(No Model.)

R. H. BUCKINGHAM.

HARROW.

No. 491,036. Patented Jan. 31, 1893.

Fig. 1.

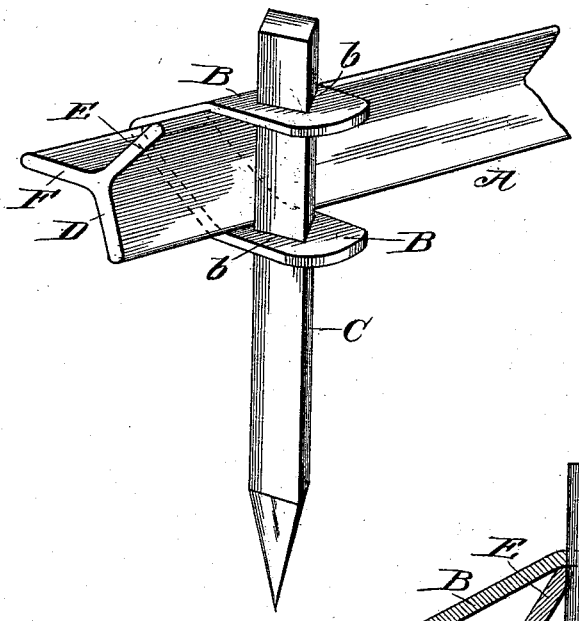


Fig. 3.

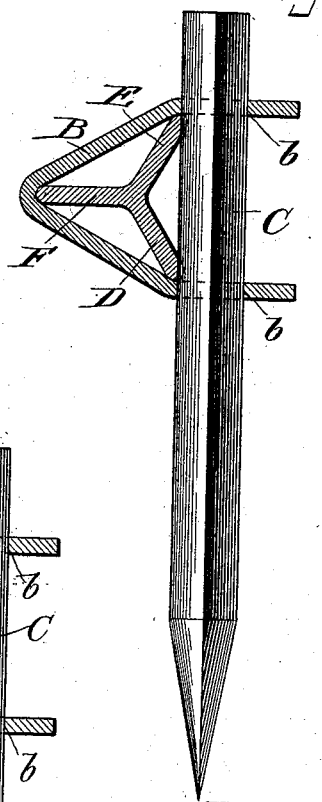


Fig. 2.

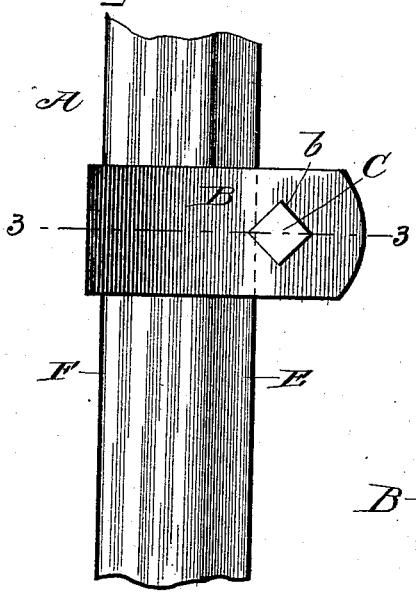
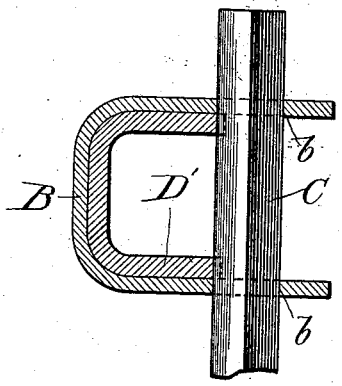


Fig. 4.



Witnesses
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HARROW.

SPECIFICATION forming part of Letters Patent No. 491,036, dated January 31, 1893.

Application filed October 12, 1891. Serial No. 408,474. (No model.)

To all whom it may concern:

Be it known that I, ROSWELL H. BUCKINGHAM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Harrows, of which the following is a specification.

The object of my invention is to provide a simple and efficient means of attaching harrow teeth to the bars which carry them. Heretofore it has been customary to attach these teeth by means of a bolt, wedge, spring or similar clamping device. But these have been found objectionable in requiring several parts and being expensive to put together and apt to become loosened.

My invention aims at obviating these objections, and it consists broadly of a harrow bar with a strap or clip passing around it through which the tooth is driven, in such a manner as to draw the strap up tightly about the bar and bind the parts securely together without any additional clamping device.

It further consists of details of construction hereinafter more fully described and particularly pointed out in the claims.

Figure 1 is a perspective view of a part of a harrow showing my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a sectional view on lines 3—3 Fig. 2. Fig. 4 shows a modification of my invention.

A represents the harrow-bar, B the strap surrounding it and C the harrow tooth. The bar A is Y-shaped having the arms D, E and F. The strap B has holes, *b*, *b*, punched in the ends of it. This strap passes over the arm F and projects beyond D and E. The holes *b*, *b*, are so located as to bring their inner edges just back of the outer edges of D and E, in order that when the tooth C is inserted it will be necessary to drive it in with considerable force and thus bind the parts tightly together. I prefer to make the tooth angular with a sharp edge turned toward the bar, so that when it is driven into place the sharp edge will cut into the bar slightly making a groove therein and preventing the tooth from sliding longitudinally upon it. The bar being of the peculiar shape as described, the arms D and E will spring or spread when the tooth is driven into place and their elasticity will tend to prevent its coming loose.

Although I prefer to use a Y-shaped bar, in order to obtain the desired stiffness in the bar itself, without unnecessary weight, and at the same time have a certain amount of elasticity in the arms to assist in holding the teeth securely, still I do not wish to limit myself in this regard as the shape of the bar may be varied without departing from the spirit of my invention. For example, in the modification shown in Fig. 4 I use a U-shaped instead of a Y-shaped bar D′ in which there is little or no elasticity, but the tooth being driven in in the same manner described above so as to draw up the strap tightly about the bar the parts will be bound securely together and held by the friction between them without the elasticity of the bar.

What I claim and desire to secure by Letters Patent is:

1. The herein described harrow consisting of the combination of the bar which carries the teeth, the strap or clip embracing said bar having holes therein located just within the plane of the outer edge or edges of the bar and the tapering tooth adapted to be forcibly driven into said holes, and bind the parts together, all substantially as shown and described.

2. The herein described harrow consisting of the combination of the elastic bar which carries the teeth, the strap or clip embracing said bar having holes therein located just within the plane of the outer edge or edges of the bar and the tooth adapted to be forcibly driven into said holes and bind the parts together, all substantially as shown and described.

3. The herein described harrow consisting of the combination of the elastic bar which carries the teeth, the strap or clip embracing said bar having polygonal holes therein one angle of which is located within the plane of the outer edge or edges of the bar and the tooth fitting and adapted to be forcibly driven into said holes, all substantially as shown and described.

4. The herein described harrow consisting of the combination of the Y-shaped bar A, the strap B embracing said bar, having the holes *b*, *b*, therein located partially within the plane of the outer edges of the arms D and E, and the tooth C adapted to be forcibly driven into

said holes, all substantially as shown and described.

5. The herein described harrow consisting of the combination of the elastic Y-shaped bar A, the strap B passing over one arm F thereof, and extending beyond the edges of the arms D and E, the holes *b*, *b*, in the ends of said strap located partially within the plane of the outer edges of said arms and the tooth C fitting and adapted to be forcibly driven into said holes, all substantially as shown and described.

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Witnesses:
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