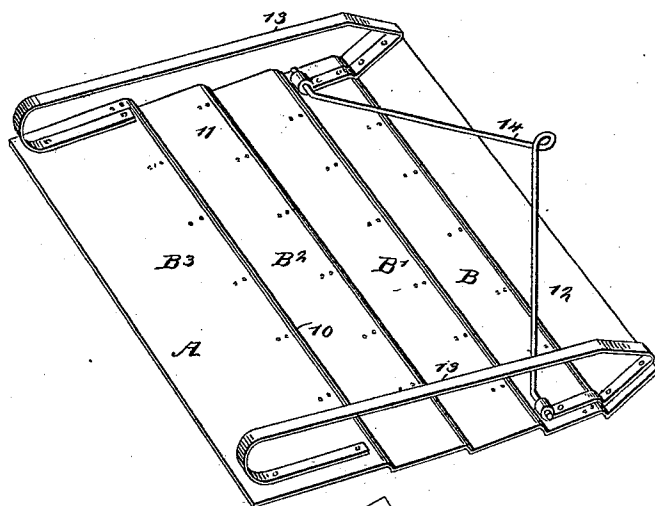


Fig. 2.

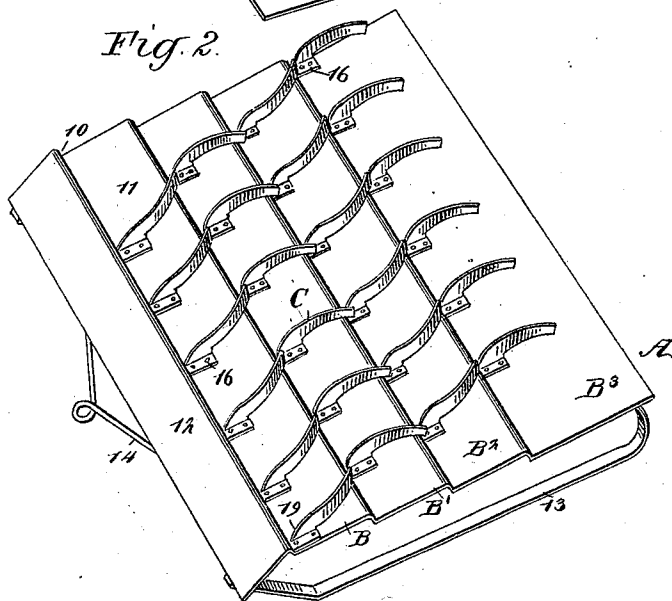
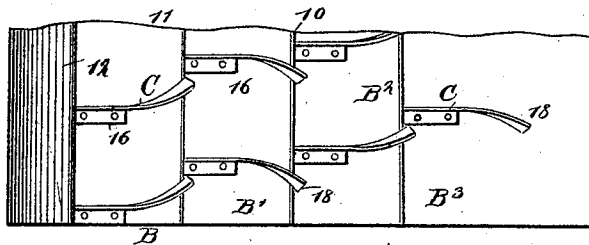


Fig. 3.



WITNESSES:

*Paul J. Chat*  
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INVENTOR

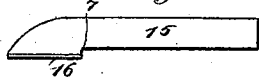
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BY

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ATTORNEYS.

Fig. 4.



# UNITED STATES PATENT OFFICE.

HOPE H. TIGNER, OF STINSON, GEORGIA.

## HARROW.

SPECIFICATION forming part of Letters Patent No. 516,412, dated March 13, 1894.

Application filed April 3, 1893. Serial No. 468,851. (No model.)

*To all whom it may concern:*

Be it known that I, HOPE H. TIGNER, of Stinson, in the county of Meriwether and State of Georgia, have invented a new and useful Improvement in Harrows, of which the following is a full, clear, and exact description.

My invention relates to an improvement in harrows, and it has for its object to provide a harrow of exceedingly simple and durable construction and capable of convenient manipulation, the said harrow being especially adapted for smoothing land, covering small grain and for pulverizing clods, the harrow being so constructed that the surface of the ground over which it passes will be prevented from rising above the harrow, and whereby the harrow teeth will be arranged in rows, one row facing in the opposite direction to the next, the teeth being so arranged that clods of earth beneath the harrow will be acted upon by each row of teeth and thoroughly pulverized.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out by the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of the harrow. Fig. 2 is a perspective view looking at the harrow from the bottom; and Fig. 3 is a partial bottom plan view; and Fig. 4 is a side elevation of one of the harrow teeth before it is curved.

The body of the harrow consists of a back plate A, which plate is transversely corrugated or stepped, producing a series of shoulders 10, and consequently a series of stepped surfaces 11, the last stepped surface being much wider than the others, while the front portion 12 of the back plate is turned upward at a decided angle to the body, in order that the back plate may readily ride over clods and uneven surfaces.

The number of steps usually made in the harrow back is four; and they are designated as B, B', B<sup>2</sup> and B<sup>3</sup>; but any desired number of steps may be employed.

The back plate A, is provided at each side

with a yoke-like handle 13, the said handles being adapted to facilitate moving the harrow from one place to another, and a draft rod 14, preferably of angular construction is pivoted at its ends in eyes formed on the reversely curved ends of the handles.

The teeth C, are of peculiar construction, and are made from a blank shown in Fig. 4, which blank comprises a body section 15 and a flange 16, located at the forward end of the body at the top, and which flange extends at a right angle from the body. The forward portion of the body is wider than the rear portion, and to that end a shoulder 17, is produced in the upper edge of the blank adjacent to the rear end of the flange 16. Thus when the flange 16, is secured to any object, a space will intervene the said object and the upper edge of the remaining portion of the body.

The blades are curved longitudinally, and their rear ends are so twisted, as shown at 18, in Fig. 3, that the vertical faces of the blades at their rear ends are decidedly inclined. The blades are attached to the under face of the back plate in rows located at predetermined distances apart, one row being secured upon each stepped surface of the plate; and the forward edges of the blades are curved from their bottom edge upwardly, as shown at 19, in Fig. 2, and the forward reduced edges of the blades are brought practically in engagement with the several shoulders 10 in the back plate, the flanges 16 of the blades being riveted or otherwise attached to said plates. The shoulders 10 in the back plate, together with the curving or narrowing of the forward edges of the blades prevent said edges from becoming clogged by trash or like matter coming in contact with them.

The arrangement of the blades is as follows: Viewing the back plate from bottom and rear, as shown in Fig. 2, the first blade placed upon the front step 11, is located at the edge of the left-hand end of that step, and the blade is curved in direction of the right-hand end of the step, the rear end of the blade extending over the second step B'. All the blades upon the first step B, are placed in like manner at predetermined intervals apart, while in the arrangement of the blades upon the second step B', the first blade

near the left-hand end of that step is so placed that the outer edge of its flange will be practically in alignment with and beneath the overhanging or projecting rear end of the first blade on the first step; and the blades upon the second step B', are curved in a direction the reverse of the blades upon the first step. The blades upon the third step B<sup>2</sup>, are curved in like manner as those upon the first step, the first blade near the left-hand end of the third step being placed in the same relation to the first blade on the second step that that blade sustains to the first blade upon the first step. The blades upon the fourth and widest step B<sup>3</sup> are curved in the same direction as the blades upon the second step and the reverse of those upon the third step. The rear row of blades extend only to a point at or near the center of the fourth step B<sup>3</sup>, so that there is a plain surface at the rear of the rear set of blades, and in general the blades are arranged in serpentine rows, the rows extending from the front practically to the rear. By this arrangement of the teeth or blades, and owing to the fact that a solid back is provided for the harrow, the earth is prevented from escaping and rising upward between the teeth to such an extent that the teeth can not operate successfully upon it, and the particular arrangement of the teeth in rows will cause each row to cut the clods held down by the back plate, and practically each row will strike and cut the clod in a different direction from that of the one in front of it, thus providing for a perfect pulverization of the earth, while the smooth rear end of the back will press down and smooth over the pulverized surface of the ground, and thereby dispense with the use of a roller. By extending the teeth over the edges of the shoulders they clear themselves readily, and by giving the peculiar twist or slant to the surfaces of the blades at their rear ends, the earth, when being acted upon, is forced downward rather than thrown upward. The entire lower edges of the blades are sharpened, preferably by beveling one side and leaving the opposite side straight.

The harrow is exceedingly light, and may be readily moved from place to place through the medium of its handles 13. Whatever weight may be necessary may be placed upon the back of the back plate; or instead of other weight the driver may stand upon the plate while driving. The handles 13, are flat at their body portions, beveled at their front ends and curved inward or reversely, at each end so that the ends point toward each other as shown. By turning the harrow upon its back the handles serve as runners facilitating the transportation of the harrow from place to place.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. As an improved article of manufacture a harrow provided with a solid corrugated back forming steps extending from side to side, a series of blades arranged in rows on the under side of the back, one row being placed upon each of the steps, the blades of one row being curved in an opposite direction to that of the blades in the row next to it, whereby the blades are arranged in serpentine order from front to rear, as and for the purpose set forth.

2. As an improved article of manufacture, a harrow provided with a solid back, and a series of blades arranged in rows extending from side to side of the back, the blades being secured to the under face of the back, and the blades of one row being curved in an opposite direction to that of the blades of the next row, the back being arranged in steps, and a row of the said blades being located upon each step the front ends of the blades being secured to the steps near the shoulders, and handles located upon the upper surface of the back at its ends, which handles are provided with flat body sections and beveled forward ends, whereby the handles are used as runners on occasion, as and for the purpose set forth.

3. A harrow consisting of a solid back plate formed in a series of steps, the steps extending from side to side, blades secured to each of the steps, the blades upon one step being curved in a direction opposite to the blades upon the next step, the blades of one step extending over to the blades of the next step with the exception of the last row of blades, wherein the back extends beyond the rear ends of the said blades, as and for the purpose set forth.

4. In a harrow, the combination, with a solid corrugated back, the corrugations forming practically a series of steps extending from side to side of the back, of a series of blades arranged in rows upon each step, the blades in one step being curved in an opposite direction to the blades upon the next step, the rear end of each blade being twisted, imparting to the side surfaces a diagonal face, the blades on one step being attached to the step opposite the rear ends of the blades on the next front step, and the blades of one step extending over to the blades of the next step, with the exception of the last row of blades whereby the blades are arranged in serpentine order from front to rear of the back, substantially as herein shown and described and for the purpose specified.

HOPE H. TIGNER.

Witnesses:

JAS. F. OGLETREE,  
N. W. PARHAM.