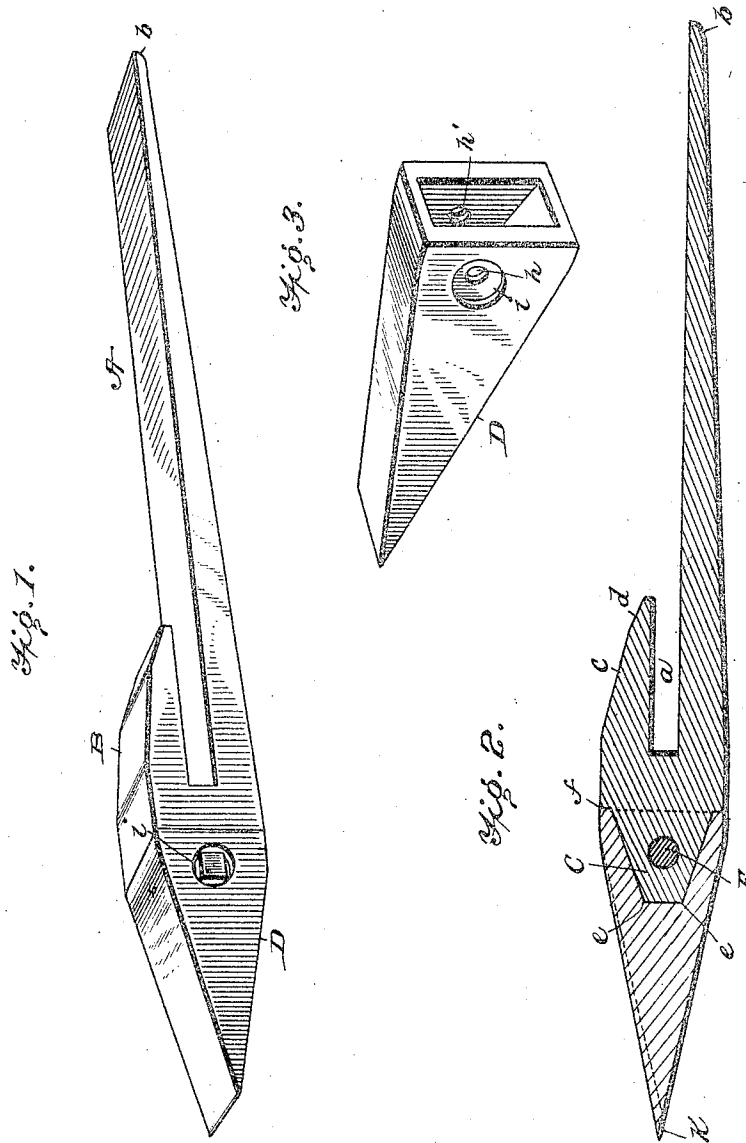


C. E. GARDNER.
TOOTH FOR STEAM DREDGERS, EXCAVATORS, &c.
APPLICATION FILED NOV. 20, 1907.

935,147.

Patented Sept. 23, 1909.



WITNESSES

L. H. Schmidt.
Harold E. Stonebraker.

INVENTOR:

Charles E. Gardner.
BY *A. L. Dyer*
HIS ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES E. GARDNER, OF UNIONVILLE, VIRGINIA.

TOOTH FOR STEAM DREDGERS, EXCAVATORS, &c.

935,147.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed November 20, 1907. Serial No. 403,081.

To all whom it may concern:

Be it known that I, CHARLES E. GARDNER, a citizen of the United States, residing at Unionville, in the county of Orange and State of Virginia, have invented certain new and useful Improvements in Teeth for Steam Dredgers, Excavators, and Similar Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in teeth for steam dredgers, excavators, and similar machines, and has for its object, among others, to provide a detachable and reversible tooth of the character mentioned.

A further object of the invention is the provision of a structure which will present a minimum amount of friction in the course of its operation, as compared with devices of a similar nature already in use.

The invention further comprehends a tooth having a removably and reversible point and so constructed that the point is susceptible of efficient use until it is entirely worn away.

A further object consists in the production of a tooth which shall present nothing but smooth surfaces to the earth in which it is being operated, and also which shall possess no shoulders or other projecting parts which would tend to obstruct to any degree whatsoever its successful manipulation.

By my invention, I have perfected a reversible tooth-point having all of the features necessary to its proper and successful operation and so constructed as to make its useful existence extend over a much greater period of time than any heretofore known. When my tooth-point has been worn away on one side, it may be reversed to enable its use on the other side, and this procedure may be continued until the point is practically entirely worn away, or until nearly all of the steel has been consumed. It is never necessary to sharpen the device after removal and before reversal of the same, in as much as the wearing of the point on the one side during its operation, is in itself a sharpening operation and after continued use in one position, a very keen edge will be produced which is effective upon reversal of the point. As a result of an application of my improvement to actual practice, it has

been found that the useful existence of the point is extended from a period of several weeks, as heretofore known, to that of a number of months, or in other words, the present invention results in the production of a device capable of actual operation for a length of time four or five times, at least, that of similar devices already known in the art.

A further object of the invention is a provision of a tooth having the advantages set forth, and at the same time of such a nature that its strength and solidity is the same as though it were constructed of a single piece of metal.

Further objects and advantages will appear from the following detailed description, when read in conjunction with the annexed drawings, in which,

Figure 1 is a perspective view of my improved device. Fig. 2 is a longitudinal section through the same, and Fig. 3 is a detailed view of the detachable and reversible

Referring more particularly to the drawings, in which like reference characters refer to corresponding parts in the several views, A designates the shank of the tooth, which is provided with the arm B and the slotted portion *a* between the shank A and the arm B, said slotted portion serving to engage the front edge of the scoop or the like. The shank A may be secured to the scoop in any suitable manner and is provided at its inner end with the beveled portion *b* in order to offer least resistance to the falling of the excavated material into the bucket. For a like purpose, the arm B includes on its outer surface a beveled portion *c*, and increased beveled portion *d* connecting the portion *c* with the end of the arm. The shank A is of gradually decreasing thickness from a point substantially below the end of the slotted portion *a* to the beveled portion *b*, for a purpose hereinafter to be set forth. The shank, or body portion, is provided at its outer end with a projecting portion or stub C having an opening E extending transversely therethrough. The base of the projecting portion C is of smaller cross-sectional area than the outer end of the main body portion A, thus providing a shoulder *f* entirely surrounding the base portion. The projecting portion or stub C comprehends outwardly converging walls of equal angularity, terminating in a flattened extremity *g*.

D designates the detachable point which is provided with an interiorly hollowed-out portion of a size and shape to closely engage the projecting portion or stub C at all points thereof when fitted upon the same. The walls of the hollowed-out portion of the point D are of a thickness equal to the width of the shoulder *f* so that when the parts are in position, a smooth exterior surface is presented. In the side walls of the hollowed portion of the point D are screw-threaded openings *h*, *h'*, and surrounding the opening *h* on the exterior of one of the side walls is a circular recess *i* for a purpose about to be set forth. For securing the point upon the tooth, I employ a bolt headed at one end and screw-threaded at the other, the head of said bolt taking in the recess *i* before-mentioned, and the threaded end of said bolt engaging the threaded opening *a*, and thereby securing the parts.

The operation is substantially as follows: The shank or body portion having been suitably secured to the scoop or bucket, the tooth-point is attached as indicated. After using the same for a certain length of time, the point becomes worn away until it assumes an exterior surface as indicated by the dotted line in Fig. 2, such point having at the same time been sharpened by its continued use at the edge designated by *k*. The tooth-point is then removed and again secured in reversed position, thus presenting the newly sharpened edge and a fresh surface to the material being excavated. This removal and reversal of the point may be continued until it has been worn down to the points designated by *e*, when it is thrown away and a new point substituted. Sharpening of the point is thus never required. The flattened end portion *g* of the projecting portion C affords a solid and firm bearing for the solid part of the point and in this way, when the parts are securely fastened, is obtained a structure which to all intents and purposes is just as strong and efficient as though the tooth were a one piece structure. The recess is formed in the side of the hollowed portion of the point in order to accommodate the bolt head and hence permit of no projecting parts which would offer resistance to the passage of the tooth through the material being worked. The same purpose is also further accomplished by the shoulder *f* accommodating the walls of the hollowed portion of the point D. To further assist the ready passage of the tooth through the earth being excavated, I have beveled the arm B at points *c* and *d* as indicated, thus doing away with a right-angled portion common in devices of this kind at the inner end of the arm B, and which offers material resistance to the proper action of the tooth.

It is to be understood that various changes

and modifications may be made of the present construction without departing from the spirit and essential characteristic of my invention.

What I desire to procure by Letters-Patent, and claim, is:

1. A tooth for dredgers, excavators and the like, including a body portion, a point engaging said body portion to inclose a part thereof and reversible on the same.

2. A tooth for dredgers, excavators and the like, including a body portion, a projecting part thereon, and a point inclosing and reversible upon said projecting part.

3. A tooth for dredgers, excavators and the like, including a body portion, and a hollow point inclosing a portion thereof and reversibly secured thereto.

4. A tooth for dredgers, excavators, and the like, including a body portion, a removable point therefor, a hollowed portion in said point, adapted to inclose said body portion and means for reversing the point on said body portion.

5. A tooth for dredgers, excavators and the like, including a body portion, a projecting part or stub on said body portion having outwardly and equally converging flat side walls and a point reversibly secured thereto.

6. A tooth for dredgers, excavators, and the like, including a body portion, a projecting part or stub secured thereto and having flat converging walls terminating in a flattened end portion, and a reversible point secured to said projecting part.

7. A tooth for dredgers, excavators and the like, including a body portion, a projecting part or stub secured thereto and having outwardly and equally converging flat walls terminating in a flattened end portion, and a point reversibly secured to said projecting part.

8. A tooth for dredgers, excavators, and the like, including a body portion, a projecting part or stub secured thereto and having outwardly and equally converging flat walls terminating in a flattened end portion, a point having a hollowed portion similarly shaped and adapted to engage with said projecting part, and means for reversibly securing said point.

9. A tooth for dredgers, excavators, and the like, including a body portion, a projecting part or stub secured thereto, a shoulder surrounding said projecting part, a point engaging said projecting portion and seated on the before-mentioned shoulder, and means for removably securing said point.

10. A tooth for dredgers, excavators and the like, including a body portion, a projecting part or stub on said body portion having outwardly and equally converging side walls and a point reversibly secured thereto.

11. A tooth for dredgers, excavators, and the like, including a body portion, a projecting part secured thereto, a point provided with a hollowed portion, threaded openings in the side walls of said hollowed portion, a recess surrounding one of said openings, and means for removably securing said point to said projecting part.

12. A tooth for dredgers, excavators, and the like, including a body portion, a projecting part or stub secured thereto and having outwardly and equally converging walls terminating in a flattened end portion, an opening through said projecting part, a

shoulder surrounding said projecting part, a point having a hollowed portion, shaped and adapted to engage said projecting part and rest upon said shoulder, threaded openings in the side walls of said hollowed portion, a recess surrounding one of said openings, and means for removably securing said point to the before-referred to projecting part.

In testimony whereof, I affix my signature, in the presence of two subscribing witnesses.

CHARLES E. GARDNER.

Witnesses:

EDMUND H. PARRY,
HAROLD E. STONEBRAKER.