No. 888,046. PATENTED MAY 19, 1908.

J. M. SHERRERD.

TOOTH FOR EXCAVATING SHOVELS.

APPLICATION FILED APR. 1, 1907. RENEWED NOV. 20, 1907.

Fig. 1.

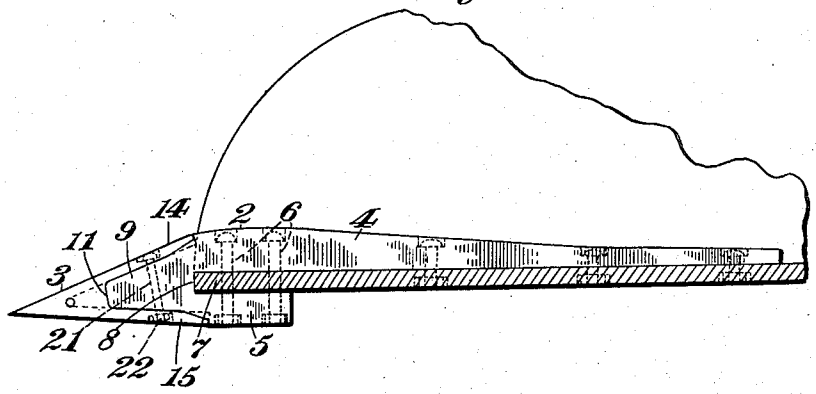


Fig. 2.

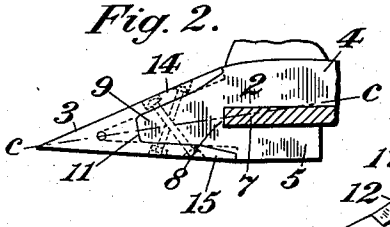


Fig. 3.

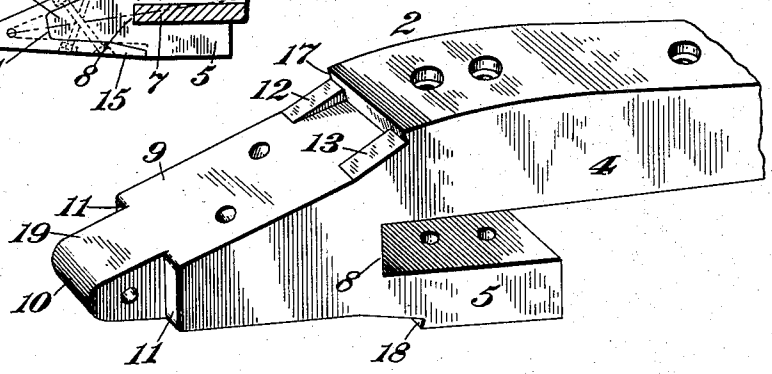
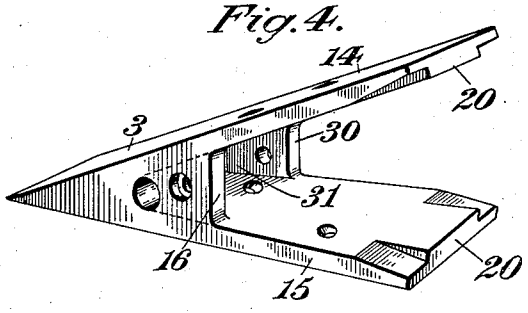


Fig. 4.



Witnesses:

J. L. Edwards.

H. D. Penny

Inventor,

John M. Sherrerd.

By his Attorney,

F. H. Richards

UNITED STATES PATENT OFFICE.

JOHN M. SHERRERD, OF EASTON, PENNSYLVANIA, ASSIGNOR TO TAYLOR IRON AND STEEL COMPANY, OF HIGH BRIDGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TOOTH FOR EXCAVATING-SHOVELS.

No. 888,046. Specification of Letters Patent. Patented May 19, 1908.

Application filed April 1, 1907, Serial No. 365,671. Renewed November 20, 1907. Serial No. 403,074.

To all whom it may concern:

Be it known that I, JOHN M. SHERRERD, a citizen of the United States, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Teeth for Excavating-Shovels, of which the following is a specification.

This invention relates to teeth for excavating buckets or shovels, the object of the invention being to provide an improved two-part tooth in which the detachable and reversible point is connected to the tooth portion or base in an improved manner.

A further object of the invention is the provision of an improved detachable and reversible point.

In the drawings accompanying and forming part of this specification, Figure 1 is a side view of this improved two-part tooth attached to an excavator shovel, which is shown partly in section and broken away; Fig. 2 is a view similar to Fig. 1, but with the shank of the tooth portion broken away and illustrating a somewhat different mode of attaching the point to the nose; Fig. 3 is a perspective view, enlarged, of the tooth portion or base of the tooth, with the shank thereof broken away; and Fig. 4 is a perspective view of this improved point.

Similar characters of reference indicate corresponding parts throughout the different figures of the drawings.

This improved two-part tooth comprises a tooth or body portion or base 2 and a detachable and reversible point 3. The tooth portion is recessed to form a pair of shanks or jaws 4 and 5, one of which, as for instance the upper, is usually longer than the other, and which jaws are bolted to the bucket by suitable bolts 6, the forward edge or lip 7 of the bucket fitting snugly in said recess, being engaged by the forward or end wall 8 of such recess, so that thrust on the tooth is imparted directly to the bucket lip, and not through the medium of bolts thereto. The body of the tooth is provided with a tapered nose 9 having a rounded end 10, which nose is recessed or rabbeted to form a pair of vertically extended shoulders 11 extending laterally from the side faces of the nose. At the base of the nose a pair of transversely extending shoulders 17 and 18 are provided. These shoulders are located in the rear of the end wall 8 of the recess which receives the lip or blade of the bucket or shovel, whereby a relatively long bearing is provided for the detachable and reversible point and whereby also the shoulders may be formed at a point where there is considerable stock, without the necessity of enlarging or forming a bulging nose.

Projecting from the nose, at the top and bottom thereof, at each side edge, is a stop or lug 12 and 13, which extend in the direction of the nose and preferably terminate at the shoulder. The detachable and reversible wedge-shaped point 3 is bifurcated to form a pair of jaws 14 and 15, which are connected at the sides thereof by webs 16 and 30 forming a pocket 31 into which the forwardly extending portion 19 of the nose projects. By this organization the point is interlocked with the nose, the jaws thereof preventing movement in a vertical plane, while the side webs prevent lateral play or movement of the point, this also being prevented by the lugs hereinbefore referred to, between which a portion of each jaw projects, this portion being in the form of a projection or surface 20 formed on each opposing face of the jaw. It will be obvious, of course, that this organization may be reversed, and the lugs formed on the jaws instead of on the nose if desired. The provision of the webs connecting the jaws prevents the spreading of such jaws as well as the lateral movement or play of the point relative to the tooth portion or base hereinbefore referred to, and accomplishes these desirable features without the necessity of bifurcating the nose for the reception of a centrally located web, and thus does away with the necessity of machining the side walls of such bifurcated portion, for which purpose special tools are required.

The points are preferably made of steel castings, such for instance as manganese steel, a number being preferably supplied with each shovel, and if desired, the webs of the points may be provided with openings therethrough so that any accumulation of dirt or rust which might gather in the pocket and interfere with the proper fitting of the point on its tooth may be removed.

In practice the work which these teeth have to do wears away the point, the major part of such wear being on the underside of the point, so that their efficiency is gradually lessened until they become unfit for use owing to the bluntness of the point. With

two-part teeth it has been the usual practice when the point has been worn to such a blunt condition that it is not efficient to do proper work, to remove the point and supply a new one. But by providing a reversible point the life thereof is very materially prolonged. When it becomes blunt it is, as stated, unfit for use, as it will not properly penetrate and do efficient work, but by reversing the point, that part thereof which is at the upper side of the point will be brought into position to do proper and efficient work. Thus, the point may be considered as practically self sharpening, since after it is reversed and again becomes worn away in the manner indicated, all that is necessary is to again reverse the point into its original position. Thus, the life of the point is very materially prolonged, such point being capable of use without removal and reformation until practically worn down to the nose of the tooth. The point, however, in order to be reversible in a practicable manner, must have its cutting or penetrating part when reversed in substantially the same plane as this part was in prior to its reversal, and to accomplish this it must have both of its jaws terminating in about the same position with relation to the nose of the tooth and must also have each of the jaws engage the nose at about the same distance from the center line of such nose. This is accomplished by so locating the jaws with relation to a line (see *c*—*c*) intersecting the apex of the point and the juncture point of the jaws that each jaw will have its free end at about the same distance from that line when continued through the nose of the tooth, and the nose of the tooth must be correspondingly so formed that when the point is reversed this point will have the same position with relation to the bucket or shovel lip and will always be in the same cutting plane, with its thrust substantially in line with the lip or wall of the bucket to which the tooth is connected. In other words, the relation of the tapered nose of the tooth to the bucket lip should be such that the working end of the point will be substantially in line with such lip, and therefore in line with the strain, whereby liability of pulling off the point is prevented. This is obtained by so locating the nose that the end thereof is substantially in the same plane as the bucket lip, while the working end of the point is not very materially above the plane of the underside of the tooth at the rear of its nose. I do not, however, claim a reversible tooth broadly herein and independently of the improved manner of connecting the point to the nose.

For the purpose of rigidly attaching the point to the nose a bolt 21 is provided, shown passing through the point and the nose, a nut 22 on one end being located in a socket of one of the point jaws, thereby to secure the bolt in position. By forming the point with side webs instead of a centrally located web, which latter necessitates, as hereinbefore stated, the formation of a recess in the nose, I am able to locate the bolt connecting the point to the nose at any desired point, and if desired am also able to bolt the point to the nose by means of several bolts, which may be angularly disposed and located in planes crossing each other, as shown in Figs. 2 and 4. And if additional security is desired I can also provide a horizontally located bolt or rivet passing through the side webs and the forwardly projecting portion of the nose, thus locking the point to the nose by bolts which pass both perpendicularly and horizontally therethrough. In the present construction it will be observed that the point is attached to the nose in an extremely rigid and effective manner, being interlocked therewith not only by the side webs forming the pocket into which the nose projects, but also by the interlocking lugs at the rear of the point webs and the nose, as well as by the several bolts which may be provided for this purpose.

This improved point, it will be observed, is not merely reversible when worn into that condition, but the carrying member or body portion and the point are so made in the preferred form, as set forth, that the point can be assembled with either side up, the point thus being constructed as a reversible point, so that such point is reversible not only after it has become worn, but is reversible prior to any wear thereon. This avoids the necessity of its always being attached to the nose of the body in one particular manner to properly do its work.

Since the point can be attached, because of its mode of construction, with either side up, as both sides terminate in the preferred construction in the same formation of the point, it follows that the present improved point is reversible in the broadest sense of that term, since, as stated, before it has become worn at all it is reversible, so that it may be considered as a preformed or reversibly constructed point, that is, one constructed or formed reversible before it is attached to the nose, thus permitting it, as stated, to be attached with either side up.

I claim as my invention:

1. A detachable point of the class specified, bifurcated to form a pair of rearwardly extending jaws united one to the other by a pair of webs located at the sides thereof.

2. A detachable point of the class specified, having a pocket and a pair of jaws extending rearwardly of said pocket.

3. A detachable wedge-shaped point of the class specified, having a pocket formed by a pair of bifurcated jaws united by a pair of side webs, said jaws extending rearwardly of the webs and provided at their rear ends with opposing projecting surfaces or lugs.

4. A detachable, wedge-shaped, pocketed point of the class specified, having an opening extending transversely through the side walls of the pocket, and a pair of jaws extending rearwardly of said pocket.

5. A detachable, pocketed, wedge-shaped point of the class specified, having jaws extending rearwardly of such pocket and provided with means for interlocking them with the nose portion of a tooth.

6. A detachable and reversible wedge-shaped point of the class specified, having a pocket, and a pair of jaws extending rearwardly of said pocket.

7. A detachable and reversible point of the class specified, bifurcated to form a pair of jaws united by a pair of webs.

8. A detachable and reversible point of the class specified, bifurcated to form a pair of jaws united by a pair of webs located at the sides of said point.

9. A detachable and reversible, wedge-shaped point of the class specified, having a pocket, and a pair of jaws extending rearwardly of said pocket, both of substantially the same length.

10. A detachable and reversible point, bifurcated to form a pair of jaws of substantially the same length, and a pair of integral webs uniting said jaws, said jaws extending rearwardly of said webs and each located at substantially the same distance from a line intersecting the apex and the juncture points of said jaws.

11. A detachable and reversible point, comprising an approximately wedge-shaped piece of metal having a pocket and bifurcated to form a pair of jaws, each of said jaws being located at substantially the same distance from a line intersecting the apex and the juncture points of said jaws and being of substantially the same length.

12. A shovel tooth, having a projecting nose recessed to form a pair of laterally extending shoulders.

13. A shovel tooth, having a projecting, tapered nose provided on its top and bottom surfaces with a pair of lugs or projections.

14. A shovel tooth, comprising a body portion having a recess, and a tapering nose portion projecting forwardly from such body portion and having a pair of shoulders located in the rear of the front wall of said recess and having in front of said shoulders, on the top and bottom thereof, a pair of projections or lugs extending in the direction of said nose and located at each side thereof.

15. A shovel tooth, comprising a body portion having a recess, and a tapering nose portion projecting forwardly from such body portion and having a pair of shoulders located in the rear of the front wall of said recess and having in front of said shoulders, on the top and bottom thereof, a pair of projections or lugs extending in the direction of said nose and located at each side thereof, said nose also having a pair of laterally extending shoulders.

16. A shovel tooth, having a forwardly extended, tapered nose provided with a pair of laterally extending shoulders, and on the top and bottom thereof with a pair of vertically extending lugs or projections.

17. A shovel tooth, having a forwardly extended, tapered nose provided with a pair of laterally extending shoulders and on its top and bottom, at the rear of said nose, with means for interlocking it with a point.

18. A shovel tooth having a forwardly extended, tapered nose provided with a pair of laterally extending shoulders and on its top and bottom, at the rear of said nose, with means for interlocking it with a point and having in the rear of said interlocking means a pair of transversely located shoulders.

19. A tooth of the class described, comprising a tooth or body portion having a pair of jaws and a forwardly extended nose, and a detachable and reversible point having a pocket for the reception of said nose and a pair of jaws extending rearwardly of said pocket.

20. A tooth having a forwardly projecting nose, and a detachable and reversible point bifurcated to form a pair of jaws embracing said nose, said jaws being united by a pair of webs located one at each side thereof.

21. A tooth having a forwardly projecting nose provided with a pair of laterally extending shoulders, and a detachable and reversible point bifurcated to form a pair of jaws embracing said nose, said jaws being united by a pair of webs terminating adjacent to the shoulders of said nose.

22. A tooth having a forwardly projecting nose, and a detachable and reversible point bifurcated to form a pair of jaws embracing said nose, said jaws being united by a pair of webs located one at each side of said nose, and means for independently interlocking the jaws with the body portion of the tooth.

23. A tooth having a forwardly projecting nose provided with a pair of laterally extending shoulders, and a detachable and reversible point bifurcated to form a pair of jaws embracing said nose, said jaws being united by a pair of webs terminating adjacent to the shoulders of said nose, and means for independently interlocking the jaws with the body portion of said tooth.

24. A tooth having a forwardly projecting nose provided with a pair of laterally extending shoulders, and a detachable and reversible point bifurcated to form a pair of jaws embracing said nose, said jaws being united by a pair of webs terminating adjacent to the shoulders of said nose, and means for independently interlocking the jaws with the body portion of said tooth, comprising projections or lugs carried by said jaws and nose.

25. A tooth having a forwardly projecting nose provided with a pair of laterally extending shoulders, and a detachable and reversible point bifurcated to form a pair of jaws embracing said nose, said jaws being united by a pair of webs terminating adjacent to the shoulders of said nose, and means for independently interlocking the jaws with said nose, comprising projections or lugs carried by said jaws and nose, a pair thereof being carried by said nose on its top and bottom faces.

26. A two-part tooth of the class specified, comprising a tooth portion having means for attachment to a shovel or bucket and provided with a nose portion projecting forwardly therefrom, and a detachable and reversible point, and bolts located in intersecting planes connecting said point with said nose.

27. A two-part tooth of the class specified, comprising a tooth portion having means for attachment to a shovel or bucket and provided with a tapered nose extended forwardly therefrom, and a detachable point bifurcated to form a pair of jaws united by a pair of webs forming a pocket for the reception of the nose, and fastening means extending through said webs and nose for securing the point to the nose.

28. A two-part tooth of the class specified, comprising a tooth portion having means for attachment to a shovel or bucket and provided with a tapered nose extended forwardly therefrom, and a detachable point bifurcated to form a pair of jaws united by a pair of webs forming a pocket for the reception of the nose, fastening means extending through said webs and nose for securing the point to the nose, and fastening means passing through the jaws and nose transversely to the fastening means extending through the webs and nose.

29. A two-part tooth of the class specified, comprising a tooth portion having means for attachment to a shovel or bucket and provided with a tapered nose extended forwardly therefrom, and a detachable point bifurcated to form a pair of jaws united by a pair of webs forming a pocket for the reception of the nose, fastening means extending through said webs and nose for securing the point to the nose and fastening means passing through the jaws and nose transversely to the fastening means extending through the webs and nose and comprising a pair of bolts located in intersecting planes.

30. A two-part shovel tooth, comprising a body portion having means for attachment to a shovel or bucket and provided with a forwardly extended tapered nose, and a detachable and reversible point comprising a wedge-shaped piece of metal having a pair of rearwardly extending jaws united by a pair of webs forming a pocket for the reception of a portion of the nose, said nose and point having substantially the same amount of metal located at each side of a line intersecting the apices of the nose and the point, whereby the point is reversible.

31. A two-part shovel tooth, comprising a body portion having means for attachment to a shovel or bucket and provided with a forwardly extended tapered nose, and a detachable and reversible point comprising a wedge-shaped piece of metal having a pair of rearwardly extending jaws united by a pair of webs forming a pocket for the reception of a portion of the nose, said nose and point having substantially the same amount of metal located at each side of a line intersecting the apices of the nose and the point, whereby the point is reversible, and means for independently interlocking the point with the body portion.

32. A two-part shovel tooth, comprising a body portion having means for attachment to a shovel or bucket and provided with a forwardly extended tapered nose, and a detachable and reversible point comprising a wedge-shaped piece of metal having a pair of rearwardly extending jaws united by a pair of webs forming a pocket for the reception of a portion of the nose, said nose and point having substantially the same amount of metal located at each side of a line intersecting the apices of the nose and the point, whereby the point is reversible, and means for independently interlocking the point with the body portion and comprising interlocking projections.

33. A two-part shovel tooth, comprising a body portion having means for attachment to a shovel or bucket and provided with a forwardly extended tapered nose, and a detachable and reversible point comprising a wedge-shaped piece of metal having a pair of rearwardly extending jaws united by a pair of webs forming a pocket for the reception of a portion of the nose, said nose and point having substantially the same amount of metal located at each side of a line intersecting the apices of the nose and the point, whereby the point is reversible, and means for independently interlocking the point with the body portion and comprising interlocking projections terminating in a pair of shoulders extending crosswise of the body portion.

34. A shovel tooth having a tapered nose and a pocketed detachable and reversibly constructed point into which said nose projects.

Signed at 9–15 Murray st., New York, N. Y.

JOHN M. SHERRERD.

Witnesses:

C. P. WEED,

F. E. BOYCE.