No. 690,776. Patented Jan. 7, 1902.

A. H. SCHAFFER.

HARROW TOOTH.

(Application filed Apr. 30, 1901.)

(No Model.)

Fig. 1.

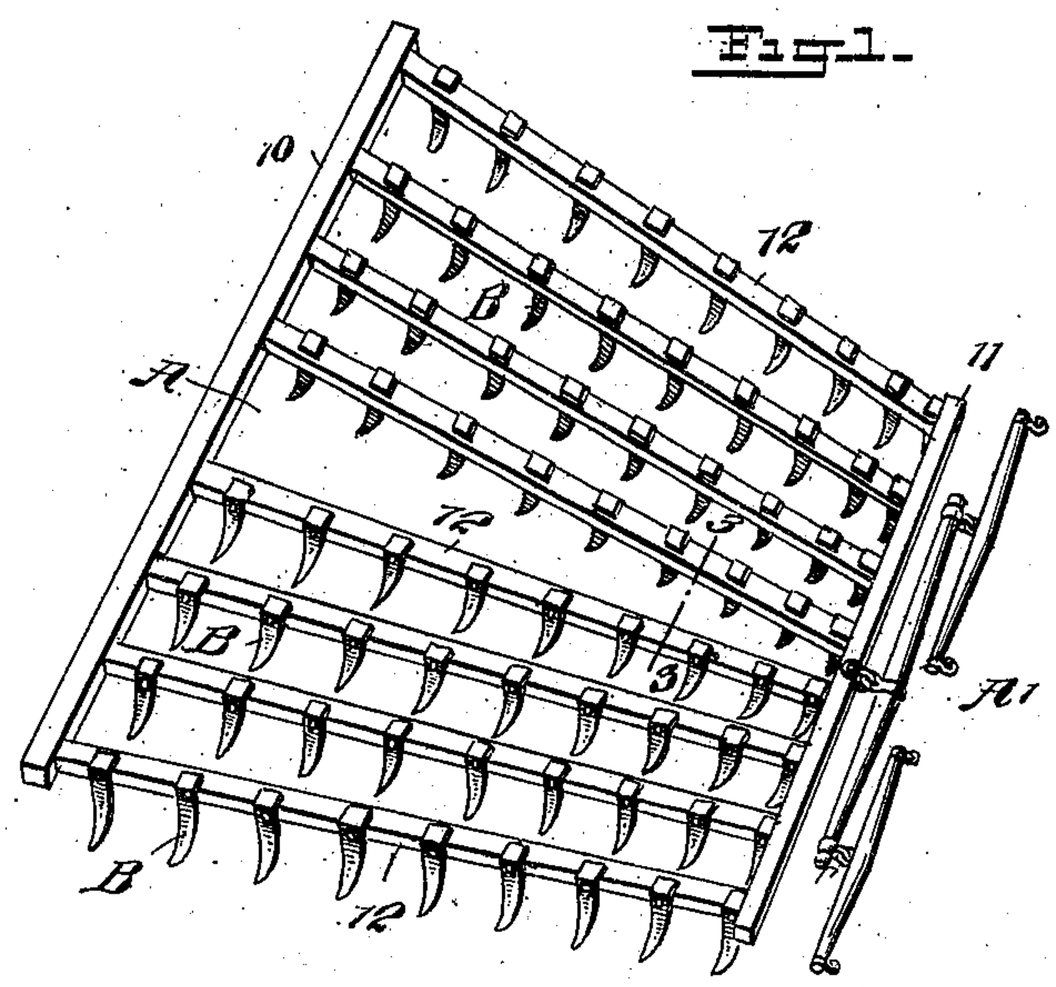


Fig. 2.

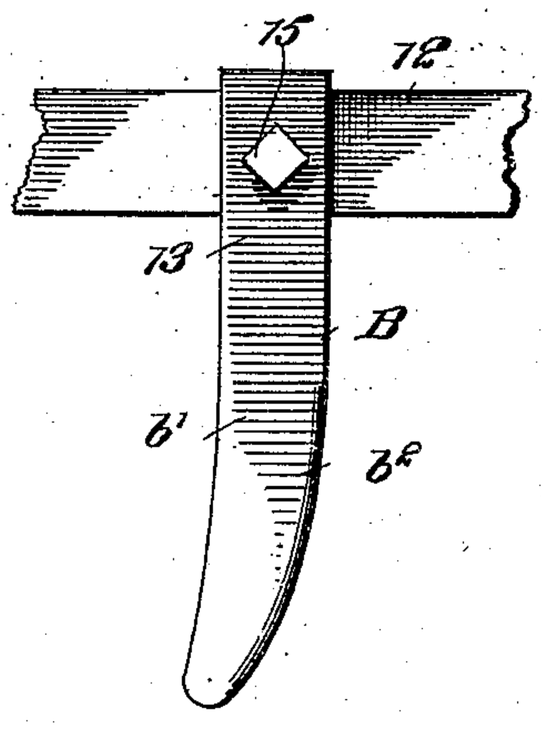
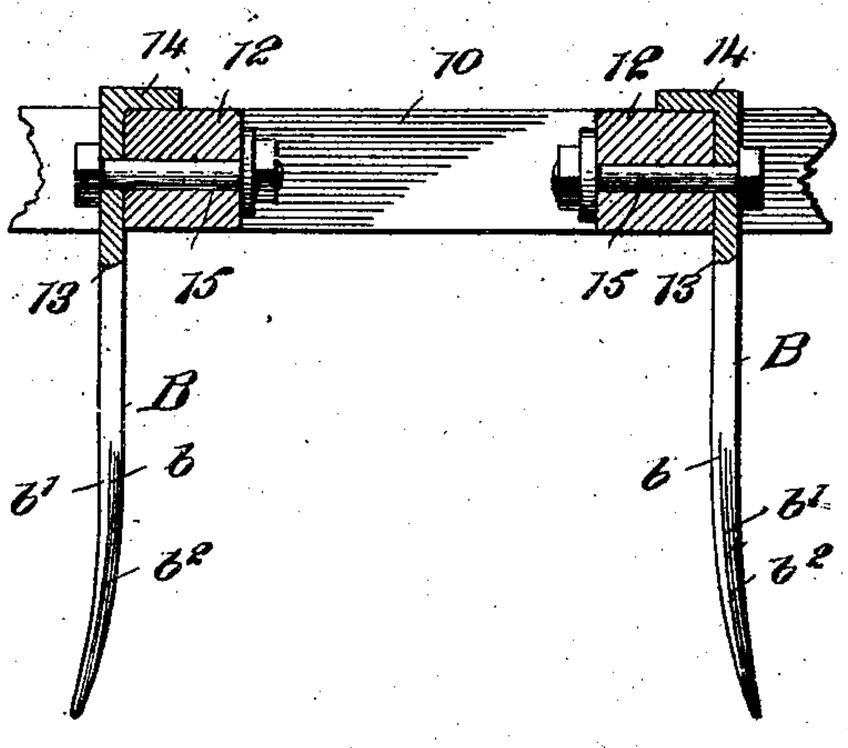


Fig. 3.



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AUGUSTUS H. SCHAFFER, OF ONTONAGON, MICHIGAN.

HARROW-TOOTH.

SPECIFICATION forming part of Letters Patent No. 690,776, dated January 7, 1902.

Application filed April 30, 1901. Serial No. 58,118. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS H. SCHAFFER, a citizen of the United States, and a resident of Ontonagon, in the county of Ontonagon and State of Michigan, have invented a new and useful Improvement in Harrow-Teeth, of which the following is a full, clear, and exact description.

The purpose of this invention is to provide a harrow-tooth which may be attached to a light frame without detracting from the strength of the frame and to so construct the tooth that it will cut and therefore will not clog and will make practically a furrow.

A further purpose of the invention is to so construct the harrow-teeth that when a number of them are attached to a harrow-frame the surface of the field treated will be cut and furrowed, and yet the surface will be left in as smooth a condition as when the ordinary harrow is employed.

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

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

Figure 1 is a perspective view of a harrow having the improved teeth applied. Fig. 2 is a side elevation of one of the harrow-teeth and a portion of the harrow-frame to which the tooth is attached, and Fig. 3 is a section taken practically on the line 3 3 of Fig. 1.

A represents a harrow-frame, which may be of any desired construction. As shown, the frame consists of a rear bar 10 and a front bar 11 and an equal number of connecting-bars 12 at each side of the center of the frame. At the front portion of the harrow-frame A a draft device A′ of any suitable character is attached. The harrow-teeth B extend vertically from the connecting-bars 12 and their lower ends engage with the ground. Each harrow-tooth B is preferably made of spring-steel, and each tooth comprises a body 13 and a flange 14 at the top of the body, said flange being at right angles to the body, and this flange engages with the upper face of a connecting-bar 12, to which the tooth is to be applied, and a tooth is held firmly to the connecting-bar by means of a horizontal bolt 15, extending through an aperture in the tooth below the flange 14 and through a suitable aperture in a connecting-bar 12. This bolt is provided with a nut and washer and not only serves to secure the tooth to the connecting-bar of the frame, but also serves to strengthen the frame, and the teeth may be secured to the bars of a harrow-frame of very light construction. The face b of a tooth B, at which the flange 14 is located, is more or less longitudinally convexed and the opposite side face b' is more or less longitudinally concaved. The front edge $b^{\times}$ of the tooth is made sharp from a point near the top to the bottom, and this cutting edge is convexed, while the rear edge of the tooth is more or less concaved. The tooth is made to taper, being narrowest at its lowest end, and the cutting edge b^2 extends along the bottom of the tooth to the back.

The teeth are made right and left, and preferably in applying these teeth to a frame the teeth on one half of the number of connection-bars are placed the reverse of the other half, the arrangement being from the center, and it will be observed that these teeth cut through the ground and do not clog, but make practically sharp furrows in the ground, and after a harrow provided with the improved teeth has been passed over a field the surface of the ground will be thoroughly sliced and pulverized, but will be in a smooth condition and level.

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

A harrow-tooth constructed of flat spring-steel, the said tooth being longitudinally tapered and provided with a flange at its upper edge extending at right angles from the body, and also provided centrally with a bolt-hole parallel with said flange and midway between the edges thereof, one side face of the tooth being convexed and the opposing side face concaved, the forward edge of the tooth being the cutting edge and longitudinally convexed, the cutting edge extending to the rear edge of the tooth at the bottom, which rear edge is longitudinally concaved, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUSTUS H. SCHAFFER.

Witnesses:

A. E. SHUSTER,

J. H. HAIGHT.