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J. M. ULSH.

HARROW TOOTH.

APPLICATION FILED JULY 29, 1905.

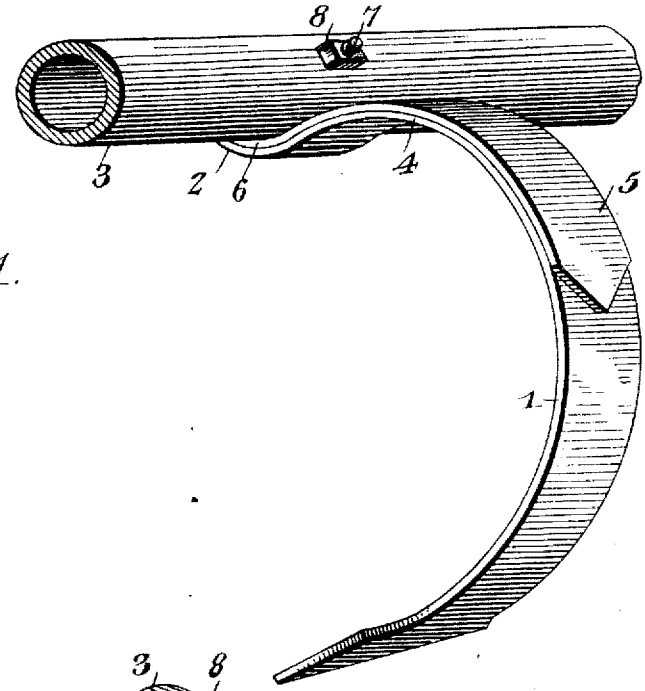


Fig. 1.

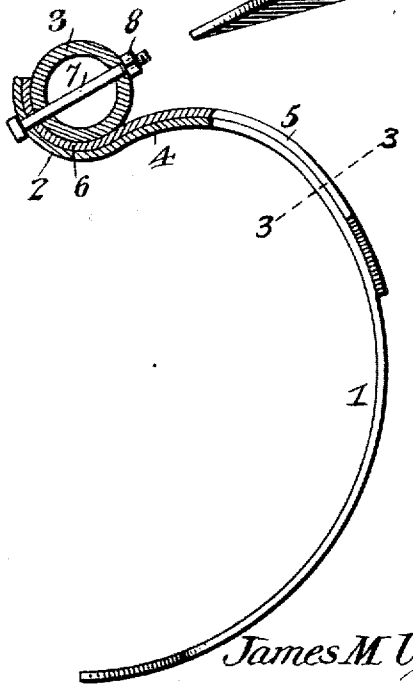


Fig. 2.

Fig. 3.



Witnesses

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HARROW-TOOTH.

No. 811,753. Specification of Letters Patent. Patented Feb. 6, 1906.

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To all whom it may concern:

Be it known that I, JAMES M. ULSH, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Harrow-Tooth, of which the following is a specification.

The invention relates to improvements in harrow-teeth.

The object of the present invention is to improve the construction of harrow-teeth and to shorten the length, and thereby lessen the cost, of harrow-teeth without impairing their efficiency.

A further objectof the invention is to render the tooth more rigid, and thereby increase its efficiency as a cultivator or pulverizer.

Also the invention has for its object to prevent the strain on the tooth from being exerted directly against the head of the bolt for securing the tooth to the tooth-bar and to arrange the parts so that the strain will operate to force the tooth firmly against the tooth-bar and will be partly borne by the latter, thereby materially relieving the attaching-bolt.

Furthermore, it is the object of the invention to arrange the tooth and the bolt so that the strain on the latter will be transversely thereof and not directly outward against the head of the bolt, whereby the head of the bolt will be prevented from being pulled off by the tooth.

Another object of the invention is to arrange the teeth so that when they are thrown upward out of the ground to clean the harrow no portion of them will be depressed and tend to hold in the harrow any accumulated rubbish, whereby the harrow will be more easily cleaned than a harrow having the long spring-teeth, which extend both in advance and in rear of the tooth-bar and which are partly depressed when the points of the teeth are thrown upward and forward.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a harrow-tooth constructed in accordance with this invention. Fig. 2 is a side elevation, partly in section. Fig. 3 is a transverse sectional view on the line 3 3 of Fig. 2.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a harrow-tooth which has its top portion sigmoidally bent to form an approximately horizontal compound curve, the front portion 2 of the curve presenting a concave upper face to conform to the configuration of a tooth-bar 3. The front portion 2 of the top of the tooth is arranged beneath the tooth-bar, and the rear portion 4 of the sigmoidal portion presents a convex upper face and extends upward at the back of the tooth-bar. The harrow-tooth, which is much shorter than the ordinary spring harrow-tooth, is consequently less expensive, and in order to compensate for the increased length of the ordinary spring harrow-tooth a brace 5 is provided, which renders the tooth more rigid and increases the efficiency of the same as a cultivator or pulverizer. The front portion of the brace, which is arranged on the back of the tooth, is sigmoidally bent to provide a substantially horizontal compound curve to fit the compound curve of the top of the tooth, and the front portion 6 of the brace presents a concave upper face and is fitted directly against the lower front portion and the bottom of the tooth-bar 3. The rear portion of the brace presents a convex upper face, and it extends upward at the back of the tooth-bar. The lower rear portion of the brace extends downward at the back of the tooth, terminating short of and adjacent to the center of the tooth; but the brace may be varied in length to secure the requisite stiffness or rigidity of the tooth.

The tooth and the brace are of the same width, and the tooth-bar, which is preferably tubular and round, as shown, is pierced by a bolt 7, which is arranged at an inclination and which extends upwardly and rearwardly through the front portions of the tooth and the brace. The head of the bolt is at the lower end, and the upper end of the bolt is arranged at the upper portion of the back of the tooth-bar and is threaded for the reception of a nut 8. The tooth is regularly curved in rear of the upper sigmoidally-bent portion,

and the lower portion of the body of the tooth curves downwardly and forwardly, and when pressure is applied to the point of the tooth the upper curved portions of the tooth and the brace are forced firmly against the tooth-bar at the bottom and the back, the tooth-bar thereby operating to relieve the bolt of a portion of the strain. Also the strain on the bolt is transversely of the same and is not exerted outwardly or downwardly directly against the head of the bolt and there is not the liability to pull off the head of the bolt, as is the case when the teeth are attached at the top of the tooth-bar, and the strain is directly against and borne solely by the head of the bolt. Also by securing the top portion of the harrow-tooth beneath the tooth-bar and extending the tooth rearwardly and downwardly no portion of the tooth will be depressed when the tooth is withdrawn or swung upward and there will be no tendency to hold in the harrow any accumulated rubbish, as is the case when harrow-teeth are secured to the top of the tooth-bar and are curved forwardly to a point considerably in advance of the tooth-bar in forming a large spring loop or curve, since the front portion of such tooth is depressed and will tend to hold in the harrow any accumulated rubbish when the points of the tooth are thrown upward.

It will be seen that the harrow-tooth is simple, strong, and durable, that by the present invention the cost of constructing harrow-teeth is greatly lessened and their efficiency as cultivators or pulverizers is increased and that they are securely fastened to the tooth-bar. Also it will be clear that the tooth-bar is adapted to sustain a portion of the strain, and thereby relieve the bolt of considerable strain, and that the strain on the bolt is transversely thereof and not directly against the head of the same.

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

1. The combination with a tooth-bar, of a harrow-tooth having its top portion arranged beneath the tooth-bar with the terminal extended upward at the front of the said bar, said tooth being extended rearwardly and downwardly from the tooth-bar, and an inclined fastening device piercing the tooth-bar and the top portion of the harrow-tooth and extending from the back of the upper portion of the tooth-bar to the lower front portion thereof and having its lower end arranged at the front of the terminal of the upper portion of the harrow-tooth at a point in advance of the bottom of the tooth-bar, whereby when pressure is applied to the point of the tooth, the entire strain will be against the bottom of the tooth-bar and transversely of the fastening device.

2. The combination with a tooth-bar, of a harrow-tooth having its top portion sigmoidally bent into substantially a horizontal compound curve, the front portion of the curve presenting a concave upper face and lying beneath the tooth-bar and extending upward at the front of the same, and an inverted inclined fastening device piercing the tooth-bar and the harrow-tooth and extending from the back of the upper portion of the tooth-bar to the lower portion of the front of the same, the head of the bolt being arranged at the front of the upwardly-extending terminal of the top portion of the harrow-tooth and at a point in advance of the bottom of the tooth-bar, whereby when the point of the tooth is subjected to pressure, the entire strain will be against the bottom of the tooth-bar and transversely of the bolt.

3. The combination with a tooth-bar, of a harrow-tooth having its top portion sigmoidally bent into substantially a horizontal compound curve, the front portion of the curve presenting a concave upper face and lying beneath the tooth-bar and extending upward at the front of the same, and an inverted inclined fastening device piercing the tooth-bar and the harrow-tooth and extending from the back of the upper portion of the tooth-bar to the lower portion of the front of the same, the head of the bolt being arranged at the front of the upwardly-extending terminal of the top portion of the harrow-tooth and at a point in advance of the bottom of the tooth-bar, whereby when the point of the tooth is subjected to pressure, the entire strain will be against the bottom of the tooth-bar and transversely of the bolt, and a brace provided with a sigmoidally-bent top portion conforming to the configuration of the harrow-tooth and fitted against the back and upper face of the top portion of the same and secured to the harrow-tooth and to the tooth-bar by the said bolt.

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

JAMES M. ULSH.

Witnesses:
E. M. HARTMAN,
MILTON H. HARTMAN.