

March 8, 1927.

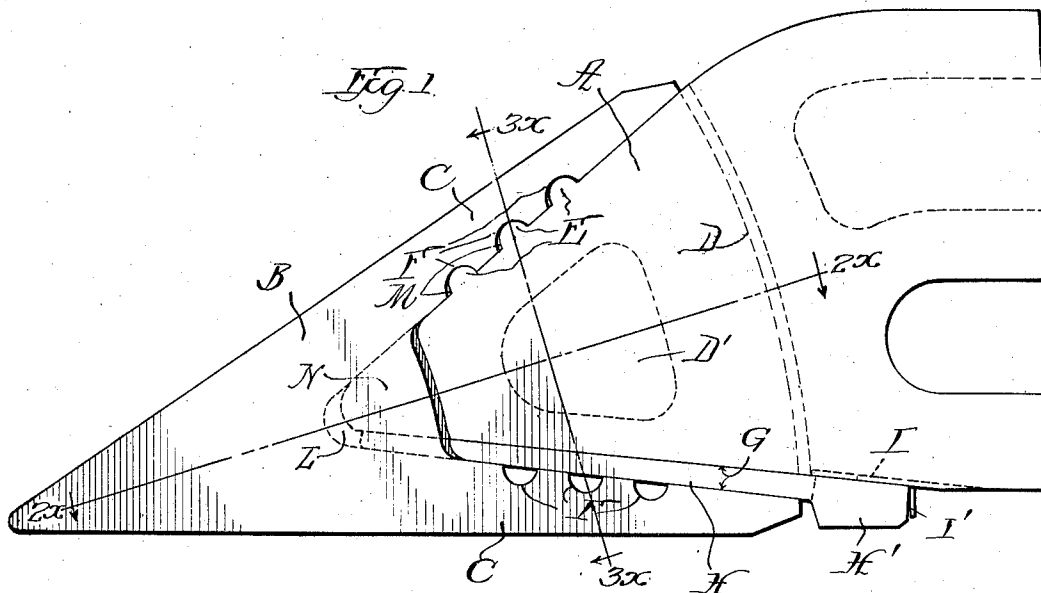
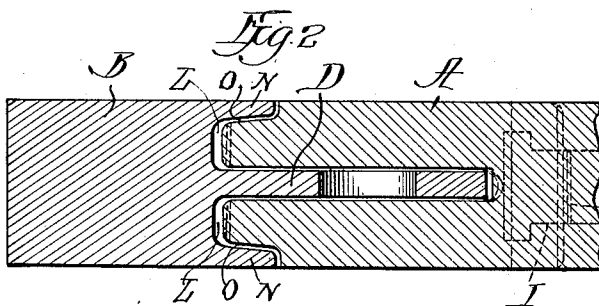
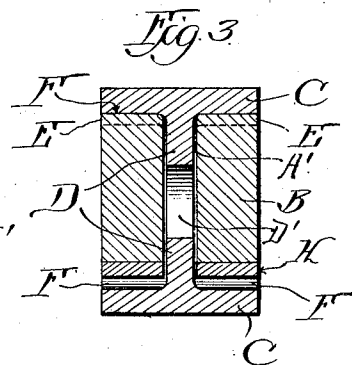
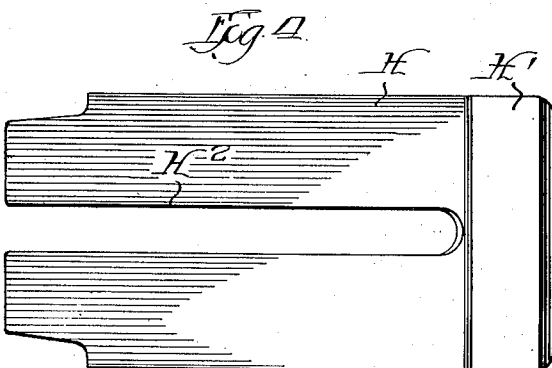
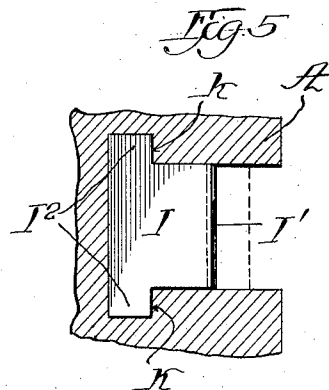
C. A. PSILANDER

1,620,132

REVERSIBLE POINT DIPPER TOOTH

Filed Jan. 25, 1926

2 Sheets-Sheet 1



Witness
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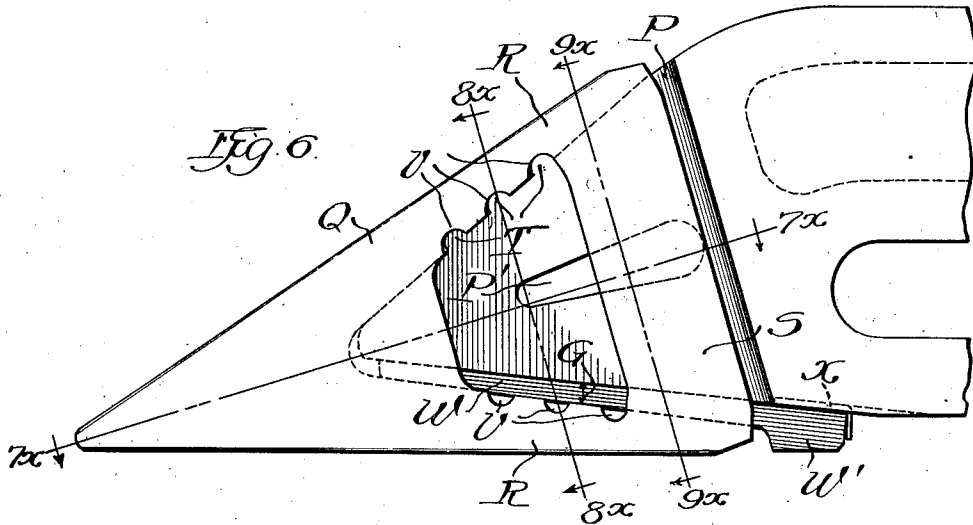
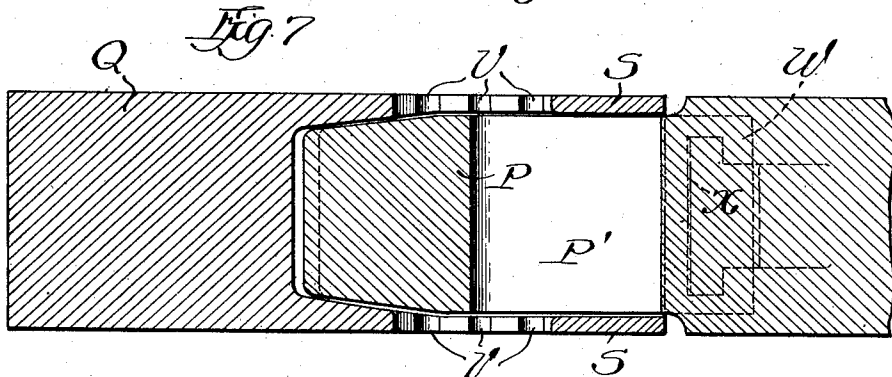
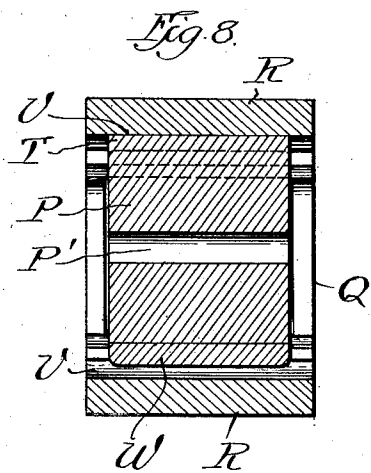
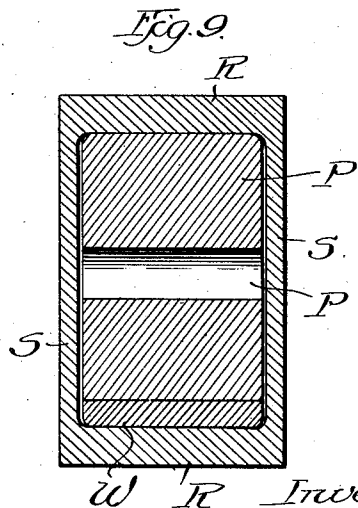
C. A. PSILANDER

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REVERSIBLE POINT DIPPER TOOTH

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2 Sheets-Sheet 2



Witness:

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UNITED STATES PATENT OFFICE.

CHARLES A. PSILANDER, OF YOUNGSTOWN, OHIO, ASSIGNOR TO AMERICAN MANGANESE STEEL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MAINE.

REVERSIBLE-POINT DIPPER TOOTH.

Application filed January 25, 1926. Serial No. 83,484.

This invention relates to teeth for dippers or other excavating implements, and particularly to teeth consisting of a base and a point replaceably mounted upon said base.

5 The object of the invention is to provide a construction through means of which a replaceable tooth can be conveniently and effectively mounted upon its base and conveniently removed therefrom, the point being preferably so designed that it can be reversed in position upon the base in order to prolong the period of its usefulness.

Heretofore it has been customary to fit the point of the tooth upon its base through means of spaced jaws receiving the wedge-shaped end of the base, suitable means, such, for instance as a web, uniting the jaws at an intermediate plane thereof and entering a slot or bifurcation in the wedge-shaped base, or webs, uniting the jaws and extending across the sides of the wedge-shaped end and thus tying the jaws together against spreading, serving to prevent lateral displacement of the point upon the base, while a bolt or key passing transversely through the base and some portion of the jaws was relied upon to resist displacement of the point in a longitudinal direction.

The present invention is adapted to be embodied in either of the aforesaid types of removable point, namely, those having the intermediate connecting web applied to a bifurcated end, or those having the outside webs uniting the jaws of the point, since the invention proceeds upon the principle of having the point interlocked against longitudinal displacement through means of interlocking ribs and grooves extending transversely to the axis of the tooth and constituting offsets in an inner face of one of the jaws of the point and the meeting face of the wedge-shaped end of the base; the space between the jaws being sufficiently larger than the transverse dimension of the wedge to permit the recesses to pass the ribs in assembly and then move into engagement with said ribs by relative movement transverse to the axis of assembly, or to receive a reverse transverse movement in unlocking the point from the base; the space being filled, to resist such movement, when the tooth is in use, by means of a key introduced between the base and the jaw which lies on the op-

posite side from the faces containing the ribs and grooves.

In the accompanying drawings—

Figures 1, 2, and 3 are, respectively, a side elevation, a longitudinal section on the line 2*—2* of Figure 1, and a transverse section on the line 3*—3* of Figure 1 showing an embodiment of the invention in which the web that ties together the jaws of the point is in an intermediate plane, and the wedge-shaped base is bifurcated to receive the same; Figures 2 and 3 being on a reduced scale.

Figures 4 and 5 are detail views, respectively, of the key and key lock, on a scale corresponding to Figure 1.

Figures 6, 7, 8 and 9 are, respectively, a side elevation, a longitudinal section on the line 7*—7* of Figure 6, a transverse section on the line 8*—8* of Figure 7, and a transverse section on the line 9*—9* of Figure 7, showing an embodiment in which the webs that tie together the jaws of the point are at the sides of the base member.

Referring to Figures 1, 2, and 3, A represents the wedge-shaped nose or forward end of a tooth base intended to be attached to the cutting lip of an excavating dipper or other similar implement, and B represents a separately formed wearing point designed for application to the base A, and to which end it is constructed with divergent jaws C parallel with the wedge faces of the base A. Jaws C are united in an intermediate plane through means of a vertical web D integral with said jaws, and to admit this web D, the base A is constructed with a longitudinal slot A'. Web D may, if desired, and for the sake of lightening the structure, be provided with a central recess D' which, however, is without operative function. As thus far described and except for details hereinafter set forth, the construction follows known practice.

In order to hold the point B upon the base A against displacement in the direction of its axis, one of said members, and preferably the base A, is provided with protruding offsets E, while the other member, in this instance the jaw C, is provided with corresponding recesses F which interlock in the longitudinal direction of the tooth; and in order that these parts may be brought into and out of interlock, provision is made for

moving the point B relatively to the base A in a direction transverse to said axis, for instance, by constructing the tapering space of the point between the jaws C with a transverse dimension greater, by the distance G (Figure 1) than that of the base A, said distance corresponding to the extent of penetration of the offsets E into the recesses F; and then, in order to fit the point upon the base, in a manner to afford rigid and safe support of the point under the excessively heavy forces encountered in service, the space G is filled with a key H slid longitudinally into said space from the rear and adapted to be driven in through the medium of its head H', and there secured by key lock I that is confined in a recess on the under side of the base A and is adapted to have its rear end I' bent up behind the head H'.

As shown in Figure 5, the key lock I is constructed with shoulders 12, which, engaging in the correspondingly formed recess K of the base A and held therein by the overlapping of the key head H', resists rearward displacement of the key lock when the key H is in position. Key H will be bifurcated to provide a slot, as suggested at H² in order to receive the central web D.

Preferably, the tapering recesses between the jaws C—C and on either side of the web D will be designed to avoid a seating of the point against the wedge shaped base, at the extreme forward end L, and tolerance or clearance at points M will be left between the offsets E and the recesses F in order that the point may wedge rearwardly under the forces which it encounters in use.

Preferably the point B is provided near the small end of its recess between the jaws C with outside webs N entering recesses O in the bifurcated base A in order to sustain the latter against spreading under lateral thrust against the point.

According to Figures 6, 7, 8 and 9, the wedge-shaped base P receives the replaceable point Q through the medium of jaws R which are united by webs S at the sides, and which lie outside of the base P; but said base and jaws are constructed with interlocking offsets T and recesses V, precisely as described in connection with Figure 1, and the transverse dimension of the tapered space provided by the jaws R is greater by the distance G, as in Figure 1, while a key W, having head W' and held in place by key lock X, in all respects similar to the key H and key-lock I of Figure 1, is employed for fitting the point to the base and keeping the offsets and recesses in interlocked relation.

As shown in Figure 8, the key W, employed for the form shown in Figures 6 to 9, is a solid key rather than bifurcated as in Figures 1 to 4, since there is no central web in the point to be accommodated; and, in

this form, the key W is held against lateral displacement by means of the webs S of the point. P', in Figures 6, 8 and 9, represents a coring or space in the base P serving to lighten the mass and otherwise without function.

As shown in both Figures 1 and 6, the recesses F (in Figure 1) and V (in Figure 6) are duplicated in both jaws in order to adapt the point to be reversed in position upon the base.

I claim:

1. A tooth for excavating implements, comprising a base member and a tooth member assembled by relative longitudinal movement, and means resisting longitudinal separation of said members, consisting of an offset formed on one member and a recess formed on the other member and entered by said offset; said members being constructed for relative movement transversely to the direction of assembly in order to enter the offset into the recess, and a key substantially filling the space left between the members by the transverse movement which brings the offset into the recess and resisting transverse movement in the opposite direction.

2. In a tooth for excavating implements, a tapered base member, a separately formed point having spaced jaws through which it embraces said base member and movable into assembly with said base member by relative longitudinal movement; one jaw of the point member and an opposing surface of the base member being provided one with an offset and the other with a recess receiving said offset; the space between the jaws of the point being sufficiently greater than the corresponding dimension of the base member to permit relative lateral movement sufficient to introduce the offset into the recess, and a key being provided between the other jaw and the base member; said key being introduced from the rear of the point member in approximately the direction of assembly and affording a substantial bearing between the two members.

3. A tooth for excavating implements, comprising a base member constructed with converging surfaces forming a tapered end, a point member constructed with diverging jaws adapted to receive said tapered end between them but providing a space of greater transverse dimensions than corresponding portions of the tapered end; a jaw of the point member and the opposing converging face of the tapered end being constructed one with a recess and the other with an offset interlocking therewith, and adapted to resist longitudinal displacement of the point member from the base member, and a filling piece introduced between the other jaw of the point member and the other converging face of the tapered end; said filling piece filling substantially the entire area of the

space left between the members by their transverse movement and causing the tapered end to snugly fit the point member.

4. In a tooth for excavating implements, 5 a base constructed with converging surfaces providing a tapered end, a point constructed with diverging jaws providing a space to receive said tapered end, but having transverse dimensions sufficiently greater than 10 corresponding dimensions of the tapered end to permit relative transverse movement between the point and the end, one jaw of the point and the opposing surface of the tapered end being constructed one with a 15 recess and the other with an offset entering said recess in the transverse relative movement between the point and the end, a key filling the space between the other jaw of the point and the face of the end which op- 20 poses it, to resist opposite transverse movement, and a key lock retaining said key in position.

5. In a tooth for excavating implements, 25 a base constructed with converging surfaces providing a tapered end, a point constructed with diverging jaws providing a space to receive said tapered end, but having transverse dimensions sufficiently greater than corresponding dimensions of the 30 tapered end to permit relative transverse movement between the point and the end, one jaw of the point and the opposing surface of the tapered end being constructed one with a recess and the other with an offset 35 entering said recess in the transverse relative movement between the point and the end, a key filling the space between the other jaw of the point and the face of the end which opposes it, to resist opposite 40 transverse movement, and a key lock retaining said key in position; said key lock comprising a flexible member recessed in the base, beneath the key, and having an end

intersecting the path in which the key moves in its withdrawal. 45

6. In a tooth for excavating machines, a base member, a point member provided with jaws providing a space through which it receives the base member, said base member and point being adapted for relative trans- 50 verse movement and constructed with means interengaging by said transverse movement to resist relative longitudinal displacement, a key interposed between a jaw and the base to resist relative transverse movement be- 55 tween the point and the base in the direction to disengage said interlocking means, and web connection between the jaws and the point intersecting the plane of the key and resisting displacement of the key lat- 60 erally.

7. In a tooth for excavating implements, a base member, a point member constructed with jaws providing a space to receive said base member, said space having transverse 65 dimensions which admit of relative transverse movement between the point member and the base member, and a jaw and said base member being constructed with interlocking means consisting of an offset 70 formed on one of them and a recess formed in the other which receives said offset in the relative transverse movement between the point member and base member, and a key member introduced from the rear into and 75 substantially filling the space which is left between the point and the jaw member by transverse interlocking movement and that portion of said interlocking means which is carried by the jaw being duplicated in the 80 opposite jaw, thereby rendering the point member reversible.

Signed at Youngstown, Ohio, this 8th day of December, 1925.

CHARLES A. PSILANDER.